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ILLUSTRATED CATALOGUE

OF THE

INTERNATIONAL EXHIBITION.
DESIGN FOR A WALL MOSAIC, BY C. W. COPP, R.A., BEING ONE OF A SERIES ILLUSTRATING SCIENCE, ART, AND INDUSTRY, AND FOR DECORATING THE PERMANENT BUILDINGS FOR INTERNATIONAL EXHIBITIONS.
THE INTERNATIONAL EXHIBITION of 1862.

THE ILLUSTRATED CATALOGUE

OF THE

INDUSTRIAL DEPARTMENT.

BRITISH DIVISION—VOL. II.

PRINTED FOR HER MAJESTY'S COMMISSIONERS.
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Class X.

Civil Engineering, Architectural, and Building Contrivances.

Sub-Class A.—Civil Engineering and Building Contrivances.

[2226] Alger's Patent Furnace Company (Limited), 4 Victoria Street, Westminster.—Model of an elliptical blast furnace, now erected at Stockton-on-Tees, and in blast.

The advantage which the elliptical blast furnace possesses over other furnaces, consists in its combining large capacity with that degree of narrowness which insures the horizontality of the lines of equal temperature from the tuyeres upwards. Thus the whole of the ore arrives in a uniform state of preparation for fusion at a melting zone, possessing perfect uniformity of temperature. The quality of the iron is improved, the descent of the charge more uniform, and there being two openings for tapping, one at each end of the ellipse, the furnace is more under control, and bridging, or scaffolding, is greatly diminished. There is a saving of one-third in the cost of construction, one-third in the fuel; less labour is required, and there is, besides, a saving in the blowing. Any ordinary blast furnace can be altered to the elliptical form at a small expense.

[2227] Allen, Edward Ellis, 5 Parliament Street, S.W.—Corrugated fibrous sheets for roofing, partitions, &c.


1. Model of a lift for raising or lowering invalids to the different floors of a house with ease and comfort. 2. The same adapted for raising or lowering goods at a factory or warehouse.


[2230] Architectural Pottery Company, The, Poole, Dorset.—Mosaic, tessellated, and white glazed tiles; patent glazed bricks; and orange-tree tile-tubs.

Of the numerous inventions which have so pre-eminentiy distinguished the present age, none has contributed in a greater degree to the comforts of civilized life than that of illumination by gas.

In these days of its almost universal adoption in our cities and towns, it is quite superfluous to dilate on its numerous advantages, which must be manifest to all, though their full force can perhaps be appreciated only by those who can remember the sombre appearance formerly presented by the streets of our large towns at night, as contrasted with their present brilliant aspect.

There is, however, a still more extended field for the operations of gas lighting, and much yet remains to be done in our villages, and in the mansions and private residences of the nobility and gentry. It is believed that this is due to certain misapprehensions and not unnatural prejudices which have hitherto existed on the subject, and that when these can be effectually removed, gas lighting will so long be, in a great measure, confined to cities and towns, but its advantage will be as widely appreciated and embraced as they undoubtedly deserve to be. Its non-introduction into many of our villages has been mainly owing to the belief that it would prove a commercial failure, whereas it has been most conclusively shown by experience, that any compact village of a thousand inhabitants may be lighted with gas, so as to pay a good percentage on the original capital embarked.

It is only within a comparatively recent period that the prejudices of private gentlemen, as to the expediency or practicability of introducing gas into their dwellings, have been partially removed. By some, danger was contemplated; by others, it was regarded as a nuisance, or as too complex in its management and manufacture; others, again, shrink from it on the score of economy, as involving fearful outlay in plant, and large cost of maintenance; while the possessor of the ornamental domain imagined in each plant an unsightly structure, emitting dense smoke and anxious vapour, giving to the mansion the appearance of a manufactuary, and altogether inconsistent with that picturesque and quiet which are so generally and justly appreciated in country life. These objections are, however, an entire fallacy, for it may be conclusively stated, that science has completely removed all arithmetical chances of danger, or possibility of nuisance; that on the score of economy, in regard to the cost of apparatus, and the method and expense of making the gas, much has been done to reduce and overcome objections, whilst, by judicious arrangements, and the use of a portable apparatus (such as the one exhibited, which, from its compactness, can be placed in any anti-building), nothing calculated to offend the eye, or the most fastidious taste, can be objected to. For works of greater magnitude, a less and secluded position (hidden it may be by trees and shrubbery), is usually chosen; and the requisite buildings may be so designed as to combine the ornamental with the useful.

The above engraving represents the patented apparatus as erected and fixed by the exhibitor for the palace of his Grace the Duke of Marlborough, at Blenheim.

Mr. Bower's inventions, designed for the purpose of removing the objections hitherto alluded to, have been extensively adopted in various parts of Great Britain and the Continent, the following being a list of 100 gas works adopted out of a great number of cities, towns, villages, factories, public buildings, and private establishments which have been lighted by him during the past few years. It may be mentioned as a proof of their general applicability, that the necessary apparatus for lighting the railway tunnel now in course of construction under Mont Cenis, has recently been supplied by him for the Italian Government.
CITIES, TOWNS, AND VILLAGES

Bath, ... The Netherlands.

Bridgend, ... Northumberland.

Brighton, ... Northumberland.

King's Lynn, ... Northumberland.

Kirkcaldy, ... Northumberland.

Northumberland, ... Northumberland.

Newcastle, ... Northumberland.

North Shields, ... Northumberland.

Portsmouth, ... Northumberland.

Preston, ... Lancashire.

Redhill ... Surrey.

Suffern, ... Surrey, remodeled.

Sunbury, ... Surrey.

Randy, ... Northumberland.

St. Ives, ... Huntingdonshire.

St. Neots, ... Hunts, remodeled.

Stevenson, ... Leicestershire.

Swanshead, ... Leicestershire.

Symonds, ... Leicestershire.

Whitchurch, ... Northumberland.

Whitwick, ... Leicestershire.

Wigston, ... Leicestershire.

Woodstock, ... Oxfordshire.

Wotton-under-Edge, ... Gloucestershire.

PRIVATE ESTABLISHMENTS

Bower, Geo. ... Northumberland.

Woodbridge, Sir Geo. ... Northumberland.

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BOWERS, GEORGE—continued.

which is costly, will produce an illuminating gas when decomposed, and its hydrogen liberated and combusted, but the cost of decomposition for the production of hydrogen—one only of the elements of which it is composed—is actually greater than that of highly illuminating gas produced from coal; and notwithstanding the many attempts to supersede it, it may be emphatically stated, that nothing whatever can in any commercial sense compete with coal, even giving it a range of price far beyond what it is at present.

Having established this fact, it became necessary to devise a cheap, simple, and economical apparatus, and the result has been the exhibitor's inventions, patented in 1852, 1859, and 1860; the last of which (the vertical retort), in connection with the combined purifying apparatus, has been pronounced by experts to all others, its every essential property requisite for the manufacture of gas on a small scale.

These features may be noted in the articles exhibited, viz., the vertical retort or gas-generator, with its apparatus, and the combined hydraulic main, condenser, and purifier, being equal in their combined capacity to a power representing about twenty lights. (The gasholder cannot be exhibited, for want of space.)

The gas generator consists of a conical retort, set vertically in an iron case, lined with fire-brick; both ends of each retort are open, the top being surmounted by a hopper, for the purpose of charging it with coal, to be afterwards closed by a lided plug, and the bottom provided with a hinged door, having a false bottom or diaphragm projecting about six inches into the retort. This door, when closed, is retained in its position by means of a lever, having a single catch and wedge; the fire-grate being arranged around the retort, so as to bring the fire itself into immediate contact with its outer surface. The mode of operation is, to heat the retort to a bright red, the false door being then lifted, and raised to its proper position by means of the lever and catch; the retort is then filled, by the use of the hopper, with the necessary charge of dry coal or carbon, and the top closed with the lided plug. After the lapse of three or four hours, the gas will be abstracted, the wedge and catch may be removed, and the door lowered by the lever to the pair of horizontal bars; and being removed, the

The combined purifying apparatus consists of the hydraulic main, condenser, and purifier, united in one vessel or case, the base of which forms the hydraulic main; and a receptacle for the products, separated from the gas by the condenser, which condenser is so formed that the gas passes around the purifying vessel, in a space, the inner surface of which is exposed to the water, forming the hole or cell for the purifying lid; and the outer surfaces are exposed to the atmosphere.

The purifier is provided with a cover, and four tiers of shelves, or perforated plates, which, when in operation, are covered with lime, and through which the gas percolates. The gas is brought from the retort by means of a pipe into the hydraulic main, thence passing up and down the space forming the condenser, into the purifier, and from thence it is conveyed into the gasholder, ready for use.

The principal advantages of these arrangements for private works on a small scale are:

1. They occupy but little space, are very simple, and require but little labour or skill to manage.
2. No bricks are required to set the retort, further than the few sent with the apparatus, and these are moulded of suitable shape.
3. The retort being set vertically, and surrounded by fire, in immediate contact with it, requires less fuel than if set horizontally, and the fire may be lighted and permitted to go out with impunity, the same as an ordinary shop or hall stove.
4. It is adapted for common coal as well as cannel, and may also be adapted for the generation of gas from wood, peat, or oil, in situations where coal is difficult to be obtained.
5. In this arrangement of retort, by merely removing the top and bottom covers, when red hot, the current of air that passes through, will remove all deposits of carbon from the interior.
6. The whole of the apparatus for removing impurities from the gas by condensation and purification, which by the ordinary process consists of three or four separate and considerable vessels, is effectively combined in the limits of one apparatus.
7. The retort, when worn out, can be replaced, without requiring a skilled workman to fix it.

[ 2234 ]

BALLE, T. S., Mount Pleasant, Newcastle, Staffordshire.—Mosaic and ornamental floor, wall tiles, and glazed bricks.

[ 2235 ]

BARNETT, S., 23 Forston Street, Hoxton.—Diving apparatus. (See page 5.)

[ 2236 ]

BARNETT, HENRY, 12 York Buildings, Adelphi.—Model of fireproof flooring.

[ 2237 ]

BEARD'S PATENT BRICK COMPANY, Aesley, and King's Cross, London.—Bricks and agricultural drain pipes.

[ 2238 ]

BELLMAN & IVY, 14 Buckingham Street, Fitzroy Square, W.—Various specimens of scagliola marble.

[ 2239 ]

BARNETT, SAMSON, 23 Forston Street, Hoxton.—Diving apparatus maker to the Royal Navy and the various maritime powers.

RECOVERING THE GUNS AND STORES FROM THE "ROYAL GEORGE."

A. Diver equipped in water-tight dress, copper helmet, with glass eyes, boots with leather soles, &c.
B. Air tube for supplying the diver.
C. Signal or life line.
D. Attempanst at signal line.
E. The 3-barrel atmospheric air engine.
F. Ladder line for use in thick water.
G. Rope ladder for ascending and descending.
H. Weight to steady the ladder.
I. Diver stepping a look under the water-line.

Simplicity in diving apparatus is most essential, as professional divers are seldom to be obtained when their services are of immediate importance, and they often require so much for salvage, as materially to lessen the value of what they recover.

The apparatus here shown can be immediately understood and used by any ordinary labouring man, after reading the book of directions supplied with it; thus rendering it valuable in remote parts, where the services of the practised diver cannot be obtained.

Since the introduction of the tight dress and jointed helmet, the diving apparatus has come into very general use, and by its aid a vast amount of property has been recovered. The use of the apparatus is now generally understood, and its value universally acknowledged.

Those who, in urgent cases, have descended with merely a rope to depend upon, will be surprised at the simplicity of an apparatus, by the use of which they are enabled to see and breathe with perfect freedom, and to remain under water until hunger compels them to ascend. The celebrated diver, Mr. Denoe, has frequently remained under water for five hours consecutively, with the apparatus made for him by the exhibitor. No vessel ought to go to sea without one of these machines, for if it only once recovers an anchor it more than repays its whole cost. Vessels and crews have often been saved by stopping a leak from the outside, under the water-line, as shown in the illustration. This apparatus is extensively used in pearl and sponge diving.

The patent improvements of S. Barnett are the result of thirty years' experience in the manufacture of diving apparatus. While retaining all that was valuable in former apparatus, they possess the following advantages:—

1. Should the diver wish to raise himself without signalling the attendant, he can do so by simply placing his finger on the valve, which afterwards rights itself.

2. Without assistance, he can open his own helmet, which is so constructed that the front eye can never be lost, or become tight.

3. The indicator always denotes the depth the diver is at.

4. The condensing box secures a more continuous stream of air.

5. The tight dress is free from the inconveniences presented by the old loose dress in sitting and lying down.

At an official trial at H.M. dockyard, Portsmouth, by order of the Lords of the Admiralty, in presence of their officers, by the Government diver, these improvements were fully tested on all their points.—See report of the Times, Nov. 20, 1861, under "Naval Intelligence."

The apparatus, complete, consisting of the three-barrel atmospheric engine, with duplicate working parts, the helmet and tubes, two sets of waterproof clothing, six sets of under-clothing, &c., &c., securely packed for exportation, in one case, delivered in London, price £100.

Orders can be sent through any merchant or agent, or direct to the manufacturer.
Fig. 1 represents a patented apparatus used in the northern districts of England for preventing accidents to life and injury to property in hoisting and lifting machinery. The machine is attached to the upper side of the ascending and descending chamber or cage. It is simple in construction and easily kept in order, and has already proved itself in many instances to be a secure and efficient apparatus for the purpose intended. It is evident that no matter what the cause of the cage or box travelling at too great a speed, the operation of the governor from an excessive rate of motion must, per force, operate upon the other portions of the machine, and thus prevent the same or wedge to be instantly projected against the uprights or guides of the shaft or well-hole, and so arrest the box. A small weighted lever built if the rope of suspension is severed, and thereby catches the box, or cage, within a few inches, and thus instantaneously. This is a double security in the event of the rope breaking, as the machine, in that case, does not depend upon the action of the governor alone. It has been proved that the greater the weight of the cage, or box and its contents, the more safely it is secured; for the heavier the load the greater will be the resistance of the same, as they will take a much firmer hold of the guides or uprights. Some alteration of the plan, as shown in Fig. 1, makes this invention equally applicable to the cages used in coal and other mines, where it is essential that the momentum of the cage should be gradually reduced in the event of over-speed. The invention combines the peculiar and important advantages, viz., the springs to insert the same are not brought into action except at the required time, thereby preserving their elasticity unimpaired. The cost of application to ordinary hoists ranges from £25 to £50, including royalty.

Fig. 2 is a plan for preventing accidents to railway platform lifts. These hoists are extremely dangerous in consequence of the liability of one or more of the suspending chains breaking. By this invention the platform is evenly and simultaneously arrested at its four corners in the event of one or all of the suspension chains being fractured, by too great a load, or from the alterations of temperature affecting unequally the nature of the metal employed in the manufacture of the chains. It is, moreover, advantageous in its application, as the platform can be readily adjusted or repaired whenever required without having to stop the platform. Cost of application, including royalty, £75 to £85.
BRUNEL, Isambard, Dols Street, Westminster.—Models of Saltash and Chepstow bridges, designed by the late Mr. Brunel.

Model of Bridge on the South Wales Railway over the Wye at Chepstow.

This bridge was designed by the late Isambard Kingdom Brunel, Esq., D.C.L., F.R.S., Engineer of the Railway. It is constructed for a double line, and consists of three side spans of 100 feet each, and one principal span over the river of 300 feet. Each roadway over the land openings is carried between a pair of wrought-iron girders. The intermediate piers each consist of three hollow cylinders of cast-iron, six feet in diameter, filled with concrete. The roadway over the main opening is carried between a pair of girders of similar construction, 300 feet long, which are supported at the extremities by the piers, and at four intermediate points—two at twelve feet, and two at sixty-two feet—from the centre, where they are attached to two sets of suspension chains, which form the terminal parts of a pair of rigid trusses. In these trusses, the tension delivered by the suspension chains is received by a straight tube of plate-iron, of circular section, nine feet in diameter; which is supported at its extremities on the superstructure of the piers, with its centre fifty feet above the line of roads, and at two intermediate points by vertical struts raised from the suspension chains at the points sixty-two feet from the centre of the span where the girders are attached to them. Rigidity is given to the structure by diagonal chains extending from the top of each pier, to the foot of the other. Each tube where it rests on the eastern pier is carried by a system of rollers, to allow of the expansion and contraction caused by changes of temperature. The weight of iron in each truss is 400 tons. The pair supporting the western end of these trusses consists, up to the level of the roadways, of six cast-iron cylinders similar to those which carry the land spans, allowing the concrete to be cast on the rocky gravel of the river bed to the rock at a depth of 20 feet below high water spring tides. Above the roadway the piers are also of cast-iron, forming two archways, one for each roadway, over which the tubes of the respective trusses rest. The eastern pier is of masonry resting on the rock a few feet below the level of the line of roads. The form of this pier above the roadway is similar to that of the cast-iron pier at the western end. The building commenced in April, 1853, and was completed in three years. On the completion of each tube, it was temporarily rendered rigid with chains, and being placed at right angles to the river, one end was supported on pontoons, and the other on a rolling truck. The pontoons were then drawn across the river by whips from the opposite shore. The tube was next lifted into its place on the top of the piers by chain purchases, and the rest of the truss was then completed. The operation of floating was rendered difficult by the great rise and fall of the tide, which is forty-two feet at spring tides. The contractors for the iron work were Messrs. Finch and Willey, of the Windsor Foundry, Liverpool. The total cost of the bridge was £77,000.

Model of the Royal Albert Bridge on the Cornwall Railway over the Tamar at Saltash.

This bridge was also designed by the late Mr. Brunel. It is for a single line, and consists of two spans of 455 feet each over the river, and seventeen land openings of spans varying from ninety to seventy feet. The land openings are formed on the Devonshire side—form curved viaducts leading to the main spans. Throughout the structure, at a level of one hundred feet above high water, the rails are laid on a ballasted platform of planks carried on cross girders between pairs of plate-iron girders. In the viaducts, the ends of the girders rest on piers of granite masonry, each pier consisting of two square pillars which spring from a common base, and are united at the top. In the main spans the girders are supported by trusses, in principle analogous to those at Chepstow; but here the tubes which resist the tension of the suspension chains are in section elliptical instead of circular, and in general profile, curved instead of straight, the rise of the curve being equal to the drop of that of the chains; thus the weight of the girders and roadway rests half on the tube, half on the chain, the girders being carried by vertical struts, placed at intervals of forty feet, diagonally braced so as to give rigidity, and by intermediate attachments in the suspension chains. The weight of iron in each truss is 3,074 tons. The substructure of the piers at the shore ends of the main spans is of granite masonry and brickwork. That of the centre pier consists of a base of a granite pillar thirty-five feet in diameter, resting on a rock foundation eighty-six feet below high water mark, and built to a height of ten feet above it, from which two four-hollow octagonal columns of cast-iron, built up in segments bolted together internally, and which carry the girders on an entablature above their capitals. The superstructure of each pier consists of an archway through which the train passes, and over which the ends of the tube are carried. The superstructure of the centre pier is of cast-iron, and of the three piers of masonry with a casing of cast-iron. The shore ends of the tubes are carried on rollers, to allow of expansion and contraction. The centres of the ends of the tubes are thirty-six feet above the roadway, and the extreme depth of the truss is sixty-two feet. The lower part of the centre pier, which was the chief difficulty in the construction of the work, was built in a cylinder or cylinder of plate-iron, thirty-seven feet in diameter and ninety feet in length, closed at the top, strongly stayed throughout, and having in its bottom divided into compartiments, which were kept clear of water partly by a supply of compressed air, partly by pumps. This cylinder was correctly placed on the rock through the mud which was then thirteen feet in depth, and which being loaded with shingle ballast, was kept off the water. Each truss was put together on the Devonshire shore of the river. Docks were formed, and pontoons prepared with fifteen framing timbers to carry the truss. Warrens were laid from these pontoons to various points on shore, and to vessels moored in the stream. The operation of floating in each case was performed without delay or accident, and the ends of the tube placed on the piers which had been built up to receive them. The truss was then lifted by hydraulic presses, the pier being built up underneath. The total cost of the whole work was £225,000. It was commenced in the beginning of 1853, and was opened on May 3rd, 1859, by H. R. H. the late Prince Consort, Warden of the Stannaries, by whose gracious permission it was called the Royal Albert Bridge.

These models were made for the late Mr. Brunel by Mr. Holter, of Hamersmith, and are both to the scale of ten feet to one inch.
BOWER, GEORGE, St. Neots, Huntingdonshire.—Patented vertical gas apparatus and combined purifier, for private use, and for exportation. (See pages 2, 3, 4.)

BROOK, EDWARD, Field House Fire Clay Works, Huddersfield.—Glazed sewer tubes, fire-bricks, furnaces, retorts, glass pots, &c.

BROWN, JOHN, Chapel Field, Norfolk.—Models of patent for rendering windows, &c., wind and water-tight.

Windows and doors are by this patent rendered impervious to dust, dirt, and other annoyances, without interfering with perfect ventilation. These results are essential to health and comfort.

By this invention, when fitted to shop windows and show-cases, jewellery, silver and plated goods; cutlery, books, boxes, and other articles liable to injury from the effects of gas, dust, or damp, are completely protected.

The agent of John Brown is T. Burton, 26, Wellington Street, Strand, W.C.

BROW, R., Surbiton, Surrey.—Italian and other roofing tiles; ornamental bricks, red, green, black, and white; ornamental ridge, &c.

BROWNWESTFIELD, MARCUS, Manchester.—Patent hoist governor, and patent safety railway platform lift. (See page 6.)

BRUNEL, ISAMBARD, Duke Street, Westminster.—Models of Saltash and Chepstow bridges, designed by the late Mr. Brunel. (See page 7.)

BUNNETT & CO., Deptford, Kent.—Patent revolving iron shutters, and ornamental brass sashes, &c.

BURGES, THOS. II., 4 Upper Marsh, Lambeth.—A stand, which will admit of boots being made without sitting.

BURT & Potts, 28 & 65 York Street, Westminster.—Patent water-tight wrought iron window and frame.

CARTWRIGHT, J. M., & Co., Swallcliffe, Burton-on-Trent.—Fire-bricks and arches for locomotive engines.

CENTRAL COTTAGE IMPROVEMENT SOCIETY, Cottage Architectural Museum, 37 Arundel Street, Strand.—Models and plans of labourers’ cottages. (See page 8.)

CHALMERS, JAMES, London (late of Montreal, Canada).—Drawings of proposed channel railway, connecting England and France.


CHRISTIE, R., & JONES, 28 Lord Street, Birkenhead.—Castellated circular turret, random rubbed; white quartz.
Central Cottage Improvement Society, Cottage Architectural Museum, 37 Arundel Street, Strand.—Models and plans of labourers' cottages.

President: H. R. H. Duke of Marlborough.

Vice-President: H. R. H. Prince of Wales.

"As the home, so the people."

The objects of this Society are, to furnish plans and specifications for suburban dwellings for artisans; also, for agricultural labourers—for village lodging-houses—and suggestions for the general improvement of existing dwellings, cottages, gardens, &c.; and to establish Auxiliary Societies, some of which are now in course of formation.

The Society have published four designs for cottages—No. i. has a kitchen, and a second room, to be used either as a sitting or extra bed-room, with two good bed-rooms on second floor. No. II. is similar to No. I., but slightly larger, and one bed-room up-stairs has a movable partition for the better separation of children, if desired. No. III. is similar to No. I., with the addition of a convenient scullery or wash-house. No. IV. is more commodious, to meet the requirements of the artisan class.

No. I. has been built for £163; No. II., £168; No. III., £175; and No. IV., at £220 per pair.

The Museum is open every week-day from 12 till 4, free.

The Museum is particularly appropriated to the collection of models of cottages, plans and specifications thereof, books and papers of every description bearing on the subject of labourers' dwellings, with a view to place the matter before the public in a compendious and practical form.

Plans with specifications, &c. each, to be obtained of the Secretary.

Annual subscription, £1; life subscription, £10.

Donations also received.

The Exhibition Model Cottages, nearly opposite the Eastern Dome, on the Grounds of the South Kensington Museum.—By the kind permission of the Lords of the Committee of Council on Education, the Council of the Central Cottage Improvement Society have been enabled to erect a pair of cottages on the architect's plan, No. IV., for the inspection of visitors to the International Exhibition, and to which their attention is earnestly invited.

The special aim of the Society is practically to demonstrate to the satisfaction of the public the possibility of erecting dwellings, so much needed by the working classes, for a sum returning a fair rate of interest, in the neighbourhood of large towns, and remunerative (in agricultural districts) in many cases, particularly by improving the condition of the labourer.

Economy of space and material, compactness, solidity, convenience, and salubrity have been carefully studied; and the Council believes that no plan for cottages in pairs can be devised more appropriate to these conditions, or more suited to English tastes and habits. The cost of erection, by contract, is £215, and this closely corresponds with the estimate of the Society, and the cost of those already built in various localities.

In conclusion, the Council sincerely hope that this plan will be approved by the public, and materially assist in procuring better dwellings for the labouring classes.

Admission free to season ticket-holders, and by orders, which can be obtained in the Exhibition, Class 10, No. 31.

Description of Plan.—Ground Floor.—A sitting-room, bed-room, or work-room, as may be required, 12 ft. by 10 ft., containing a press bed and two cupboards; kitchen, 12 ft. by 9 ft., fitted up with oven and boiler range; a pantry, and store-closet under the stairs; wash-house, 8 ft. 6 in. by 7 ft. 6 in., has a fire-place, free-day oven, copper, sink, and a dresser.

Up-stairs are two convenient bed-rooms, 12 ft. by 10 ft. and 12 ft. by 9 ft., with fire-places, stoves, and store-closets. All the rooms are well ventilated.
Clark & Co., Gate Street, Lincoln's Inn Fields.—Patentees and manufacturers of revolving shutters in steel, iron, and wood, for shop fronts, private houses, fireplaces, &c.

Clark and Co.'s patent self-coiling revolving safety shutters, in steel, iron, and wood, are adapted to close, with security and ease, every description of opening, as exhibited in shop front, Class X. The steel shutter is both thief and fire-proof, and as cheap as the ordinary wood shutters.
This model represents a plan for docking vessels, patented by Mr. Edwin Clark, and carried out on a large scale at the works of the Thames Graving Dock Company, where it may be seen in daily use.

The system is entirely new, and differs from an ordinary graving dock in that, instead of the vessel being floated into a pit, and the water pumped out or allowed to run out with the tide, the vessel is raised bodily out of the water, cradled upon a shallow pontoon, on which it is afterwards floated away to any place convenient for its repair. The apparatus for these enormous lifts consists of a series of hydraulic presses contained in and supported by octagonal columns sunk into the ground in two parallel rows, the space between being sufficient for the vessel to pass through.

From the cross-head of each ram the ends of a pair of girders are suspended; these girders pass across the dock, and form a platform, on which the vessel and pontoons are lifted.

The pumping power is a small steam engine placed near the presses, the communication between it and the press being through wrought-iron pipes. The engine does not pump direct into the hydraulic cylinders, but by an intermediate valve-chest, by which the raising power is regulated, and the uniform rise of the whole ship and pontoon secured.

The pontoons are large, shallow vessels, constructed of wrought-iron framing and shell, and are divided into several water-tight compartments, in each of which is a valve; they are made of various sizes, corresponding with the weight of the vessels they are intended to carry. The seven pontoons now in use vary from 150 to 550 feet in length, draw from 8 feet to 61 feet when loaded, and carry vessels of from 500 to 5,000 tons.

The hydraulic press will safely raise a dead weight of 60,000 tons, but can be adapted to lift any weight.

The peculiarities of this system are the raising the vessel to the level of the workshops and repairing-yards, and keeping it high and dry there in full light, exposed to the drying influences of the air; while, from the vessel being carried above the pontoons, its bottom is more accessible.

The blocking or lowering the vessel, under this system, is most efficiently and rapidly performed, the operation being simply the drawing in of blocks fitted to the sides of the vessel, which blocks are carried on the wrought-iron transverse girders. The pontoons, being highly elastic longitudinally, accommodate its shape to the load of the ship, whatever be its form; thus insuring a perfect bearing throughout.

Each pontoon in itself forms a complete graving dock, and one hydraulic lift is sufficient for a great number of pontoons. The cost of a graving dock complete is, therefore, little more than the cost of the pontoon, which, for all ordinary vessels, varies from £300 to £1,000; and the rapidity of an operation is so great, that at least six vessels can be docked and set about in an ordinary working day.

The Thames Graving Dock Company, during the three years of their practical working, have most successfully docked upwards of 400 vessels, weighing 220,000 tons.
CLASS X.—Civil Engineering, Architectural, and Building Contrivances.

Clarke, George, Manufacturing South Coventry Mines, Burton Crescent, London.—Clarke’s Improved Fire Escapes, in use by the Royal Society for the Preservation of Life from Fire.

The great utility and importance of this machine consists in its extreme cheapness, combined with simplicity of construction, any person being able to work it after a few hours’ practice. Its use has now become so apparent that no city, town, or village, and even large manufacturing premises, should be without one.

The main ladder of the escape reaches a height of 36 feet, and can instantly be applied to a second-floor window. Under the escape is a canvas trough, protected from flames by a copper gauze.

The upper ladder folds over, and can easily be raised by levers to the position represented; and by adding an additional ladder, which is the work of a few minutes, will reach the height of 70 feet.

In cases where gardens are in the front of the houses, the gates are not of sufficient width to admit the escape, the upper ladders being by means of shifting levers, and can be used separately.

Clarke’s Improved Fire Escapes.

Clarke, John Vizeley, 251 High Holborn, W.C.—Gas regulators and apparatus.

Clarke, Francis North, Mître Works, Wolverhampton, Staffordshire.—Metal roofing and galvanized fittings for roofs and buildings.

Cliff, Joseph & Son, Wortley, near Leeds.—Clay retorts, fire-bricks, sanitary pipes, chimney-tops, terra-cotta ornaments, &c. (See page 14.)

Cockett, E., & Sons, Frome Selewood.—Valves for regulating the flow of gas in gas manufactories.

Coly, William & Son, Commercial Road, S., Owners.—J. H. Adams, 1 Grove Hall Terrace, Bow, E., Engineer.—A float, with machinery for discharging screw colliers and other vessels with great rapidity, in the steam.

This vessel is fitted with Sir William Armstrong’s hydraulic crane, and is provided with other machinery and apparatus for screening the coals when required, and depositing them in barges without breaking. Two steam colliers of the largest dimensions may be discharged at once. By a suitable arrangement of the hatchways and holds of the steamer, three cranes may be worked on each steamer at the same time, and each crane can discharge 60 tons of coals per hour. The owners are prepared to undertake to discharge steamers not exceeding 1,000 tone capacity, in ten hours, night or day. They have similar machinery on fixed buildings in operation at the Victors Docks.

Builders and owners of steamers can obtain from Mr. Adams the requisite particulars for the adaptation of their vessels.
CLASS X.—South-West Court.

CORY, WILLIAM, & SON—continued.

A PLEA, WITH REMARKS ON DISMISSING SCIENTIFIC COALS AND OTHER THINGS WITH GREAT BARTHOLOUM, IN THE PRELAM.
Cliff, Joseph, & Son, Wortley, near Leeds.—Clay retorts, fire-bricks, sanitary pipes, chimney tops, terra-cotta ornaments, &c.

Cliff's patent enamelled clay retort is especially adapted for the use of gas works, by its smooth interior, and freedom from fire-cracks, by which the adhesion of carbon is prevented. Its excellence is attested by the experience of the leading gas engineers of the day.

Cliff's Wortley fire-bricks are the most durable bricks manufactured for forge purposes, and the linings of blast-furnaces and glass-works.

The following designs in terra-cotta chimney tops have proved themselves the most efficient wind guards introduced.

Joseph Cliff and Son are the largest manufacturers of the patent salt-glazed socketed drain pipes in the kingdom. These pipes are made, in circular, up to 64 inches diameter, and in egg-shaped, to 30 x 24, for sewer and water culverts. They can be shipped in any quantity, and in all sizes, from 3-inch to 36-inch diameter, at the ports of London, Liverpool, or Hull.

London depot, No. 4 Wharf, inside Great Northern Goods Station, King's Cross. M. B. Newton, agent, who will have pleasure in attending to any correspondence or appointment during visitors' stay in London.
Class X.—South-West Court.

[2263 ]
COSSET, FRED. C., 145 York Road, Lambeth.—Models of railway carriage signal, and steam engine; improved chimney-pot and ventilator, for curing smoky chimneys.

[2265 ]
COWEN, Jos., & Co., Haydon Burn, Newcastle-on-Tyne.—Patent fire-day gas retorts, fire-bricks, tiles, &c.

Joseph Cowen and Co. are manufacturers of patent fire-day gas retorts, fire-bricks, tiles, barrows, and all descriptions of fire-day goods used in gas-works, blast furnaces, potteries, chemical works, &c. The Prize Medal obtained by them was the only one awarded at the Great Exhibition for fire-day goods. They have at all times a large stock of the ordinary size of fire-bricks and tiles, and can ship them in any quantity at a day's notice. Patent fire-day retorts are made by this firm of any size or shape, and to fit existing mouthpieces. These retorts are well adapted for small gas-works, as they can be used without an exhauster. Drawings of retort settings may be obtained by application.

Mead and Bell, 13, Cliff-street, New York, are Jos. Cowen and Co.'s agents for America.

[2266 ]
CRESSWELL, JOHN, 100 Islington, Birmingham.—Patent self-folding shutters.

Cresswell's Patent Shutters are (at present) unequalled for strength, neatness, and convenience. They require no latches, bars, bolts, or other fastenings, but when closed are perfectly secure, and cannot by any accident be left unfastened. It will be seen upon the first inspection that, from the simplicity of the construction, there being no springs, gearing, pulley, or complicated apparatus, the chances of getting out of order are the most remote; certainly less than those of any other shutters now in use. When constructed in iron, they are perfectly fire-proof.

For bay windows they are particularly suitable; the hitherto almost insurmountable difficulties attending the closing of a bay window with shutters are entirely removed. The patentee observes, that "his shutters are the only ones without objectionable features for the bay window."

The adoption of these shutters for bed-room windows, particularly in the country, where security is required, is suggested, as they may be fixed at small cost, and without interfering with the existing window dressings. They are especially adapted for show-glasses, book, museum, or other cases, where safety and protection from dust are essential.

J. Cresswell solicits inspection of his models and of work already executed, and will be happy to give any further information that may be required, and furnish estimates, &c. Any order he may receive will have his best personal attention. He is prepared to furnish the trade with the shutters ready for fixing, and to grant licences to parties desiring to manufacture their own.

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The following are exhibited:

1. Model of double straining frame for floor-cloth.
2. Section of built floor-cloth roller.
3. Hatchet handle for ditto.
4. Stand for ditto.
5. Various trucks for moving floor-cloths, &c.
6. Hanging iron and hook for floor-cloth battens, &c.

Wigham's portable gas apparatus.

By means of this apparatus, noblemen's or gentlemen's mansions, mills, manufactories, farm buildings, railway stations, &c., even in the most remote districts, can be supplied with brilliant light, at an expense much less than from oil or candles. Any servant can manage the apparatus with ease, and it can be removed from one residence to another, if found requisite. All information as to prices, &c., can be procured by application to the sole agents for the patentee, J. Edmundson & Co., Gas Engineers, 34, 35, 36, Capel Street, Dublin.
EDWARDS, GEORGE HENRY, 90 Aldersgate Street, E.C.—Patent fastening for sash-lines, instantaneously connected and disconnected.

ELKIN, W. H., 27 Belvedere Road, London, S.—An improved window, which can be cleaned or repaired without danger.

This improvement, which admits of the sashes being turned inside out with the greatest ease and safety, also provides for replacing broken sash-lines, without taking down the heads, effecting a saving thereby of more than double its cost. Fittings, according to size and character of window, at from 2s. to 6s. per set, may be obtained from the patentee.

Old windows can be altered to the above principle at a small cost.

ERRINGTON, J. E., V.P. Institution C.E., 13 Duke Street, Westminster.—Viaduct across the valley of the Lune.


FAYE & Co., 31 George Street, Hanover Square.—Architectural building blocks, facing and fire-bricks, &c.

FISHER BROTHERS & Co., the Hayes Fire Clay Works, Stourbridge.—Fire-bricks, gas retorts, and glass-house pots.

FISHER BROTHERS & Co. are manufacturers of fire-bricks, gas retorts, and glass-house pots; and proprietors of best glass-house pot and crucible clay.


Improved Kiln Tiles. The excellence of these tiles will be certified by maltsters throughout England, who prefer them to a metal drying floor. Their advantages are—1st. No stoppage of the holes, as in ordinary tiles. 2nd. The greatest possible draught. 3rd. They are made of a very fine and durable earth.

Price 6d. and 10d. each.

Drying tiles for wool, cotton, &c., 12-inch . . . . . . . . . . . 6d. & 9d. each.

Perforated tiles for paper-makers, 12-inch . . . . . . . . . . . 9d. & 10d. "

Best White Suffolk Bricks.

Red and White Pantiles, new waterproof pattern requiring no mortar. The white are invaluable, where a cool roof in summer is important.

FRIESEN & Co.—Specimens of cement.
II. Mr. George Glover's Direct Transmitters.—The graduation of the gas-holders was a matter of difficulty, and involved some scientific consideration. No method was known by which the cubic volume itself or unit of measure could be used directly in the graduation of gas-holders, or their division into multiples and decimal parts of a cubic foot. The indirect method of applying it by what was termed a "transferer," failed to give satisfactory results, and the simple and direct method by which the volume of air defined by the contents of the bottle was transferred into the gas-holder, being graduated, was found perfectly adapted to the purpose: this direct transferer, invented by Mr. George Glover, is now generally used in the graduation of gas-holders for testing meters.

III. THERMOMETERS.—Thermometers are used for a peculiar construction, with esteemed bulbs, by which sufficient density of inclination is insured. One is let into a hollow column in connection with the latter of the standard gas-holder; and another is similarly situated in connection with the cylinder of the instrument being tested. On one side of the thermometer is a scale for temperatures; on the other there is a scale for corrections, arising from dilatation or contraction, occasioned by varieties of temperature and moisture in the gas.

IV. THE PERISCOPE GAGES.—These have no bindings; they are made of one piece of glass tube, of large bore, and they have an unraveled scale, which is easily read.

V. TESTING TABLE.—Messrs. George Glover and Co.'s testing table is truly levelled, and so constructed as to be easily maintained in a horizontal position.

VI. THE PYROMETER.—Next in importance to correct standard measures for gas is the correct measurement of its illuminating power. This is determined by the Periscopimeter, in connection with which minute quantities of the gas under examination can be measured by Messrs. George Glover and Co.'s patent dry gas meter, the dial of which is modified for this purpose, and the fourth part of a cubic foot is measured each second.

VII. THE PYROMETER.—Illustrating the extreme accuracy in the measurement of gas by means of their patent dry gas meter, by a suitable modification of the index, it is used as a pyrometer for measuring the capacity of the chest. This enables the experimental physiological to determine with precision the quantity of carbon discharged from the lungs at each expiration, and the respiratory variations which occur in the same individual at different periods of the day and different seasons of the year. It is valuable to the physician and surgeon in the diagnosis of diseases, in testing recruits for the army, and applies for life insurance.

CONTENTS OF DIAGRAM.

I. MESSRS. GEORGE GLOVER & CO.'S STEEL STANDING GAS-HOLDERS; being a copy of the first gas-holder belonging to the set of national standards constructed from Mr. George Glover's designs, and under his superintendence, with proper balance, indices, and apparatus, as the "Sales of the Act." requires.

Under this Act it was found impossible to adopt, as a standard measure, any of the gas-holders hitherto in use. The material of which they are made is very liable to corrosion when in contact with gas and water. To retard corrosion, paint is used. The paint in the inner surface of the bell diminishes its measuring capacity, and its removal from time to time aggravates the evil. The coating of paint softens, swells, frequently rise in blisters, falls off in flakes, or crumbles away. To its recent from the exterior the painted surface of the bell brings with it a quantity of water, which adheres to it in the form of a film, and numerous drops which adheres specially to the inner surface of the bell cover. Those occasion further discussion of capacity, while the evaporation of the water on the outer surface of the bell lowers the temperature, diminishes the volume of gas combined, and causes error in the testing of meters.

Their measuring part is not a true cylindrical vessel. They not only differ from each other to the extent of 3 or 4 per cent. in their measuring capacity, but the various divisions into feet, and the subdivisions of the feet, differ in the same gas-holder.

Their scales are not engraved upon the bell, and they can easily be tampered with. These circumstances precluded their adoption as standard measures for gas.

The essential properties of the national standards deposited at the Exchequer, and the derived standards for London, Edinburgh, and Dublin, which have also been constructed from Mr. George Glover's designs, are these:

1. The metal of which they are made is an anti-corrosive alloy, which resists the chemical action of the constituents of gas and water.

2. The surface of the bell readily parts with water.

3. The bell, or the measuring part of the instrument, is a truly cylindrical vessel, and sufficiently rigid to resist parts of force, and the application of any ordinary forces.

4. The commencement of the bell engraved upon it, to indicate its capacity in cubic feet, and the subdivisions of the cubic feet into minute fractional parts.

5. It is correctly balanced, and a part of the corner-piece suspended by a cord, passing over a spiral, preserve its position in varying depths of its immersion in the water in the external.

6. The sides of the bell are maintained vertical in its absence, and its position.

7. The tapes are lined with the anti-corrosive alloy, and the density of their rubbing-surfaces is so varied, that the friction is reduced to a minimum, and their soundness and durability is thus secured.

A system of parts of the gas-holder is so perfectly adapted to each other, that, when put together as a whole, the instrument works easily, readily, and correctly.

The daily use of the national standards for more than twelve months has shown them to be adapted to the purpose for which they were made, and has fully justified the opinion expressed by the Astronomer Royal, in his Report to the Lords Commissioners of Her Majesty's Treasury, that they were capable "of being applied to the verification of gas-measures of every class and of gas-measures of every class, in entirely fitted to maintain the character of our national standards, and "as accurate as it is possible for human skill to make them."
Class X.—Civil Engineering, Architectural, and Building Contrivances.

Gibbs & Canning, Tamworth.—Glazed stoneware sewerage pipes, &c.; fire-bricks, and terra cotta.

Gibson & Turner, Ball's Bridge, Dublin.—Models of bridges.


This viaduct is the lightest and cheapest combination of cast and wrought iron that has ever been adopted. It is much cheaper than stone, and for rapidity of construction is unequalled. The whole structure, 1,000 feet long, and 200 feet high, was erected in four months.

Glover, George, & Co., Danelagh Works, Pimlico.—Standard gasometers, &c. (See page 18.)

Gray, James, M.D., Glasgow.—Coating to preserve iron, wood, and stone.

Greenwood, John, 10 Arthur Street West, London Bridge.—Patent india-rubber stops to make air-tight joints.

Hartley, T. H.,Essex Street, Westminster.—Sculptured specimens of marble-work.

Hawkshaw, John, and William Henry Barlow, 33 Great George Street, Westminster.—Model of suspension bridge proposed to be erected at Clifton.

Heinke Brothers, 79 Great Portland Street, London.—Submarine helmet, dress, and diving apparatus.

Obtained First Class Medals at the Great Exhibition, 1851, and at the Paris Exhibition, 1855.

Heinke Brothers have effected improvements in this apparatus, by which the diver is enabled to remain any length of time under water. It is now an invaluable aid in the recovery of property from wrecks; in submarine engineering, and in pearl and sponge diving. This firm are submarine engineers to the English, French, Russian, Spanish, Portuguese, Scandinavian, Canadian, Brazilian, and Indian Governments.

Extract from the Report of the International Jury on the Paris Exhibition of 1855, relative to Mr. E. Heinke's Diving Apparatus:—

"The principal improvement which he has introduced consists in enabling the diver to remain under water when an accident occurs, such as the breaking of a glass, which would otherwise have allowed the water to penetrate into the dress."—Vol. ii., page 91.
Hemmings, Samuel C., & Co., 21 Moorgate Street.—Samples of iron buildings and iron roofing.
CLASS X.—Civil Engineering, Architectural, and Building Contrivances.

[2299]
Holland, W., St. John’s, Warwick.—Apparatus for raising and lowering window sashes.

[2300]

A cast-iron circular staircase, which can be made of any radius without strings or steps.

Staircase balusters, with adjusting caps, to suit various berths. Wrought iron whorls and coves.

[2301]
Howie, John, Hawford Fire Clay Works, N.B.—Fire-bricks, troughs and mangers, chimney cans, vases, fountain, &c.

[2302]
Ingham & Sons, William, Wortley, near Leeds.—Fire-bricks, gas retorts, sanitary tubes, and terra cotta.

[2303]
Jackson, B. W., Greatham Hall, Durham.—Model of West Hartlepool harbour and docks.

[2304]
Jameson, Robert, Glasgow.—Permeating timber, prevents dry rot; coating stone, wood, iron, &c., prevents decay.

[2305]
Jones, William, Springfield Tile ries, Newcastle, Staffordshire.—Terra metallic ridging, roofing, and paving tiles, red, blue, and buff.

(22)
KENNEDY, LT.-COLONEL J. P., Tarrington Square.—Financial illustrations of railways and public works.

KNOTT, BRYAN, & STURGIE, 155 Fenchurch Street, and Belvedere Road, Lambeth, and Northfleet, Kent.—Portland cement.

A block of solid Portland cement weighing five tons, and samples of their manufacture are shown, also two large blocks composed of nine parts of shingles to one part of cement for breakwaters, shown in the open court of the eastern range, weighing respectively eight, and three-and-a-half tons. This cement, from its very superior hydraulic properties and relative cheapness to stone, is an article of great commercial importance. It is principally employed for blocks for breakwaters, harbour works, concrete work, stonework, planking, bridges, cisterns, aqueducts, sewers, tanks, reservoirs, flooring, and paving, &c, &c.

LADLEW & SON, Edinburgh and Glasgow—Gas meters and fittings.

LAWRENCE BROTHERS, City Iron Works, Phipps-street, London, N.


[2310] Improvement Warehouse Lifts, so constructed that when used for lowering goods, the brake is required, the cage returning to the upper floors for a fresh load by means of a balance-weight. This lift can be worked by one man from any floor.

Warehouse Cranes, with expanding 3b, for lifting cars in streets where the pavements are wide.

Diving Bell, with signal apparatus and safety-valve to prevent accidents from the breaking of the air box.

This model shows the apparatus as used by Messrs. H. Lee & Son, at the Dover Pier.

Travelling Cranes, the traversing motions being worked from the cabin. The bell-shaped wheels ordinarily used are dispensed with.

Lawrence's Patent Sluice, in which the pressure of the water is made to raise the sluice. The mode of construction is shown in the engraving.

a. The paddle, the top fitting the chamber, x.

b. Small sluices or valves, connected together by a rod, so that when c is opened, d is closed.

c. Rod from paddle, a, to machinery, k.

d. Rod from valve c and e to machinery, k.

II. Passage to high level. On turning the handle of machinery, k, the valve, e, is opened, and d is closed, the water in the chamber, x, immediately runs off to the low level, and the high level water, passing through channel k, presses against the piston plate attached to the paddle, a, and forces the sluice up, the rising being regulated by the brake. To lower the sluice, the machinery is reversed, and the rod, e, lowered, closing c, and opening d. The chamber, x, immediately fills with the high level water, and the sluice is forced down, closing the cylinder.

Six sluices of large size, constructed as the model, are now at work at the Lavender Entrance of the Commercial Docks, Liverpool, and at the same docks a similar plan has been adopted for opening the sluices on the gates of the Old Entrance Lock.

Improved Hydrant, or Fire-Cock, worked by a screw. All the parts are so arranged that they are not liable to get out of order or leak, even under very high pressure. This hydrant is used by H.M. War Department at many of their establishments.
CLASS X.—Civil Engineering, Architectural, and Building Contrivances.

MACFARLANE, WALTER, & Co., Saracen Foundry, Glasgow.—Architectural cast-iron appliances, pipes, gutters, cresting, finials, &c.

DESCRIPTION.

The goods on this and the opposite page are all of cast-iron.

Figs. 1, 2, 3, 4, and 5 represent ornamental rain-water gutters.

Figs. 6, 7, 8, 9, and 10 represent rain-water pipes and connections, embracing heads, ears, offsets, and pedestals.

The productions of this firm evince great excellence both in design and workmanship, and their manufacturing inventions are protected by seven patents.
DESCRIPTION.

Figs. 1, 5, and 7.—Cresting for Figs. 4 and 6.—Banners, roofs, walls, balconies, gallery fronts, &c.

Fig. 2.—Weather-vane.

Figs. 3, 13, and 14.—Finials.

The decorative treatment of architectural cast-iron work is a matter worthy of consideration, and the examples exhibited by W. Macfarlane and Co. illustrate their views on this subject.
Class X.—Civil Engineering, Architectural, and Building Contrivances.

Macintosh, John, 40 North Bank, Regent's Park.—Samples of telegraphic cables.

MacNeill, Sir John, L.L.D., F.R.S., 23 Cockspur Street.—Model of bridge over the Boyne.

Malleable Iron Lattice Bridge over the river Boyne, near the town of Drogheda, on the line of the Dublin and Belfast Junction Railway, completed in 1855.

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<th>Description</th>
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<td>Total length</td>
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</tr>
<tr>
<td>Span of centre openings</td>
<td>264 feet</td>
</tr>
<tr>
<td>Span of side openings</td>
<td>138 ft. 8 in.</td>
</tr>
<tr>
<td>Height of under side of girders</td>
<td>90 &quot;</td>
</tr>
<tr>
<td>Weight of iron in lattice work</td>
<td>about 700 tons</td>
</tr>
</tbody>
</table>

Maw, George, Broseley, Shropshire.—Collective series of artificial productions, illustrating the clay manufactures of the Shropshire Coal Field. (See pp. 28, 29.)
CLASS X.—South-East Court.


Morewood & Co. manufacture patent galvanized tinned iron and galvanized iron, plain or corrugated, curved, and in tiles, of all gauges. Black or painted corrugated iron, galvanized or black-oxid gutters, pipes, &c. They are also the makers of Morewood's patent continuous galvanized iron roofing, which is cheaper than felt. Full particulars may be obtained on application. Mining sheds, engine sheds, farm sheds, and every description of galvanized farm building, are constructed by these exhibitors.

Specimens of the following are exhibited:—

Patent continuous galvanized iron roofing.—This roofing is cheaper than felt when mixed complete. Full particulars may be learned on application, and estimates will be supplied for roofs, churches, and every description of galvanized iron building.

[2322] Morton, Francis, & Co., Liverpool.—Patented improvements in permanent railway fences; iron telegraph poles; galvanized corrugated iron roofs, buildings, &c. (See pages 30 to 32.)

[2323] Murray, John, 7 Whitehall Place.—Cellular wine bin, or porte-bouteilles.


[2325] Paine, Mrs., Farnham, Surrey.—Artificial stone; terra cotta bricks, pipes, &c., made from soluble silica (patent).


Part's Martin's Cement is the best internal cement in use, and can be painted upon within twenty-four hours of its application. A saving of 40 per cent. in the bare cost of material will be effected by using this cement. Manufactured only by J. Cumberland Part, 186 Drury Lane, London, and at Derby.

Plaster of Paris.—Cost, fine, and superfine.


CLASS X.—Civil Engineering, Architectural, and Building Contrivances.

Maw, George, Shropshire, Broseley.—Collective series of architectural productions, illustrating the clay manufactures of the Shropshire Coal Field, classified and arranged by George Maw, F.S.A., F.L.S., on behalf of the undermentioned exhibitors.

Doughty, Mr., Jackfield, near Broseley.
Evans, Mr., Robert, Jackfield, near Broseley.
Exley, Mr., Wm., Jackfield, near Broseley.
Lewis, Mr. G. W., Jackfield, near Broseley.
Madeley Wood Company, Madeley Wood Fire Brick Works.
Maw, Messrs., & Co., Benthall Works, Broseley.
Thorn, Mrs., Broseley.

Division A. Roofing materials.
Common, plain, and ornamental flat roofing tiles, unglazed, glazed, and enamelled, of various patterns and colours. (Arrangements designed by Mr. Digby Wyatt.) Pantiles.

Roof crestings, plain, flanged, and with fixed and loose ornaments, brown, black, glazed, and enamelled. Ventilating roof crest tiles.
Various hip and gutter tiles, and flanged hip crestings.

(28)
Maw, George.—continued.

Division B, paving materials.
Illustrations of the revival of pictorial mosaic, consisting of a pictorial mosaic pavement, 18' 3" x 10' 9". Subject, "Apollo, and the Four Seasons," designed by Mr. M. Digby Wyatt, and manufactured by Maw & Co. For sale. Can be adapted to any size to suit particular dimensions.
A foot-wide strip, from ancient Roman pavement at Bignor, in Sussex. Maw & Co.
Examples of tessellated pavements. Maw & Co.
Examples of geometrical mosaic pavements. Maw & Co.
Examples of enameled tile pavements, and of combinations of plain and enameled tiles. Maw & Co.
Mesuresque mosaics for wall linings. Maw & Co.
Various combinations of enamelled Majolica tiles, for wall, cornice, bath, and fire-place linings. Maw & Co.
Box of loose examples of various mosaics and tiles, manufactured by Maw and Co.
Examples of common square and hexagonal paving tiles, loose, and in combinations. Maw & Co.
Drawings of mosaic and enameled tile pavements, executed by Maw & Co.
Stable paving bricks. John and Edward Burton.
Malt kiln, flue tiles, and bearers.

Division C, dressing materials.
Flanged and unfledged sanitary tubes, from four to twelve inches in diameter, with bends, junctions, traps, &c.
Agricultural draining pipes and horse-shoe pipes.
Gutter bricks, of various sizes.
Flood-dirt bricks, for irrigation. Mrs. Thorn.
Eaves spouting bricks and cornice, with inner and outer returns, manufactured by Mr. Edley.

Division D, fire-bricks, furnace materials, stove fittings, &c.
Common fire-bricks, of various forms, arch bricks, bull-heads, pit bricks, vase bricks, &c.
Various fire-clay bricks, used in the construction of iron furnaces.
Fire lumps, of various sizes.
Fire squares, of various sizes.
Fire-place tiles, cooking-apparatus-tiles, and oven slabs, of various forms and sizes.
Gas retorts, retort bricks and covers.
Arms and stove-pot linings. Coalbrook Dale Company.
Fire-chimney flues. Maw & Co.
Coalbrook Dale Company.

Division E, bricks and materials used in the construction of walls.
Common, pressed, and moulded bricks and blocks for walls, arches, copings, window jamb, gables, chimneys, pilasters, cornices, &c.
Booey or manger bricks.
Various glazed and enamelled arch and other bricks. Maw & Co.
Log bricks for pit shafts.
Pennsylvania Mount bricks, made from the refuse of ironside pits. Mr. Doughty.

Division F, accessories to the decoration of buildings and various articles not included in the other divisions.
Various terra cotta architectural decorations.
Various examples of enamelled terra cotta decorations, from the designs of Mr. Digby Wyatt, including pillar caps, chimney tops, round columns, arch bricks. Manufactured by Maw & Co.
Examples of terra cotta balustrading. Mrs. Thorn, and Coalbrook Dale Company.
Various terra cotta chimney tops.
Flower borders, obelisks, tiles, and returns.
Hot-houses and vineyard squares and channels.
Sandy terra cotta vases, flower pots, stands and pedestals, orchid pots, mignonette boxes, flower and orange tree boxes, &c. Designed by Mr. Kremer. Manufactured by the Coalbrook Dale Company.
Step bricks.
Chimney piece, composed of enamelled tile and stone. Manufactured by Maw & Co. Designed by Mr. M. Digby Wyatt. The stonework executed by Mr. Richard Yates, builder, Shifnal. For sale. See Engravings.
Orange tree, and tulipomania boxes, the former having a space between the date lining and line to keep the soil cool, composed of Majolica tiles, set in electro-bromed framing. Manufactured by Maw & Co, from designs by Mr. M. Digby Wyatt. For sale.

Division G, raw materials.
Various specimens of clays and other materials from the Shropshire Coal Field, in the native and burnt state; also made up into squares to show their relative shrinkages.
Selection of Shropshire Coal Field, showing the disposition of clay beds, and other materials used in the manufacture of the series. Mr. G. Maw.
Morton, Francis, & Co., Liverpool.—Patented improvements in permanent railway fences; iron telegraph poles; galvanized corrugated iron roofs, buildings, &c.—Manufacturers of every description of fire-resisting iron roofs and buildings for agricultural and colonial purposes; iron posts for docks, railways, shipbuilding yards, &c.; cranes, weigh-bridges, wire ropes, electric telegraphs, &c.

Francis Morton & Co’s patented improvements in the construction of permanent efficient fences for home and foreign railways, parks, pleasure-grounds, &c., have obtained the Silver Medals and highest commendations of all the principal Agricultural Societies of the United Kingdom.

Fig. 5

1.—Strained Cable Fence, Strands, and Posts, all galvanized; fitted with Francis Morton’s patent winding straining pillars, and galvanized tapered oval iron posts—the strongest, most rigid, and durable form of iron fence known. (See Fig. 5) and 6s. 2d. per yard. (See Fig. 10.)

2.—Examples of Patent Winding Straining Tapered Oval Iron Fencing Posts (see Fig. 10) are the most complete and permanently efficient iron fencing posts in use. These galvanized iron posts are perfectly indissoluble in every direction; they cannot be bent, broken, or thrust aside by tres-

3.—Patent Winding Straining Brackets (spe-
cially patented for India), for attaching to wood main posts, are extremely portable for long inland transport; they converge the cost of fixing by the ordinary mode; while, like the patent winding straining pillars, they double the value and efficiency of the fence. (See Drawing.)

4.—Examples of Patent Galvanized Tapered Oval Iron Fencing Posts, which have stood the test of 16 years’ usage on railways, and are still in good condition. (See Drawing.)

5.—Model of Wrought Iron Rail Stay, for service for bands in wire fencing. These, when fitted in the exhibitors’ patent galvanized oval iron fencing posts, are embedded below the ground, thus improving a good finish and giving absolute immunity from strained fencing.

6.—Examples of Best Prepared Galvanized Signal Cables, as originally applied and manufactured by them in 1846.
Morton, Francis, & Co.—continued.

9 & 10.—Half-Size Models of Patent Galvanized Oval Tapered Iron Telegraph Poles, specially patented for India. They possess great facility of transport, great strength and rigidity when fixed, with simplicity of erection, superior electric action, reduced cost, and they save in fixing one-half the usual labour. (See Figs. 6 and 7.) For further description, see next page.

11.—Model of Combined Iron Railway Fence and Telegraph.—This fence insures a large economy in first cost of construction, superior electric action from the use of iron in place of wood poles, and saves the heavy expense of future renewals and maintenance. Price Is. 9d. and Is. 1d. per yard of fence, including the galvanized iron telegraph poles.

12.—Model of "Gardener's or Farm Bailiff's Cottage or Galvanized Corrugated Iron."—Price, erected complete, with five rooms and entrance porch, £120. (See Fig. 3.)

13.—Model of "Ornamental Shooting Lodge and Country House" of Galvanized Corrugated Iron.—Price, erected complete, with seven rooms, £250 to £400. (See Fig. 2.)

Note.—These iron buildings are easy of conveyance and erection where carriage and labour are very expensive, and, as constructed by Francis Morton & Co., possess all the comfort of stone or brick buildings.
Morton, Francis, & Co.—continued.

16.—Drawing of "Farm Yard," wholly covered with Fred's Morton & Co.'s galvanized corrugated iron fire-resisting roofs. These iron roofs are economical in first cost, and are permanent. They save all cost of future repairs and maintenance, are not injured by violent winds, removable without injury, and, above all, are fireproof. Crops thus housed are protected from the ravages of vermin, wet, hail-storms, fire, and winds, and are thereby brought to market in the finest condition. Price of galvanized corrugated iron roofs to cover an area of 100 feet square, delivered and erected complete on proprietor's wood wall plates and uprights, £270. All other dimensions estimated for.

15.—Model of "Galvanized Corrugated Iron Suit-Yard Roof," 400 feet by 80 feet, as now erected by exhibitors for Messrs. John Laird, Sons, & Co., Birkenhead, over their new dock in which the unaccommodated Government war vessel "Ashdown" is being built. Estimates according to dimensions.

18.—Drawing of "Volunteers Drill Ground," 300 feet by 70 feet, covered with galvanized corrugated self-supporting iron roofs. The method of construction here shown provides a large unbroken covered area at a greatly reduced cost. Estimates according to dimensions.

17.—Model of "Dock Wharf or Railway Shed," made of much valuable space, and impart great lateral stiffness to the structure; their strength is not limited, as in plain wrought-iron plates, to short bearings only, as these heavy corrugated plates are prepared to take bearings varying from 4 to 10 feet.

22. Example of Fred's Morton & Co.'s "Patent Galvanized Oval-Iron Telegraph Pole Sockets," prepared for use where wood poles are abundant. By putting the wood poles at present in use into these sockets as they decay at the ground line, the frequent heavy expenses incurred by the old lines of telegraph will be entirely saved, and as much greater strength of a permanent character will be obtained by this means at the point where the strain is severest and decay most rapid, the duration of the present wood poles will be more than doubled, and for the future a cheaper description of wood pole may be used, besides preventing accidents occasioned by storms, &c. These sockets are free from the unsatisfactory inseparables from cast-iron.
The exhibitors are manufacturers of patent portable coal gas works, by which any villa, farm-house, mansion, country residence, railway station, church, or other isolated building where 10 lights and upwards are required, can be lighted by gas made upon the premises, the gas thus produced being cheaper than that obtained from ordinary public gas works, and so pure that it will not injure the most delicate fabrics, or tarnish the most costly gilding. The cost of gas varies with the price of coal, from 2s. to 4s. per 1,000 cubic feet—prices one-sixth the cost of candles or oil for equal amounts of light. The attention required by these works is trifling, and need not involve additional labour, as any groom, under-gardener, or other man-servant, can work the apparatus quite efficiently, in addition to his ordinary duties. Any kind of bituminous coal can be used, and the refuse of the household hearth is available, the small coal being adapted to the purpose. The two sets of apparatus exhibited are for 10 and 50 lights respectively.

An apparatus for the production of gas from cannel coal, peat, or peat mixed with oil is also exhibited as particularly adapted to those countries where ordinary bituminous coal is scarce, and cannel coal may be obtained at less than 5s. per ton.

Drawings of improved gas works for towns and villages are exhibited, showing the arrangement of the various portions of small public gas works.

The above engraving is an illustration of a self-acting gas-holder, framework, pillars, &c., designed and erected by Messrs. Porter & Co., for Messrs. Hodges & Co., at their distillery, Lambeth, showing the application of design to the purposes of an ordinary gas-holder.

Messrs. Porter & Co. have erected and furnished from 100 to 200 gas works to which they can refer, and have also been honoured with prizes and medals from the Highland and Agricultural societies of Scotland and other societies in England, for their small gas works adapted to country residences and farm buildings.
CLASS X. — Civil Engineering, Architectural, and Building Conivances.

[2333]
Ramage, Robert, 55a Holywell Street, Millbank, Westminster, S.W.—Glass and metal patent and other ventilators, &c.

[2334]
Rennie, G., & Son, 6 Holland Street, Blackfriars.—Model of system of docking, in connection with floating graving docks.

[2335]
Reynolds, William, Sheffield.—Artificial stone; metallic mortar for building, painting, and plastering.

[2336]

ANTIQUE VASE.  
MALTESE VASE.  
GARDEN BORDER.  
EDGING TILES.

The following are exhibited:—Garden border edging tiles in Terra-cotta, Terro-metallic, and Red ware.

ARTICLES IN ARTIFICIAL STONE.
Pair of lions.  
Beagio.  
Maltese vase.  
Antique vase (Roman).  
Acanthus vase.  
Papio vase.  
Greyhound and leveret.  
Triton boy.  
Boy with dolphin.  
Oregem gate terminal.  
Trunca.  
Specimens of balustrading.

[2337]
Scott, M., 26 Parliament Street.—Models of timber breakwater; submarine foundations, and a diving apparatus.

[2338]
Sibree, Augustus, 5 Denmark Street, Soho, London.—Diving apparatus, as manufactured for Her Majesty’s Board of Admiralty, &c. (See page 35.)

[2340]
Simmons, George, 7 New Palace Yard, Westminster.—Simmons’ patent gas and water connector, full size. (See page 36.)
The art of diving and remaining under water for a lengthened period is a subject which has occupied the attention of scientific men since the earliest records of history; but it was not until the early part of the 16th century that it began to assume a practical form in the shape of the cumbersome diving bell, which, although appearing in various forms in the hands of different inventors, was found impotently to the removal of wrecks and deep sea diving. It was not until the exhibitor (about 1830), in conjunction with Mr. Desse, invented the first diving equipment, professionally known as the "open diving helmet," that operations under water could be carried on with any degree of success. As the invention was not patented, and was in great demand, many imitators soon entered the field, but without introducing any new feature; it was left for the exhibitor to complete what he had begun by inventing the closed helmet and dress, in 1837—the principle now generally adopted, by which all danger of water entering the dress or helmet was removed. This he speedily followed up by adding the segmental neck ring, by means of which the head of the helmet can be removed by an eighth of a turn; also, the safety valve, to prevent water entering the dress in case of accident to the pipe; also by strengthening the pipes with a cylindrical coil of wire, adding water cisterns to prevent the heating of the air-pump cylinders, and many minor improvements; by the aid of which, the late Sir Chas. Paddie, G.B., was enabled, from 1835 to 1844, to carry on successfully the submarine operations to clear the anchorage at Tynemouth, and remove the wrecks of the "Royal George" and "Edgar," sunk respectively in 1782 and 1791. Although some hundreds of the exhibitor's improved close helmet have been twenty years in use, it is satisfactory to state that no death is recorded to have taken place from any cause connected with the apparatus.

[ 2341 ]

SLACK & BROWNLOW, Manchester—Self-acting cistern filter.

[ 2342 ]

SAYTH, ARCHIBALD, Prince's Street, Haymarket.—Door spring for swing door; weather-tight casement fastening and water bar.

[ 2343 ]

SPARKES-HALL, J., 308 Regent Street.—Upright bench, for a working shoemaker; self-acting pneumatic ventilator, for hall.

[ 2344 ]

STEPHENS, William, & Sons, Newcastle-on-Tyne.—Fire-clay, gas retorts, and fire-bricks, &c.

[ 2345 ]


[ 2346 ]

STUTTER, C., Woolpit, Suffolk.—White and red facing bricks, stable clinkers, and other kiln goods.
The escape of gas occasioned by the present mode of connecting service pipes to mains, is costly to the gas company, highly dangerous to the workman engaged, and harmful to the property in the neighborhood.

The gas company now lose about one-sixth of the gas delivered from their works; and when it is remembered that gas under only one inch pressure escapes at the rate of 5,000 cubic feet per hour from a hole made to receive an inch and a half service, it is easily understood what a large proportion of this loss must be attributed to the service laying. The fire in Wood Street, City, February 37th, 1859, resulted from this operation, when property to the extent of upwards of £10,000 was destroyed.

At a meeting of the Metropolitan Association of Medical Officers of Health, held at Whitehall, Dr. Aldis stated that “that the use of this machine would avert the risk of human life, as he could fairly testify, having seen it in operation in Holborn Road, Westminster. One workman had been knocked down seven times in attaching service pipes, from the pernicious effects of the escape of gas on the present objectionable system.”

J. COWEN, Manufacturer, 21

SEEBEMEYER, NICHOLAS CHARLES, Laboratory, New Palace, Westminster, Parnwell Leather Factory, Park Road, Acre Lane, Clapham—Arabian, zygia, and grusitic preserving and indurating compositions.

1. Wooden Railway Sleepers and Building Timber, prepared so as efficiently to resist dry rot and other decay.

The sleepers exhibited have been severely tested during the last ten years; some have been buried in the ground that period, some have been immersed in the sea for four years and a half. None of them exhibit the slightest indications of decay. The application of the process presents no difficulty, it is remarkably cheap, and can be carried on in any part of the world without great expense.

2. Zincous Composition for preserving iron and wooden ships and vessels.—This valuable composition, in the case of wooden vessels, supersede the use of copper shrouding, tar, and paint; it efficiently dries the pores of the wood, excluding the air, and preventing the absorption of water. It forms a smooth brown enamel surface, preventing the ravages of worms (Trypodes sarcoi) and the attachment of barnacles. In iron vessels it completely prevents rust both within and without, and efficiently closes the joints of the plate. It will last three times as long as all paints hitherto invented and used on iron vessels.

3. Gumastic Composition, to be used as a paint for preserving iron from rust, and timber from decay. It is applicable to painting carriages, doors, chairs, carriages, iron works, iron houses, vats, boilers, bridges, railways, girders, tanks, water and gas pipes, shutters, iron and wooden boxes, telegraph posts, iron guns and shot, whether in the open air, under ground, or otherwise. It never requires renewal, is applicable and effective in all parts of the world, and under every change of climate.

4. Bricks composed of sand and chalk, or sand and lime, or pure chalk. These bricks are made without burning, they are stronger and cheaper than ordinary bricks, and can be made with great rapidity by a machine, which will turn out about 16,000 or 12,000 a day. The bricks are the invention of Mr. N. C. Seebeemey, and are manufactured for this country only by Messrs. Robins Brothers, Nevepart, Middle, and 2, Thaxter Inn, Holborn, London.

5. Siccate Zygias, for preserving public and private buildings of stone, brick, stone, or cement, sanitary and other similar works of art, from atmospheric and other corroding and destroying influences. This composition will at once arrest the progress of decay or chemical change, penetrate the surface, fill in and consolidate it, and, by its cohesive powers, permanently seal it from the action of free gases, atmospheric air, and damp.

It has been successfully applied, amongst other buildings, to the inner courts of the New Palace of Westminster, the principal entrance of the Bank of England, the whole of the Kensington and Regent Square Churches, the Graham Club House, City, the interior of St. Paul’s Cathedral, &c. &c. &c.
CLASS X.—South-East Court.

Schelemy, Nicholas Charles, Laboratory, New Palace, Westminster, Panassen Leather Factory, Park Road, Ave Lane, Clapham.—Arabian, zhispis, and granitic preserving and indurating compositions. (See page 38.)

Taylor, William J., 5 Church Street, Chelsea.—Specimen of plastering, for external purposes, in Portland cement.

Improved and patented method of finishing Portland cement for walls of buildings and other erections, without the use of shutter colour.

Thorn & Co., Grosvenor Row, Pimlico, S.W.—Atmospheric bells; Trinidad asphaltite; specimen stone of old Westminster Bridge.

Tod & McGregor, Clyde Foundry.—Meadowside building yard and graving-dock, Glasgow. (For Engraving, see page 38.)

Model of private graving dock and basin, showing also the various workshops connected therewith, designed for Messrs. Tod and McGregor by Messrs. Bell and Miller, Civil Engineers, Glasgow. The illustration on the following page represents the graving dock, dockyard, and premises. The huge tidal basin, with wharves and quays, on the rivers Clyde and Kelvin, adjoining the yard, have a depth of water sufficient to admit vessels of the largest tonnage for repairs, &c.

The dock is 500 feet long, 30 feet wide, with 20 feet water at spring tides. It is entirely built of squared masonry, freestone, and granite. The gates are of mahogany iron, weighing upwards of 60 tons, and are of peculiar construction, hanging on pivots without the support of quadrant rollers. The bearing is in the usual manner of hollow quins, but a flat surface on lead-pipes of platted cast-iron, shutting upon a pinched face of the granite quoin stone—iron to granite, without the intervention of any other material, and perfectly water-tight.

The tides on the Clyde fall only eight feet at springs, leaving ten to twelve feet water on the dock sill; this renders necessary a heavy pumping engine of 250 horse-power, working two 52-inch pumps, which supplies the dock in two-and-a-half hours, without waiting for the ebb. The platform is kept clean, by the discharge from the pumping engine through the chambers in the masonry behind the gates.

The tidal basins and wharves have together 1,070 feet of quays constructed along the banks of the Clyde and Kelvin, with room for 450 feet additional. The whole water frontage is 4,400 feet.

The dockyard contains a complete arrangement of buildings and machinery, steam-hammers, &c., for repairing, entirely independent of the works in the building-yard adjoining. The total ground occupied by the building-yard and dockyard is twenty acres. There is sufficient accommodation to admit seven vessels of 3,000 tons each, repairing and fitting out at one time, besides those building on the stocks.

In addition to various cranes from five to twenty tons, there is a movable steam crane capable of lifting eighty tons, for lakers and heavy machinery.

Tupper & Company, 61a Moorgate Street, London, and Birmingham.—Galvanized iron manufactures connected with building and architecture.

Turner, W., & Gibson, J. W., Dublin.—Balance rolling bridges for railways over water and public roads; iron roofs, &c.

Vavasseur, Henry, & Co., Summer Street, Southwalk, London.—Galvanized, corrugated, and plain sheet iron, &c. (See page 38.)
Class X.—Civil Engineering, Architectural, and Building Contrivances.

Tod & McGregor, Clyde Foundry.—Meadowside building yard and graving-dock, Glasgow.
Class X.—South-East Court.

VAVASSEUR, HENRY, & Co., Stannary Street, Southwark, London.—Galvanized, corrugated, and plain sheet iron, &c., for building and roofing purposes, tanks, and cisterns.

AMSTERDAM STATION ON THE DUTCH-RHENISH RAILWAY.

No. 1. A sheet of galvanized iron, No. 16 gauge, corrugated, with a 10-inch flute, used in covering the Amsterdam station on the Dutch Rhenish Railway.

No. 2. A sheet of galvanized iron, No. 20 gauge, corrugated, with a 5-inch flute, as used in the construction of the Palace of Industry, Amsterdam.

No. 3. Specimen of galvanized iron roofing, used in covering No. 1 Slip in H.M. Dockyard, Portsmouth.

No. 4. A sheet of galvanized iron, No. 24 gauge, corrugated, and curved with a 3-inch flute.

No. 5. Case containing galvanized iron fittings for iron buildings.

No. 6. Galvanized iron tank.

No. 7. Galvanized iron cistern.

No. 8. Specimen of galvanized iron coffee-spouting.

THE PALACE OF INDUSTRY, AMSTERDAM.

Messrs. HENRY VAVASSEUR & Co. are contractors for every description of iron buildings.
Models of zinc roofs, showing an economic system of framework, but having also due regard to strength. Corrugated zinc sheets, in extensive use for railway buildings. Sheet zinc, of superior quality, for roofing, each sheet bearing the stamp of "Vieille Montagne—P. Braby & Co."".

O G moulded zinc gutter. This form of gutter is well adapted to resist the action of the sun, and may be fixed either by screws or spikes, through zinc tubes, or by the ordinary brackets. It also gives an ornamental and architectural finish to the eaves of the building.

Semi-circular zinc gutter, for farm buildings and out-houses.

Rain-water pipes and bands of various forms.

Zinc water-balls for cisterns, much cheaper than copper, but equally efficient.

MODELS FOR ROOFING PURPOSES.

The above shows section and elevation of Italian-formed zinc, as used for the verandah of the Horticultural Society's conservatory, and on the refreshment rooms of the Exhibition, &c.

Zinc friezes and frets for lumps, verandahs, ventilation and decorative purposes; replacing either lead or copper for those applications, and being cheaper, lighter, and more elegant in appearance.

(49)
Vignoles, C., F.R.S., 21 Duke Street, Westminster.—Models and drawings of Bilbao railway, Spain. (See pages 44 and 45.)


Walker, C., & Sons, Little Sutton Street.—Gas valves, water valves, hydrants, regulating columns, &c.

Dixon, Dixon, Croydon, Surrey.—Model of a locomotive engine.

Grey, J., & Sons, 114 Fenchurch Street.—Ship pumping apparatus.

Harris, J., Hanwell.—Pneumatic locks, and atmospheric telegraphs, for mines, &c.

Hemans, G. W., 13 Queen Street, Westminster.—Drawing of a railway bridge over the river Shannon.

Mackenzie, H., Ardras and Dundonnel.—Model for separating weirs, in salmon weirs.

Barlow, P. W., 26 St. George’s Street.—Model of iron bridge over the Thames at Lambeth.

White, J. E., & Bros., 17 Millbank Street, Westminster.—Cements.

Spurgeon, B. W., Derby.—Ornamental cement works.

(41)
Askew's Patent Window Sash and Improved Ventilation Company.—A reversible ventilating window, of which both sides can be cleaned from within.

The accompanying sketch shows some of the chief advantages derivable from the employment of this patent, which may be briefly enumerated as follows:

1. The outside of the glass may be readily cleaned from the interior of the room, thereby effectually preventing the frightful accidents continually occurring to domestic servants and others, from standing or sitting on the outside sills.

2. A perfect system of ventilation, allowing the admission of air, even in windy weather, without the evils arising from a downward draught, rendering the invention peculiarly applicable to hospitals, barracks, and other large buildings, as well as to private dwellings.

3. Its extreme simplicity and non-liability to derangement, and the readiness with which it can be applied to existing window sashes.

4. The entire exclusion, at pleasure, of all draughts, not only at the sides, but also at the meeting rails of the sashes.

It has already been used at Pembroke House; at the private residence of the Right Hon. W. E. Cowper, M.P.; Chief Commissioner, Board of Works, 17, Curzon Street, May Fair; and at the residence of Mr. King, 16, Percy Street, Bedford Square; Messrs. Mappin and Co., St. Paul's Churchyard; Messrs. Buxton and Co., 2, Duke's Chambers; Messrs. Perkins and Co., Oxford Street; Mr. Cox, Southwark Row, Russell Square; Mr. Edgley, 9, Buckingham Inn, Fleet Street; Mr. Tilbury, Ferdinand Street, Kentish Town; Mr. Magotti, 76, Seymour Street; and at St. Thomas's Hospital; and in every case the inventor has given unqualified satisfaction.

Applications to be made to the Secretary, at the Offices of the Company, 9 Adam Street, Adelphi, W.C.
C. BAZALGETTE, Joseph William, Spring Gardens.—Drawings of the metropolitan main drainage, sewers, and intercepting works.


BEAUMONT, Edward Blackett, Darfield Pottery, Barnsley, Yorkshire.—Sanitary tubes: terra cotta gas retorts, fire-bricks, filters, &c.

The following articles, of which specimens are exhibited, are manufactured at this Pottery, viz.:

Sanitary tubes, from three inches to four feet in diameter. These tubes are tested, when required, to bear a pressure of 2000 lbs. to the square inch.

BOODER BROTHERS, Newport, Monmouthshire.—Bricks, and other objects used for building, made of unburnt artificial stone.

These bricks are made chiefly of sand and lime, intimately incorporated with each other in suitable proportions, and subjected to great pressure in moulds. Furness clinkers, burnt clay, or other materials of a similar nature, may, however, be substituted for the sand, with excellent effect.

Instead of disintegrating or deteriorating on exposure to the atmosphere, these bricks, in consequence of a chemical process of formation, which commences almost immediately after the materials have been compressed, improve, and are gradually converted into stone. They absorb very little moisture, and are capable of withstanding any frost, however severe, after having once become imbibed to a certain extent: properties which render them superior, in a high degree, to most burnt clay bricks, and can be said to possess.

Fire bricks, gas retorts, vase, and terra cotta ware of every description. This clay is peculiarly adapted for the construction of chemical vessels, and for other purposes where resistance to the action of acids is required.

Brooks, B., & Smith, R. & J., 154 Goswell Street.— Newly invented sash bars for windows.

BUFFON & WALKER, Holland Street, Southwark.—Gas and water drainage apparatus.

CHANTRELL, GEORGE FREDERIC, 6 Hope Street, Liverpool.—Chantrell and Dutch's water-closet, &c. (See page 48.)

CHEAVIN, S., Pen Street, Boston.—Patent double action rapid belt water purifier; damp proof paints and cement, &c.
Class X.—Civil Engineering, Architectural, and Building Contrivances.

Vignoles, C., F.R.S., 21 Duke Street, Westminster.—Models and drawings of Bilbao railway, Spain.


Henry Montague Mathews, District Engineers.

Thomas Vignoles, Assistant Engineer.

Minimum Radius 412 feet.

Horizontal Scale 677 feet to 1 inch.

Vertical Scale 1 inch to 100 feet.
The roadway through the Cantabrian Pyrenees.

Class X.—Civil Engineering No. 2354.

Vignoles, C.—continued.

Hunting Vignoles, Principal Resident Engineer.

Percy Salter, Artist.

Stephen Salter, Modeller.
Cliff, John, & Co., Imperial Potteries, Princess Street, Lambeth, London.

Chemical vessels, pharmaceutical apparatus, &c. &c. to order.

Brown and white stoneware of all descriptions. Illustrated price lists will be sent on application.

Obtained large Medals at the Exhibitions of 1851 and 1855.

"The Jury noticed with great commendation the care and attention bestowed by these exhibitors on chemical and other apparatus." (Extract. See Jurors' Report, Class 27, p. 583.)

The large jar exhibited in Paris by this firm is in use in the present Exhibition building as a sherry butt, in the cellars of the Refreshment Department, and is the largest stoneware vessel in the world in actual service.

Great Exhibition of 1851.

(Extract. See Jurors' Report, Class 25, p. 583.)

"Stephen Green & Co., Lambeth. This firm exhibits some very remarkable specimens of stoneware, of great size, designed for the use of breweries, distilleries, &c., and which, on account of their hardness of glaze and other qualities, are of great value in many processes of chemical manufacture." The Jury have awarded a Prize Medal.

"Although by the decision of the constituted authorities the Medal which has been awarded to Messrs. Stephen Green & Co., in Class 27, has been withdrawn in favour of the similar honour awarded by the Jury of Class 25, the author of the present report cannot pass on to other exhibitors without giving some account of the objects which chiefly attracted the attention of his Jury. These are the large jar, the condensers, the air-tight stoppers, and the acid pump, exhibited within the Building; and the whole apparatus of the retort placed outside. The condensers are not only large, but perfect, and the spherical stopper and valve are so ground as to be perfectly air-tight, and must be regarded as an admirable and most useful contrivance. The jar is perhaps the largest piece ever manufactured in this ware." The Jury noticed with great commendation the care and attention bestowed by these exhibitors on chemical and other apparatus.

Imperial Potteries, Lambeth, London.
COOKE, William, Civil Engineer, 26 Spring Gardens.—Ventilating and sanitary appliances; inexpensive, and of general utility.

Apparatus for effecting ventilation without dust or draught. This invention is self-acting, simple, and inexpensive, is always in its place, gives no trouble, is not liable to damage or derangement, admits an unceasing and imperceptible supply of pure air without dust or draught, and may be used with safety in sick rooms and sleeping apartments during the night. When out of use it is out of sight.

It is equally applicable to apartments, buildings, and carriages.

Dale, Thomas, Manager, Great Yarmouth Water Works.—Improved service-box for supplying water-closets, and preventing waste.

Danchell, F. Hahn & Co., 38 Red Lion Square.—Filtering, water-softening, and water-testing apparatus.

Water-Purifying Apparatus.—The following are exhibited:

Cistern Filters.—To be placed direct into house cisterns, and capable of yielding from two quarts to two gallons of water in a minute, according to size.

Fountain Filters.—To be connected either with the service-pipe direct from the main, or with the supply-pipe from the cistern, and capable of yielding from two quarts to two gallons per minute, according to size.

Portable Household Filters of stoneware, from one to ten gallons size.

Portable Table Filters of porcelain, earthenware, terra cotta, &c., from one to four gallons size.

Self-Regulating Apparatus for softening water to be placed in cisterns, and constructed for softening from 500 to 100,000 gallons of water per day.

Water-Testing Apparatus, requiring no knowledge of chemistry, to ascertain the presence in water of any deleterious substances in solution. Arranged for domestic use, hydraulic engineers, sanitary officers, and others.

Having the contract for supplying the Exhibition with filtered water, numerous very novel designs in VANE AND FOUNTAIN FILTERS will be found in use in various parts of the building.

For information on the subject of purification of water with reference to the above articles, see a “Treatise on Water, its Impurities and Purification,” by F. Hahn, Danchell; published by Rembou, 356 Strand.

G. Kent, Sole Manufacturer, 199 High Holborn.

}
Chantrell, George Frederick, 6 Hatton Garden, Liverpool.—Chantrell & Dutch's water-closet, combining slate cistern, basin, and trap with patent flushing apparatus.

This apparatus is strong, durable, efficient, and exceedingly cheap, and prevents waste of water. Price—With thirty-gallon slate cistern, measuring-box, solid double valve, with vulcanised india-rubber washers, overflow and air pipe, flushing pipe and connections, improved hopper basin and trap, collecting motion and ball-valve for main supply, complete and ready for fixing—£3. A liberal discount allowed to the trade.

It may be readily fixed and examined, by merely unscrewing the lower valve-seat, by any ordinary skilled workman.

Large-sized cisterns and other descriptions of cisterns in proportion.

The inventors, after many years' practical experience in sanitary matters, find that a cistern is indispensable; for with any one charge system, should the cistern be used when the main supply is off (which is very often the case), it becomes foul. The self-acting principle in this apparatus (as shown) being strong, and free from complications, always insures a thorough flushing of the closet at the time of use.

A, cistern with double bottoms, forming measuring chamber, B, between which the double valve, C, acts, which is held in the position shown by the seat of the closet; the latter is weighted at the beet, and, when used, merely drops half an inch to front, acting upon the lever, D, closing the outlet to E, opening the inlet from A, charging B. When the seat is free, the valve returns to its former position; the water accumulated in B flushes the closet (or urinal, to which it is also adapted), E, flushing pipe; F, air and overflow pipe.

Edwards, Frederick, & Son, 49 Great Marlborough Street, London, W.—Models and drawings of an improved method of constructing chimneys and ventilation.

Field & Allen, 27 Frederick Street, Edinburgh.—Articles for housebuilding purposes.

Fenich, John, 11 Adam Street, Adelphi.—Patent Porcelain Bath, designed by his late Royal Highness Prince Albert (Rufford and Fenich, patentees).

Obtained a Medal at the Great Exhibition, 1851, "for Baths, &c." Gold Medal of the Society of Arts, 1850.

Patent Porcelain Bath designed by His late Royal Highness the Prince Consort. This Bath is patented by H. E. El the Duke of Cambridge for Her Majesty's war department; by the Emperor of the French, the Emperor of Russia, Lord Palmerston, &c., and is extensively used in public institutions and private houses.


Gotto, Frederick, Architect, Leighton Buzzard, Beds.—Gotto's self-discharging effluvia trap.

Jenning, George, Holland Street, Blackfriars Road.—Domestic, sanitary, and building appliances, tending to comfort and health.

Key, E., Sharrington, via Thetford, Norfolk.—Models of country cottages.

Knysham Blue Lead Stone and Cement Company, 6 Martin's Lane, Cannon Street.—Samples of blue line lime.
KITE, C., 20 Liverpool Street, King's Cross.—Improved chimney tops, ventilators, and stable requisites.


LOVEDORE, JAMES, Town Hall, Hackney, N.E.—Traps to prevent effluvia from drains and gulleys.

Lovedore's patent drain traps and ventilating valves have been applied to acknowledgments, public buildings, dwelling-houses, stables, garden paths, and street gulleys, with complete success, and in every case have effectively prevented the escape of foul air from sewers and drains.

Nine-inch outlet traps, to be fixed at
junction of drain with sewer 15 0
Six-inch dito, to be fixed beneath an
area, or in line of drain, if more con-
venient 15 0
Six-inch dito, to be fixed beneath an
area, or in line of drain, if more con-
venient 15 0
Six-inch dito, to be fixed beneath an
area, or in line of drain, if more con-
venient 15 0
Air supply, post, and valve 7 6
Cloth waste pipe traps 7 6

M'KINTISH, JOHN, 15 Longham Street, London.—Patent ventilator, for buildings of all kinds, ships, and carriages.

Models are exhibited showing the application of this ventilator. 1. In upper apartments. 2. In floors where the joints run from wall to wall. 3. Where gables intervene. 4. Where the fresh air is supplied horizontally, and not the exhaust discharged at the ridge, as in the

MOORE, JOSIAH, 81 Fleet Street.—Ventilators for houses.

NIXON, T., Ketton, Northampton.—Greenhouse.

PIERCE, WILLIAM, 5 Jermyn Street, London.—Huthnance's patent heating apparatus, for drying rooms, &c.; sanitary improvements in stove grates for hospitals, cottages, &c.

Obtained Prize Medal at the Exhibition of 1831.

PITCHFORD, WILLIAM, 3 Wore Street, Kingsland Road, N.E.—Patent life-protecting machine for cleaning windows.

The object of this apparatus is to secure to domestic servants immunity from the risks to life and limb in-
curred in window cleaning. It is at once simple, effec-
tive, and inexpensive. It can be applied to any window in town or country, at the very trifling cost of £2 and upwards.


ROSSER, SAMUEL, Evan, Percy Chambers, Northumberland Street, Strand, London, W.C.—Warming, ventilating, and desiccating apparatus.

SILICATED CARBON FILTER COMPANY, Belgrave House, Battersea, London.—Silicated carbon filters, for universal application (Dahlke's patent).
Smith, George, & Co., Sun Foundry, Glasgow.—Patent composite grave monuments and tablets, and ornamental drinking fountains in iron. Sanitary structures, such as baths and dry-deodorising closets and stable-fittings.

Manufacturers of rain-water goods, and all kinds of cast-iron fittings for plumbers' and architectural purposes, and patentees of George Smith & Co.'s patent baths, bath stands, and lavatories, dry-deodorising closets, commodes, urinals, patent composite grave monuments and tablets; also cast-iron plain and ornamental fountains, cattle troughs, and their registered stable fittings, which were selected by the late Prince Consort for Holyrood Palace stables, and for which first premium was awarded at the Royal Highland and Agricultural Shows.
EMBLEMATIC TOMB BAILING.

EMBLEMATIC TOMB BAILING.

THOM, GEORGE, & Co.—continued.

Patent composite grave monuments and memorial structures. In these monuments panels of marble, stone, or slate, upon which inscriptions can be engraved either before or after erection, are combined with ornamental cast-iron framework capable of the simplest or most elaborate design, at extremely moderate cost.
Model of improved stable fittings; comprising a flat floor, combined with efficient drainage, and with provision for dry deodorising. The hay rack is fitted with a box to catch and save the seed. The manger is fitted with a half-cover, which permits the corn to fall to the front only as the horse requires it. The front of the manger is well rounded over to prevent injury to the horse.

Fittings of this design were selected by the late Prince Consort for Holyrood stables, and received the first prize at the Highland Society's show. Seed-box and wood of stall not supplied.
PATENT LAVATORY, in the bed-room or dressing-room, combines in one the various appliances required for ablutionary purposes. The stand itself is converted into a foot, sponge, or sitz bath, and the basin is fixed to a hollow swivelling pillar. The framework is filled in with ornamental glass, and is used as a mirror; and when used as a sponge bath, a curtain prevents injury to the walls and furniture.

The Patent Lavatory is also made without the glass screen, and in this form is admirably adapted for use in large establishments, such as barracks, hospitals, schools, &c. &c. These articles are supplied without the glass or porcelain basins, and may be made portable, if required.

PATENT EGYPTIAN BATH; shaped to give comfort to the user, and to economise water; and having provision for raising and maintaining the temperature, for giving a vapour bath, and for supplying hot or cold showers in a novel and extremely refreshing manner.

The bath is self-contained and portable, and with the folding cover appears, in the bed-chamber or dressing-room, as an ornamental article of furniture. This bath may be had without the ornamental frame, cover, or interior fittings.
PATENT DRY DEODORISING COMMODE, IN IRON STRUCTURES, WITH VENTILLATING VENETIAN PANELS, AND CAN BE SUPPLIED IN RANGES.

The shell or frame is of cast iron and painted imitation wood; the working details are of the simplest construction, and do not get out of order. It is the most satisfactory appliance yet introduced for working out the system of dry deodorisation—a system recommended by the best authorities, and which must gradually work its way to general adoption.
SOWOOD, THOMAS, Blue Bear Court, Manchester.—Models of apparatus for curing smoky chimneys, ventilation, and heating buildings.

SPENCER, THOMAS, 32 Euston Square.—Filters for purifying water with a new compound magnetic iron oxide.

The magnetic purifying filter is the only one known to science that effects a chemical purification of water. Several other filters are also purific’d by its agency, as shown in the specimens exhibited. Already some of our greatest scientific authorities have pronounced that, "with the Magnetic Filter, impure water is impossible."

No matter how chemically impure or offensive water may originally be, in passing through these filters it becomes as pure and sparkling as the purest spring water. The change is effected on principles precisely analogous to those exercised by Nature, in converting impure surface water into the refreshing crystalline water we find trickling from a natural spring. The most impure and highly coloured bog or drain water, or even sewer water (see the specimen), is instantaneous rendered by these filters pure, colourless, and tasteless. In the limited space at command, it is impossible to describe adequately the philosophical principles brought into practice by this discovery of Mr. Spencer.

We may convey some idea by stating, first, that this gentleman has discovered magnetic oxide of iron—lead-stone in fact—to be Nature’s chief agent of purification, and that every rock or subterrification that contains iron, also contains a small per centage of this new important oxide. Moreover, that where it most abounds there the water is the purest. In the Malvern district, for example, the rocks contain from ten to fifteen per cent. of this oxide; and it is scarcely necessary to add, that its waters are the purest in England. Mr. Spencer has also expounded the principles by which this purifying power is governed, viz., magnetic oxide attracts atmospheric oxygen to its surface; and, when there, the molecules of this gas become polarised, and are thus resolved into ozone—which important body is polarised oxygen.

When formed, ozone attracts the carbon of moist organic matter with avidity; and, by combining with it, carbonic acid is formed. Consequently, the deliquescent organic matter, and mephitic gases existing in impure water are decomposed and converted by means of the magnetic oxide into beneficent and refreshing carbonic acid. Perhaps the greatest practical feature of this invention is the mode by which Mr. Spencer converts ordinary ores into this new most important oxide.

TENWICK, JOHN, Allsion Foundry, Clarendon Street, Landport.—Patent ventilators for sewers, &c.; patent cesspools and gratings.

TYB & ANDREW, Briton Road.—Patent effluvium trap for kitchen sinks; also a means for flushing drains.

UNDERHAY, E. G., Crawford Passage, Clerkenwell, London, E.C.—Underhay’s patent regulator water-closets, high-pressure valves, and basin apparatus. (See page 57.)

WARNER & SONS, JOHN, Cripplegate, London.—Ship and portable water-closets, sanitary contrivances, flushing apparatus for high pressure. (See page 58.)

The inventor, in the course of his professional practice as an architect, has had his attention particularly directed to the following ten frequent defects in house construction:—

1st. The heat in summer and the coldness in winter of a slate roof, and the want of a tiled roof that shall be as light, and hold to the same pitch as slate.
2nd. Wet penetrating brick walls, and the difficulty of preventing except by undue thickness, or the aid of cement, plasters, &c.
3rd. Damp rising up the walls from the foundations (the fruitful source of unhealthy dwellings), and the want of sufficient air beneath the floor for the prevention of dry rot, &c.
4th. Air has been enabled to invent and successfully bring into use the following:—

TAYLOR'S PATENT
TILING FOR ROOFS.—
Slate is generally applicable for roofing, as it admits of being laid to a flat pitch and is light, but is soabsorptive that thirst results in the roof becoming unbearable.

Plain tiling has not this objection, but must be laid to a steeper pitch, is much lower, being nearly of double thickness, and requiring greater strength of timber.

Pan-tiling is lighter, but so pervious to weather, as to be only suitable for sheds and similar buildings.

TAYLOR'S PATENT
FACING BLOCKS.—The defects of ordinary brickwork are:—

1st. Hydraulic cement into whatever substance.
2nd. The through-joints admit wet into the interior.
3rd. A wall one-brick thick, although strong enough, is not stiff enough, there being no vertical bond.
4th. No one-brick wall can be fair inside and outside.

Concrete has not been used in success in walls, as it requires to be retained as in a trench, and its external surface cannot resist the action of the weather.

TAYLOR'S PATENT
DAMP-PROOF COURSE.—In the construction of foundations, three essentials have been hitherto partially effected by as many separate means.

1st. Damp prevented rising up the walls by a layer of absorbent, shed-proof cement, &c.
2nd. The introduction of air by air-vents at intervals.

3rd. Strengthening and bonding by the use of rough York stone, &c.

In the patent damp-proof course, these efforts are combined.

The patent tiles may be laid, to an 1st pitch as slates; their weight is 50 lbs. per square. Countless distinghulishable per square; plain tiling is 84 lbs. per square; pan-tiling is 60 lbs. per square. Thus it appears that it is as light as slating, and less than half the weight of the ordinary tiling. It is thoroughly rain and snow-proof, extremely pleasing in appearance, and combines all the advantages of slates and tiling without the drawbacks attending them. Price the same as plain tiling.

The patent walls have:

1st. A dry area, or space, indiscriminately within the external face, preventing the absorption of moisture, and rendering them cool in summer and warm in winter.
2nd. All the through-joints are intercepted.
3rd. The walls are strengthened by the vertical bond effected by the facing blocks.
4th. The work is fair inside and outside. Concrete for walls is retained by the facing block so in a trench, which also protects it from the action of the weather.

1st. Damp rising is completely prevented, by a highly vitrified and non-absorbent material having an air space through the joints.
2nd. Air is supplied through the perforations, securing a circulation beneath the surface of the walls.
3rd. Strengthening and bonding are effected by the use of an impermeable material, capable of sustaining 600 feet of vertical brickwork upon each superficial foot.

These are economically combined in the one article, with saving one course of brickwork in height in the building.

Constructive specimens of each of the above can be seen in the Court of the Eastern Annex, Class IX.

Three inventions are now being extensively used in churches for the Ecclesiastical Commissioners, the Harrier Hospital now erecting for the War Office, and barracks lately at Hanover, Chester, &c., also form buildings and labourer's cottages for the Crown, and in vast variety of villas and other buildings.

For all further information, supply, &c., apply to the office, No. 58 Parliament Street, W.
**CLASS X.—South-East Court.**

**UNDERHAY, F. G., Crawford Passage, Clerkenwell, London, E.C.—Underhay’s patent regulator water-closets, high-pressure valves, and basin apparatus.**

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<tr>
<th>No.</th>
<th>Description</th>
<th>Price</th>
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<tr>
<td>1</td>
<td>Regulator pan closet, complete, as above</td>
<td>£2 10 6</td>
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<td>2</td>
<td>Regulator valve closet, with flat plate and white basin</td>
<td>2 13 6</td>
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<td>The patent regulator consists of a cylindrical metal vessel, with an internal diaphragm of prepared leather, and valve at the bottom. On lifting the diaphragm the regulator becomes charged with air through side tube, and on depressing it the air is expelled through the small orifice above side tube, by the size of which the time elapsing in emptying the regulator is determined. Price 6s. 6d.</td>
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<td>4</td>
<td>Underhay’s patent lever valve and regulator, with sink dish, handle, and weights. This apparatus can be used with any kind of closet, and can be had fitted complete on an iron frame, dispensing with all trouble in fixing, as it then only requires screwing in the floor (as above). Price 6s. 6d.</td>
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<td>Patent lever valve, with tinned end, sink dish, handle, and regulator.</td>
<td>1 17 6d.</td>
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<td>6</td>
<td>Ditto, with union and regulator.</td>
<td>1 19 6d.</td>
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<td>7</td>
<td>Patent lever self-closing valve, with sink dish, handle, and weights, for supplying hopper basin. Can be screwed to back wood-work. Price, tinned end, 1 16 6d.</td>
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<td>8</td>
<td>Iron frame, fitted with Underhay’s patent regulator, &amp; supply valves, and union, which can be attached to old closets (as above). Price £1.</td>
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<td>9</td>
<td>Underhay’s patent apparatus for washbasin basin, fitted with engraved ivory knob for cold and waste water. Price £1 15 0.</td>
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<td>10</td>
<td>Underhay’s patent self-closing valves (flush with basin when used). Price 0 3 9.</td>
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<td>11</td>
<td>Underhay’s patent equilibrium ball valve for very high pressures. This valve will work equally well under high or low pressures, requiring but a small ball and comparatively short rod. The water continues to run out as till the governor is nearly full. Round shank, price, with copper ball, 6 7 2 (57).</td>
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<td>12</td>
<td>Improved extra strong round-way screw-down bib and stop cocks; those cocks cannot leak between the spindle and cap, are very durable, easily re-washed, and specially calculated for high service and constant pressure. Bib, round shank, price, 6 in. 0 5 0. Stop, price, 6 in. 0 5 0.</td>
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Warner & Sons, John, Crescent, Cripplegate, London.—Ship and portable water-closets, sanitary contrivances, flushing apparatus for high pressure.

Obtained a Prize Medal in 1851.

John Warner & Sons, bell and brass founders to Her Majesty, hydraulic engineers, and manufacturers of fire engines, ships' pumps, patent brass and iron pumps, garden engines, heaps, urns, brassery goods, plumbers' work, water-closets, cistern and gas cocks, lead, tin, and copper pipe, imperial standard weights and measures.

No. 125.—Warner's patent pan closet, with regulating valve for high or low pressure. Any number of these closets can be fixed to one cistern.

No. 146.—Warner's spring valve closet, on cast-iron frame, with vulcanised india-rubber valve and patent supply valve attached. Any number of these closets can be attached to one cistern.

No. 287.—Welsh's brass lift and force pump for house purposes.

No. 290 and No. 284.—Warner's screw-down stop and bil cocks for high pressure.

No. 280.—Round shank bil cock.

No. 243.—Stop cock. Closets and cocks in great variety.

No. 216.—Patent equilibrium ball valve, with copper ball and rod, for the supply of cisterns at high or low pressure.

Baths of John Warner & Sons' manufacture can be had made in copper, tin, and iron, or any size; also, brass boilers, gas boilers, or tin and copper cisterns, for supplying baths, wash-rooms, or bed-rooms with hot water.
Woodcock, W., 26 Great George Street, Westminster.—Close stoves, open fire-places.

Steam or Hot Water Battery, for greenhouses, halls, &c.

Advantages—The condensing into a space of 14x15 inches the power of 25 feet of 4-inch pipe, inducing circulation of the air, and the ability to produce at will a perfectly dry, partially damp, or saturated atmosphere.

Price £2 5 0 each.

"The Gurney Stove," used in the Houses of Parliament, the Department of Science and Art, in numerous cathedrals, including St. Paul's and York Minster, and in many hundreds of churches, public buildings, and private houses.

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Ventilating Fresh Air Grate—Is set in a chamber, and has radiating wings at the back, to which fresh air is admitted direct from the outer source, and warmed before passing through the front openings of the grate into the room. It is to a great extent a smoke consumer, prevents all draughts from doors and windows, and consumes about half the usual quantity of coal. By means of open spandrils, or otherwise, this stove can readily be adapted to any front required.

Price, from £2 3 0 upwards.
WOODWARD, James, Swadlincote, Burton-on-Trent.—Terra cotta chimney-tops, glazed sewerage-pipes, garden-edgings, &c.

HAGAN, C., Office of Works, Tower of London.—Ventilating chimney tops.

MUNRO, W., Inverness.—Models of labourers' cottages, &c.

TAYLOR, J., Jun., 53 Parliament Street.—Sanitary building appliances. (See page 58.)

BLANCHARD, Mark Henry, 74 Blackfriars Road, London.—Patent articles in terra cotta.

1. Portion of a flight of patent terra cotta fireproof stairs, possessing great advantages over the ordinary stone stairs, in being fireproof, more durable, stronger, and, even with all the additional decorating, cheaper than stone.

2. A variety of useful articles and ornamental work, including tile for window heads.

BOUCENE, A., 48 Warren Street.—Three statuary French and Italian marble chimney pieces: style, Louis Quatorze; Louis Seize; Italian.

THE COUNCIL OF THE ARCHITECTURAL MUSEUM, 18 Stratford Place, W.—Architectural and decorative carvings in stone and wood.

CLAY, C., 21 Sidmouth Street, Regent Square.—Inlaid marble table.

EARLY, Thos., 1 Kennington Road, Lambeth.—Marble, alabaster, and stone reredos; stone drinking-fountain; alabaster chimney-piece; oak lectern.

EDWARDS, Bros., & Burtt, 142 and 144 Regent Street.—Three sculptured statuary chimney-pieces; medieval monument. (See page 61.)

FIELD, W. B., Parliament Street.—A marble column.
EDWARDES, Bros., & Burke, 142 and 144 Regent Street; and 29, 30, and 31 Warwick Street, 17 Newman Street, Oxford Street; Carrara, Brussels, and Invernettie, N.B.—Three sculptured statuary chimney-pieces; medieval monument.
Forsyth, James, 8 Edward Street, Hampstead Road, London.—Working model of statuary marble font, with carved oak cover. Executed for the Earl of Dudley, and fixed in Witley Church. Designed by Mr. S. W. Dankes, Architect. Richly carved oak bench ends for choir of Chichester Cathedral. Designed by Mr. William Slater, Architect.
Chimney-piece executed in carton pierre. The peculiar advantage of this mode of execution over wood is, that the material is not liable to shrink through heat. Greek candelabrum, executed under the direction of C. R. Cockrell, Esq., R.A.; griffins, with candelabrum between; Louis XVI. door and over-door; various mouldings; cornices; centre flowers for ceilings; room cornices; compartment of ceiling, &c., showing the advantages of the material for lightness, sharpness of detail, and relief.
Magnus, George Eugene, 30 and 40 Upper Belgrave Place, S.W.—Enamelled slate bath, billiard-table, chimney-pieces, door-way, stoves, &c.

Obtained the Prize Medal in 1851, and two First-class Medals at the Paris Exposition, 1855. Also, Medal of the Society of Arts.

1. Hall Table.—Representing Irish green, Verona, Sienna, and Green marble; base halliard circle in back, with mixed alabast and spheres.
2. Hot-water Comm. Case.—Black, with inlaid mosaic plaques; Verona cups and bases.
3. Staircase (portion of) — Representing Sienna marble, with bronzed metal stringings and balusters, serpentine steps, and hand-curl; treads, risers, and rellis in grooves, and movable.
4. Bath.—Enamelled pale green, with porphyry casing and coping, step, and riser.
5. Lavatory Fittings.—Enamelled pale green wall-lining, and pink granite shelves and brackets.
6 to 13. Chimney-Pieces — Representing various marbles, and fitted with suitable grates for dining-rooms, drawing-rooms, libraries, &c.
14. Pemmler and Vase.—Porphyry, inlaid black, with ornamental mountings.
15. Pen Tray.—Two carved pen trays, enamelled over de mer.
16. Cabinet with Slate Top.—The top of Sienna, inlaid with Florentine sprig, &c. &c.
17. Pulveriser.—Ground of Flore di Perseo, inlaid with trias halliard, Sienna, and other marbles, and bird centre.
18. Pedestal Stove.—Porphyry, with fire-stone interior.
19. Billiard Table.—Magnus’s patent, with rich Florentine mosaic subjects inlaid in morion panels, on Verona ground.
20. Pair of Slate Doors.—Verona, with malachite rock panels, enriched with ornamental mountings; the centre of malachite, with Florentine subject; the architectural mountings of serpentine; wall-lining of rich Sienna, surmounted by cabinet of Irish green, with serpentine moulding, and white figures and scrolls represented in relief.
21. Four Altar Tables.—Enamelled black, with sunk gilt letters and illuminated capitals.
22. Slate Clock, with Florentine bird and gilt moulding.
23. Illuminated Clock, with enamelled slate case; base halliard and various marbles, with rich metal mountings.
24. Ettrickian Vase (three) for Ettrickas chimney-piece.

Magnus’s Enamelled Slate obtained the medal of the Society of Arts, the prize medal of the Great Exhibition, 1851, and two first-class medals at the Paris Exposition. It is patronised by her Majesty the Queen, by the Empress of the French, by the princess of India, has been used in the seraglio at Constantinople, and in most of the Continental palaces. It is largely employed in Government buildings, in clubs, first-class hotels and railway stations; and is recommended and extensively used by our best architects in the mantles of the nobility and gentry. It is also adapted to houses of less pretensions, being handsomer, more durable, and not nearly half the cost of marble.

Articles Made:

Chimney-pieces.
Cabinet stoves.
Baths and fountains.
Console slabs and brackets.
Hall tables.
Sideboards.
Hot water coil cases.
Columns and pilasters.
Vases.
Pedestals for statues and busts.
Altar tables.
Clock dial.
Chess and other table tops.
Washstand and dressing table tops.
Wall linings.
Dress-plates and handles.
Dairy and butter fittings, including wall lining to door.
Billiard tables, &c. &c. &c.

Interior imitations of these beautiful productions are now being made. Architects are requested, in order to protect the public, themselves, and the inventor, to observe that the name of "Magnus" is on the underside of each piece.

Plain slate works all descriptions in a very superior style, and at low charges. Shippers and merchants will find Magnus’s Enamelled Slate more suitable for export than marble. Its great strength, ten times that of vein marble and statuary, renders it safe from breakage. For the frames and legs of billiard tables it is the only material that will withstand the effects of climate. (See Report of the Juries of the Great Exhibitions, p. 571.)
Mitchell, J., Walton Street, Brompton.—A marble chimney-piece.
CLASS X.—Civil Engineering, Architectural, and Building Contrivances.

GEORGI, GIUSEPPE, 18 Homer Street, Lambeth.—Scagliola imitation of Florentine mosaics; ornamental models for marble chimney-pieces, ceilings, &c.

GOMM, HENRY J., 18 Royal Street, Lambeth.—Portion of a Caen stone chimney-piece, illustrating the “Cock and Jewel.”

HAMMER, J. M., 10 Thornhill Bridge Place, Caledonian Road.—Models of architectural ornaments.

JACKSON & SONS, GEORGE, 49 Rathbone Place, Oxford Street.—Specimens of carton pierre enrichments for architectural purposes. (See page 63.)

MAGNUS, GEORGE EUGENE, 39 and 40 Upper Belgrave Place, S.W.—Enamelled slate bath, billiard-table, chimney-pieces, door-way, stoves, &c. (See page 64.)

MITCHELL, J., Walton Street, Brompton.—A marble chimney-piece. (See page 65.)

PALMER, JOHN EARLE, Guildhall, Swansea.—Model of a font, in Maltese stone.

PALMER, J. E., Swansea.—Model of a font.

POOLE, HENRY & SON, 11 Great Smith Street, Westminster.—Marble mosaic pavement; incised and inlaid surface decoration in alabaster and stone.

Marble mosaic pavement, manufactured for the choir of Chichester Cathedral, from the designs of Mr. William Slater, architect. The portion exhibited comprises the richest part of the pavement. The central compartment will be placed immediately in front of the communion table. The entire work is composed of different kinds of marble, English and foreign. The design of the central portion shows a combination of conventional foresetted ornament, with geometrical patterns. The foresetted border is composed of Verde di Prata, Griotte, &c. The central area, with the circle around it, is also much enriched with foresetted ornaments in Italian, English, and Irish marbles. A considerable portion of the pavement is composed of rich geometrical patterns, so arranged as to give varied alternations of colour.

Doorway in Steepleton Stone, designed by Mr. William Slater, architect, is to form the entrance to a mortuary chapel, now being built at Sherborne, for G. D. W. Bigby, Esq.

The following marbles are employed in the shafts:—

Red Devonshire spar, Irish green, Italian Sienne (yellow), and Staffordshire alabaster. The carving is executed by Mr. Samuel Poole.

Specimens of surface decoration:—

Staffordshire alabaster, incised and filled in with cement.

Inlaid Staffordshire alabaster of various tints.

Inlaid English marbles of various colours.

Marble mosaic.

Inlaid marble pavements, &c. &c.

PULHAM, JAMES, Bradbourne.—Architectural and garden decorations, fountains, vases, figures, flower baskets, candlesticks, &c., in terra cotta.

RICHARDSON, E., Harewood Square, London.—Mural monuments, &c.
Class X.—South-East Court.

[2443]

Robertson & Hunter, Polished Granite Works, Wellington Road, Aberdeen.—Drinking fountains of Aberdeenshire granites.
The exhibitors manufacture fountains, pedestals, stones, and all kinds of mural and other monumental columns, chimney-pieces, table tops, vases, carving decorations.

[2444]

Serpentine Marble Company, 5 Waterloo Place, Pall Mall.—Vases, font, and pedestals.

[2445]

Stanley, W., Brighton Cottages, Earl Road, Old Kent Road, Camberwell.—Enamelled slate, stone, and marbled glass.

[2446]

Thomas, J., 32 Alpha Road, Regent's Park.—Carved chimney-piece, with room and cornice decorations, for Her Majesty the Queen.

[2447]

Hartley, F. H., & Co., Earl Street, Horseferry Road, Westminster.—An Elizabethan Baronial chimney-piece, in various marbles.

[2448]

Hartley, T. H., Westminster.—An Elizabethan Baronial carved bardill marble chimney-piece, with niches for figures.

[2449]

Poole & Son, Great Smith Street, Westminster.—Specimens of marble mosaic, and inlaid pavement.

[2450]

Spurgeon, B. W., Derby.—Chimney-piece surmounted by frame, illustrating the capabilities of Martin's cement.
MILITARY ENGINEERING, ARMOUR AND ACCOUTREMENTS, ORDNANCE AND SMALL ARMS.

Sub-Class A.—Clothing and Accoutrements.

Carter, Lieut.-Col., Monmouth.—New accoutrements and boots for the soldier, the sportsman, and the tourist.

Obtained the large silver medal of the Society of Arts in 1847, for his suspension of a knapsack.

The weight of the knapsack falls equally on both shoulders, while the chest and arms are free. By means of the straps, the gun, the fishing rod, the artist's easel, &c., can be carried on the shoulders, where they ride the lightest, without the necessity of holding them with the hand, thus freeing the arms entirely for walking; and by means of the iron bars, being immediately under the shoulders, a considerable amount of weight can also be most conveniently carried. The basket can be increased in size, if desired, either for fish or game.

Cattanach, William, Sporrer Maker, Bankfoot, near Perth.—Highland dress purses or "sporrans," with improvements.

Firmen & Sons, 153 Strand, London, and 2 Devon Street, Dublin.—Metal buttons and military ornaments.

Holmes, Thomas, 15 Princess Terrace, Regent's Park, and 22 John Street, Edgeware Road.—Improved self-acting cartouch box and military gaiter.

MacKenzie, Captain J. D., R.E. Office, Devonport.—Light volunteer knapsack.

Mitchell, H., 39 Charing Cross.—Photographs of British war medals, &c.

Munn, Major, Threeway, Kent.—Cartouch-box, compact, light, and waterproof.

Troubridge, Colonel, Sir Thomas, Br., C.B., 8 Queen's Gate, W.—Volunteer or tourist valise, suspended by a metal yoke.

O'Halloran, Col., 50 Elgin Crescent.—Experimental knapsack for infantry, and a sporran.
CLASS XI.—Military Engineering, Armour and Accoutrements, Ordnance and Small Arms.

SUB-CLASS B.—Tents and Camp Equipage.

CLAIRK, William Henry, 3 Vernum Place, Bloomsbury.—Models of ambulance wagons, &c.

COTTON, Charles Philip, 8 Lower Pembroke Street, Dublin.—Model of improved tent.

EDGINGTON, Benjamin, Duke Street, London Bridge.—Military tent, with stove, and models of other tents.

Obtained a prize medal in 1851.

Models and Drawings of Military Tents and Marquees.—Marquees, suitable for military purposes; also for agricultural and horticultural exhibitions, dinners, public meetings, &c.

Improved Military or Travelling Tent.—The two porches, and the complete ventilation, are improvements of great value—it can be erected with ease by two men; while its peculiar shape offers most effectual resistance to wind and rain.

(70)
The exhibitor manufactures tents of all nations in silk or bunting; cricket marquees and tents; rick cloths; wagon cloths; engine and machine covers; sacks, ropes, &c.

Monster new marquees and tents may be had from the exhibitor on hire. Handsome and capacious marquees lined, floored, lighted, and tastefully decorated. For the erection of these marquees experienced workmen are sent to all parts of the kingdom.

The marquee shown in the illustration, 200 feet long by 40 feet wide, was erected at Lord Brownlow's, Great Berkhamstead, in October, 1860, upon the occasion of the Herts rifle contest.

The second illustration shows a square tent, of novel construction, without a pole in the centre, whereby an unbroken space is secured. This invention claims novelty as well as utility; it is light, portable, very strong, easy of erection, extremely simple, pretty, and cheap.

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Egginton, Frederick, Thomas Street, Gloucester Place, Old Kent Road, London.—Marquees and tents.

<table>
<thead>
<tr>
<th>Size (ft)</th>
<th>Price (£)</th>
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<tbody>
<tr>
<td>6 square</td>
<td>5 0 0 0</td>
</tr>
<tr>
<td>8 square</td>
<td>6 10 0</td>
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<tr>
<td>10 square</td>
<td>8 10 0</td>
</tr>
<tr>
<td>12 square</td>
<td>10 10 0</td>
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Pichler, F., 162 Great Portland Street.—Folding and self-supporting tent.

Rhodes, Major G. (S. W. Silver & Co., 34 Bishopsgate Street).—Portable waterproof tents.
Turner's Patent Tents and Marquees—Adapted for military camps and hospitals; anglers, sportsmen, emigrants, tourists, gold diggers, &c.; also for railway and mining operations abroad.

These tents are suited to all climates; are perfectly waterproof; resist both heat and cold; are provided with every useful appliance for sleeping and cooking; are thoroughly ventilated; of great strength and stability; can be pitched and struck with ease and expedition; and stowed away compactly for transport. The chimney forms the support to the roof, and when packed occupies less space than a pole.

The hammocks are suspended at a sufficient distance from the ground, to keep the occupant dry, and out of the influence of those night damps which act so fatally upon man.

The ventilation is easily controlled by means of the sliding hood; and the screw pegs possess the greatest holding power—one weighing only 1 lb. being capable of a resistance of from 700 lbs. to 800 lbs. in ordinary turf.

Turner's Patent Tents and Marquees—Adapted for military camps and hospitals; anglers, sportsmen, emigrants, tourists, gold diggers, &c.; also for railway and mining operations abroad.

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Turner, Geo., Northfleet, Kent.—Improvements in the construction and fittings of tents and marquees (patented 1855).

Unite, John, 130 Edgware Road, Paddington, W.—Model of rick-cloth marquee, 30 ft. by 15 ft.; and round tent.
CLASS XI.—South-East Court.

SUB-CLASS C.—Arms, Ordnance, &c.

[2595]

Adair, Colonel Shapto, 7, Anerley Square.—Military model of London and the adjacent country, in relief.

MILITARY MODEL OF LONDON.

Colonel Adair, A.D.C., to the Queen, Designer and Exhibitor.

Materials: Wilder & Sons, New Cross, S.E., Modellers.

This model shows the defensive capabilities of London by forts, redoubts, and continuous lines, on an area of 23 x 14 miles.


S.E. 1700 R.W. 1840 N.W. 1840 E. 7 1350 — 48 000
S. 10 425 W. 1 665 N. 1 395 E. 1 7150 — 50 000

Each face of this polygon represents a line of battle, of which the works at the angles give points d'appel; and the intermediate works supports.

The scale is of six inches to the mile, with vertical augmentation to give appreciable relief. The ground slopes outward, at a favorable angle for manœuvreurs and artillery fire. Sixty-two roads permit the sortie, which an interior railway system facilitates; and streams supply means of inundation, as in the marshes of the Lee and of the Brent.

The forts and permanent works are on the German type, as best adapted to defence by direct fire, and by sorties.

For it is assumed that the fire of breach-loading ordnance, and of volunteer infantry will supply the principal defensive power; whereas, in order to obtain effective fire, no re-entering angle, or angle of defence, should be less than a right angle.

It is also desirable that the works should be of a simple type, but formable, from a wide front of fire.

The forts are adapted to prolonged resistance; the redoubts secured from inmut; the lines completely swept by manœuvreurs and observed, in reverse, by the permanent works.

The slopes of the country are followed, so as to give low angles of depression from ramparts secured from enfilade.

The suit of calculation for construction and armament—600 yards.

The forts and large redoubts are constructed in brick.

The lines are in earth, with a core in concrete; the main ditch has a concrete, and wide ramps for sorties. Morier batteries are constructed with parades. The lowest command—22 feet.

The casemated batteries are recessed, so that a rolling projectile would clear in descent the angle included between the terre-plein, and the face of the casematte.

The flanks of the bridge-heads on the W. and N.W. fronts are based on sides of a triangle, whose base coincides with the mid-stream line.

The armament is calculated on the regulated war scale, less the difference between the mean service ranges of rifled and smooth-bored guns, multiplied into the relative rapidity of fire from breach-loading and muzzle-loading ordnance. This difference, on equiva-

<table>
<thead>
<tr>
<th>Exterior sides</th>
<th>Lines of</th>
<th>Drawings</th>
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<tbody>
<tr>
<td>S.E. Anerley</td>
<td>1700</td>
<td>1440</td>
</tr>
<tr>
<td>S. Kingston</td>
<td>1000</td>
<td>1480</td>
</tr>
<tr>
<td>S.W. Peckham</td>
<td>1250</td>
<td>1080</td>
</tr>
<tr>
<td>S.W. Hereford</td>
<td>2000</td>
<td>1860</td>
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<tr>
<td>S. Harrow</td>
<td>1300</td>
<td>1130</td>
</tr>
<tr>
<td>S. Hendon</td>
<td>2000</td>
<td>1650</td>
</tr>
<tr>
<td>E. Brentwork</td>
<td>500</td>
<td>415</td>
</tr>
<tr>
<td>E. Kent House</td>
<td>2000</td>
<td>1650</td>
</tr>
</tbody>
</table>

For volunteers—40.

* Including Woolwich Lines; 1 Including Woolwich Lines.

** Including Batteries; 1 Including Batteries.

ESTIMATES, Acres.

Land—Forts ... 1,462
Works ... 4,435
Lines ... 5,925

Works—Forts ... 14,921
Works ... 5,460,000
Lines—Artillery ... 820,000

Ministry ... 920,000

Gunners, 1,362—Including 350 carriages ... 300,000

£2,136,525

(73)
Class XI.—Military Engineering, Armour and Accoutrements, Ordnance and Small Arms.


Honourable mention at the Paris Exhibition, 1855.

The remaining stock of these rifles (of which specimens are exhibited), along with the sole right of manufacture, is to be sold on moderate terms; and also an entirely new breech-loading cannon, believed to be the most simple, rapid, and effective system of breech-loading for cannon yet invented. It may be seen by applying to E. Arkill, or to John Gilby, the inventor and patentee, Beverley, Yorks.


[2511] Bayliss, E. & Son, St. Mary’s Square, Birmingham.—Military implements.

[2512] Bielefeld, Charles, 21 Wellington Street, Strand.—Gun-wads, and cartridges.

[2513] Birmingham Small Arms Trade, Birmingham.—Military rifles and guns, and pistols of various descriptions. (See page 75.)


BLAKELY ORDNANCE.

Class XI.—South-East Court.

Birmingham Small Arms Trade, Birmingham.—Military rifles and guns, and pistols of various descriptions.

Specimens of Military Arms manufactured by the Birmingham Small Arms Trade for the English and Foreign Governments—

1. Small bore (.451) rifle, with wind gauge sight.
2. Small bore (.451) rifle, plain quality.
3. Short Enfield rifle, .777 bore, with sword bayonet.
4. Cooper's, .777 bore, with sword bayonet.
5. Enfield rifle, .777 bore, with bayonet.
6. American infantry rifle, .669 bore, with bayonet.
7. Italian infantry rifle, .700 bore, with bayonet.
8. Brazilian infantry rifle, .584 bore, with bayonet.
11. Engineer's rifle (Lancaster's patent), .777 bore, with sword bayonet.
12. Cooper's rifle, .777 bore, with bayonet.
13. Artillery rifle, .777 bore, with sword bayonet.
14. Contadelory carbines, .468 bore, with bayonet.
15. Cavalry rifle carbine, .777 bore.
16. Cavalry rifle pistol, .777 bore, 10-inch.
17. Cavalry rifle pistol, .777 bore, 8-inch.

Bentley and Playfair, Birmingham, Manufacturers.
22. Breech-loading double-barrel flint-lock, with front action lock.
23. Enfield's patent breech-loading double-barrel flint-lock, with conical action to slide barrels forward.
24. Small bore, .661 rifle, with wind gauge sight and movable shade.
25. Small bore .461 rifle, full stocked, wind gauge sight, with shade.

Cooper and Goodwin, Birmingham, Manufacturers.
28. Cooper's patent breech-loading rifle.
29. Cooper's patent breech-loading rifle.
30. Case containing a section of Cooper's patent breech-loading rifle, and parts with cartridges for the same.

James Hollins and Sons, Birmingham, Manufacturers.
32. Small bore, .461 rifle, with wind gauge sight, and "Aston" pattern rifle, warranted not to foul.
33. "Hay" pattern rifle, with 36-inch .777 bore barrel and wind gauge sight.
34. Double-barrel flint-lock, with laminated steel barrels.
35. Double-barrel breech-loading flint-lock.
36. Isaac Hollins and Sons' improved rifle sights and protectors.

King and Pickrell, Birmingham, Manufacturers.
37. One rifle carbine, with patent breech-loading action.
38. One pistol hand breech-loading gun, sixteen squared barrel.

Joseph Smith, Birmingham, Manufacturer.
40. Double gun, steel barrels.
41. Double gun, with Damascus barrels.
42. Single rifle, .461 bore, wind gauge sight.
43. Pair of under and over pistols, and implements.
44. A set of best gun implements.
45. A set of second quality gun implements.

C. P. Swinburn and Son, Birmingham, Manufacturers.
46. Bailey's patent breech-loading military rifle, with bayonet.
47. Bailey's patent breech-loading rifle carbine for cavalry.
48. Small bore rifles, with patent lock and quadrant sight.
49. Swinburn's small bore rifle, with Newton's patent sight.
50. Case containing skeleton action, showing the principle of Bailey's patent breech-loader, with all its parts.

Tipping and Laxness, Birmingham, Manufacturers.
51. Breech-loading double rifle.
52. Breech-loading single rifle.
53. Muzzle-loading shot gun.
58. Dressing case, fitted with patent repeating pistol.

Thomas Turner, Birmingham, Manufacturer.
59. Turner's patent rifle match, with bayonet, .459 bore.
60. Turner's patent rifle, plain, iron mounted, with conical fore sight, with shade.
61. Turner's patent rifle, windage back sight, conical fore sight, with shade.
62. Turner's patent rifle, best full stocked, with Turner's improved windage fore sight.
63. Turner's patent rifle, half stocked, pistol hand-octagon barrel, with Turner's improved windage fore sight.

James Wrenley, Birmingham, Manufacturer.
64. Wilson's patent breech-loading military rifle, .777 bore, with bayonet.

B. Woodward and Sons, Birmingham, Manufacturers.
68. Best muzzle-loading double gun.

Payne and Briner, Birmingham, Manufacturers.
69. Gun barrels in different stages of manufacture.

Wm. Tranter, Birmingham, Manufacturer.
70. Tranter's patent double action revolver, gilted.
71. Tranter's patent double trigger revolver, gilted.
72. Tranter's patent military gun locks, made by machinery, to interchange.
CLASS XI.—Military Engineering, Armour and Accompaniments, Ordnance and Small Arms.

[ 2516 ]

BREECH-LOADING GUN COMPANY, Great Portland Street, London.—Guns, rifles, rests, slings, stadimeters; military percolators (patented).

The following are exhibited, viz.—Single and double rifles, both military and sporting, secured by "Leetch's" and "Sturrock's" patents. They are rifled on "Scott's" patent cylindrical principle; no special cartridge or wad is required; and they are the only breech-loaders which take the Government ammunition, with the skin, or any other whole cartridge. Sturrock's registered sliding rifle rest; the stadimeter, for judging distance, has been adopted by Government; King's registered rifle slings; Herr Mott's porous charcoal military water filters; Lefauchaux and muzzle-loading shot guns. All communications must be addressed to "The Secretary."

[ 2517 ]

BEIDER, GEORGE, 30 Bow Street, Covent Garden, London.—Implements for breech and muzzle-loading firearms.

[ 2518 ]

BRINE, Lieut., R.N., Army and Navy Club.—Model of Crimean monument; specimens, &c.

[ 2519 ]

BROTTEN, BASHLEY, Redhill.—Projectiles for rifled cannon.

[ 2520 ]

BROWN, CAPTAIN, Abbey Mills House, Romsey.—Artificial parchments; compressed gunpowder cartridges; solid paper tubes; self-lubricating ramrod.

[ 2521 ]

BROWN, JOHN, 8 Shelley Terrace, Stoke Newington.—Repeating pistol, to fire fourteen times without reloading.

[ 2522 ]

BURNETT, CHARLES J., Edinburgh.—Various firearms; ante-Crimean-war elongated projectile, chain-shells, and other projectiles.

[ 2523 ]

CALISHER & TERRY, 24 Whittall Street, Birmingham, and Norfolk Street, Strand.—Terry's patent breech-loading rifles and pistols. (See page 77.)

[ 2524 ]

CLINTON, LORD ARTHUR PELHAM, R.N., & HART, GEORGE W., Southsea.—Shot-proof port, or embrasure, fitted for batteries or ships of war.

[ 2525 ]

CULLING, CHARLES, Downham Market, Norfolk.—Patent safety gun.

[ 2526 ]

D AV, GEORGE H., 57 Threanthistle Street, London.—Patent central fire breech-loading gun and cartridge. (See page 78.)

[ 2528 ]

DONNELLY, Capt., R.E., South Kensington Museum.—Rolling drawbridge, requiring neither counterbalance, weight, nor extra length.
CALISHER & TERRY, Whitfield Street, Birmingham, and Norfolk Street, Strand.—Terry's patent breech-loading rifles and pistols.

"The Times," July 22nd, 1858.

"A breech-loading rifle carbine, the invention of Mr. Terry, of Birmingham, has been under test on board Her Majesty's ship Excellent, under the superintendence of Captain Hewlett, C.B., from May 16th until the present time; during which time 1,800 rounds have been fired from it with unprecedented accuracy at various ranges, without cleaning the weapon; which, notwithstanding, gives no recoil; in proof of which Captain Hewlett gave the inventors the following certificate, which is fixed on the stock of the gun:—

'This is to certify that I have seen 1,800 rounds fired from this rifle without cleaning.
July 28, 1858.
R. H. HEWLETT.'

The rifle missed fire but twice in the 1,800 rounds, and, whether discharged by officer or man, 86 per cent. were "hits." Yesterday the rifle was taken to the camp at Beowadown, and its capabilities exhibited before the troops and Instructors in Munition of the 15th Foot (Lieutenant Cutbush) and Royal Marine Light Infantry (Major Lowder). The practice at 700 and 800 yards was marvellous, notwithstanding a very powerful wind, and will be continued to-day. Its advantages over the old piece are, light in weight and five shots to one in time of firing; giving it the advantages of a revolver with a tremendous range, and no necessity for cleaning out under about a couple of thousand rounds."

The Terry rifle has, since the publication of the above, been supplied to the Sydney Government for the whole force of the mounted police; to the rifle corps at Queensland, Australia; to the whole of the free rifle corps, Adelaide, South Australia; to the mounted police of Auckland, New Zealand; to several companies of volunteers at the Cape of Good Hope, Bombay, Madras, Kurrachee, India; to the whole of Her Majesty's 18th Hussars stationed at Brighton; and to a mounted volunteer corps at Shanghaï, China.

The Adelaide free rifles have accepted many challenges, and have won every prize for which they have contended; including the gold cup and other prizes at Melbourne.

The Terry rifle is much prized by many sportmen in England, and has been supplied to His Majesty the King of Denmark.
The extreme simplicity, safety, additional strength, and uniformity in shooting, of the above valuable patented invention, renders it the most perfect breech-loader ever yet produced. The parts are made by novel and patented machinery, insuring a degree of cheapness and accuracy never before attained.

No. 1. Gun complete.
No. 2. Gun opened ready for loading.
No. 3. Part of stock, with hinged fore-part, showing connection for barrels.
No. 4. Form of cartridge, with cap in the centre, and below the surface.
No. 5. Section of cartridge, showing brass cup, with communication hole in centre, and direct into the charge.
No. 6. Percussion cap, with brass anvil inside, ready to be placed in breech, as shown in Nos. 4 & 5.
No. 7. Percussion cap.
No. 8. Brass anvil, with grooves for communicating the flame to the powder. The conical end is placed towards the fulminate, and receives the blow of the piston from the fall of the hammer.
No. 9. Bottom of anvil, showing the grooves and front part, which rest against the shoulder inside the cup, for resisting the blow of the piston.
No. 10. Piston points, for exploding percussion caps.

We have carefully examined the weapon ourselves, and we earnestly recommend it to the attention not only of our sporting readers, but also to the whole of the gun-making fraternity.

(Extract from Hell's Life, Nov. 8, 1861.)

"The gun which is represented above has been tried in our presence with complete success by Mr. Daw, the well-known gunmaker, of Threadneedle Street, London. We therefore do not imagine that there will be the slightest tendency in this gun to get out of order, and, as far as we have been able to try it, we have the highest opinion of its merits."

The principle illustrated in the gun exhibited is applicable to every description of firearm.
Class XI.—South-East Court.


Patent lockfast breech-loaders, the mechanism of which interlocks the barrels and stock by a powerful lever and eccentric rod.

Davies, Charles, 10 Denmark Street, Soho.—Gun locks.

Du Cane, Capt. Edmund Frederick, 13 Victoria Road, Kensington, London.—Iron forts: self-balanced iron shutters; rolling drawbridges, &c., without counterweights.

Embally, Samuel, Shrewsbury.—A pair of double sporting guns and rifles; a double breech-loading gun, a double rifle.

Fairman, James, 23 Jermyn Street.—1 double breech-loading gun, with sliding barrels; 1 double breech-loading gun, with drop barrels.

Fawcett, Preston, & Co., Liverpool.—Gun on carriage and boat-slide combined, for land and sea service.

Fawcett, Preston, & Co., are the designers and manufacturers of the rifled gun and wrought-iron carriage, for mountain service and mule transport. This gun carries a 7th. shell or 6th. solid shot, and gives, with an elevation of 5°, a range of 1,800 yards, and is also specially adapted for a boat gun, for use aboard or ashore. The exhibitors have adapted to the carriage above illustrated a wrought-iron boat slide of simple construction, which, by the addition of a pair of wheels on board, is converted into a land carriage, and can be run ashore, obviating the inconvenience of carrying a separate carriage specially for land service in the boat, and lessening the difficulty of transferring the gun from the boat slide to the land carriage in the ordinary way.

Fawcett, Preston, & Co. also manufacture all descriptions of heavy ordnance and field artillery complete, with carriages, limbers, &c. &c., in brass, steel, or iron, smooth-bored or rifled. They are also licensees under Blakely's patent.

Fawcus, George, Alma Place, North Shields.—Civil and military scaling ladders.

Key-bolts connect the ladders (in lieu of lashings); cleats, at the jointings on the side pieces, meet and support the ends, forming a continuous smooth surface for the hand to grasp and slide along.
FOWKE, Capt. Francis, R.E., Park House, South Kensington.—Collapsing canvas boat pontoons; fire engine for military purposes. See SHAND & MASON, Class VIII.

FOX, Capt. & Lieut.-Col. A. Lane, Grenadier Guards, Park Hill House, Clapham, S.—Model illustrating the parabolic theory, for the range of projectiles in vacuum.

The three forces which combine to influence the flight of a projectile in the air are—

1. The velocity caused by the exploded gunpowder producing a movement of transition, in continuation of the axis of the piece; 2. The force of gravitation drawing the ball to the ground; and, 3. The resistance of the air. The parabolic theory deals only with the first two forces, viz., the movement of transition and the movement of gravitation.

In the model of the parabolic theory of projection in vacuum, the movable bar, to which the wires with white heads at their ends are attached, represents the line of fire. This bar can be set to any angle of elevation or depression. The movable bar is divided into 30 equal parts, representing the points at which the bullet, if influenced by the force of transition only, would arrive at the end of each successive second of time. In the present instance, it is supposed to move at the small velocity of 221.6 feet, or 107 yards, per second. From each of the thirty points on the movable bar a wire is suspended, with a white head at the end; these wires increase in length, as the squares of the times according to the fall of gravitation, at each successive second of time. By this means a uniform curve is produced throughout the parabola, each bend representing one second of the actual flight in vacuum. The parallelogram apparatus is movable on pivots, by which it may be adjusted to any angle at which the movable bar may be set, the three points of the parallelogram always coinciding with the ends indicating the tenth, twentieth, and thirtieth second of time; thereby demonstrating, at all angles of elevation or depression, the operation of a compound force. To show how the range on any plan may be obtained from the impetus, another contrivance has been added to this model. The impetus is the height to which the ball would ascend if fired vertically. As the distance of four times the impetus a protractor is fixed, and a movable arm is used to hold a thread, with a weight at the end, upon the horizon of the board. To use it, mark off on the protractor an angle equal to the elevation, prolong the line till it touches the line of fire, let fall a vertical line upon the plane, and the intersection will be the range upon the plan.

For further particulars, see the "Journal of the Royal United Service Institution," volume v., page 467.

GARDEN, R. S., 29 Piccadilly.—Punt gun on Prince's breech-loading principle.

GIBBS, George, Corn Street, Bristol.—Breech and muzzle-loading double guns; sporting and target rifles.
Gladstone, Henry, & Co., 22 Lawrence-Pountney Lane, London.—"Capt. Haye's seamless skin cartridge."


Grainger, James, 60 Vyse Street, Birmingham.—Gun, pistol, rifle, and military locks.

Greenfield, John, & Son, 10 Broad Street, W.—Portable Minie bullet compressing machine; selection of bullets, bullet-moulds, &c.

Greener, William, Rifle Sill Works, Birmingham.—Bifle artillery, double guns, rifles, &c. Awarded First Class Medals, Exhibition, 1851; New York, 1853; and Paris, 1855, Two Silver Medals. William Greener is the inventor of the present Elephant, lion, and tiger shell rifles. Harpoon and sealing guns. Punt and all other descriptions of guns for wild fowl shooting. The exhibitor contracts for every description of naval and military small arms to any extent.

Hale, William, 6 John Street, Adelphi.—Hale's war rockets, comet shells, and apparatus for directing their flight.

Harrington, Josiah, 6 Lansdowne Terrace, West Brixton, S.—A self-capping rifle.

Hemming & Co., 21 Moorgate Street.—Electric targets, iron roofing for churches, and other buildings.

Hodges, E. C., 6 Florence Street, Islington.—Improved breech-loading actions.

Holland, Harris J., 98 New Bond Street.—Breech-loading guns and rifles, of various recent patents.

Jackson, Richard, 90 Portman Place, Edgware Road, London, W.—Rifle, muzzle-loader.

James, Colonel Sir Henry, Ordnance Survey Office, Southampton.—Maps, books, and instruments of the Ordnance Survey, with specimens of photo-zincography.

Jeffery, Alfred, Limehouse, E.—Muzzle-loading rifled ordnance projectiles, showing application of Minie rifle principle to cannon.
JEFFRIES, GEO., Golden Bull Street, Norwich.—Patent portable cartridge machine; patent breech-loading gun.

These machines have been extensively used for the last two years, and have just had several important improvements; the case-box, or marrow tool, being made removable, so that one box can be changed for another. They are suitable for different sized cartridges, viz., 12 or 16 gauge. This arrangement admits of the entire apparatus being fitted in an ordinary gun-case. It is of great importance to percussion travelling, and is the only patent machine in the kingdom. It is in general use amongst gentlemen and gunmakers in England, Ireland, and Scotland, and is sold by all respectable gunmakers.

The exhibitor is the sole maker and patentee.

JONES, JOHN, Sergeant Major, Brompton Barracks, Chatham.—Iron-band gabion, sap-roller, field suspension-bridge, floating-bridge, field bedstead, ambulance litters, rafters for stabling and hunting, field trip.

These three bridges, submitted to examination by a permanent committee of Royal Engineers, have been commended for their ingenuity, and a printed description of them has been ordered by the Secretary of State for War to be circulated to officers commanding Royal Engineers.

SAP-ROLLENS.—It is made in the same manner as the gabion, except that the outer circle has two lengths of bands connected together, and the inner only one; the intervals between the two circles being filled with fascines.

FIELD RADIAL.—AMBULANCE.—In the construction of these field services, the bands can be used for the rafters.

TRIPOD FOR CHECKING INFANTRY AND CAVALEY.—This is formed by laying the bands singly on the ground three or four feet apart, edge-wise and horizontal, and connecting them by wooden toggles attached to rope or wire three or four feet long. Thus connected, they are laid in rows, parallel and chequerwise, at any distance that may be considered best; the parallel rows being held in their frames by rope or wire. This kind of obstacle would, on service, be found to occasion much more confusion than cross-deck, trellis-loop, &c.

The price of the band is determined by the nature of the contract entered into by the War Department. The iron-band, primarily, is for the construction of palisades; but it can be adapted to the various field purposes above described, without, in any way, impairing its efficiency for palisades; and its use in those various forms enables the equipment of the Engineer Department to be considerably reduced; thus saving an immense expenditure to the country both in the provision of material and in transport.

JOYCE & CO., Upper Thames Street.—Percussion caps, gun wedging, cartridges, &c.

Oval Bore Cannon; wrought-iron and cast-iron shells.—This gun illustrates the application of this system to modern service guns. The specimen shown has fired 600 rounds of wrought-iron shell at high angles of elevation.

Advantages.—Great range and accuracy when the elongated shell is used. Power to use molten iron in shell, and at the same time the service round shot and shell, as well as grope and auxiliary, may be used without damage to the rifling, and with great precision, the range being equal to the usual service gun.

Oval Bore Rifles; Military Pattern.—The system of construction followed in these rifles may be described as follows.—The inside of barrel is cut by proper machinery in a spiral form, the difference between major and minor axis being 0:12 of an inch. This rifle is adopted in Her Majesty’s service, being the arm of the Royal Engineers, and using the usual Enfield rifle ammunition, the system, as proved by actual service during the Indian Mutiny, gives the highest results as a military weapon and arm of the first precision. The trial just conducted at Woolwich, by order of the War Office, have resulted in the complete success of these rifles.

Breech-Loading Shot Guns.—The special advantage of this system consist in the absence of any pin to the cylinder, a perfectly central fire, and extreme simplicity of mechanical arrangement.

Protecting the Bottoms of Iron Ships.—Copper sheathing by this method is used to protect the portion of the iron hull below the water line. A layer of bitumen is placed upon the iron and crew rivets at the junction of the plates to prevent the disruption of the copper sheathing. The bitumen interposed between the copper and iron completely prevents any galvanic action.

Lang, Joseph, 22 Cockspur Street, London.—Guns; rifles; new improved revolvers and other pistols; air guns; percussion walking-stick gun and rifle.

Leitch, James, 68 Margaret Street, Regent Street, London, W.—Breech-loading firearms, empty cartridges, models, &c.

Lewis, George Edward, 32 & 33 Lower Lovelay Street, Birmingham.—Sporting guns; pistols; military and sporting rifles.

London Armoury Company, Bermondsey.—Long Enfield rifles, machine-made; Kerr rifles, ditto; Kerr’s revolving pistols; Adams’ ditto.

Lovell, Major J. W., Davenport Barroocks, Chatham.—Sup shield.

Lucas, W. H., 109 Victoria Street.—Model of a self-adjusting rolling bridge for forts, requiring no counterweights.

Macintosh, John, 40 North Bank, Regent’s Park.—Breech-loading firearms, ordnance, and cartridges.

Manton, J. & Son, 4 Dover Street, Piccadilly.—Best guns and rifles.

Marrison, Robert, Great Oxford Street, Norwich.—Self-extracting breech-loader, vertical cylinder cartridge chargers; specimen of ornamental engraving.
MORTIMER, Edinburgh.—Single rifle in case; improved rifling and sight, breech-loading gun, double rifles.

Moore & Harries, Military Contractors, Great Western Gun Works, Birmingham.—Sporting guns, breech-loaders; English volunteer prize rifles, &c.

Bar and back-action sporting breech-loading double guns, with improved method of holding the breech ends of the barrels down to the breech-piece. One of the shortcomings of the ordinary breech-loader being, that the hook-shaped contrivance for holding the barrel down is not immediately under the strain with which it has to contend in the discharge of the gun; the centre of the breech-piece being cut away, all the strain is put upon the attaching of the barrel. In the case of the breech-piece, made a hook between the two barrels (in the other direction). The guns exhibited are constructed upon an improved, more perfect, and much simpler plan; the loop upon each barrel receiving the end of a steel shunder-shaped bolt, by turning the lever to guard when the gun is closed, which bolt turns under the surface of the breech-piece, and is consequently much safer; the parts are less subject to wear either by use or the vibration of shooting. The weight of these guns does not exceed that of the ordinary muzzle-loader of same calibre.

Bar, double and single, are also made on this principle, to which its advantages are quite as valuable and appropriate.

Price of improved breech-loading double guns, complete in case, with all implements, and leather cover, forty-five pounds (£45).

Mothes & Son, Edinburgh.—Gun blocks; guns; armour-plates; and the first battery-plate ever broken.
CLASS XI.—South-East Court.

[2572]
MURCOTT & HANSON, 68 Haymarket, S.W.—Samples of four patents for breech-loaders, and patent for firing explosive compounds.

[2573]
NEWTON, WILLIAM EDWARD, 66 Chancery Lane.—1. New gabion. 2. Improved riveting for interior slopes of field batteries. 3. Portable camp fire-place.

[2574]
Pape, William K., 36 Westgate Street, Newcastle-on-Tyne.—Sporting guns and rifles. This exhibitor was, for two successive years, the winner of the great gun trials held in London in 1858 and 1859. These guns and rifles have won the approval of the most celebrated and experienced sportsmen at home and abroad, who have pronounced them the best sporting weapons of the present day. The barrels are made from W. B. Pape’s improved laminated steel at his works, Newcastle-on-Tyne.

[2575]
Parfrey, G., Victoria Road, Pimlico.—Breech-loading double gun, sliding action, drawing its own cartridges.

[2576]
Parson, William, Swaffham, Norfolk.—Six improved double guns.

[2577]
Parsons, P. M., 9 Arthur Street West, London Bridge.—Patent breech-loading firearms. (See pages 86, 87.)

[2578]
Paton, Edward, Perth.—Pair of double breech-loaders, double breech-loading rifle, single long-ranged rifle.

[2579]
Potter, John, Lynn, Norfolk.—Breech and muzzle-loading double guns, and machine for compressing rifle bullets.

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CLASS XI.—Military Engineering, Armour and Accoutrements, Ordnance and Small Arms.


Parsons' Patent Breech-Loading Fire Arms.—This system of breech-loading is applicable both to small arms and ordnance, and consists mainly in constructing the plug to close the breach of a spherical form, and combining it with such other parts as are necessary to carry out its application in different ways, according to the particular purpose for which it is used. It also consists of improved methods of making the joint at the breach gas-tight and self-sealing.

Figs. 1, 2, and 3 are sections of the breech portion of a small rifle, with the parts in the position they would be at the time of the discharge; the dotted lines in each figure show the position of the plug when the breech is opened for the insertion of the cartridge. In Fig. 1, the plug consists of a bolt terminating in a knob of a spherical form, which slides in the chamber, and by which it is retained in place. To open the breech, the tail end of the plug is lifted up until it is released; the spherical knob, at the same time, turns on its spherical end in its seat, in the manner of a ball and socket; it is then drawn back to the position shown by the dotted lines. The plug can be removed from the chamber instantaneously when required, by a peculiar movement in one particular position, without removing any pins or screws, for the purpose of cleaning, or, if necessary, to render the arm for the time unserviceable; although it is impossible for it to escape from its place by accident. In Fig. 2, the plug is in one piece with the lid, which is hinged to the breech; in opening the breech, in this arrangement, the tail end of the plug is lifted, and the spherical end turns in its seat, as before, sufficient play being allowed in the hinge joint for that purpose; it is then turned back on its hinge joint, as shown by the dotted lines; in this arrangement, the gas valve for maintaining a tight joint, to be afterwards described, is not applied, it being intended to use a cartridge with a greased felt wad at its base, which supplies its place. In Fig. 3, the breech is opened in the same manner as in Fig. 2, except that the requisite play is allowed between the lid and the plug. In all these arrangements, the hammer is so arranged that when it falls on the staple at the discharge of the piece, it also covers the lid, and thereby prevents all possibility of the plug rising out of its place.
Classes XI.—South-East Court.

Parsons, P. M.—continued.

Figs. 4 and 5 show the application of this system to a cannon. In this, a complete sphere is secured in a chamber in the breech of the gun by a nut; both the sphere and the nut have a cylindrical hole through them corresponding to the bore of the gun. The sphere is capable of turning freely on its own centre in its seat, and motion is given to it by the lever. When in the position shown at Fig. 4, the charge is introduced through it and the nut it is then turned a quarter of a turn to the position shown at Fig. 5, by which the aperture through it is brought across the bore, and the breech thereby closed. The lever is so arranged that it covers the touchholes, and thereby prevents the gun being discharged, except when the plug is in the proper position and the breech closed. The lever is also so constructed that it can be moved out of its place almost instantaneous, and the gun thereby reloaded without the time, if necessary.

Two different methods of securing a self-locking gas-tight joint at the breech are employed, according to the form of the plug used. When it is of a conical form, or a sphere turning in its seat, as in Figs. 1, 4, and 5, a ring of copper or other soft metal is fitted in between the plug and the breech, as shown on an enlarged scale at Figs. 6 and 7, which form of the explosion drives or wedge in between the spherical plug and its seat in the breech of the gun. When a flat surface is employed to close the breech, a hollow spherical cup, or
disc of copper, is attached to the plug, with its convex side presenting to receive the force of the explosion, and its periphery resting against the base of the plug and the interior of the barrel or breech, as shown at Fig. 8. On the discharge of the piece, the force of the explosion tends to flatten and spread out the cup or disc, and its periphery is thereby forced into close contact with the interior of the breech, and the joint thereby made good.

The advantages claimed for these breech-loading rifles are, that they are easily and quickly loaded; perfectly gastight; so simple and strong that they cannot get out of order; so secure that it is impossible for an accident to occur from them, even through the greatest carelessness; and that they admit of being manufactured at small cost by self-acting machinery; and so that all the parts of any rifle may be interchangeable with those of any other. The arrangements shown at Figs. 3 and 4 have probably a slight advantage in facility of loading, but all the other points are strongly developed in the arrangement shown at Fig. 3. In fact, it is hardly possible to conceive a more secure or simple breech-loading arrangement, as the moving parts are reduced to a minimum—viz., to one and a simple bolt of hardened steel, which is proof against injury.

The advantages claimed for the arrangement adapted to ordnance are, that the surface which makes the breech joint are perfectly protected from injury; and as in the

working they slide upon each other, they are constantly scraped clean, and free from dirt and other extraneous matter, and the joint is made tight by the explosion of the charge itself, and does not depend upon the proper tightening up of a screw or wedge. The opening and closing of the breech is effected by one simple movement of the lever, and the gun can occasionally be loaded and discharged with the greatest rapidity, and with but a small fraction of the force necessary where a screw, wedge, or other mechanical appliance, is employed to force up the plug in opposition to the explosive power. The plug not having to be lifted out of its place in opening the breech, the weight is not on the seconds confined to any limit; it is, therefore, made five or six times as heavy as those that require removal in working the gun, by which a sufficient amount of Toxins in it is secured, and the strain on the breech screw thereby very materially reduced. The strength of the breech is also not impaired by having a large slot cut through it. There is no chance of injury occurring to the breech screw from neglect in properly tightening up, as it is never removed, except when required to remove the plug for the purpose of examination or cleaning. When guns of this description are used in continuous batteries, or between deck on board ship, the smoke from the discharge can be prevented from escaping at the breech by inserting the slot into the nut before opening the breech.

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CLASS XI.—Military Engineering, Armour and Accoutrements, Ordnance and Small Arms.

[ 2580 ]
Prince, F. W., 15 Wellington Street, London Bridge.—Improved breech-loading cannon and small arms.

[ 2581 ]
Pubsall, W., & Co., 45 Hampton Street, Birmingham.—Percussion caps; military and sporting ammunition.

[ 2582 ]
Reeves, Charles, Charlotte Street, Birmingham.—Swords, field and dress; military rifles, and rifles to load either at breech or muzzle.

[ 2583 ]
Reilly, E. M., & Co., 502 New Oxford Street.—Guns, breech-loaders, double rifles, patent revolvers, &c. (See page 89.)

[ 2584 ]
Ruffell, Thomas, 43 Broad Street, Birmingham.—Breech-loading rifles and small cannon.

[ 2585 ]
Rigby, Wm. Jno., Dublin.—Double and single rifles and shot guns; a breech-loading staunchion gun, &c.

[ 2586 ]

[ 2587 ]
Schenkener, Joseph, George Street, Birmingham.—Patent needle firearm breech-loader.

[ 2588 ]
Scott, M., 26 Parliament Street, Westminster.—Sunken, but movable barrier, to exclude enemies' ships from ports.

[ 2589 ]
Scott, W. & C., 95 Bath Street, Birmingham.—Muzzle and breech-loading guns, rifles, and military small arms.

[ 2590 ]
Scott & Arbuckle, 18 Parliament Street.—Hythe position trigger, discharged by pressure instead of pull.

[ 2591 ]
Secretary of State for War, War Office, London.—Models of works of fortifications.

[ 2592 ]
Secretary of State for War, War Office, London.—Model of proposed barrack at Colchester.

[ 2593 ]
Secretary of State for War, War Office, London.—Plan of Netley Hospital.

[ 2594 ]
Secretary of State for War, War Office, London.—Plan for Herbert Hospital (Woolwich).

[ 2595 ]
Secretary of State for War, War Office, London.—Plan for Regimental Hospital, for 60 and 120 men.

( 88 )
Breech-Loaders, of improved construction, Damascus barrels for the twelve or fifteen cartridge, good locks, chiselled wood fore-end, well stocked, &c., plain finishing and engraving, from £21 0 0

Breech-Loaders, Double and Single, Sporting Guns and Rifles. These guns are substantial, durable, and possess all the latest improvements, viz., "double grip," with lever over guard; "sliding action," to withdraw cartridge cases; "the lockless," according to the manufacturers' description.

Double-Bore Single-Barrelled Guns, Damascus barrels, 12 to 16 bore, superior locks, handsomely stocked, well engraved and highly finished, from £21 0 0

The best Guns, with first-class Damascus or laminated steel barrels, very superior locks, first-class finishing, &c., £25 0 0

With Bevan's best locks, very superior finishing and engraving, in best oak case and apparatus complete, £31 10 0

Double Guns in Pairs, the barrels to interchange, fitted in double case complete, 30, 40, and 50 guineas the pair.

Revolvers on the latest approved systems, the Ordnance pattern, improved double action lockwork, for quick or slow and accurate firing, direct action lever runners, bored cylinders, &c. &c. Likewise Adams's patent, recently perfected and simplified. Damascus, Harding's, Tranter's, Colt's, and others in endless variety.

A revolver of the pattern shown in the illustration, regulation, Government No. 54 bore, in best oak case, with conical mouth, superior fittings, and apparatus complete, price £7 10 0

The same revolver, highly finished and engraved, in mahogany case, with best apparatus £8 8 0

Excellent self-acting revolvers, of various sizes, for the pocket, the belt, or house defence, with cases and apparatus, from five guineas. Holsters, belts, pouches, &c., for the above may be obtained from the exhibitors.

Class XI.—South-East Court.


Improved Breech-Loaders, Double and Single, Sporting Guns and Rifles. These guns are substantial, durable, and possess all the latest improvements, viz., "double grip," with lever over guard; "sliding action," to withdraw cartridge cases; "the lockless," according to the manufacturers' description.

Double Bowling Pieces, Superior Double Rifles, &c.—Finest London manufacturers.

Recent improvements of growing flush, and long-range sighting, carefully regulated for perfect accuracy, 20 to 25 guineas the pair.

All the work is done under the immediate supervision of the exhibitors, and they undertake the repair and restoration of guns.

Every article of its own manufacture is guaranteed for efficiency and safety, having been subjected to the severest proof in the rough as well as finished state, and thoroughly tested for correct shooting.

On the premises they have a range of fifty yards for trials of shooting, and every facility for testing their weapons.

Orders by letter will be attended to promptly, and the goods, if ready, forwarded by same evening's railway train.
Secretary of State for War, War Office, London.—Model of proposed land defences for Plymouth: models of parts of Preston and Colchester barracks.

Secretary of State for War, War Office, London.—Models of ambulances.

Secretary of State for War, War Office, London.—Models of 12-pounder Armstrong gun, carriage and limber, forge wagon, rocket carriage, &c.

Secretary of State for War, War Office, London.—Model of ballistic gun and pendulum.

Secretary of State for War, War Office, London.—Armstrong rife 100-pounder cannon.

Secretary of State for War, War Office, London, Royal Carriage Department.—Armstrong guns; carriage and slide for naval service; travelling, boat, and field carriages.

Secretary of State for War, War Office, London, Royal Gun Factories.—Rifled ordnance and their details, tools, gauges, and drawings of machinery.

Secretary of State for War, War Office, London, Royal Laboratory.—Cartridges, fuses, projectiles, tubes, &c.

Secretary of State for War, War Office, London, Royal Small Arms Factory.—Specimens illustrating the manufacture of the Enfield rifle and small arms, &c.

Secretary of State for War, War Office, London.—Fuses to be fired by magnetoelectricity and electro-magnetism.

Smith, George, 40 Davies Street, Berkeley Square.—Sporting guns and rifles.

This exhibitor was for many years in the well-known establishment of J. Purdey. He holds the office of honorary armourer to the National Rifle Association. His improved breech-loading double-barrelled rifle for deer-stalking has no superior in power and correctness.

Stiven, Thomas, 33 Leicester Square.—A muzzle-loader altered to breech-loader; barrels and action; breech-loading gun.

Twhett, Ttw, 1 Woburnsme Terrace Villas, Paddington, W.—Self-indicating target, saves the load, and requires no marker.

Trulock & Harris, 9 Dawson Street, Dublin.—Breech and muzzle-loading sporting guns and rifles, single and double.

Tyler, Capt., Royal Engineers, Hampton Court.—Sheet iron galion, prepared and sent to Chatham in August, 1853.

Vallance, Philip, 4 Bolton Road, St. John's Wood.—Telescopic rifle sights.

The Whitworth Ordnance Company, Sackville Street, Manchester, sole manufacturers of the Whitworth Ordnance, exhibit rifled ordnance, ranging in size from the 1-pounder to the 70-pounder gun:

1-pounder muzzle-loading rifled cannon, mounted on carriage.

6-pounder, ditto, ditto.

6-pounder breech-loading rifled cannon, without carriage.

15-pounder brass rifled field piece.

28-pounder rifled ship's cannon.

50-pounder, ditto.

Projection of various weights, solid shot, and shell or all sorts from 1-pounder to 70-pounder.

One of the first-mentioned projectiles which were first through the armour-plates and sides of the Treaty during offensive trials at the Nore.

The bore of all these cannon are hexagonal in the cross section.

Firing.—The pitch is in all cases equal to 30 times the diameter of bore.

Material of bores may be steel-iron, brass, wrought or cast iron; but one of the two first-mentioned metals is preferred.

Projectiles.—Solid projectiles are usually cast, and then planed. One man will mould 200 of the 12-lb. shot per day; one man can plane the same number per day; or the projectiles can be cast so as not to require planing. Hollow shot are treated in a similar manner, and then filed in the same manner as the ordinary spherical shells. No special fuse is required, as the flash of the explosion ignites a fuse in the front, placed and used like the ordinary simple time fuse.

Ranges.—The average ranges obtained from the 15-pounder rifled cannon, with a 12-lb. shot and 12 lbs. powder, are at point blank 800 yards; at 1°, 800 yards; at 2°, 2,000 yards; at 10°, 4,500 yards; at 20°, 7,000 yards; at 25°, 20,000 yards, or nearly 6 English miles.

The charge of powder usually employed is equal in weight to one-sixth the weight of shot.
Wilkinson & Son, 21 Poll Mall.—Best guns, rifles, and swords for real service: defensive armament.

Williams, A. H., & Bocchus, G., 135 Finchurch Street, London.—Patent percussion cap holder for military, naval, and sporting uses.

Woodward, James, 64 St. James's Street, S.W.—Guns and rifles, muzzle and breech-loading.

Woolcombe, R. W., 14 St. Jane's Street, S.W.—Cannon and projectiles for projection with cycloidal rotation.

Wylye, Andrew, 21 Berkley Street, Handsworth, Birmingham, and Rose Lodge, Belfast.—Patent automatic breech-loader, self-cooking, self-capping, using any ammunition.

The breech block has a more or less control by entering three-pieces of an inch or more, so that escape is impossible. The nipple is placed in the axis of the breech, and usually screwed from inside, with or without a cartridge piercer of steel or platinum. The cock works in a slot in the middle of the stock; there is no tumble; and the trigger, or, as above shown, a small catch connected to the trigger by a link, engages in a slot cut in the circular head of the cock. Owing to the increased leverage, the pull of the trigger is very light, and yet the bolt is deep, and the gun as safe, as with the common tumbler lock.

Segments of screw threads project from the breech, on opposite sides, and into boreless threads in the breech case A. The bolt is about twice the length of the breech, and is screwed to the barrel, and fixed by two screws at the back of B, by which great strength is imparted, while the barrel and breech-case is easily removed for cleaning.

Fig. 4 (half size) shows part of the priming tube, containing 40 or 50 caps, pushed forward by a spiral spring. The bolt is outside, and therefore much more effective, acting on the cap-driver by a pin or pins traveling in a slot in the tube. These pins are related in a transverse slot, while the caps are being dropped down the tube. When filled with caps, the tube is placed up the bore in the stock from the butt end, the projecting pins running in a groove on one side. When the tube is home, it is turned one-quarter round, which screws the pins from the transverse slot, and allows the spring to act; the same motion locking the tube against the butt plate, the flat handle acting as a spring catch to retain it there. When the breech is drawn back in the chamber, by a simple contrivance, the loading cap is reversed, and brought into a position to be taken off by the nipple.

The action of loading is as follows:—The breech being unlocked by striking up the fore, it is drawn away from the barrel. It thus forces back the cock, sliding over the face of the latter, and sweeping out the exploded cap, which falls through the opening F. The nipple then enters a fresh cap, and the breech being brought up by the backward projection in front of the lock-off, naturally revolve upon it as far as the pins (p) will permit, into the position shown in Fig. 2; when it may be halted...
A line or spot of white enamel is inlaid in the foresight, bisecting it, however clumsily; at the same time, rendering it distinct against a dark object, or in certain positions, when the ordinary sight would be quite invisible.

This will be found a great improvement on the ivory foresight, the advantages of which are so well known to all who have hunted in South Africa. For night shooting, a larger surface of enamel is used, and a broad line of the same in the back sight.

The cleaning-rod is made with a number of india-rubber washers, let into annular grooves in a wooden or metallic head, and projecting somewhat beyond (4), so as to catch and retain the fouling. It can be used as a ramrod for loading at the muzzle.

The inconvenient balance of the military arm, with the sling attached in front of the guard, is well known. To obviate this, the sling is attached to the scroll or steadying-piece C, placed behind the guard, by a pin, travelling in a slot in the scroll. An opening in the sling N allows it to slip over the guard, and to be drawn tight along the wood of the stock. The barrel is fastened tightly in the stock by a pin which dispenses with the unsightly bands, and yet allows for difference of expansion; and there are many other improvements in detail, which there is not space to particularise; but the above hurried descriptions will enable those conversant with the subject to judge how far this arm fulfils the conditions of a perfect breech-loader.
Class XI.—Military Engineering, Armour and Accoutrements, Ordnance and Small Arms.


[2623] Moffat, Major A., 5 Porchester Street, N.—Models of an hospital for 80, and a lavatory for 100 men.

[2624] Reid, Col. C., 45 Pall Mall.—Weapons with which H.M. Goorkah regiments were armed.

[2625] The Gun Barrel Company, Lawrence Pountney Hill, Cannon Street, City.—Gun barrels, and iron for them.


[2627] Vivian, Major, Torquay.—Trajectory target, self-acting.
Class XII.

NAVAL ARCHITECTURE, SHIPS' TACKLE, &c.

Sub-Class A.—Ship Building for purposes of War and Commerce.

[ 2646 ]
Aston, James J., 4 Middle Temple Lane, London.—Working model boat, fitted with Aston's patent disc propeller.

[ 2647 ]
Aylin, J., R.N., Wilton, near Brough, Yorkshire.—Wedge-armed anchor, shackle, &c.

[ 2648 ]
Basibe, James, 4 King Street, Westminster.—Models of Brown and Harfield's patent capstans, and C. Langley's unsinkable ship. (See page 96.)

[ 2649 ]

[ 2650 ]
Browning, Henry, Avon Cottage, Clifton Wood, Bristol.—Patent composition for the preservation of ship's bottoms against the action of water or atmosphere.

[ 2651 ]
Burdens, William, Hay Well, Great Malvern.—Oblique paddle wheel, without back lift, illustrating a new theory of motion.

[ 2652 ]
Burnett, Charles J., Edinburgh.—Fan propellers, with shields and accompaniments.

The models exhibited are illustrative of improved steam ship propellers, with diagonal shields, offered to the Admiralty 16th August, 1860. The current of water driven out centrifugally by a fan (or screw) is deflected into a straight line, by unhinging on a diagonal surface. An amount of power is thus rendered available for propulsion, which would otherwise be, and in the ordinary screw propellers is lost, or worse than lost, in consequence of its action on unequal, constantly varying masses of water below and above it, the unequal resistance of which strains and shakes both screw axle and ship.

[ 2653 ]
Caird & Co., Greenock.—Models of steam-ships and marine engines. (See page 97.)
No. 1. Model of unsinkable and fireproof ship. "Briton," belonging to Union Steam Ship Company, built by, and upon the plan patented by, Mr. Charles Langley, of Deptford Green Dockyard.

No. 2. Longitudinal section of same, with fittings, showing how the invention may be applied to all ships. The lower deck, marked A, is made of iron, water-tight, and fitted with water-tight trunks, to communicate with the upper deck, so that access can be had at all times distinct from the other decks. By this plan, if the vessel's bottom is torn out, the water can only get into the space under the lower deck, the trunks prevailing it going into the other hold. The deck, marked B, is also made of iron, as well as the trunks. These decks give the means of fitting iron steamrooms and divisions for other purposes; and the more fittings put in, the more secure is the ship against fire or combustion, which is bound. It is engine and boiler space, which is included by iron walls, so that if water gains access it is confined, and can be pumped out by separate pumps. The model is made to show the principle of the invention, which can be adapted to every kind of merchant, transport, or war ship.

No. 3. Model of river steamer, with paddles, the invention of James Beers. These wheels have shown the following results, as compared with the ordinary wheels—18 per cent. greater speed, and wheels with fastening flaps—16 per cent. greater speed. The rims form a series of continuous flaps, each being so inclined to the water from them. They are less liable to get out of order, and form less resistance to the atmosphere. This model has been submitted and quoted with the agreeable composition, for preserving iron and wooden ships against rust and decay, invented by N. C. Sarsdeny. (See Class X.)

No. 4. A model of Movers, Miller and Smith's, of 30 Points Lens, City, patent marine steam governor. This invention is intended to supply a want that has been long felt in the merchant steam navy, especially in screw steamers, in providing them with a cheap, simple, and effective governor; and although there are several descriptions in use, they are all more or less complicated and expensive. It is well known where a steamship is in a heavy sea, that there is great danger to the engine. When the motion of the ship the screw is only partly immersed, and the speed of the engine is greatly increased. This governor has now been in use some time, and with the most favorable results, so the owners will show—

"Dundee, Perth, and London.
"Shipping Company's Office.
"Dundee, 6th February, 1852.

"I hereby certify that this company's screw steam ship "Queen" was fitted with Miller and Smith's "Patent Marine Governor," on March last; that she has since been employed in the Mediterranean and coasting trade, and that it has been found to answer the purpose it was intended to serve so well, that they have resolved to supply their other steamers with it as soon as possible.

"The governor presents the engine from acting in heavy weather, lessens the risk of a "breakdown," and allows them to be driven at greater speed with safety, so that the vessel now makes her passages in less time and with less consumption than before formerly.

(Signed) "T.goo. Gutter, Master."
Caird & Co., Greenock.—Models of steam-ships and marine engines.

The following are the descriptions of the models exhibited:

1st. A small model in steel to a 1-inch scale of a pair of oscillating engines, of 160 horse-power collectively, suitable for merchant paddle steamers of any size.

2nd. A small model in steel to a 1-inch scale of a pair of inverted cylinder direct-acting engines, of 400 horse-power collectively (originally designed by J. T. Caird, Greenock), suitable for merchant screw steamers of any size.

3rd. A pair of horizontal direct-acting screw engines, of 10 horse-power collectively, fitted with improved variable expansion gear. Engines of this class are suitable for war vessels of any size.


Calley, Samuel, Brixham, Devon.—Ship's worn sheathing; patent compositions for metals and wood; metallic paints, ochres, &c.

The exhibitor manufactures patent composition for ships' metal sheathing, iron ships, iron, wood, and other surfaces; and also the celebrated Torbay iron ore and metallic paints, and mineral ochres. Prices and testimonials may be obtained on application at the works.

Campbell, Robert F., 8 Brook Street, Hyde Park.—Apparatus for management of vessels. New mechanical motion.

Carr, Thomas, New Ferry, near Birkenhead.—Models of two patent steering apparatuses.

Clay, John, 82 Castle Street, Edgeley.—Models of ships and propellers.

Clibbett, William, Appledore, Devon.—Half model of barque.
Clifford, Charles, 49 Fenchurch Street, and Temple.—Improved systems of unlashing, lowering, and releasing ships' boats, from vessels stationary or under weigh, without possibility of cutting, by one of the crew sitting in the boat.

"The means of lowering boats evenly, and of readily disconnecting the tackles, are desiderata wanting throughout the naval service."—Parliamentary Report on the Loss of the Amorex, 1852.

Upwards of 1,500 boats have been fitted on this system, 520 being for the Royal Navy.

The chief "Amorex boat," pictured up during the first voyage of H.M.S. Shannon (under Captain Sir William Peel, V.C.), through the power with which the boats were lowered by Clifford's plan. (See entire plate, Capt. Vaughan, C.B., n.p.)—We are told, at the present-day, when we heard of "Man overboard!" but it is seldom done from first time the boat was missed, lowered, and the man glided up. I lowered the boat myself, single-handed.

Of the various forms of total accidents to which mankind is liable, drowning in sea voyages is in by far the largest proportion. The majority of instances of sailors and others falling overboard, and lost before help can reach them, either never come to our knowledge, or pass unheeded in the crowd of events that daily scene upon our notice.

It requires a catastrophe like the loss of the Amazon, or the Breskheart, the Queen Victoria, the Australian, the Pizona, or the Royal Charter, with all its attendant horrors, to bring us to think of and appreciate the perils incident to navigation.

During the space of only five months of 1852-53, not less than 1,636 persons lost their lives at sea from the destruction of six ships; and it was officially stated that upwards of 1,000 men are annually lost from American ships alone, by falling or being washed overboard, while the number lost from British ships are probably equally large.

One of the chief causes of this lamentable loss of life is the want of any means for lowering the boats equally and safely in case of accident to the ship. On the occasion of the loss of the Amazon, the Parliamentary report stated the supply of boats was ample, but "that the means of lowering boats evenly, and readily disconnecting the tackles, etc., are desiderata wanting throughout the naval service," and that "it may be expected some useful means for applying these desiderata may be devised." Clifford's system accomplishes these desiderata, and by it a boat laden with any crew can be instantly and safely lowered, even if the ship is moving rapidly through the water. It has been approved and adopted by the Admiralty, and every naval department of the Government, by the superintendence of British and Foreign Shipping, by the Institution of Civil Engineers, and the Institution of Naval Architects, and of the leading Steam Companies. After repeated competitive trials, it is the only plan made compulsory in all ships chartered by H.M. Emigration Commissions, the Council of India, and the Marine Board of Melbourne. The Committee of the Royal National Life Boat Institution, consisting of some of the first naval men of the country, passed a vote of thanks to its inventor on account of the number of lives it has saved, a list of which the Journal of the Institution, Jan. 1853, gives in the following words:

"We think we shall be rendering a service to the great cause of humanity, by giving every possible publicity to the fact of lives saved by this invention, as in most of the instances we record the man has fallen overboard in heavy gales, and when the ship was moving rapidly through the water; the officers in command stating their firm belief that but for it they would have been lost; and that the lowering and disconnecting the boat being the result of the simple act of one man only, is the chief cause of the great success. In some cases the entire crews of ships when foundering were, in collision and suddenly sink, or on fire, one or their preservation to it. From H.M. ships Shannon, Bacchus, Perseus, Royal Sovereign, Trafalgar, Emerald, Fourby, Claspnaval, Mersey, Colossus, Grampian, 20 men were saved by it. H.M.S. Perseus, from a vessel run into at night, and entirely sunk in less than ten minutes, took off 15 men and 1 boy. From the troopship Lady M'Naghten, Antaeopolis, John Duncum, Decimation, Delta, Chief, 20 men. From ships chartered by H.M. Emigration Commissions Commodore Perry, Washington Irving, Allen, Black Eagle, Transatlantic, Elba Brooks, Medway, Ousea, Rodney, Medoull, Admiral Barry, Champion of the Seas, Honeymoon, 17 persons (2 being women). From merchant steam ships (Royal...)}
Clifford, Charles—continued.

Mail Tasmanian, Queen of the South, Duke of Richmond, Duke of Buckingham, Queen, 8 men. The John Martenmus, Rodney, Merchantman, by it lowered down their boats and took away the entire crews of three ships that were about Foundering at sea, or on fire, and which had lost their own boats when attempting to lower them by the ordinary hulkage; for it also, in the memorable version of the fire of the troopship Sarah Sands, 'the life-boats filled with the women and children were lowered in perfect safety,' the Times, in its account, stating that 'for more in the near of a configuration at sea the boats were lowered in safety.' The official report of the chief officer of the Fowey to the Board of Trade, when she foundered off Malta, was, that 'the only people saved, 18 in number (2 being women and 1 a child) are indebted to Clifford's lowering apparatus for their lives.' Thus we have certain accounts of more than 100 people being saved, probably not half of what have really occurred.

The committee appointed by Admiralty order to report upon this apparatus, expressed its unanimous conviction "that no captain, whether in the Queen's or mercantile navy, should be permitted to put to sea without it."—Times, Dec. 11, 1855.

In the House of Commons, Admiral Berkeley said "that in every trial which had been made of it, the use had been attended with complete success, and he hoped to see it universally adopted."—Times, March 10, 1857.

C. Clifford is prepared to unload, lower, and entirely disengage from any ship, either stationary, under weigh, or going at any speed, in a gale, or in smooth water, a boat laden with a full crew, against any other invention or crew in the world, for any sum to £100, to be given for placing a life-boat on an exposed part of our coast. As hundreds of our best seamen are annually lost through the want of such means of instantly lowering a boat—which Parliament has decided to be "wanted throughout the naval service"—it is hoped some one will be found with sufficient spirit and humanity practically to test this challenge.
Class XII.—Naval Architecture, Ships’ Tackle, &c.

[2660] Commissioners of Irish Lights.—Fastnet Rock Lighthouse, off Cape Clear, S.C. Ireland.

[2661] Commissioners of Northern Lighthouses, Edinburgh.—Lighthouse apparatus and models.


Cunningham’s Floating Battery.—A design for a 12-gun floating battery by John William Cunningham, laundress; modeled to a scale of 2 feet to 1 inch. The length over all is 250 feet; breadth of beam 30 feet 9 inches; height of main deck, 8 feet at sides. It is intended to be built of oak timbers, of ribs in solid order 3 feet thick; the gunwales and sides to 3 feet vertically below water level, to be covered with 2 inch iron plates; and the flash deck with 2 inch slats, secured with bolts with mushroom-shaped heads of steel 8 inches in diameter. The interior is ventilated through gangways on the flash deck; by apertures at stem and stern; and by the port-holes, which open to the under side of the demised roofs.

[2664] Coulson, Jukes, & Co., 11 & 12 Clement’s Lane, London, E.C., 7 St. Mary’s Row, Birmingham, and Queen’s Steel Works, Sheffield.—General ironwork for ships.


By this invention, the topsails can be reeled up and stowed in the hold, without rolling any sail off. It is also applicable to topgallant sails and other sails. This invention is now in use on board several thousand ships belonging to the mercantile marine, and also on board many of H.M. ships; and the old defective and dangerous method of reefing by the men going aloft and out on the yards, is rapidly giving place to the new method. It is computed that many hundreds of lives have been already saved by it.

It has been found that sails wear, at least, one-third longer than on the old plan; ships, too, can be navigated with fewer regular seamen, and, from the ability to make and shorten sail so easily, sail can be carried on during storms considerably abridging the duration of the voyage. Ships fitted on the Cunningham system make much quicker voyages than on the old plan.

The model shows some of the various arrangements by which Mr. Cunningham has applied the principle of his invention. The fore topsail exhibits the yard turned round by the action of the chain topsail tye in which the yard is shown, and fitted for a ship of war with reef line, i.e., in the topsail, to reef in the old plan if required for purposes of economy.

The main topsail represents the usual mode of fitting the yards of merchant ships. The main topsail represents one of the earliest modes of turning the yard by the action of a wound up rope or bight.

The main topsail and shows another early mode of fitting, and still in use on board some ships, where the yard is turned by the action of wound up ropes.


[2668] Denis, Wm., Brothers, Dumfries.—Sectional model of a screw steamer, in a glass case; models of two screw ships.
Duncan, Robert, 174 Trongate, Glasgow, and at Bowling.—Slip cradle or carriage, and self-acting time and tide gauge.

**Duncan's Self-Acting Ship Cradle.**—An improved method of relieving the cradle from underneath vessels while on slip for repairs, entirely doing away with the raising of vessels by wedge, hydraulic, or other means.

Also, a new method of adjusting bilge blocks on the frames of the cradle; by which the same blocks can fit vessels of almost any shaped frames.

Robert Duncan, Engineer, 174 Trongate, Glasgow, and at Bowling, on Clyde.

**Dunlop, David, Hurlet, Glasgow.**—Angulated invulnerable steam-ram, propelling either way, sweeping enemies from decks by machinery.

Eddy, C. W., Sutton, Loughborough.—Armour-plated steamers, submarine shell and ram, and other naval inventions.

Elliot, Edward J., 7 Southampton Row, Russell Square, W.C.—An improved hydraulic apparatus for raising sunken vessels.

Ellis, George, 4 Collier Street, N.—War ships, safety ports.

Forsby, Robert, Liverpool.—Patent apparatus for working ships' pumps by water power.

Fyfe, F. A., 6 Lombard Street, London.—Horizontal patent propeller direct-acting steam engines, and steam-steering safety propellers. (See page 102.)


Fyfe, T., 46 Leicestcr Square.—Submarine ship, ship appliances, &c.

Gittins, Richard, 28 New Street, Dorset Square, London.—Model exhibiting the application of a new power for propelling steam-ships.

**Grantham, J., 81 Nicholas Lane, E.C.**—Plan for preserving iron ships from corrosion, &c.

Gray, John William, & Sox, 114 Pondicherry Street, City, and Margaret Street, Limehouse, E.—Patent engines, patent ship's pumps, anchor dropper, lighting conductor, deck lights, closets, night life buoys, and brass work.

The exhibitors are engineers, and workers in copper and brass, and patentees and manufacturers of the following apparatus, viz.:

- Gray's spherical steam-engine and ordinary engine.
- Agricultural and locomotive engines.
- Spherical and other pumps.
- Ship's side ports, with lifting and securing apparatus.
- Deck illuminators and ventilators.
- Portable fire-engines; patent anchor stoppers.
- Apparatus for distilling sea-water; steam gauges and fittings.
- Signal lanterns; ship's cooking apparatus; engineers' tools, &c.
- They are also agents for Sir W. Snow Harris' patent lightning conductors, as applied to the royal navy; for Howes's patent self-acting house and street cleaning apparatus; and for Drury's patent revolving steam-boilers for ship and land purposes. These boilers possess six times the evaporating power of ordinary boilers.

(101)
Fryer, F. A., 3 Leadenhall Street, London.—Horizontal patent propeller direct-acting steam engines, and steam-steering safety propellers.

The above engraving represents Fryer’s patent marine steam propellers. Fig. 1 is a plan of the general arrangement of the machinery. Fig. 2 is a front view, Fig. 3 a section, and Fig. 4 a back view of the propeller. A the cylinder. B the piston rod, giving direct motion to the propeller through stuffing box C. D shows a quick thread worn for reversing the propeller E, by means of the hand wheel at F. G the frame supporting the floats when making the forward stroke; in making the backward stroke, the floats turn edgeways, offering little resistance to the water. The arrow shows the direction in which the propellers are supposed to be moving.

Fryer’s Horizontal Patent Propellers Direct-Acting Steam Engines, Steam Steering Safety and Lifter Propellers.—These new propellers and steam engines combine so many valuable properties with admirable simplicity, that it is hoped they will command themselves to the mercantile community and the shipping interest in such a manner as to give full development to the wonderful power of steam, both for the speed, safety, convenience, and economy of vessels and canal boats. The inventor has long deplored that so mighty an agent for steering vessels with security, even in a storm, should never before have been employed, notwithstanding the enormous annual loss of life and property.

Among many advantages may be enumerated the following:

Economy.—It is calculated that the cost of these engines and propellers, where so much superfluous machinery is entirely dispensed with, will not much exceed half of those now in use, both for screw and paddle-wheel steamers; this, therefore, is a consideration of the very first importance, in addition to which, there is a considerable saving in fuel, and the facility for working the steam expansively, from the proximity of the cylinders.

Space.—The diameter of the cylinder or cylinders represent the amount of space required for these engines, both in height and width; and being fastened on a bed plate close to the keel of the vessel, are always considered below the load water mark, besides being perfectly protected from shot, shell, &c.

Speed.—From the immense propelling power brought to bear in a direct manner upon the water, the opinions of several practical engineers have been given, that twenty-five statute miles per hour can be attained. There is also very little resistance given on the return stroke of the propeller.

Steam Steering.—Particular attention is invited to this part of the invention, as showing an entirely novel application of steam power, by means of which its full power can be concentrated at any moment on either side of the bow or stern of the vessel, so as, in two or three minutes, to turn her completely round on her centre, without the use of the rudder; an invaluable power to a vessel in a storm, as thereby she can turn her head to the wind, and thus make for the open sea. The want of this power has been seriously felt by the “Great Eastern,” on the occasion of a recent voyage to America, in a peculiarly disagreeable manner.

General Remarks.—It is surprising that, after the lapse of so many years since the introduction of steam vessels, so far as about 2,000 only should be registered in the United Kingdom, against upwards of 34,000 sailing vessels to the present day, as shown by the official lists; thereby proving the immense scope there exists for the introduction of steam into vessels of every class, including smaller vessels and canal boats, and to which the merits of this invention, it is hoped, will greatly tend. The propellers being entirely under water, are not exposed to the violence of the waves as paddle wheels or the screw propeller is, nor can it foul as the latter does. These engines also act as bilge-pumps; they can be constructed of any strength, and are equally applicable for canal boats as ocean steamers.

There are many other advantages in connection with this patent; and in consequence of the magnitude of the subject, the patentees purpose granting licenses to responsible parties for working the same in the most liberal spirit. All communications on the subject to be addressed to the under-mentioned, who will forward detailed particulars and tracings of the drawings.

Frederick A. Fryer, solic agent for the patentee, 3 Leadenhall Street, London, E.C.

Modellers: Messrs. Lewis & Sons, 5 Wynd Street, Strand, London, W.C.
GREEN, Messrs. Richard & Henry, Blackwall.—Models of a 51-gun screw frigate; a clipper ship; boat-lowering apparatus, &c.

GRIPPITHS, Robert, 69 Mornington Road, London.—Two screw propellers, and a model of a frigate, with portable armour-plates. (See pages 104, 105.)

HALL, Robert, 37 Princes Stairs, Rotherhithe, and 58 Paradise Street, S.E.—Ship's figure head.

The exhibitor designs and carves all descriptions of shields, crests, and other heraldic decorations, from authentic drawings. The specimen exhibited is the figure head of the "Algerine."

HALL, J. & J., Arbroath and Dundee.—Half model of vessel.

HEWITT, William, 3 Brislington Crescent, Bristol.—Feathering screw propeller.

HIGGINS, Arthur, 10 St. Vincent's Parade, Clifton.—A trader for narrow rivers, with new arrangement of rudder.

HORNBEY, William, West Front, Southampton.—Patent marine engine room, telegraphs and gongs. (See page 105.)

IBRAT, John, Bridge Road, Lambeth.—Hirsch's patent propeller, with boss for altering pitch. (See page 106.)
CLASS XII.—Naval Architecture, Ships’ Tackle, &c.

GRiffiths, Robert, 69 Mornington Road, London.—Two screw propellers, and a model of frigate, with portable armour-plates.
Class XII.—South-East Court.

Griffiths, Robert—Continued.


Fig. 1, end view of a three-bladed screw propeller. Figs. 2 and 3, side and end view of a two-bladed screw propeller.

List of prices—

All sizes of two-bladed propellers in iron, complete, with centre bored ready for keying on screw shaft, from 7 feet diameter to 14 feet inclusive, price 15s. 6d. per foot, calculating on square of the diameter of the propeller. Thus a screw, of 10 feet diameter, will amount to £7 10s.

For all sizes of propellers, above 14 feet diameter, 20s. per foot. Screw propellers with three blades will be 25 per cent. above the price of two-bladed propellers.

Hornsey, William, West Front, Southampton.—Patent marine engine-room telegraphs and gongs.

These telegraphs were selected as the standard for the Royal Navy in 1855, by Captain Halstead.

They have been supplied and fixed by the patentee to several of Her Majesty's line-of-battle ships and frigates, and the steam ram "Defence," and are extensively adopted by mercantile and Royal Mail steamers.

The engine-room dial being fixed in the engine-room, within view of the starting gear, is connected by shafting and bell-wheels to the brass columns on the bridge. The dial on the top of the column is divided in the same manner as the engine-room dial, and glazed with embossed glass segments for illuminating at night. A gong in the interior of the apparatus in the engine-room is sounded at every move of the pointer, which cannot move from one division to another in either direction without attracting the attention of the engineer by striking the gong.

[2691]

Jamieson, Robert, C.E., Glasgow.—Preservative compositions for coating and permeating materials for marine architectural purposes.

[2692]

Jecks, Isaac, Great Yarmouth.—Ship with iron passage, to allow missiles to pass entirely through her.

(105)
The blades of this new propeller are curved in such a manner as to secure certain advantages and avoid certain evils.

The object of a propeller being to convert the rotatory motion of the surface into a pressure directed in the line of the axis, that is the best propeller which converts a given rotatory power into the greatest longitudinal pressure, consistently with facility of steering and absence of vibration. The extent to which these objects are attained by Hirsch's propeller may be best understood by comparing it with an ordinary straight-bladed screw; the form of propeller found best until Hirsch's propeller was tried.

The slip of a screw represents the yielding of the fluid medium, the resistance of the fluid to this yielding being a measure of the propelling force. When all this force is applied at once, the water suddenly put in motion at the front edge is usually acted on by the rest of the blade. In Hirsch's propeller the front or entering edge is so inclined that it sets the broken water with little or no resistance, and the rest of the blade is more and more inclined, so as to give the water a gradually increasing motion, and to maintain a uniform resistive pressure from unbroken water over its whole breadth.

The straight-bladed screw acts like a funnel, not only driving the water backwards, but also throwing it outwards; in the resulting oblique action it loses much of its effect in propelling the vessel, and by breaking the backwater and causing a great divergence and eddying in its streams, it deprives the vessel of much of its power. In Hirsch's propeller the blades are curved inwards, so as to drive the water in an unbroken column directly astern. The reaction of the water is thus entirely expended in direct forward propulsion, and the influence of the rudder, surrounded and acted on by the unbroken and fast-moving fluid, is more quick and certain.

And further, while the one blade of an ordinary screw is moving along the upper arc of its course, it displaces the water with ease; but the other blade, moving at the same instant in deep water, encounters great resistance, which tends to lift the vessel and jerk it to one side. This action, repeated twice in every revolution, puts the vessel into a state of vibration, which renders it impossible to work many steamers at full speed, and even at moderate speed loosens and endangers the stem-dam. In Hirsch's propeller, owing to the curvature of the blades, the successive parts of their surfaces are brought gradually into action in all parts of their revolution, and their force is thus divided and delivered more easily and gradually without vibration, and with proportionally less expenditure of power.

In the trials of the Scottish postal steamer Western, while a four-bladed screw of the ordinary kind gave a speed of ten knots per hour, Hirsch's propeller, two-bladed, gave eleven knots, with a saving of power, reduction of vibration, and increased facility of steering; so much so as to create the surprise of all on board.

When it has been desired to separate the blades from the loss, or to alter their pitch, the patentee has success- fully applied an arrangement, represented in the diagram, which is highly approved by engineers and practical men, on account of its superior neatness, simplicity, and strength, as compared with all other arrangements for the same purpose.

Models and drawings of Hirsch's patent screw propeller may be seen, and particulars obtained, on application to Mr. John Imray, Engineer (agent for the patentee), 65, Westminster Bridge Road, Lambeth, S., London.
Class XII.—South-East Court.

Jones, Josiah, Jun., Liverpool.—Models of Jones's patent angulated iron-cased ships, and of other vessels.

King, J. Charles, 12 Portland Road, Regent's Park, W.—Design of a ship of steel, cast in sections.

Kirkaldy, David, 4 Corunna Street, Glasgow.—Specimens of coloured engineering drawings, H.M.S. "Persia;" also photographs, engravings, &c., from exhibitor's drawings.

Kirkaldy exhibits, in addition to the above, proof prints of ditto ditto ditto . . . £2 2s. 6d. Kirkaldy exhibits, in addition to the above, proof prints of Arabia and La Plata . . . £1 10s. &c.; and engravings of the screw propeller and lines of the Europa. His coloured drawings of the engines of H.M.S. ship Hunter are exhibited by Messrs. N. Naylor and Sons.

Laird, John, Sons, & Co., Birkenhead.—Models of several classes of ships.

Lords of the Admiralty, Whitehall.—Models showing progress made by naval architecture.

McGregor, James, Beechwood, Partick, near Glasgow.—Model of screw steamer.


Mellan, William Robinson, Lockyer Street, Plymouth.—Model of an auxiliary and reserve rudder.


Patterson, William, Jun., Ship Builder, Bristol.—Models of screw and paddle steamships, merchant ships, and yachts.

Pearse, M., & Co., Stockton-on-Tees.—Model of Government troop steamer for the Lower Indus.

Perrett, Auguste, 25 Curzon Street, May Fair, London.—Centrifugal and centripetal propeller (combined); small boiler for the evaporation of oil.

File, Spence, & Co., Dockyard, West Hartlepool.—Case of models of steam vessels for various purposes; patent graving dock. (See pages 108, 109.)
FILE, Spence, & Co., Dockyard, West Hartlepool.—Case of models of steam vessels for various purposes; patent graving dock.
Pile, Spence, & Co.—continued.

The object of this invention is to facilitate the raising and lowering of ships or vessels out of the water, for the purpose of repair or inspection.

Fig. 1 is a longitudinal elevation; Fig. 2 is a front elevation of the dock entrance; Fig. 3 is a plan corresponding to Fig. 1; and Fig. 4 is an end view of a floating pontoon having a vessel supported thereon. The improved floating dock consists of a series of columns, A, arranged at equal distances round in two parallel lines. The columns, A, are pillars of wrought-iron, the lower extremities of which are firmly fixed to the bottom position or lift, and set as air tubes to admit the air into the position or lift as the water is pumped out. On the upper extremities of the columns, A, is built a platform, B, which is carried completely round the dock, as shown in the plan, Fig. 3, of the engraving. The columns, A, serve also as guides for the floating pontoon, P, which extends from end to end, and from side to side of the dock.

A series of circular apertures corresponding to the number of the columns, A, are made in a vertical direction through the pontoon, P. These openings control the columns, A, and are sufficiently large to admit of the pontoon rising and falling easily. The water end, H, of the pontoon is formed in two parts, and these are made to swing back when required, by means of a rack and pinion, or other mechanical contrivance. The floating pontoon, P, has pendant from its lower side a series of chains, J, the lower ends of which are secured to the submerged pontoon, X, by means of which chains the submerged portion of the pontoon or lift is raised to any depth. This elevating pontoon, X, is constructed of iron, thoroughly water tight; it carries the columns, A, which are securely fixed therein. It is so arranged that it may be partially filled with water, so as to give it a greater specific gravity than the surrounding fluid, in order that it may be submerged with facility; upon drawing off this water from the pontoon, sufficient buoyant power is imparted to it to lift a vessel out of the water.

In addition to the pontoon, X, there is a secondary pontoon, Z, which is constructed so as to be easily attached to it; this pontoon is made to serve any required size, according to the weight of the vessel to be lifted, and is attached to the pontoon, X

Port of Dublin Corporation, Bolast Office, 21 Westmoreland Street, Dublin.—Lighthouse models.

Procter, Samuel, Chevall, Leeds.—Model auxiliary screw; three-masted schooner; inverted cylinders, inclosing slides to screw.

Randolph, Elder, & Co., Glasgow.—Models of vessels.

Rennie, George, & Sons, 6 Holland Street, Blackfriars, and Greenwich.—Models of ships; model of a floating graving dock.  (See page 110.)

Richards, John, Iron Works, 21 Hill Street, Milford.—Model of iron ship; anchors, cable.

Richardson, C. J., 34 Kensington Square.—Drawings of projecting shields for ships.

Richardson, Duck, & Co., South Stocldon Iron Ship Yard, Stockton-on-Tees.—Models of iron screw steamers.
RENSSIE, G., & SONS, 6 Holland Street, Blackfriars,—Models of ships; model of a floating graving dock.

FLOATING DOCKS.—Messrs. George Renssie and Sons have lately constructed two floating docks on their patent, of which the accompanying engraving shows the general appearance, for the Spanish Government, capable of lifting vessels of from 5,000 to 6,000 tons dead weight, such as H.M.S. Warrior would be at her light draught.

Dimensions as follows:—

<table>
<thead>
<tr>
<th></th>
<th>No. 1</th>
<th>No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>330 ft.</td>
<td>330 ft.</td>
</tr>
<tr>
<td>Breadth</td>
<td>105 x 105</td>
<td></td>
</tr>
<tr>
<td>Depth of base or floating chamber</td>
<td>11 ft. 6 in.</td>
<td>12 ft. 6 in.</td>
</tr>
</tbody>
</table>

Floating docks of similar construction are suitable for localities where there is but little rise and fall of tide, and will be found to be of service now that vessels of iron are so much in use both in the royal and mercantile navies.

The model exhibited is about one-third of the length of the floating dock constructed for the Spanish Government for the arsenal of Ferrol. The ends are both open, so that no gates are required, and merely the sides are closed in, against which the shores of the ships rest when docked.

The vessel and dock are lifted by the buoyancy of the lower compartment till the vessel is out of the water. The engine and pumps are placed on the upper part of the side walls, for pumping the water out of the several chambers of the base or lower compartment. The tops of the sides are used as hinging chambers, to prevent the possibility of the dock sinking altogether through carelessness in handling.

ARRANGEMENT FOR DOCKING SEVERAL VESSELS AT ONCE BY MEANS OF FLOATING DRY DOCKS.—The arrangement exhibited shows three shallow flat horizontal slipways, radiating from a common centre. This system is intended for places where there is but little rise and fall of tide, as in the Mediterranean; and is now being carried out at the Spanish Royal Arsenal at Cartagena, in conjunction with the floating dock lately constructed by Messrs. George Renssie and Sons for the Spanish Government.

In order to dock a vessel by this means, it is first raised out of the water by the floating dock; the floating dock, with the vessel on it, drawing about ten to eleven feet of water, is then to be hauled into a shallow basin, which is so arranged that the way on the base of the floating dock is level with the ways of the slips in it. The floating dock is then lowered by admission of water into the base or floating chamber till it rests on the bottom of the basin. The vessel is then hauled off, and can be repaired at leisure. This operation can be repeated as often as desired with the same floating dock, until the slipways are occupied with the number of vessels they are capable of containing.

To place the vessels in the water again, the operation is simply reversed.

The model shows only three slipways; but this number may be increased as much as to obtain the required accommodation.

In case of repairs of a simple description, or such as will take a short time, or when merely an examination of the bottom of a vessel is required, the operation of hauling off is not necessary; the vessel being merely lifted out of the water by the floating dock, examined, and afterwards allowed to float again by submerging the dock.


CLASS XII.—South-East Court.

[2714]

Richardson & Co., J. Weirham, low. Walker, Newcastle-on-Tyne.—Models of ships and steamers.

[2715]

Robert & Co., Richard, 10 Adam Street, Aldoph.—Models of screw steamers, windlass and screws.

[2716]

Robertson, A. J., Hottensbarn, Kinross.—Models of ships.

[2717]

Robertson & Co., John, Newcastle-on-Tyne.—Model of floating dock, and ferry steamer.

[2718]

Rose & Crowder, Wapping.—Parallel lift-dock, for repairing ships in tideless waters.

[2719]

Russell, J. Scott, London.—Models of ships built on the wave principle since 1851.

[2720]

Sadler, William, Tredegar Place, Bow Road, Middlesex.—Models of frigates, floating batteries, and gun-boats.

[2721]


[2722]

Sharpe, Benjamin, Howell Park, Middlesex.—Shot proofing for ships and batteries; gunnery instruments.

[2723]


[2724]

Simpson, Robert, Dundee.—Models of clipper ship, screw steamer, and swift river steamer.

[2725]


[2726]

Thompson, Herbert Lewis, 47 Parliament Street, Westminster.—Models and drawings showing improved construction of iron ships.

[2727]

Tod & McGregor, Glasgow.—Model of a screw steamer.

Model of screw steamer, City of New York, of the Inman line, 2,560 tons, 550 horse power, built by Tod and McGregor, Glasgow.

[2728]

Tovell, G. R., Ramsey, Isle of Man.—Models of ships and vessels (Tovell & Miller's patent).

(111)
These propellers are constructed to produce currents, the action of which will cause the surrounding water to act upon the vessel to propel her. Without altering the angle of placement of the blades, few or many revolutions may be employed to accomplish a given speed. With a given power, these propellers accomplish a greater speed than any others now in use, and the greater the draught of water the greater the speed. They are simple in construction, and not liable to foul.

Vernon, Thomas, & Son, Liverpool.—Model, Woodside landing stage; caisson, Malta dockyard; and plans of first-class merchant ships.

Vines, Richard, 3 Great College Street, Camden Town.—Newly-invented transverse floats, for propelling steam vessels without backwater.


Watson, George, 50 Lower Shadewell, E.—Watson's boat lowering and disengaging apparatus.

Wright, Joseph William, 4 Cumberland Place, Old Kent Road, S.E.—Paddle-wheels of an improved construction.

Lords of the Admiralty, Whitehall:—

Two models representing the old and modern methods of launching ships.

A series of sixteen models, representing the progress of naval architecture, from the first ship of the Royal Navy (1486) to the present time.

The Queen's yachts, "Victoria and Albert," "Fairy," and "Osborne."

A series of four models, representing the principal details of different modes of construction for ships of the Royal Navy, from the earliest of which there is any record, to that now adopted in iron-cased ships.

On the wall, 36 half block models, showing the lines of the different classes of the ships of the Royal Navy, from the year 1765 to the iron-cased ships of the present day.

H.M.S. "Queen," representing a full-rigged vessel of war at the time of the last Exhibition.
Sub-Class B. — Boat and Barge Building, and Vessels for Amusement, &c.

[ 2743 ]
Ayling, Edward, 50 Lower Fore Street, Lambeth. — Racing oars and sculls.

[ 2744 ]

[ 2745 ]

[ 2746 ]
Cottington, John, 89 Chancery Lane. — Ship lifeboat and main rigging, on vertical wave-line system.

[ 2747 ]
Halkett, Peter Alexander, 142 High Holborn. — New life-boat; a Franklin expedition knapsack boat; cloak boat. (See page 114.) (113)
HALCOTT, PETER ALEXANDER, 142 High Holborn.—New life-boat; a Franklin expedition Kempack boat; cloth boat.

The principle of these inventions consists in making a curved cylinder of India-rubber cloth sewer for the sides and ends of a boat, by becoming detached when inflated with air. The diameter of the cylinder being large in proportion to the size of the boat, a very rigid construction is made, and no wood or framework of any kind is required. The centre part within the cylinder, or bottom of the boat, is also formed of India-rubber cloth. Before describing the life-boat marked No. 1, the inventor will refer to the smaller boats. No. 3, the boat cloak, was first invented for the purpose of crossing rivers in exploring, travelling, &c. It does not weigh more than 7 lbs. Mr. Gatson, the well-known African traveller, recommends this form of the invention. In the "Art of Travel," he says:—"The India-rubber boat is an invention which has proved invaluable to travellers. They have been used in all quarters of the globe, and are found to stand every climate. They stand a wonderful deal of wear and tear. For the general purposes of a traveller, I should be inclined to recommend as small a manufactory boat as can be constructed, such as the cloaks that are convertible into boats."

Sir John Franklin, having seen one of these boat cloaks, asserted that if he had had such a boat at the Coppermine River, in his expedition in 1819-21, the disasters and loss of life which then happened would have been obviated. He was, at the time he saw the boat, preparing for his last Arctic expedition, and he expressed a desire to have one to take with him. The inventor recommended him to take, instead of a cloak boat, a Kempack boat, as shown in No. 2, which was the first of the kind made. This is constructed of strong canvas. It weighs no more than a regulation hand-sewn boat, and will contain three or four men. They have been used in many climates; in South Africa, by explorers in Central America, in India, and China, and in all the Arctic exploring expeditions. It was the means of rescuing two of the men who were with the amiable and gallant Franklin, M. Belcher, on the freezing ice, when he lost his life; and had there been a few more minutes to spare before the ice made so rapidly away, this devoted officer's life would have been saved by its means. They have been well spoken of by many of the distinguished officers commanding those expeditions. Sir R. M'Clure writes, in his address to the Admiralty: "I cannot refrain from noticing the excellence of Halcott's boats. These admirable little articles were inflated on board, and with the greatest facility were carried upon a man's shoulders over ice, which, from its excessive roughness, no other boat could possibly have been got across without being smashed. By their means a large party were rescued, who were without tents, clothing, food, provisions, or in any way provided to withstand the rigours of a Polar night, with the thermometer at 8 deg. below." And in another place: "It is impossible to recommend these boats too highly upon a service of exploring, where every article of weight is objectionable. Their whole girth is but 25 ft."

Dr. Rae (Nov. 1857) wrote: "The boat was found most useful. It carried two men, with a quantity of stores, weighing upwards of 8 cwt., without being in the least degree overloaded. Although in use for upwards of six weeks on a rocky coast, it never required the slightest repair." In another letter, April, 1853: "Remembering that the one I had was blown in 1860-7, at Republic Bay (where it had undergone much rough usage), had been left at York Factory, I sent for it, and had it brought more than throut thousand miles in the winter to Bear Lake. During the summer season of 1853, it was in constant use for setting nets and other purposes along the Arctic coast. It is now still in very serviceable condition."

No. 1. The life-boat is made of No. 1 canvas, and answered as necessary. It is thirty or thirty-five feet long. In proportion to the number it carries it is a very cheap boat. It can be rolled up and stowed away, so as to take no more room than a space sail. Inside the cylinders, which are of canvas, and in compartments, there are India-rubber cloth cylinders of the corresponding shape. These can be inflated by ten or twelve men in about six minutes. The canvas takes the shape, by distension, of a boat large enough to contain more than one hundred men, and floating at a weight of many tons. Such a boat is strong enough to suffer no damage from collisions, either against the ship's sides or on a beach. It can neither overturn nor sink. It is propelled by eighteen men, or paddles, and though slow in speed, might, the men ruling each other, make constant progress at the rate of three miles per hour, carrying, besides its crew, provisions and water for a fortnight.

In addition to this invention of the India-rubber boat, a sail-hulk, when the wind is not too high at the time to use it, has been designed for getting the passengers rapidly and easily into the boat, especially the women and children, who often in case of fire or wreck are found very difficult to be got into boats. The ladder, made of canvas, is six or eight feet wide, "packed," or folded into various rows of steps, with ropes passing down on each side of the rows. It has been found that even while such a canvas ladder is tossed about with a very violent motion, men, boys, women, and children can go down and up the steps with great facility. The feet can hardly go in any other direction than into the "pecker," and they are very firmly retained in the hollow made by the pecker. In the middle of the breadth of canvas a plug impregnated canvas, some two feet wide, is inserted, in order that those who choose may slip down into the boat, and that light articles may be hastily and safely sent down into it from the ship's deck.

The inventor never received any profit or benefit from the use of these boats, and he did not retain a monopoly of their manufacture. It is not with any motive of self-interest that he proposes the application of this principle for ship life boats, but solely with a view of directing the attention of the public, and especially of members of Parliament, to the fact that such apparatus for saving life can be efficiently got and sent, that he exhibits plans and drawings of boats such as he has constructed, and which carried more than a hundred persons. He believes that in this invention the difficulty is practically surmounted of an emigrant ship carrying with it the means of sending away at once all the people on board in case of wreck or fire.

The exhibit of the new pernous designs of further information respecting the boats to S. Matthews and Son, successors to Charles Macintosh & Co., 23, Charter Cross; and to Mr. W. Welby, who made the large boat, and witnessed the trials made with it, and whose address will be given upon application to Mr. Matthews, or to Mr. Weir, 142, High Holborn.
ROYAL NATIONAL LIFE-BOAT INSTITUTION, 14 John Street, Adelphi, W.C.—Life-boat on her transporting carriage; models of life-boats, and of other life-saving apparatus; gold and silver medals of the institution; large wreck chart of the British Isles for 1861, barometer model indicators, &c.

President—HER MOST GRACIOUS MAJESTY THE QUEEN.
Vice-President—THE DUKE OF NORTHUMBERLAND, K.G., F.B.S.
Chairman—THOMAS RAND, Esq., M.P., F.R.S., F.V.P.
Chairman of Council—THOMAS CHAPMAN, Esq., F.R.S., F.V.P.
Deputy-Chairman—ROBERT TYSON, Esq.
Secretary—J. A.賴, Esq.
Inspector of Life-boats—CAPTAIN J. R. WARD, R.N.

DEALINGS OF THE LIFE-BOAT OF THE ROYAL NATIONAL LIFE-BOAT INSTITUTION.

This life-boat possesses in the highest degree all the qualities which it is desirable that a life-boat should possess; 2. Great interior stability. 3. Speed against a heavy sea. 4. Facility for launching and for taking the shrouds. 5. Immediate self-discharge of any water breaking into her. 5. The important advantage of self-evidencing if no other life-boats are on the scene. Such a life-boat is a great addition to the number of our life-saving appliances, and will be of great service in case of any accident.

During the past two years (1860-1) the life-boats of the National Life-boat Institution have been instrumental in rescuing the crews of the following vessels:

1. Brig St. Michael of Lowestoft 2. Spanish Barco Pescadores de Torrevieja,—sailed vessel and 1 of the crew
3. Brig President of Kendal 4. Brigantine Belgia, of Frederikshavn
5. Brig清远 of Woodbridge 6. Brig Francis Nelly of Inverness
7. Brig Union of Weymouth 8. Sloop vent-de-Vue of Vianna
9. Sloop Fanny, of Woodbridge 10. Sloop Pretoria, of U.S.
11. Sloop Penelope, of Woodbridge 12. Sloop Union, of Vianna
15. Sloop Diana, of Woodbridge 16. Sloop Euphemia, of Shiel
17. Sloop Emma, of Woodbridge 18. Sloop Sarah, of Shiel
19. Sloop Emma, of Woodbridge 20. Sloop Sarah, of Shiel
21. Sloop Emma, of Woodbridge 22. Sloop Sarah, of Shiel

The number of lives saved by the life-boats of the society, and other means, since its formation, is upwards of 12,200; for which services, 82 gold medals, 704 silver medals, and £15,250 in cash have been granted as rewards. The Institution has also expended since its establishment nearly £20,000 on life-boat establishments.

Contributions are received by all the bankers in the United Kingdom; and by the Secretary, Richard Lewis, Esq., at the Institution, 14 John Street, Adelphi, London, W.C.
LIFE-BOAT OF THE ROYAL NATIONAL LIFE-BOAT INSTITUTION GOING OFF TO A WRECK.
Hamley, John Isaac, 16 Cœpload Street, Lime-st Grove.—Model of life-boat.

Hawkesworth, Amory, & Annersley, George, 65 Lincoln's Inn Fields.—Model of the Hartlepool Scamer's Association Life-boat, in use since 1853.


Learwood, Thomas, Tyrro, Cornwell.—Life-boat, propelled without oars through the surf; cannot fill; self-righting.

Preston, Levi, Thomas, R.N., Lemosijkstra.—Double rudders, less liable to accident; propeller, blades unslip from arms.

Pym, John, 4 Lawrence Pumpney Hill, London.—Double sheer hulk for raising sunken vessels (Pym’s patent).

Richardson, Henry Thomas, Aberkirmont, Bota, N.W.—Model of “Richardson’s patent iron tubular life-boat.”

Royal National Life-boat Institution, 14 John Street, Adelphi, W.C.—Life-boat on her transporting carriage, models of life-boats, and of other life-saving apparatus, &c. (See pages 115, 116.)

Seale, Edward, Stangate, Lambeth.—Model of state barge.

The exhibitors held the appointment of boat builders to Her Most Gracious Majesty the Queen, H.M. the Emperor of the French, H.M. the Emperor of Austria, H.R.H. the Prince of Wales, H.R.H. the Prince of Prussia, H.H. Prince Edward of Saxe Weimar, H.H. Lord Powis, H.H. Prince Duke of Suses, the Lord Commissioners of the Admiralty, the Right Honourable the Board of Ordnance, the Honourable Board of Conservators of the River Thames, the Universities of Oxford and Cambridge, the Eton and Westminster Schools, the “Guards,” “Lions,” and other distinguished Clubs, and most of the leading Amateurs.

Stevens, William, Trinity Square, Tower Hill.—Model, ships and boats, and every requisite for fitting and rigging.

Thompson, Nathan, 21 Rochester Row, N.W.—Models of Thompson’s new patented system for building boats by machinery.

Twyman, Henry, 26 Hardey Street, Ramsgate.—Lugger life-boat, built with air-tight compartments.

Watson & Davison, 5 Munster Square, Regent’s Park.—Patent safety rowlocks.

Westrell, Andrew, Lambeth, and Crystal Palace.—Improved models of boats (various kinds) for speed and pleasure.


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SUB-CLASS C.—Ships' Tackle and Rigging.

[2774] ADECOCK, JOHN, Marlborough Road, Dalston, London.—A marine "odometer;" or, improved ship's log; various modifications.


[2777] BLAKENEY, J. W., & CO., Hull, Glasgow, and Sunderland. (See page 119.)

[2778] BROWN, J. H., Adelaide Place, London Bridge.—A floating buoy for saving ships' papers when wrecked.


[2780] DANNY, JAMES F., 11 Camden Road, Camden Square, N.W.—Model of "Danby's patent anchor."

[2781] GIFFORD, WM. J., Wellington, and 39 Druryhine Street, Queen Square, London.—A model gaffyard rig.

The following is exhibited:—A model of a full-rigged vessel, viz., a three-masted steamer, in a glass case, showing the application of the new system of rigging and sail-making, called the "Gaffyard Rig." The general object of this system is the perfection of the art of sailing, more especially "close-hauled" (i.e., obliquely against the wind), with complete command of the course and position at any angle with the wind, or point of the compass. Some of the improvements and modifications in which this system differs from others, may be understood by the following particulars—

1. The tension of the canvas is equalized everywhere; and at any part liable to undue or irregular strain, the sail is secured by an interposed breadth of a cloth manufactured expressly for the purpose. It may also be secured by "cuff-bands."

2. The masts are "bent head and foot."

3. A more perfect "set" of the sail is thus obtained, with this essential peculiarity, that the curving, or "bellying," is in the perpendicular and not in the horizontal direction. The surface is therefore straight, in the horizontal sense.

4. The masts are to windward instead of to leeward of the masts and gear, the result being that when "close up," the masts are sheltered from the wind; and secondly, the wind passes off the masts without impediment at any angle.

5. The yards, as well as the gaffs, are "fore and aft."

This new system may, in some sense, be viewed as a combination of the two common rigs known as the "square" and the "fore and aft" rig; and hence the term "gaffyard" rig is applied to it.

IMPROVED ANTI-VIBRATION STEERING COMPASS FOR STEAMERS.

Gladstone, Thomas Murray, 30 Parliament Street, London, S.W.—Two models of a "patent anchor," an iron and a wood stock.

Goddard, John Maynard, 9 Ship Street Lane.—Specimens in the manufacture of ships' blocks.
CLASS XII.—Naval Architecture, Ships' Tackle, &c.

HAWKS, CRAWSHAY, & SONS, NEWCASTLE-ON-TYNE.—Model of Trotman's patent anchor, 95 cwt., supplied to H.M. frigate "Warrior." (For Illustration, see page 128.)

INTERNATIONAL EXHIBITION,
PARIS, 1855.
GRANDE MEDAILLE 1st CLASS,
À J. Trotman, 42 CORNHILL,
LONDON.

The model of Trotman's anchor, 95 cwt., made for Her Majesty's iron-cased frigate "Warrior," and exhibited by Messrs. Hawks, Crawshay, & Sons, Newcastle-on-Tyne.

The Lords Commissioners of the Admiralty nominated as an anchor committee the Honourable Admiral Sir M. Sitwell, K.C.B., &c.; Admiral George R. Mundy, C.B., &c.; the late Admiral Charles Hope, C.B.; and other naval officers; with whom were nominated Dunstan Dunbar, Esq., the chairman of the General Shipowners' Society, and five gentlemen of "Lloyd's Classification Committee"—to investigate and determine, by a series of practical proofs and tests, the relative merits of different descriptions of anchors. Their unanimous report, dated 1st of February, briefly recapitulates the order of merit, as follows:

Art. 20.—"The committee here beg to recapitulate the order in which they consider the anchors to stand, together with their relative percentage of inferiority or superiority to the Admiralty anchor, the value of which being taken as the standard or unit:

<table>
<thead>
<tr>
<th>Anchor</th>
<th>100 or 100 per cent.</th>
<th>Superior to Admiralty anchor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trotman</td>
<td>120 or 20 per cent.</td>
<td>Superior to Admiralty anchor</td>
</tr>
<tr>
<td>Lion</td>
<td>115 or 15 per cent.</td>
<td>Superior to Admiralty anchor</td>
</tr>
<tr>
<td>Later</td>
<td>110 or 10 per cent.</td>
<td>Superior to Admiralty anchor</td>
</tr>
<tr>
<td>London</td>
<td>105 or 5 per cent.</td>
<td>Superior to Admiralty anchor</td>
</tr>
<tr>
<td>Admiralty</td>
<td>100 or 0 per cent.</td>
<td>Equal to the standard.</td>
</tr>
</tbody>
</table>

The Royal yachts, "Victoria and Albert," also the French and Russian imperial yachts, "La Reine Hortense," "La Princesse Jarcas," &c., &c.; the steam-ship "Great Eastern," the ships of the Cunard Company, Peninsular and Oriental Company, the Royal Mail Company, the Messageries Impériales, the Asiatic Lloyd's, and the mercantile marine generally, are supplied with Trotman's improved anchors at about one-third less weight than would be required for ordinary anchors—a consideration which the anchor committee deem "of vast importance to the shipping interest."—P indiscriminate 9th Official Report.

The distinguishing feature peculiar to Trotman's anchor is the palm being set at an acute angle to the line of strain, and differing from that of the arm: in action, it is found to bite the ground instantaneously as a ploughshare, and by reason of the vibratory motion of the arms, the pressure of the upper arm on the slack imparts increased penetration to the lower arm in the ground; or in other words, the heavier the strain, the more imposing the holding properties. It possesses other advantages besides strength, and holding-power more than doubled; viz., freedom from fouling the cable—increased efficiency with reduced weight, affording very material relief to ship's bows in a heavy sea—facility of transport to or from ships by means of boats—convenience of stowage—elasticity of form, which enables it to sustain sudden strains or jerks at short stay-peaks, and commotion, when let go on hard or rocky bottoms.

Comparison suggests the following conclusions:—the angle of the palm and arms of Porter's and other anchors being identical, the ordinary anchor, likewise, in action is a mere scraper, accumulating, as it were, the loose surface, instead of biting and retaining its fulcrum of resistance in unbroken ground; its form rigid and inflexible, a mass of iron, one-third of which is never available, and really mischievous—as the upper arm is ever liable to be fouled or hooked by the cables of other ships in crowded anchorage—presenting always a dangerous projection to ship's bottom, in shallow water, tidal harbours, and rivers. The principle of Trotman's anchor obviates these objections. It is flexible in its parts, each contributing its portion of duty to the whole, and adapting itself to every emergency.

The following are some of the eminent firms licensed by the patentee to make Trotman's anchors, viz.—Messrs. Hawks, Crawshay, & Sons, Newcastle-on-Tyne and London; Wood & Co., Liverpool, Chester, and London; John Abbott & Co., Gateshead-on-Tyne; Cow & Forbus, North Shields; Robert Wight & Son, Sandham and Seaham; N. Hingley & Son, Netherton and Bradley Iron-works; Henry F. Parkes, Dudley and Liverpool.

Patentee's office, 42, Cornhill, London.
Class XII.—South-East Court.

Herbert, George, Dartford.—Vvxy, Beacon, Telegraph Station Battery, moored from centre of gravity; ship's motion metre, self-registering.

Holgate & Reed, Sunderland.—Model of Reed's patent anchor; specimens of iron ship knees and forgings.

Holtung, William, Church Street, Walmer.—Model of ballista, for making communication with stranded vessels.

Hunter, Samuel, 29 Grey Street, Newcastle-on-Tyne.—Model of a new anchor.

Jeula, Henry, Lloyd's, E.C.—Martin's patent anchor: immediate hold, immense power, no fouling, easy tripping and fishing, great lightness.

Laing, James, 2 M'Vear's Lane, Perth Road, Dundee.—Helixameter, for experimenting on the screw propeller. Combined screw pump for ships, and compound ventilator for ships.

Helixameter.—The purpose of this machine is to make an experimental investigation into the properties of the screw as a propeller, more particularly in consideration of the "pitch." The tables and diagrams accompanying the machine are constructed on experimental data ascertained by its use, and on examining these some very remarkable properties of the screw will be observed. The most prominent of these are, that the greatest possible thrust is obtained, and that neither positive nor negative slip occurs when the pitch is equal to the diameter.

Combined Screw Pump for Ships.—The objects in the construction and action of this pump are, small first cost, easy keep, and certain action under any probable circumstances, besides giving with small power a large and continuous discharge of water.

Compound Ventilator for Ships.—This system produces both a downward and upward current of air acting in combination. The ventilators are made either of metal as fixtures, or of cloth as wind-sails, to be used at pleasure. A thorough ventilation is obtained by this system.

Longhurst, John, Ticehurst, Sussex.—Breakless cable chain.

Macdonald, John, 13 Henry Street, Vauxhall.—Compass, with accompaniments, for longitude and latitude; also, ship's lamps.

Martin, Claude, 10 Bath Place, Hatcham.—Improved Porter's anchors, and a bombe-mitraille (unloaded).

Moore, C., Swansea.—A spherical indicator, for nautical and astronomical purposes.

Parkes, Henry, Penshawe, Chain and Anchor Works, Tyron, Staffordshire.—Chains and anchors of various descriptions.

Peacock, George, F.R.A.S., Strevors, Devon.—Refuge buoy-beacon, granulated cork pension-mattress; life and treasure preserver; unfoulable anchor.

Reitho, Emil, London.—Martin's anchor (patented), with holding power double that of ordinary anchors, and inability to foul.

(121)
RICH, WILLIAM, 14 Great Russell Street, Bloomsbury.—Improved kite for carrying a line or man, &c., on shore from stranded vessels.

ROGERS, M. D., St. Leonard's Road, Poplar.—Models of boat lowering gear, chain cable, stopper, controller, and windlass.

WOOD, &c., 16 St. John's Wood, London.—Buoys of various sizes, for use in deep water, and for deep sea laying.

SMITH, Robert, 3 Fish Street Hill.—Solid cork life buoy, jacket, belt, and waterproof cork socks.

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SMITH, Robert, 3 Fish Street Hill.—Solid cork life buoy, jacket, belt, and waterproof cork socks.

RICH, WILLIAM, 14 Great Russell Street, Bloomsbury.—Improved kite for carrying a line or man, &c., on shore from stranded vessels.
Trotman, J., 42 Cornhill.—Model of Trotman’s anchor used on board H.M. yacht “Victoria and Albert.”

Trotman’s Anchor.

Tylor, J., & Sons, Warwick Lane, Newgate Street, London.—Apparatus for distilling fresh from sea water.

Walker, Thomas, & Son, Oxford Street, Birmingham.—Ship logs, and sounding machines.


These life-belts possess buoyant power averaging 30 pounds, being double that of ordinary cork life-belts. The advantages of this belt are—

1. It secures great buoyancy without inconvenience to the wearer.
2. It is perfectly flexible.
3. It affords great protection to the body against injury when in the water.
4. It is very strong and durable, is little liable to injury, and is readily repaired if injured.
5. Being tightly secured round the waist, it cannot slip upwards or downwards, but is always in the best position for preserving the equilibrium of the wearer.

These life-belts have already been the means of saving a large number of lives. They are supplied to the life-boats’ crews of the National Life-boat Institution on the coasts of the United Kingdom, and to the crews of coast-guard stations.

Manufacturer, Mr. J. Birt, Jun., maker of life-saving apparatus, 5 Wellclose Square, London.
WATSON, THOMAS, 49 Rupert Street, W.—Application of friction break to ships' capstans (working model).

This invention brings the capstan under the entire control of one man, who is entirely out of danger, and prevents the necessity of the men having to walk backwards. At an inquest held on the bodies of some men killed by one of these accidents on board H.M.S. "Nile," in January, 1861, the jury expressed a hope that something might be invented which would prevent the recurrence of such accidents in future.

WEST, JOHN GEO. & Co., 92 & 93 Fleet Street.—Ships' and boats' binnacles, and patent liquid compasses.

WIGHT, ALEXANDER, 14 Lansdowne Crescent, W.—Compound iron cable.


LORDS OF THE ADMIRALTY, Whitehall:

Specimens of Admiralty charts.

Specimens of compasses in use in the Royal Navy.

Model of the main-deck compasses of the "Warrior."

A self-registering barometer, by Vice-Admiral Sir A.Milne, K.C.B.

TAYLOR, J.—New sextant, and compass.

MITCHELL, A. & Son, 19 Adam Street, Adelphi, London.—Screw-piles and moorings.


MOORE, T., 33 Regent Circus, Piccadilly.—Windlass worked by endless screws, self-acting chain-stopper, &c.

EMERSON & WALKERS, 21 Bridge Street, Sunderland.—Patent ship's windlass.

SELWYN, CAPT. J. H., R.N.—Cheoyua's Court, Tring, Herts.—Cylinder for laying, under-running, and raising telegraphic submarine cable.

RANKINE, A., Castle Street, Kirkcudbright.—Model of an iron-cased cupola screw-propeller war steamer.
PHILOSOPHICAL INSTRUMENTS, AND PROCESSES DEPENDING UPON THEIR USE.

[2845]
ACKLAND, William, 19 Church Row, Newington Butts.—Dividing engine, and instruments divided thereby.

[2846]
ADIE, Patrick, 285 Strand.—Patent semicircle; patent diastameter; patent theodolite level; patent level; patent surveying compasses; standard barometer; eikograph (Wal-lace's).

[2847]
ADIE, Richard, 55 Bold Street, Liverpool.—A gold disc steam and vacuum gauge; an alcohol hermetic barometer; a double telescope.

[2848]
ALDOUS, W. LENS, 47 Liverpool Street, King's Cross.—Microscopic drawings of the human breath, and other curiosities.

[2849]
ALISON, Dr. S., 80 Park Street, W.—Differential double stethoscope; sphygmoscopes; stethographometer; and hydrophone, used in chest diseases.

[2850]
ALLAN, Thomas, C.E., 1 Adelphi Terrace, Strand, W.C.—Mechanical or automatic recording telegraph; electro-magnetic engine; submarine cables, &c.

[2851]
BAGOT, CHARLES E., M.D., Claremont Mall, Dublin.—Nephelescope, for viewing the upper strata of clouds.

[2852]
BAILEY, J. W., 162 Fenchurch Street, London.—Sextants; artificial horizons; theodolites; levels; prismatic compasses; drawing instruments.

Pillar sextant, on counterpoise stand.
Bell metal and box sextant.
Gravatt’s dumpy level.
Transit and Ricord’s theodolites.
Prismatic compass.

Artificial horizon, mercurial and dark glass.
Universal compass (a new method of describing an ellipse), which comprises triangular and hair compasses, pen, and pencil joints; and forms a complete set of instruments.
### Class XIII.—Philosophical Instruments, and Processes depending upon their use.

**Baker, Charles, 214 High Holborn.**—Microscopes, and their appliances; surveying, engineering, and drawing instruments; ivory and box rules, &c.

The following are exhibited:

- Binocular and other microscopes, achromatic objective glasses and apparatus, and materials for mounting preparations: also surveying, levelling, and drawing instruments of all kinds.

No. 1.—A highly finished compound microscope, with mechanical and secondary stages, and all the latest improvements, with two Huyghenian eye-pieces...

#### No. 1. Microscope.

- **No. 1 A.**—A microscope of the same size, but £ 7 0
- **No. 1 B.**—A small microscope, having mechanical stage, &c.
- **No. 1 C.**—With plain stage
- **No. 2.**—Two sets smaller, with mechanical stage and one eyepiece
- **No. 2 a.**—With plain stage
- **No. 3.**—A student's ditto, with slow motion, objective glasses, case, and apparatus complete...
- **No. 3 a.**—Ditto, without slow motion...

#### Achromatic Object Glasses, of Large Angular Aperture.

<table>
<thead>
<tr>
<th>Diameter</th>
<th>£</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 inch</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>1½ inch</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>25</td>
<td>0</td>
</tr>
</tbody>
</table>

A foot-rule 4-inch, transit theodolite, bright or bronzed, with vertical and horizontal circles, and verniers divided in silver to 20 min. The clamping and index adjustments of the most approved kind. An inverting and erecting eyepieces, with £ 5 0.

**Tramit Theodolite.**
CLASS XIII.—North-East Gallery.

BARNETT, John, 3 Whitehall Street, Tottenham.—Microscopic preparations.

BRAKE, Professor, F.R.S., London.—Microscopes for class demonstration; microscopical specimens of animal tissue, nerves, vessels, etc.

BELLEW, William Dawson, 1 Park Street, Leeds.—Medical galvanic apparatus, containing primary, secondary, and combined currents.

BENHAM & FRINGE, 40, 41, & 42 Chandos Street, Charing Cross.—Platina apparatus for chemical uses.

BETTAL, William, 1 Victoria Cottage, Royal Road, Kennington Park.—Apparatus for showing the beautiful phenomenon of polarized light.

BINGH, John, 30 Charles Street, Berkeley Square, W.—Sensitive thermometer, and self-acting ventilator.

BOLTON & BARNETT, 146 Holborn Barn.—Chemical, galvanic, and pneumatic apparatus.

BRAHAM, John, Bristol.—Spectacles from their earliest invention to the present day; patented anti-ophthalmoscopic, rifle, and sporting spectacles; helical spring eyeglasses. The Emperor of the French, granted August, 1861, may be obtained, wholesale and retail, from himself and from licensed agents in all towns of the United Kingdom.

BRETT, John Watkins, 2 Hanover Square.—Submarine telegraph cables successfully established by the inventor; Roman type-printing telegraph.

BRITISH AND IRISH MAGNETIC TELEGRAPH COMPANY, Liverpool.—Telegraph instruments, insulators, and apparatus; submarine telegraph cables. (See page 4.)

BRITISH ASSOCIATION, Ken Observatory.—Philosophical instruments.

BROWN, David Stephens, Eton Lodge, Ashby Road, Islington, London.—Self-acting spectroscope; portable barometer; sensitive spectroscope.

BUCKINGHAM, James, Civil Engineer, Whithworth Common, London.—Refracting telescope, equatorially mounted, 20 inches aperture; portable ditto, 5 inches aperture.

1. Equatorial Refracting Telescope (in the Name), 26½ in. focus and 40 inches aperture; believed to be the largest existing: all the changes and slow motions in right ascension and declination are at the eyepiece, where also the declination circle is read.
2. Portable Equatorial (in the North Gallery), 7½ ft. focus, 5½ in. aperture; circle 11 in. diameter, graduated on parallels to latitudes 30° to 60°, having anti-clock motion in azimuth to facilitate placing in position.
3. Very delicate level, without adjustment, divided to seconds of space.
4. Micrometer, divided on plates, with new method of illuminating by prisms.
5. Object glasses of 25, 35, 50, 90, and 200 inches clear aperture; one 8½ in. on the dioptric system.

None of these instruments are for sale; they are exhibited only to show the convenience and novelty of the fittings. The object glasses, which are free from chromatic and spherical aberration, were made for the exhibitor by William Wray, Optician, 1 Clifton Villas, Upper Holloway, N.
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.

BRITISH AND IRISH MAGNETIC TELEGRAPH COMPANY, Liverpool.—Telegraph instruments, insulators, and apparatus; submarine telegraph cables.

The following patented inventions are exhibited:—

The Acoustic Telegraph Instrument. Sir C. T. and E. B. Bright’s patent, 1855—1859. The acoustic instrument conveys signals to the ear instead of to the eye of the operator. Two bells are used of different tone, and insuffled so as to prevent prolonged vibration. A single conducting wire only is employed, a relay being used to connect up a local battery on a positive current being received on one bell, or if a negative current with the other bell. This apparatus is used at all the principal stations of the Company. It is not liable to get out of order, and utilizes both currents, besides saving the cost of a writing clerk, required at each instrument when visual signals are used.

The Magnetic Telegraph Instrument. Hoadley’s patent, 1868. In this invention the magnetic-electric current is applied in place of a galvanic battery. It is used extensively by the Company for railway telegraphs and other purposes, and is peculiarly applicable to hot climates, where it is found very difficult to keep galvanic batteries in order.

The Neeru Telegraph. Edward Hightson’s patent, 1868. This is a simple form of visual telegraph, requiring only one wire, and is extensively used by the Company for railway telegraphs and other purposes.

The Transmission Instrument. Sir C. T. and E. B. Bright’s patent, 1862. This is a relay, so constructed that when connected to a single wire, at an intermediate point, it will act as a relay to transmit a positive or negative current at will in either direction.

Resistance Coils, for testing the position of a fault in telegraph conductors from a distant station. Sir C. T. and E. B. Bright’s patent, 1859.

Burbow, W. & J., Great Malvern.—Malvern landscape and target telescopes. (See page 5.)

Burton, Edward, 47 Church Street, Minorcas, London.—Optical and mathematical instruments.

Buss, Thomas Osman, 3 Upper East Smithfield, Tower Hill.—Hydrometers and saccharometers for wine.

Butters, Thomas E., 4 Belvedere Crescent, Lambeth.—Parallel glasses for mathematical instruments.

Cameron, Paul, Mathematical Instrument Maker, Glasgow.—Marine compass; marine barometer; instruments for determining ships’ position at sea.
Burrow, W. & J., Great Malvern.—Malvern landscape glasses and target telescopes.

This drawing represents a "Burrow's Landscape Glass," containing twelve lenses constructed of the purest glass, in such combinations as to produce high power and accurate definition with wide and brilliant field. These glasses are achromatic, and are made in two sizes, price 6 guineas and 3½ guineas respectively, slings included.

The 6 guinea glass will show hits on a target at 500 yards, distinguish colours on the race-course at a mile, and define objects in a landscape and ships at sea at 15 to 20 miles. Size 4½ in. x 4½. Diameter of objective, 2 inches.

The 3½ guinea glass will do the same at 400 yards, 1 of a mile, and 10 to 12 miles. Size 3 in. x 4½. Diameter of objective, 1½ inches.

Reference to noblemen, distinguished officers in the army and navy, sportsmen, travellers, scientific men, racing judges, &c., who use these glasses in preference to field glasses of the ordinary make.

Burrow's TARGET TELESCOPES for rifle practice will show hits on the target at the long range. Length 7 inches; weight 3 ounces. Price, 25s.; covered Russia, 50s.—For ranges at 1000 yards, 3 guineas.

CASARELLI, JOSPEH, 43 Market Street, Manchester.—Microscopes; telescopes; mining and surveying instruments.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Price (£ s d)</th>
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<tbody>
<tr>
<td>1. Astronomical telescope, 2½ inches aperture, equatorially mounted, with movable altazimuth for setting to different latitudes, suitable for either a pillar or portable stand</td>
<td>20 0 0</td>
</tr>
<tr>
<td>2. Astronomical telescope, 3½ inches aperture, mounted on a slim portable stand; fine and coarse horizontal and vertical movement</td>
<td>40 0 0</td>
</tr>
<tr>
<td>3. Large size, first-class microscope, stand, two eye-pieces, pliers, forceps, &amp;c.</td>
<td>20 0 0</td>
</tr>
<tr>
<td>4. A new arrangement of circumferentor, or miner's dial, of first-class quality, with sights mounted on movable plate for sighting up or down inclines, with quadrant attached, showing the degree of inclination, &amp;c.</td>
<td>14 14 0</td>
</tr>
<tr>
<td>5. Dials, as above, smaller size</td>
<td>14 14 0</td>
</tr>
<tr>
<td>6. Circumferentor or miner's dial, with tangent screw adjustment of first-class quality</td>
<td>14 14 0</td>
</tr>
<tr>
<td>7. Best 14 inch dumpy level, with compass</td>
<td>14 14 0</td>
</tr>
<tr>
<td>8. Portable anemometer (invented by J. Dickinson, Esq., Government Inspector of Mines, for showing the velocity of air current in coal mines by which can be computed the quantity of air, in cubic feet, passing per minute through the airways)</td>
<td>2 10 0</td>
</tr>
<tr>
<td>9. Steam-engine indicator, for taking diagrams, showing the working of the engine, and computing the power consumed</td>
<td>6 6 0</td>
</tr>
<tr>
<td>10. Microscope for showing the state of the furnace in the condenser of the steam-engine</td>
<td>3 10 0</td>
</tr>
<tr>
<td>11. Patent steam-pressure gauge</td>
<td>3 5 0</td>
</tr>
</tbody>
</table>
Class XIII.—Philosophical Instruments, and Processes depending upon their use.

[2874] Casella, Louis P., 23 Hatton Garden.—Mathematical, philosophical, surveying, reliable, popular, and standard and meteorological instruments.

[2875] Chadburn Brothers, Nursery, Sheffield.—Spectacles, telescopes, microscopes, reading-glasses, optical lenses, &c.

[2876] Chance Brothers, Birmingham.—Dioptic sea lights and lanterns.

[2877] Chatterton, T., 14 King's Terrace, Bognor Wells Road.—Barometers.

[2878] Clark, George, 30 Craven Street.—Improvements in manufacturing, connecting, laying, and raising electro-telegraphic cables.

[2879] Cooke, Thomas, & Sons, Buckingham Works, York.—Telescopes, equatorials, transit instruments, altazimuth instruments, theodolites, levels, &c.

[2880] Cheyne & Moseley, J. B.—Recording apparatus, to serve as a check upon signal-men, engine-drivers, and others.

[2881] Cox, Francis B., 50 Camden Street, Birmingham.—Box and ivory rules; Carrett’s, Hawthorn’s, and Routledge’s engineers’ rules; English and foreign rules.

[2882] Cox, Frederick J., 22 Skinner Street, London.—Dissolving views and apparatus, with various methods of illumination.

Visual Dissolving View Apparatus. 1½ inch condensers, oxy-hydrogen jets, clockwork motion to lime cylinders, gas-lights, and generator; price 40s.

Apparatus for Educational Purposes. 2½ inch condensers, oxy-hydrogen jets, and gas generator; price 22s.

Cheesman, Rev. George, Morton Rectory, Thetford.—Cheap meridian instrument, showing solar time at noon within one second.

[2885] Cronk, J. M. & H., 10 Bromehead Street, Commercial Road East.—Mathematical instruments.

Anemometers.

Class XIII.—North-East Gallery.

Cutts, J. P., Sutton, & Son, Opticians to Her Majesty, 43 Division Street, Sheffield.—Optical, mathematical, and philosophical instruments.

Specimens of coloured and white crown glass, best plate glass, achromatic first glass, and metals used in the construction of achromatic object glasses, for telescopes, microscopes, and cameras.

Crown and flint discs used in the construction of the best quality of achromatic object glasses for telescopes.

A lens of achromatic first lenses, ground and polished by hand to the required radius.

A block of white crown lenses, ground and polished by hand to the required radius.

An achromatic object glass of best quality, composed of flint and crown glass, the inner surfaces of which are cemented together with Canada balsam.

Lamps of plate glass.

Bough plate glass of various thicknesses and diameters, ground ready for grinding by machinery to the curves required.

Plan glass cast in the form of a plano-convex lens, for the purpose of being ground to the radius of the tool in which it was cast. When ground and polished, they are mounted in brass cells with a plano-convex lens of plate glass, and form the condensers for a photomagnetic lantern.

Lamps of Brazilian pebbles, from which slabs are cut and ground into spectacle eyes.

Specimens of extra white and coloured glass, cut and rounded for spectacle eyes to be ground by machinery.

Two combining spectacles of white and coloured spectacle eyes, ground and finished ready for mounting into spectacle frames.

Double convex and plano-convex lenses in different stages of manufacture. The exhibitor can grind any diameter from 3 to 16 in., and any form from 3 to 72 in. They produce yearly over 10,000 dozen lenses.

They containing a variety of double convex and plano-convex lenses from 3½ to 1½ in., made to the form of a microscope and telescope.

Sample of perspectives and telescopes with four lenses.

Portable achromatic telescopes with magnifying and dissolving view lanterns.


Dancer, J. B., Manchester.—Binocular and monocular microscope; microscopic photographic lantern; and plano stands. Turner's telescopes. Open-glasses. Spectacles and eye-glasses in gold, steel, and shell.

He also manufacturers and repairs philosophical instruments in general, and supplies the public and the trade with microscopes and other objects.

Darker, William Hill, 9 Paradise Street, Lambeth.—Illustrations of action of polarized light on crystalline and other bodies.

Davis, E. & J., 1 Albion Street, Leeds, and Derby.—Two coal dial; three anemometers; two pressure gauges; one vacuum gauge, oil tap, catenar, and steam thermometers; indicator; flux tester.

Hodgson's dial, with angular motion, for coal pits and mines. Vernier dial for dials.

Davis' pressure gauges to skeleton.

Dials, dials, commercial dials.

Dials, mercury dials.

Anemometers for regulating the ventilation of coal pits.

Catenar and steam thermometers.

Level. Self-choosing oil tap.

Testing machine for parts and fibrous substances.

(7)
Fig. 1. Fixed equatorial, with clock-work. Fig. 2. Universal portable equatorial. Fig. 3. Terrestrial telescopes, naval, reconnoitring, deer-stalking, etc. (Exhibited in the Nave.)
Dallmeyer, J. H.—continued.

The engraving is a representation of the general form of Dallmeyer's microscopes. They are manufactured of four different dimensions. Each of these instruments is composed of several distinct parts, and the simple stand of each size forms the basis of a complete instrument to which any of the other parts may be added subsequently.

**Achromatic Object-Glasses.**

The first of a new series of objectives was exhibited at the Soirée of the London Microscopical Society, in March, 1860.

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**Fig. 1.**—The new Dallmeyer Triple Achromatic Lens, and a Bellows Camera.

**Fig. 2.**—A pair of quick-acting portrait Lenses, specially constructed for taking album pictures, attached to a camera and shutter of new design.

**Fig. 3.**—A pair of Dallmeyer's new Stereoscopic Lenses, and a No. 1 Triple Achromatic Lens. Also a travelling Stereoscopic Camera, with which, on removing the central partition, full-sized pictures on plates 7½ x 4½ can be taken. (Exhibited in Class XIV.—No. 3005.)
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.

[ 2892 ]
De GRAVE, SHOT, & PANNER, 59 St. Martin’s-le-Grand.—Hydrostatic assay balances, scales and weights for diamonds, bullion, &c.

[ 2893 ]
De LA RUE, WARRENS, Ph.D., F.R.S., Observatory, Cranford.—Lunar, solar, and planetary photographs; photographs of the solar eclipse of July 18th, 1890. (See page 11.)

[ 2894 ]
DENT & Co, 61 Strand, and 34 & 35 Royal Exchange.—Ship and azimuth compasses and dipleidoscopes.

[ 2895 ]
DESTIQUE, Mr., Lewisham, S.E.—Microscope, patented: an instructive philosophical toy, affording endless variety and amusement.

[ 2896 ]
DUNCAN, CHARLES STEWART, Monmouth Road, Bayswater.—Ratan deep-sea electric telegraph cable.

[ 2897 ]
ELLIOTT BROTHERS, 30 Strand, London.—Philosophical, mathematical, optical, and surveying instruments.

[ 2898 ]
FORBES, R. C., 95 Warwick Street, Liverpool.—Artificial horizon for observing altitudes in hazy weather.

[ 2899 ]

The following are exhibited—

DEPOSED SPECIMENS.


MICROSCOPES.


[ 2900 ]
GLASS, ELLIOTT, & Co, 10 Cannon Street, London; Manufactory, East Greenwich.—Submarine electric telegraph cables.

[ 2901 ]
GOODRIDGE, JAMES THOMAS, Wotton, near Horncastle.—Cloud mirror and sunshine recorder.

[ 2902 ]
GOWLAND, GEORGE, Liverpool.—Vertical and semi-vertical compasses, with circular magnets: sextants with artificial horizon, and binocular glasses.

[ 2903 ]
GREEN, SAMUEL, & SONS, 7 Helmet Row, Old Street, London.—Pocket compasses and sundials.

( 10 )
CLASS XIII.—North-East Gallery.

De la Rue, Warren, Ph.D., F.R.S., Observatory, Cranford.—Lunar, solar, and planetary photographs; photographs of the solar eclipse of July 18th, 1860.

A series of Astronomical Photographs, comprising photographs of the several phases of the total eclipse of July 18th, 1860, taken at Rivabellosa, near Miranda de Ebro, in Spain; photographs of the moon in her different phases, taken at Mr. De la Rue’s observatory at Cranford; photographs of a lunar eclipse; photographs of Jupiter and its satellites, and the moon, taken together, just after the occultation of Saturn by the moon, also obtained at Cranford.

Nos. 1 to 51 inclusive show (as seen direct, that is, not inverted) the several phases of the total solar eclipse, the irregularity of the moon’s edge being very apparent in the several pictures. These pictures were obtained by means of the Kew Heliograph, an instrument conferred by Mr. De la Rue for taking sun-pictures, at the suggestion of Sir John Herschel to the Royal Society, whose property it is. The Kew instrument was transported to Elbola, in Spain, on the occasion in question, by H.M. steam ship Himalaya, and thence to Rivabellosa, over the Cantabrian Pyrenees,* with the co-operation of Mr. Vignoles, C.B. Mr. De la Rue’s party, consisting, besides himself, of Mr. Beckley, Mr. Reynolds, Mr. December and Mr. E. Beck, formed one section of the Himalaya expedition organized by the Astronomer Royal, Mr. Aley.

The pictures having the greatest interest are those taken during the totality, in which may be seen the luminous prominences. These prominences, it is now known, belong to the sun, and it may be regarded as certain that they project at all times beyond the solar surface; but they only become visible during a total solar eclipse because on all ordinary occasions their light is less bright than that of our own atmosphere illuminated by the sun’s rays. A paper on the results of the photographic expedition to Spain has been read by Mr. De la Rue to the Royal Society, at the Bakerian lecture of the present year. It is shown in this paper that the phenomena depicted by the photographs completely establish the view that the luminous prominences really belong to the sun, and that they are not occasioned by any motion of the moon’s edge on light coming originally from the sun.

Nos. 52 to 45 inclusive show the different phases of the moon, and being prominent under view the wonderful craters which cover the greater portion of the surface of our satellite, especially in the upper or southern hemisphere (the pictures are as seen in an inverting telescope). Exceptionally visible is the crater Tycho, from which radiate a series of furrows like lines of longitude on a globe; lower down on the right is Copernicus. These pictures, about eight inches in diameter, are enlarged by means of a camera from negatives 1 inch in diameter, as seen in No. 53. It must be borne in mind that, during the taking of these pictures, the moon is in motion with respect to the observer, so that the telescope has to be made to follow her motion very exactly indeed to secure such perfect pictures, which are still sharp although magnified eight times linear.

Nos. 46 to 49 are photographs of the lunar eclipse of February 27th, 1858; No. 48 being the moon just before the commencement. It will be observed how indistinct is the boundary of the earth’s shadow in 47, 48, and 49.

No. 59 and 51, photographs of Jupiter, enlarged from the original negatives.

No. 52, a photograph of the moon and Saturn, taken together just after the occultation of that planet by the moon on May 4th, 1859; the planet Saturn is surrounded by a black circle to indicate its position on the plate.

No 58, an original lunar negative.

The several lunar and planetary photographs were taken with a reflecting telescope of 16 feet focal length and 13 inches aperture, made by Mr. De la Rue, and erected at his observatory at Cranford, Middlesex.

No. 55, a moving model to illustrate the phenomena of the total solar eclipse.

No. 56, stereoscopic view of the moon, 2 inches in diameter.

No. 57, stereoscopic view of the moon, 8 inches in diameter.

These stereoscopic views are produced by placing in the stereoscope two views of the moon, taken under different circumstances of libration. By observing the position of the crater Tycho in the collection of photographs, it will be seen that it is sometimes nearer to, sometimes further from, the moon’s edge; by selecting two pictures we can obtain such as have the proper stereoscopic relations.

No. 58, a stereoscopic view of Saturn, produced by reducing two hand-drawings made at an interval of four years. The exact coincidence of these drawings in the stereoscope is an evidence of their accuracy.

No. 59, solar spots, printed by the ordinary typographical press from a copper block; produced by means of light and electro-metalurgy, by M. Paul Pechot, from an original negative, taken at Cranford, on a scale of 3 feet to the sun’s diameter. The printing block is absolutely unabraded by the graver.

(11)
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.


[Obtained a Prize Medal in Class X. at the Exhibition of 1853.]

Gas-burners, constructed to produce great heat, without light, for chemical use.

A.—Gas Burner without Bellows.—These burners. Each given a single flame, when a solid substance is to be heated, and a number of small lamps when liquids are to be boiled or evaporated. Suitable to burners or furnaces, made of fire-clay and iron, are purfled, to concentrate and economise the heat.

B.—Blowpipe Furnaces.—These consist of multiple blow-pipe gas burners, blowing machines, and fire-brick furnaces filled with flints. The hot air produced will melt silver, gold, copper, cast iron, nickel, cobalt, and wrought iron. A large size will fuse 20 lbs. of cast iron in about an hour. They produce no smoke.

C.—Gas Furnace for Testing.—Will heat tubes of glass, porcelain, or iron, up to 36 inches long, to bright redness in a few minutes. The heat can be easily regulated and regulated for the whole length, or at any part, in order to adapt it to combustions in organic analysis.

Collection of graduated apparatus for qualitative testing, containing everything necessary for the preparation of the test liquors, or their use in volumetric analysis. In a mahogany cabinet.

Assortment of graduated instruments for testing in the arts, namely:—Indicators, calorimeters, hydrometers, thermometers, alcoholometers, achromatic, and simple tools.

Collection of chemical apparatus and tests, suitable for a physician, or for hospital purposes, containing everything necessary for the detection of poisons, the analysis of urine, the testing of medicines, and the performance of many other chemical operations that occur in medical practice. In a mahogany cabinet.

Collection of chemical apparatus and tests suitable for a travelling chemist, a miner, or a naval or military officer; comprehending whatever is necessary for the qualitative analysis of minerals, ores, or chemical and mineral compositions generally; being the collection described in the “Adventures Manual for Scientific Voyagers.” In a strong mahogany cabinet.

Colonial Chemistry.—A collection of apparatus for testing ores, fuels, to determine the exact quantity of lime necessary to clarify it. Also, Twaddell’s hydrometers, and Hamilton’s hydrometers, and isobilometers, and alcoholometers, graduated at 94° Fahr., to suit West Indian sugar lofts.

Distillation of apparatus and tests for the examination of minerals, ores, and chemicals, by the blowpipe. In a portable-cabinet.

Elementary collection of chemical apparatus and preparations for the use of young chemists. In portable cabinets; several sizes.

Collection of chemical apparatus, as required by each pupil for the Oxford and Cambridge Middle Class classmate.

Miscellaneous instruments for chemical researches and demonstrations, namely:

Portable furnaces, for general chemical use; assay furnaces and many tools.

Graham’s distiller, for effecting chemical analysis by rapid distillation.

Still for determining the quantity of alcohol in wines; alcoholometers for testing it.

Reckets of cast iron, with movable heads, for distilling coal oils, etc.

Speckle test of evaporating basins, crucibles, flasks, funnels, beakers, cut-altern, test-papers, cheap balances, simple and compound blow-pipes, water bombs, air tanks, pneumatic troughs for water and mercury, gauges, and many patterns of supports for chemical apparatus.

Galvanic batteries, pattern cells of different constructions.

Air-pump, on Tate’s plan, which has two pistons in one cylinder, and which dispenses with valves between the cylinder and the receiver, and thus gains power and secrecy. Small size, horizontal position, for according to a table. Another air-pump, on Tate’s plan, large size. The cylinder is placed in a vertical position, and the exhaustion is rapidly effected by a circular motion, regulated, and capable of manufacturing purposes, or for rapid action, when many experiments are to be made during a lecture.

The spectroscope, for optical experiments in chemistry, and several instruments for observations and researches in other branches of chemical physics.

GRUBB, Thomas, Dublin.—Great equatorial (achromatic), 12 inches aperture; improved and perfect system of equinoctial.

HART, William D., 7 North College Street, Edinburgh.—Electrical apparatus.

HELY, Alfred Augustus, 26 Upper Albany Street, Regent’s Park.—Pocket reflecting telescope for astronomical purposes.

HESELY, W. T., 46 St. John Street Road.—Magneto-electric alphabetical telegraph.

This instrument is now coming much into use with private firms that have branch establishments; also with railway owners; and with all proprietors in Manchester and other large towns in the manufacturing districts, as a means of communication between their mills and works. It is well adapted for railway purposes. Any person who can read can use it without any previous knowledge of telegraphy. It requires no battery, and has no complicated machinery to get out of order. The only attention required is the application of a little oil every month. Gentlemen engaged in business can communicate with their partners or confidential clerks at their other houses of business with the greatest facility, without the necessity of importing their secrets to a telegraph office.

The instrument is represented in fig. 1, with case complete, and in fig. 2 with the case removed. The apparatus consists of two parts: that in which the current is induced, and by which it is transmitted; and that for receiving and indicating the signals. The first part is in the form of a
The receiving part consists of a dial with the letters of the alphabet in a circle, with a revolving index or pointer and a fixed wheel of a peculiar construction. This wheel is propelled step by step by the action of a magnetic needle, the upper end of which is formed into a pair of paddles, which act on the inclined teeth of the wheel, and the lower end oscillates in a slot formed in two pieces of iron fixed on the pole of a small electro-magnet, through the coils of which the current received from the distant station passes.

In the transmitting apparatus a dial is fixed outside the case, on the face of which the two wheels revolves. This has letters and figures corresponding to the receiving dial. The wheels are revolved by a handle with a knob and pointer moving round the edge of the stationary dial; and as one revolution of the wheels causes twenty-six currents of electricity to be transmitted, those will cause the wheel and index on the receiving dial to make one revolution also. It therefore follows that the two will keep time together, and whatever letter the pointer attached to the revolving wheels is made to stop at will be indicated on the receiving dial. The springs seen on the base in fig. 2 are, one for making a short circuit when revolving, so that the current may not have the resistance of the sending cells to overcome; the other is for putting the hand right on the receiving dial if it should go wrong. As these instruments have only the one moving piece of machinery, without any multiplying power or mechanism, or other complications, and have no break pieces or current breakers (the circuit always remaining short-circuited) they cannot get out of order, and the messages will remain the same for many years.

Fig. 3 represents a machine on a similar principle, arranged as a needle telegraph, and is also used for working the Morse printing telegraph. It has a magnet and armature as in figs. 1 and 2, but instead of rotating wheels in front of the

horsehoe permanent magnet, with a temporary magnet or annular armature surrounded with coils of insulated wire placed within its poles, and a double wheel of brass revolving on a fixed axle. These wheels have on the periphery twenty-six pieces of iron, thirteen on each wheel. They are formed by turning a ring of soft iron to fit each wheel, attaching it firmly by twenty-six screws, and dividing it into thirteen pieces by the wheel-cutting engine. These pieces of iron, as they pass the ends of the permanent and temporary magnets, make a connection between the poles of such a way as to reverse the polarity of the letter completely at the passing of each piece, and consequently inducing a current of electricity alternating in opposite directions.
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.

HENLEY, W. T.—continued.
Fig. 10 shows a very delicate galvanometer, fitted up as a differential one, the needle side printed in green with levels, adjustments, &c.

Fig. 11, a slit not differential, with needle suspended by silk fibre; either of these will be affected by an extremely feeble current.
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.

HEPP, A., Albion Grove, Islington.—Injected microscopic preparations.

HICKS, JAMES, 8 Hatton Garden.—Meteorological instruments.


HUTTON, W., 21 Greville Street.—Improved barometers.

HOOPER, WILLIAM, 7 Pall Mall East, S.W.—Submarine telegraph cables insulated with India-rubber.

HORKE & THORNTWHAITE, 121, 122, & 123 Newgate Street.—Ruhmkorff's induction coil; spectrum apparatus; meteorological instruments; chemical apparatus; microscopes, &c.

HUBBARD & SONS, Greenwich.—Animal, vegetable, and fossil tissues and structures, and minerals for microscopic use.

HUGGINS, JOSEPH, Queen Street, Rotcliff, London, E.—Nautical, optical, and surveying instruments.

JACKSON & TOWNSEND, 89 Bishopsgate Within, London.—Chemical and scientific apparatus for general and special purposes.

KEYSTONE STANDARD STILLS, by authority of the Board of Customs, for the internal use of wines; and by the Board of Island Revenue for the analysis of beer.

WORKING LABORATORY for qualitative and quantitative analysis; bottles with enamelled labels.

PORTABLE CASES OF BURETTES and APPARATUS. APPARATUS for VOLATILE ANALYSIS, organic determinations, bunsen estimations, and chemical research generally.

CONDENSERS & DISTILLATION, various kinds of drying-baths.

FURNACES for ANALYSIS, organic analysis, and general purposes.

NEW SPECIFIC GRAVITY BOTTLES, for weighing alcohols or ethers, at any increment of temperature, without removing the liquid.
JOHNSON, Henry, Inventor, 39 Crutched Friars.—Volutes for tracing spiral curves; deep-sea pressure-gages, for recording the pressure or density of sea-water at various depths; deep-sea thermometers.

Invented by Henry Johnson, 39 Crutched Friars; manufactured by F. Hoffmann, 32 Wilmington Square, Chelsea.

The Volutoe.

Papers on this instrument were read by the Rev. Dr. Booth, F.R.S., before the Mechanical Section of the British Association, at the meeting held at Leeds in 1858, and the meeting held in Oxford in 1860.

This instrument has been contrived for the purpose of facilitating, by means of mechanical arrangements, the drawing of volutes, an operation that requires much time and care, and also the drawing of other spiral curves. During the action of the instrument a band is wound round its centre, which regulates the pencil, and thus a continuous curve is traced with a radius varying in length at every point.

The radius of the curve is increased during each revolution by the circumference of the axis, and a circular cylinder will be found convenient as an axis for tracing spirals whose radii increase in arithmetical or other proportions.

In drawing volutes a flat band may be used, wound round a cylinder, so that each coil encloses the preceding one, and increases the diameter of the axis; but a grooved cone appears to be more convenient, as the proportions of a cone and the distance between the grooves may be more readily adapted to the curves required.

A stand with wheels, a, moved round the central point o, supports a horizontal arm or bar b, and which moves through a horizontal tube, n, on the stand. To the horizontal arm is fixed the tracing pencil s, pressed down by a vertical spiral spring.

A steel rod runs through a perforated grooved cone (or other axis) and its handle n, and is furnished with a small wheel handle t, by which the stand is made to revolve, while the cone is held still by its handle n; and a band o, one end of which is attached to the cone and the other to one end of the horizontal arm, is wound round the cone, and the end of the arm is gradually drawn towards the centre, and the curve is traced by the pencil.

In volutes commenced at the extremity of the radius vector the band is attached to the base, and adjusted to the groove selected for the first curve, and is wound round the cone approaching the apex as the instrument revolves.

When tracing volutes commencing at the centre and receding from it, a movable set of pulleys r should be fixed with a screw on to the outer end of the horizontal arm.

One end of the band being fastened to the pulleys, and the other attached to the apex of the cone, it will be wound round the cone approaching the base, and the pencil will reside from its position in the cones, tracing the curve as the centre end of the arm is drawn by the band towards the centre.

When variations of radius less than the circumference of the axis at each revolution are required, the effect of the band wound round the centre may be modified by passing it over some of the pulleys, one set of which, as it is fixed on the stand, and the other set, r, is movable, and may be screwed on to either end of the arm. The effect varies according to the number of lines of band over which it is distributed; so, for instance, when the band is passed over one pulley the effect is distributed over two lines, and the radius varies in a revolution one-twelfth of the circumference of the axis; when the band is passed over two pulleys the effect is distributed over three lines, and the radius varies in a revolution one-third of the circumference of the axis, etc.

When tracing the filled of a volute the cone should be turned round until the band is tightened, after the pencil has been placed in its proper position.

The size of the axis is thus slightly altered, and a proportionate distance maintained between the curves.

In drawing a parallel curve, as the size of the centres must coincide, it will be necessary to alter the length of the band to suit the position of the pencil.

The Deep-Sea Pressure-Gauge.

A paper on this instrument was read by James Gladstone, Esq., F.R.S., before the Mathematical and Physical Science Section of the British Association, at the meeting held at Manchester in 1860.

In deep-sea sounding the pressure of water is too great to admit of accurate measurement by the compression of any highly elastic fluid confined in a small portable instrument.

For a long period water was considered incompressible, but it has been found to possess a slight degree of elasticity, sufficient to render its compression in a vessel avail-
able as an indication of the compression or density of the water into which it is lowered.

In the year 1752, December the 16th, Mr. Canton communicated to the Royal Society the results of his experiments on the compressibility of water—Philosophical Transactions, vol. 84, page 490.

He took a small glass tube of about two feet in length, with a ball at one end of it of an inch and a quarter in diameter, and filled the ball and part of the tube with water exhausted of air, and left the tube open that the ball might be exposed to fixed or condensed air, might always be equally pressed within and without. He placed the ball and tube under the receiver of an air-pump, and could see the degree of expansion of the water answering to any degree of the reduction of the air; and also placed the ball and tube into the glass receiver of a condensed couple, in which he could see the degree of compression answering to any degree of condensation of the air.

In this way he found by repeated trials, when the temperature was about 50° Fahrenheit, and the barometer about a mean height, that the water expanded and rose in the tube, by removing the weight of the atmosphere, one part in 640, and that it was as much compressed under the weight of an additional atmosphere.

More recently, Mr. Perkins found, when subjecting water to great pressures, a diminution in volume of 28 parts under a pressure of 1120 atmospheres, equal to one part in 18,099 per Atmosphere.

The experiments of Mr. Perkins, exhibited at the Adelaide Gallery, appeared to be intended as a demonstration of the fact of progressive compression, rather than a basis for minute calculation.

The effect of pressure of water at great depths is illustrated by a very interesting experiment made by Rear-Admiral Sir James Clark Ross, who, after lowering several bottles which returned to the surface with the corks reversed, lowered a bottle fitted with a tube, a cork being suspended in the bottle so as to enter the tube, the eavol of the water in the bottle, being condensed under heavy pressure, and expanding upon the raising of the bottle and the diminution of the pressure.

Upon the return of the bottle to the surface, it was found that the cork had been forced some distance along the tube, and the compression of the water in the bottle, and its subsequent expansion, was thus demonstrated.

Experiments conducted with a pressure-gauge made of nickel, it was found that air-bubbles adhering to the inner surface of the pressure-gauge, and materially affected the results.

This difficulty is avoided in the instrument now exhibited, which is composed of glass, so that the absence of air-bubbles may be ascertained by inspection before any experiment is made.

The instrument consists of a cylindrical glass vessel with a long neck or stem finely graduated; within which are placed a flat elastic ring to act as an index, and an elastic stopper.

When used, the pressure-gauge should be well rinsed with warm water, to prevent the adhesion of air to its inner surface, and then filled to the top of the stem with sea-water boiled to free it from air.

In the event of this water being poured into warm water, it will be necessary to fill up the stem after the water has cooled down to the temperature of the atmosphere, that the stopper may be inserted without causing any air beneath it. A small vent, or grated needle, allowing a passage for the escape of superfluous water, should be placed in with the stopper, which should be slightly lubricated to prevent excessive friction, until the lower end of the stopper is coincident with the axis, or by-line of the graduated scale, marked 2000, when it will also touch the flat elastic rings.

The vent should then be withdrawn and the stem will remain lightly closed by the stopper.

When lowered into water of greater density, the water in the pressure-gauge is compressed by external pressure until of equal density with the surrounding water, and the elastic stopper and the elastic ring are pressed along the tube towards the cylinder.

When raised, the external pressure diminishes, the water in the pressure-gauge expands, and gradually pressure less the elastic rings, the elastic ring remaining as an index to mark the extreme compression.

When the water attains the temperature of the atmosphere the stopper will have returned to its original position, less a small difference arising from friction.

The volume of water in the cylinder and stem is considered as consisting of 2000 parts, of which the cylinder contains nine-hundredths, or 1866 parts or degrees, and the stem one-hundredth, or 200 degrees, and which are numbered 1801 to 3000.

The graduated scale on the stem may easily be read to one tenth of a degree, or 16th part of the whole volume of water.

For the compression of one part in 20,000 of boiled sea-water a pressure is required of 12-18 atmospheres per square inch, equal to the pressure of a depth of 40-446 feet, or nearly six fathoms.

This amount of pressure, which is the result of several experiments, and which is confirmed by the observations of Mr. Canton, appears to be a fair basis for the compilation of tables of comparison of depth and pressure.

The instruments should, however, be attached to sounding lines, and the indications compared with the depths shown by the line. The results would form a table of comparison of depth and pressure of practical use in determining depths when strong currents render the use of the lead uncertain.

A correction will be required for the variation in volume of water with changes of temperature, and which is not uniform, being greater at high temperatures, as, for example—

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Volume of Water Estimated at 18°</th>
<th>Volume of Water at 20°</th>
</tr>
</thead>
<tbody>
<tr>
<td>18°</td>
<td>20,000 parts</td>
<td>20,000 parts</td>
</tr>
<tr>
<td>20°</td>
<td>19,992-5 parts</td>
<td>19,970-2 parts</td>
</tr>
<tr>
<td>21°</td>
<td>19,932-5 parts</td>
<td>19,900-2 parts</td>
</tr>
</tbody>
</table>

The difference for 24° is 5-2 parts, or for one degree 5-2 parts.

A series of experiments would be needed to determine the correction required on account of friction.

References:
A. Cylinder.  
B. Stem with graduated scale.  
C. Flat elastic ring or index.  
D. Metal rings fixed with cement.  
E. Cork with rings preventing escape of air.  
F. Cork-tube rings preventing escape of air.  
G. Cork-tube rings at top and bottom of the case, securing the stopper.  
H. Metal hook on door fastening open the top of glass.  
I. Cheek to door, let in to avoid escape of air.  
J. Vent or grated needle in stopper.  
K. Hook used to draw up the elastic ring.

The following table shows the volume of water for each degree of temperature, from 31° to 80° Fahrenheit.
JOHNSON, HENRY—continued.

Variation in the volume of Sea Water, boiled to free it from air, with change of temperature. Thermometer 197° Fahr. November 1828.

<table>
<thead>
<tr>
<th>Deg. No. of Parts</th>
<th>Deg. No. of Parts</th>
<th>Deg. No. of Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>80°  26800-0 60°</td>
<td>64  19956-9 32</td>
<td>19888-0 0</td>
</tr>
<tr>
<td>81°  26800-0 61°</td>
<td>65  19956-8 33</td>
<td>19888-0</td>
</tr>
<tr>
<td>82°  26800-0 62°</td>
<td>66  19956-7 34</td>
<td>19888-0</td>
</tr>
<tr>
<td>83°  26800-0 63°</td>
<td>67  19956-6 35</td>
<td>19888-0</td>
</tr>
<tr>
<td>84°  26800-0 64°</td>
<td>68  19956-5 36</td>
<td>19888-0</td>
</tr>
<tr>
<td>85°  26800-0 65°</td>
<td>69  19956-4 37</td>
<td>19888-0</td>
</tr>
<tr>
<td>86°  26800-0 66°</td>
<td>70  19956-3 38</td>
<td>19888-0</td>
</tr>
<tr>
<td>87°  26800-0 67°</td>
<td>71  19956-2 39</td>
<td>19888-0</td>
</tr>
<tr>
<td>88°  26800-0 68°</td>
<td>72  19956-1 40</td>
<td>19888-0</td>
</tr>
<tr>
<td>89°  26800-0 69°</td>
<td>73  19956-0 41</td>
<td>19888-0</td>
</tr>
<tr>
<td>90°  26800-0 70°</td>
<td>74  19956-9 42</td>
<td>19888-0</td>
</tr>
<tr>
<td>91°  26800-0 71°</td>
<td>75  19956-8 43</td>
<td>19888-0</td>
</tr>
<tr>
<td>92°  26800-0 72°</td>
<td>76  19956-7 44</td>
<td>19888-0</td>
</tr>
<tr>
<td>93°  26800-0 73°</td>
<td>77  19956-6 45</td>
<td>19888-0</td>
</tr>
<tr>
<td>94°  26800-0 74°</td>
<td>78  19956-5 46</td>
<td>19888-0</td>
</tr>
<tr>
<td>95°  26800-0 75°</td>
<td>79  19956-4 47</td>
<td>19888-0</td>
</tr>
<tr>
<td>96°  26800-0 76°</td>
<td>80  19956-3 48</td>
<td>19888-0</td>
</tr>
<tr>
<td>97°  26800-0 77°</td>
<td>81  19956-2 49</td>
<td>19888-0</td>
</tr>
<tr>
<td>98°  26800-0 78°</td>
<td>82  19956-1 50</td>
<td>19888-0</td>
</tr>
<tr>
<td>99°  26800-0 79°</td>
<td>83  19956-0 51</td>
<td>19888-0</td>
</tr>
<tr>
<td>100°</td>
<td>84  19956-0 52</td>
<td>19888-0</td>
</tr>
</tbody>
</table>

The Deep-Sea Thermometer.

A paper on this instrument was read by James Glaisher, Esq., F.R.S., before the Mathematical and Physical Sciences Section of the British Association, at the meeting held inManchester in 1831.

This instrument is intended to be used simultaneously with the Deep-sea Pressure-Gage, for the purpose of determining how much of the variation in volume of water, indicated by the latter instrument, is due to variations in temperature, and may therefore be considered an indispensable adjunct to it.

During the year 1840, some experiments were made by James Glaisher, Esq., F.R.S., on the temperature of the water of the Thames near Greenwich, at the different seasons of the year; when that gentleman found that the indications of temperature were greatly affected by the pressure on the bulb of the thermometers. At a depth of 20 feet this pressure would be nearly equal to the pressure of three-quarters of an atmosphere.

The observations demonstrate the importance of using in deep-sea soundings an instrument free from liability to disturbance from compression by the surrounding water, and have ultimately led to the construction of the thermometer now exhibited.

The instrument is composed of solid metals of considerable specific gravity, viz., of brass and steel, the specific gravity of these metals being 8.49 and 7.83 respectively. They are therefore not liable to compression by the water, which, at a pressure of 3150 atmospheres, or at a depth of 5000 fathoms in round numbers, acquires a density or specific gravity of 1.06.

In the construction of this instrument, advantage has been taken of the well-known elasticity in the radius of expansion and contraction by heat and cold of brass and steel, to form compound bars of thin bars of these metals riveted together, and which will be found to assume a slight curve in one direction when heat has expanded the brass more than the steel, and a slight one in the contrary direction when cold has contracted the brass more than the steel.

The indications of the instrument record the motions under changes of temperature of such compound bars; in which the proportion of brass, the more dilatable metal, is two-thirds, and of steel one-third.

Upon one end of a narrow plate of metal a pivot is fixed, near the center of the plate. Over this pivot is moved a pin upon which the moving pointer c, by which it is attached to the free ends of two compound bars, a, b, and the instrument corresponds with the movements of the compound bars, under variations of temperature.

The other end of the bars are fastened by the plate e to the plate a, on which the scales of temperature are fixed. The connection of the bars with both sides of the centre of the pointer prevents disturbance of indication by lateral concussion.

The case of the instrument has been improved at the suggestion of Rear-Admiral Fitzroy, and now presents to the eye a smooth cylindrical surface, with rounded ends and without projection of handles.

In surveying expeditions this instrument would be found useful in giving notice of variation of depth of water, and of the necessity for taking soundings.

A diminution of the temperature of water has been observed by scientific voyagers to accompany disturbance of depth, as in passing land or approaching hidden rocks or shoals. Attention would also thus be attracted to the vicinity of isobars.

In the same case is exhibited a small instrument of an ornamental character, named the Metallic Thermometer, which illustrates the principle of the Deep-sea Thermometer; a compound bar, the lateral motions of which regulate the indications of temperature, being given upon inspection.

One of the Deep-sea Thermometers was suspended by Mr. Glaisher on a thermometer-stand for six months, and read daily in connection with standard meteorological instruments. During this period the readings approximated to those of the best instruments.
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.

Johnson, W., Manufacturer, 188 Tottenham Court Road.—Spectacles cut from solid steel; invisible spectacles; process of manufacture.

Kiesler & Neve, 29 & 49 Spencer Street, Goswell Road.—Analytical balances, &c.

Knight, George, & Sons, 2 Foster Lane, London, E.C.—Chemical, electrical, galvanic, and other philosophical apparatus.

Kellberg, Y., 12 Cloudesley Terrace, London, N.—Self-registering mariner's compass, or course indicator.

Ladd, William, 11 & 12 Bank Street, Regent Street, W.—Focimeter for lighthouses; induction coils, and apparatus connected therewith; compound microscopes of improved construction; ditto with magnetic stage; a triple-barreled air-pump.

Ladd & Oertling, 192 Bishopsgate Street Without.—Bullion, chemical, and assay balances; metal hydrometers and saccharometers. (See page 21.)

[Obtained the Council Medal in Class X. of the Great Exhibition of 1851, and the First Class Medal of the Paris Exhibition of 1867.]

The Bullion, Chemical, and Assay Balances represented in the opposite page are constructed upon the system of three edges working against three planes. Not only does the fulcrum rest upon a plane, but the pans also are suspended by inverted planes, upon knife-edges, affixed to the ends of the beams. The advantages obtained by this system are twofold: first, it admits of the balance being adjusted to the greatest point of sensibility without diminishing its precision and constancy; and, secondly, when the balance is not in actual use, the pans are resting upon supports entirely independent of the beam. The bullion balances are made of steel varying in length from 24 to 60 inches.

In the chemical and assay balances the knife-edges as well as the planes are of agate, in order to protect the most important parts of the instrument against the fumes of the laboratory and the effects of damp climates.

Ladd and Oertling are manufacturers of balances to her Majesty's Exchequer, the Bank of England, the Assay-offices of the Royal Mint, &c.

Ladd, James, 2 McVicar’s Lane, Perth Road, Dundee.—Motoroscope: a new optical instrument giving motion besides relief to the individual objects of the stereoscope. The object of this instrument is to give motion to stereoscopic figures, besides relief; that is, to give motion to the individual images in a stereoscopic view; such as to show a carpenter in the act of sawing, or a machine in action. The relief and the motion combined, certainly presents to the eye one of the most extraordinary optical delusions that has yet been produced by any apparent phenomena.

Lanester, Dr. Edwin, 8 Saville Row.—An octometer for registering the hourly variations of climate.

Lewis, Joseph, Dublin.—Lewis’s patent automaton register and pentagraph, applied to photo-printing and printing surfaces.

Lowe, Right Honourable R., 34 Leinster Square.—Spectacles which magnify without glass or any other refracting medium.

Macdonald, Dr., 4 Coburg Place, Kennington Lane.—Instrument to facilitate finding the longitude at sea.
CLASS XIII.—North-East Gallery.

LADD & OERTLING, 192 Bishopsgate Street Without.—Bullion balances, &c.
Class XIII.—Philosophical Instruments, and Processes depending upon their use.

Minchin, Humphry, M.B., 56 Lower Dominick Street, Dublin.—Galactoscope—for measuring the transparency of milk.

Moore, Charles, Quay Parade, Swansea.—Indicator for ascertaining nautical and astronomical problems, and magnetic variation of compasses.

The purposes of this instrument is to ascertain and indicate approximate solutions of the various nautical and astronomical problems occurring in navigation, with sufficient accuracy for nautical purposes. Much accuracy depends upon the deviation of the compasses by local attraction. This is immediately discoverable by this instrument at sea, on board all descriptions of vessels, in all positions, and in all climates.

Price from 20/. to 25/.

Mortimer, John, Pippinford Park, Maresfield, Sussex.—Instrument for the ready determination of the amount of inclination and declination of the magnetic needle.

A Compass for determining the amount of inclination and declination of the magnetic needle, and the true north. Obtain the smallest amount of dip and the greatest amount (90); mark the number of degrees traversed on the small dial for this; half these will be the amount of the apparent variation, and at this point will be the true north.

Murray & Heath, 43 Piccadilly.—Various apparatus for the teaching and illustration of science.

Mussettwhite, John, Devizes.—An improved lyraphon.

Negretti & Zambra, 1 Hatton Garden, E.C.; 59 Cornhill, E.C.; and 122 Regent Street (late Newman).—Meteorological and optical instruments. (See pages 23 to 25.)

Newton & Co., 3 Fleet Street, London.—Mathematical and surveying instruments; philosophical apparatus; lanterns and dissolving views.

Norman, John, 178 City Road.—Microscopic objects, and materials for their preparation.

The exhibitor manufacturers and prepares all kinds of microscopic objects, and supplies slips, cells, and all the requisites for mounting. Established 1846. (22)
Class XIII.—North-East Gallery.

Negretti & Zambra, 1 Hatton Garden, E.C.; 50 Cornhill, E.C.; and 122 Regent Street (late Newman).—Meteorological and optical instruments.

Standard Meteorological Instruments.

No. 1.—Standard barometer on Fortin’s principle, reading from an ivory zero point in the cistern, to insure a constant level, with mercury boiled in the tube. The barometer tube is enclosed and protected by a casing of brass throughout its whole length; the upper portion of which has two longitudinal openings opposite each other; on one side of the front opening is the barometrical scale of English inches, divided to show, by means of a vernier, 1/10 of an inch; on the opposite side is sometimes a scale of French millimetres, reading also by a vernier to one-twelfth of a millimetre.

No. 2.—Negretti and Zambra’s modification of Newman’s Standard Barometer, in which a greater amount of light is admitted to the reading surfaces of the instrument.

No. 3.—The Fishermen’s and Life-Boat Station Barometer made by Negretti and Zambra, especially for the Board of Trade, Royal Life-Boat Institution, and British Meteorological Society, to be fixed at all the principal seaports, fishing and life-boat stations on the British coast.

No. 4.—Board of Trade Standard Marine Barometer, as made by Negretti and Zambra for Her Majesty’s Government, with spare tube to replace in case of accidents.

No. 5.—Negretti and Zambra’s Patent Portable Mountain Barometer. To make an observation the instrument is suspended vertically, and the cistern unscrewed until the surface of the mercury is brought exactly level with the extreme end of the ivory zero point. The reading is then taken by the scale on the limb and vernier. To make the instrument portable, it is inclined until mercury from the cistern fills the tube, the cistern must then be screwed up as far as it will go.

No. 6.—Actinometer (Sir John Herschel’s) for ascertaining the absolute heating effect of the solar rays, in which time is considered one of the elements of observation. See “Report of Royal Society on the Physics and Meteorology.”
No. 7.—Glaisher's Rain Gauge. This gauge is arranged for the reception of the water only which falls upon its receiving surface, and for the prevention of loss by evaporation.

No. 8.—Negretti and Zambra’s Patent Self-registering Maximum and Minimum Thermometers. The only instrument of this kind adapted for transmission to India and the Colonies. It is impossible to disarrange these instruments unless actually broken.

No. 9.—Negretti and Zambra’s Patent Solar Radiation Registering Thermometer in Vacuum has a blackened bulb, the scale divided on its stem, a glass shield and globe surrounding the bulb and stem, from which all air is exhausted. In use it should be placed horizontally, with its bulb in the full rays of the sun, resting on grass.

No. 10.—Dry and Wet Bulb Hygrometer or Psychrometer for determining the amount of moisture in the atmosphere, an instrument of great importance, equally useful in the sick chamber, greenhouses, and conservatories. Glaisher’s Tables for showing the quantity of moisture for a difference of every tenth of a degree furnished with each instrument.

No. 11.—Negretti and Zambra’s Patent Mercury Minimum Thermometer, the only instrument of the kind adapted for transmission to India and the Colonies. It is impossible to disarrange these instruments unless actually broken.

No. 12.—Negretti and Zambra’s Patent Maximum and Minimum Thermometer, divided on brass into
NEGRETTI & ZAMBRA—continued.

either Fahrenheit or Centigrade scale, or the division engraved on its stem. Negretti and Zambra’s thermometers are made from selected tubes, the internal diameter of which is ascertained by very carefully conducted experiments. They are also strictly tested for index error, and a copy of the corrections furnished with each instrument.

No. 12.—Anemometer, or Wind Gauge, for showing the pressure of the Wind.

No. 15.—Anemometer for ascertaining the velocity of the wind. The readings on the dial of this Anemometer are in simple revolutions converted into actual miles.

Order’s Self-Registering Anemometer (improved by Negretti and Zambra; for showing the direction, force, and velocity of the wind; likewise the quantity of rain fallen in a given time, with clock-work and all necessary apparatus complete.

No. 15.—Bignoulet’s Condenser Hygrometer as shown consists of a tube made of silver and glass very thin and perfectly polished; the tube is larger at one end than the other, the large part, silver being 1½ in depth, by 8¼ in diameter; this is fitted tightly to a brass stand with a telescopic arrangement for adjustment. The more perfect form of this hygrometer has two sets of silver and glass tubes and thermometers.

NEGRETTI & ZAMBRA’S DOMESTIC WITH ROCK CRYSTAL LENSES.

The lenses of these instruments are constructed of the finest rock-crystal, cut and worked with the highest perfection both in magnifying and defining power.

The transparency of crystal lenses over ordinary glass consists in the surfaces always remaining brilliant in all climates, not effusing or becoming dull and cloudy by exposure to the action of the atmosphere, and, from the extreme hardness of the crystal, not liable to be scratched. These instruments (the advantages of which will be appreciated by any who have had experience in the use of binocular glasses on foreign service) are offered by Negretti and Zambra at a price not much advanced on that of ordinary glasses.

For further details of prices, &c., see Negretti and Zambra’s descriptive catalogue of optical, mathematical, photographic, and standard meteorological instruments, &c., illustrated by upwards of five hundred engravings. Price (post free) 10s. 6d.

HOBSON’S PATTERN LONG RANGE BAROMETER, MADE BY NEGRETTI AND ZAMBRA.

This fine instrument combines many excellences, and altogether supplies a instrument of great importance to the progress of practical meteorology. Its action is based upon that of the Torricelli column, and is therefore the most reliable character, but it derives its chief value from the introduction of a new principle by which a greatly extended range or length of scale is obtained.

The Bunsen within which the ordinary barometric column oscillates are extremely narrow, and it was early felt that the public utility of the instrument would be greatly enhanced, if by any means the indications could be increased in length. This object was sought to be obtained by many devices, none of which may be said to have survived, except that of the wheel barometer, which, however, is an arrangement so inherently defective, that it has no good feature to recommend it.

The great value of the new construction consists in this, that no mechanism is employed for converting a short scale into a long one, but the mercury itself rises and falls through an extended range, naturally and in simple obedience to the varying pressure of the atmosphere. These instruments are usually made for domestic purposes with a scale from three to five, and for public use from five to eight times the scale of the ordinary standard. Their sensitiveness is consequently increased in an equal proportion, and they have the additional advantage of not being affected by variation of temperature, or from diminution of level in the columns. As regards the execution of the details and workmanship of these barometers, the makers have carefully felt that they had to deal with a valuable principle, and they have endeavoured to do it full justice.

CLASS XIII.—North-East Gallery.
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.

[2042]

ORCHARD, John, Designer and Manufacturer, 2 Phillimore Place, Kensington.—Standard and compensating barometers; optical and astronomical instruments; compensating barometers in brass or iron, constructed upon the most approved principles, as far as is possible, having the following additions and improvements. The tubes are made entirely of iron and glass, and are arranged so as to prevent the interior of the atmosphere; two thermometers, one to take temperatures of mercury in either, the other to contain the air of the same; the compensating barometers, similar to the former, and constructed upon the same principles, but of less expensive workmanship, intended to meet the demand for a compensating instrument at a price below that of the original standard.

[2043]

PARKER, James, & Son, St. Mary’s Row, Birmingham.—Microscopes; astronomical telescopes; mathematical, philosophical, and surveying instruments. (See page 27.)

[2044]

PASTORELLI, F., & Co., Opticians and Mathematical Instrument Makers, 208 Pleasonty, and 4 Cross Street, Hanlon Gardens.—Mellord’s theodolite; new level with micrometer for distances; standard meteorological and optical instruments. (See pages 28 to 30.)

[2045]

PILLISHER, M., 88 New Bond Street, W.—Optical instruments of various kinds, principally microscopes. (See pages 31 to 33.)

[2046]

POWELL & LEALAND, 170 Earoms Road.—Microscopes with rotating thin stage; binocular arrangement; object glasses from 2 in. to 4 in., inclusive.

[2047]

PULVERMACHINE, J. L., 73 Oxford Street.—Galvano-pilines, a self-supplying constant battery, rendered constant in action by the porosity of its texture, the simultaneous contact of the atmospheric air, and the existing liquid, with the exostive surface of the galvanic metals. The Galvano-pilines is made simply flat or tubular. The first is act in action by a momentary immersion in the existing liquid, the second by a steady self-supplying process by means of the hollow channel communicating with a small reservoir containing the existing liquid. This simple voltaic flexible battery supplies in power, portability, and constancy of action, all other single liquid batteries of equal size, and being always ready for use (by the simple arrangement for self-supplying the existing liquid), its uniform generation of either continuous or intermittent currents renders it a valuable apparatus for medical cabinets, hospitals, electros, baths (private or public), lectures, schools, telegraphic and other purposes. A list of apparatus for medical purposes, with prices, will be found in Class 17, page 135, of this Catalogue. Those batteries can be seen in operation daily in the English Gallery, Class 13, No. 3637, and at the galvanic establishment of J. L. Pulvermacher & Co., 73 Oxford Street, London, adjoining Princess’s Theatre.

[2048]

PULVERMACHINE’S PATENT GALVANO-PILINE, representing a most convenient self-supplying volatile battery of constant action, excited by one existing liquid, as viscosum, ete., in an extremely pliable and very durable fabric, composed of galvanic metal wires and a fibrous texture, made according to the purpose required; in any width and length. According to the size and number of its elements, it produces galvanic currents of intensity or quantity

PULVERMACHINE’S PATENT GALVANO-PILINE, representing a most convenient self-supplying volatile battery of constant action, excited by one existing liquid, as viscosum, ete., in an extremely pliable and very durable fabric, composed of galvanic metal wires and a fibrous texture, made according to the purpose required; in any width and length. According to the size and number of its elements, it produces galvanic currents of intensity or quantity

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<tr>
<th>Description</th>
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<td>Ditto, dito, 100 elements, each element 2 square inches in surface, complete</td>
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<td>Ditto, dito, 100 elements, each element 5 square inches in surface, complete</td>
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<td>Ditto, dito, 100 elements, each element 10 square inches in surface, complete</td>
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PARKES, JAMES, & SONS, St. Mary's Row, Birmingham.—Microscopes; astronomical telescopes; mathematical, philosophical, and surveying instruments.

The following are exhibited—

MICROSCOPES.

Simple Microscopes, brass stands, from 2s. to 15s., 6d.

Compound Microscopes (not achromatic), 4s. 6d. to 27s.

Improved Compound School Microscope, on steady tripod, with folding joint, with achromatic combination forming two powers, in case, price 11. 1s.

Ditto, size larger, with stand condenser, price 12. 6d.

Ditto,, New Microscope (as wooden), with two eye-pieces; 1½ inch and 1½ inch superior achromatic objectives; stand condenser, focuser, 6d., complete in mahogany box cabinet, price 23. 1s.

Ditto, ditto, with fine adjustment, and elongating body, 32. 10d.

Larger Compound Microscopes, with first-class objectives, at 31. 5s. 7d., 15s. 10d., 19s., 29d., 3s. 6d., 4s., and 6s.

Exhibition Pure Art Microscope; the most magnifying instrument ever produced, 13s.

Microscopic Preparation (great variety) from 1s. to 1s. 4d. per dozen.

Educational Series of ditto, with descriptive lists, in sets at 3s. 6d., 15s., and 20s. per set.

Polarizing Apparatus, 6d., may be fitted to any microscopes costing 2s. 6d. and upwards, at 2s. 6d. each.

J. P. & S. wish to direct especial attention to their new Educational Microscope, at five guineas, which, for quality, appearance, and price cannot be equalled. It is a full-sized instrument, with large stage, having a magnetic bar adjustment, which gives a very smooth and easy motion. It has an elongating body with coarse and fine adjustments; two eye-pieces; superior 6d., 1½ inch, and 1½ inch objectives; condenser; all packed in mahogany cabinet. It is so constructed that all necessary apparatus can be added at any time without the instrument being returned.

* Several hundreds of these instruments have already been supplied to the medical colleges, educational establishments, &c., at home and abroad; and have not with universal approval.

ASTRONOMICAL TELESCOPES.

Educational Telescope on improved tripod stand (as wooden), with 2 inch objective, a terrestrial and celestial eyepiece, with sun glass, in case, each 4s. 10d.

This instrument will show beautifully the lunar mountains, several planetary bodies, including Saturn's ring and one of his moons, also several double stars.

Larger ditto, ditto, with 2½ inch objective, 7s.

* Secchi Improved refracting Telescope, 3 inch objective, mounted on improved equi- laxed garden stand 3 feet 4 inches high, with vertical rack, 3 eye-pieces, 5s., 10s., 15s.

* Five very ditto, 2½ inch objective, on large stand 6 feet high, with 4 eye-pieces, 27s.

* Five very ditto, 1½ inch objective, 4½ inch objective, 6d.

Larger instruments to order.

POCKET AND TABLE TELESCOPES; OPTICAL AND MARINE GLASSES.

Improved Patent Drawing Instruments, in cases from 2s. to 5s. each. These instruments have received the approval and recommendation of the Council of the Society of Arts, and are used in many of the Government schools.

SURVEYING INSTRUMENTS, &c.

Theodolites, levels, transit instruments, prismatic, mining, and other compasses; land chains, tape measures, air-gauges, galvanic and electrical machines, &c., &c.

By the employment of machinery, J. P. & S. have been enabled to construct many of the above instruments in a superior style, with accuracy, and at a very reduced price. They have kept in view the educational character of microscopes, telescopes, and drawing instruments, and have especially endeavored to make these complete, substantial, and commensurate for use.

A discount allowed to wholesales dealers and educational establishments.

For more detailed information, see wholesale illustrated catalogue, post free for 1s.

* These mounted on improved equi- laxed stands at 3s. to 15s.

* Ditto.
Pastorelli, F., & Co., Opticians and Mathematical Instrument Makers, 208 Piccadilly, and 4 Grosvenor Street, Hanover Garden.—Metford's theodolite; new level with micrometer for distances; and standard meteorological and optical instruments.

_**Metford's Traversing Theodolite.**—This instrument is constructed with all the important improvements introduced by Mr. W. E. Metford, C.I.E., the results of actual practice in the field. The level-plate generally consists of three inverted screws, having good seats fitted closely to their beds, and being shod with brass so as to prevent the screws becoming loose, the arms that enclose them are made with sufficient spring to admit of their being slightly tightened.

The traversing stage.—The object of this is to enable the observer to shift his instrument over the exact centre, after having set it up firmly, nearly level, and approximately over the point required. The main hollow centre of the instrument carries a circular foot, which is able to travel in any direction to the extent of 1 inch from the centre, which is sufficient. The foot is properly secured by means of a three-arm sinking screw running on the whole centre. The wheel to elevate the instrument for use is provided with a large handle and a heavy casting, and the range does not exceed 50° in the instrument. The sliding horizontal and vertical motions are all fixed by one screw. Sliding the telescope out, was suggested by Mr. Newnham, C.I.E., of the Scinde Railway.

The horizontal limb, vernier circles, etc.—This limb is arranged to take the compass, a level with a circular bubble, and two monochromatic plates on which constant cross, etc. may be recorded. The vernier plate is carried on four arms, and a diagonal brace (preventing the slightest twist in the arms) to which the tangent motion is attached. The horizontal limb has openings which enable the observer to take vertical angles to 70° in depression. Securely attached to the pivot is an arm to take the lower tangent appendage. The cross system of tangents is adapted to prevent the loss of time occasioned by the wear of the common tangents. All the pivots have broad bearing flanges like those used in lathes by Mr. Grevatt, and the pivots themselves and the bearing flanges are in one casting, thus conducing greatly to the rigidity of the whole instrument. The circular pivots fit in their sockets throughout their whole length, and not at the ends only. The circular bubble was first used by Troughton, for the purpose of obtaining an artificial horizon, but was adapted to the theodolite by Mr. Metford. The great advantage is, that it shows exactly the direction in which the level has been departed from, and it is thus a great aid in setting up the instrument before adjusting the traverser.

The means of supporting the upper works.—To the side of the main pivot is attached a strong current bracket divided at the top into two arms. This bracket has a T section throughout and on the ends, and at the junction of the arms is fixed the vertical circle. The improvement is unimportant, yet by it the suspensions of the telescope over the axis is permitted. The use of the curved bracket is not abandoned by width, for the bracket is exceedingly stiff. It has been used by Mr. Metford for eighteen years with perfect success. The micrometers (one on the bands of the casing, and one far more convenienetly then in the common instrument.

The telescope.—This is a “dumpy” case being taken to have all of its surfaces of object glass of good doubling powers. The eye end passes clear over the axis, and therefore the instrument may be used as a transit. By this capability of turning over, it is of immense service in ranging railway curves, as regards accuracy in laying the tangent, and as epochs. It is also necessary in traversing, and in all altitude and azimuth observations, to which the instrument is perfectly adapted. A rectangular eyepiece is added to the telescope; it is taken out when the other eyepiece is used, and a stopper is inserted in its place; it is not however necessary to remove it entirely. The rays are turned with a prism, so that the loss of light is trifling.

The Diaphragm.—Each diaphragm consists of two independent discs, and each takes the object, and is so constructed that each web can be placed vertically, horizontally, as may be required, and in the axis of the telescope also, independently of the other.
Pastorelli, F., & Co.—continued

Illuminating apparatus.—This consists of a small glass head placed about three quarters of an inch beyond the object glass, and just within its edge. A light thrown upon any point of its new hemisphere throws a mild faint light down the telescope.

The object glasses.—These are placed in their cases backward, so as to allow the glass surface to project beyond the brass cell. By this means rain and dust can be wiped off in the shortest time, and with the least amount of sensitiveness, without any of the difficulty attending the same process in the case of the common deep-seated glasses. The eye-piece block—that which stops the end of the telescope barrel—pulls out, and the colbuds and diaphragms are thus exposed.

The staff-head is made according to Mr. Froude's arrangements, having the checks cut to a circular plate. The log joints resemble an inverted mortar with strong trunnions, which can be tightened in their bisected cylindrical bearings, by means of capstan-headed screws.

General summary of advantages.—From the foregoing detailed description of the construction of these instruments will be apparent their great superiority over those in ordinary use, especially as regards the great steadiness obtained by the adoption of the triple arm arrangement for levelling, in place of the ordinary parallel plates. There is also a great saving of time, when the instrument has to be set frequently in the course of the day: this is accomplished by means of the circular bubble and traversing stage, which allow of very speedy adjustment of the instrument. The various minor advantages will be best understood by the perusal of the foregoing description, which should be carefully compared by those requiring a theodolite, with the details of the ordinary maker. The great advantages of those here described will at once be apparent.

£

Seven-inch instrument, as above described, price 55 6
Five-inch ditto, but without check telescope or rectangular eye-piece . . . . . . . . . . . . . . 25 9

F. Pastorelli & Co.'s Improved Level.—This instrument combines several improved arrangements, giving increased facility in use, greater steadiness and freedom from vibration, more accurate adjustment, with scarcely a possibility of deranging them.

The tripod and its staff-head.—The stability of the tripod is of the utmost importance. The ordinary staff-head is defective, from the impossibility of properly tightening the joints proving as they become worn. The new staff-head—an adoption of a plan of W. Froude, Esq., C.R.—has the checks cut on to a circular plate, the log joints being similar to an inverted mortar, with strong trunnions, which can be tightened in their bisected cylindrical bearings by means of capstan-headed screws.

The bail-joint and clamp.—This bail-joint is专门 designed for the ordinary parallel plates, which are limited in their action, compelling the staff-head to be placed within 3° or 4° from a horizontal plane, making the tripod sub-recent to the level. By the bail-joint, you may set the tripod more firmly upon the ground, almost irrespective of the position of the level, the ball having a movement of nearly 20°. The instrument is approximately set by means of the circular bubble.

Mode of insuspending the telescope.—The telescope is
PARTORELLI, F. & Co.—continued.

16s.

The arrangement of the diaphragms.—The diaphragms are two separate discs; the horizontal web mounted on one, and the vertical web on the other. They can be moved independently of each other by means of the collimating screws. These screws are so arranged that they cannot be accidentally disturbed, being embedded in a solidly cylindrical ring cap.

General summary of its advantages.—These instruments are less in weight and more portable than ordinary levels; they can be carried in a sl ing leather case, like a military telescope, with an increased stability of tripod, and capability of being adjusted with more facility and precision than the ordinary "Dumpy." and when adjusted are not liable to derangement; they can also be more readily set up for use, especially on hilly ground.

Pastorelli's Patent Measuring Level.—For avoiding the necessity for chaining distances. This level, unless very important addition to the one above described, by which distances may be accurately measured; saving all the loss of time and the not infrequent serious errors which occur when chaining them.

Pastorelli's Improved level, 12 or 14 inch, price 14 1/4

Docile, ditto, 10 or 15 . . 10 10

Additional webs and adjustments can be fitted to existing levels at a cost of from 30s. to 35s.

Leveling tubes.—Ordinary tubes can be used for estimating distances by means of the above mounting level, but tubes slightly altered to their mode of adjustment, will be found more suitable, as the divisions for estimating distances are separate from those used for leveling, and have no figures near them to confuse the observer.

Pastorelli & Co.'s Improved Patent Compass.—The point being fixed at the back of the leveled web, the inclination of any object with the division on the silver ring, is more readily and distinctly seen than in those of the ordinary construction.

Mathematical Drawing Instruments

FROUD'S Pnrt. payment.—This instrument is arranged like a pair of ordinary "stolen and hollow," but with these exceptions, that the length of equal length, one pair being joined that they may be laid upright towards the instrument is that it can at once be set not only to any known ratio, but to any ratio which is not known, but which is only indicated by the lengths of two given scales. The instrument being set to this ratio, its value can be immediately ascertained by referring to a graduated scale. It is peculiarly suitable in cases where fractional measurements are concerned and for which ordinary proportion compasses cannot be employed.

Frood's Improved Beam Compass.—This instrument comprises many improvements over those in ordinary use, the chief being that by means of wheels fitted to each end of the beam, it is supported on the table in an upright position. By this arrangement great facility in use is obtained. Being self-supported, it can be made slightly to recline from the work by a touch, and thus be always at hand. The beam also being close to the work increases steadiness, the pencil and ink legs are kept from the paper by means of a spring, which the slightest pressure overcomes when they are required to draw a line.

Mathematical Drawing Instruments, in other respects, to suit the requirements of military and civil engineers.

Metrologist's Improved Pocket Scale, suitable for civil engineers, architects, and land surveyors. price, in case, 32 10s.

Standard Meteorological Instruments with New

Standard Barometer mounted in brass box, ivory point in glass column which forms the zero of the scale, mercury sealed in the tube. The internal diameter of tube is 73, divided on silver to reach to 50 of an inch, with French scale reading by Verrier to 1/2 of a millimeter, suspended by hooks to mahogany board, 21s.

Small Instrument, internal diameter of tube 91.

In every other respect identical with the above, 10s.

Standard Mountain Barometer (upon the same principle: Improved, by which the two verniers are read with great facility and exactness, divided on silver, reaching to about 21,000 feet of elevation, with tripod stand in sl ing case, 71. 10s.

Hygrometer for measuring altitudes by the boiling point of water, on Dr. Wollaston's principle: The hygrometer, engine-divided and ended upon their own stems to show distinctly the tenth of a degree: the apparatus employed is of the most portable kind, and stands in a sling leather case, price 4l.

Metal Marking Barometer, Admiralty pattern, price 4l. 4s.

Standard Thermometers, engine-divided and ended upon their own stems on brass. In mercure cases, price 11. 10s.

Standard Maximum Thermometers, on Prof. Philip's principle, divided upon its own stems, mounted on brass or bakwood, price 15s.

Standard Minimum Thermometers, as above, price 15s.

Solar Radiation Maximum Thermometers, divided as suggested by Sir John Herschel, Birt., price 18s. 6d.

Witt and Birt's Improved Maximum and Minimum Thermometers, divided upon their own stems, mounted on metal, and fixed to Mahogany supports, price 21s.

Marine Hygrometer divided and ended on the stems, upon metal stems resting upon a brass base, 12. 15s.

Bennett's Hydrothermometer, 31. 10s.

Daniel's Hygrometer, 32. 10s.

All the above Thermometers have the NEW evaporation.

Mercurial Night-Thermometers, new form, 11. 5s.

A set of Portable Thermometers, for alpine travel-

Sky Thermometers, for taking altitudes, a new form, in brass frame, most portable and light, suited for travellers, 12s.

Ray Scales, from 10s. 6d. to 22s.

These can be made so portable that they may be carried in the pocket.

Anemometer, a modification of Dr. Robinson's, register- ing the velocity of the wind in miles and furlongs, price 6d. 4s.

The exhibitors manufacture all kinds of microscopes, binocular field and opera glasses, military and naval telescopes, spectacles, &c.
Pillischer, M., 88 New Bond Street, W.—Optical instruments of various kinds, principally microscopes.

[Prizes have been awarded to M. Pillischer at the Great Exhibition of 1851, and Paris, 1855.]

Description of Pillischer’s No. 1 First-class Microscope.

Largest size Improved Compound Microscope, having a stage five-eighths inch thick, and allowing of nearly one and a half inch motion in rectangular directions, sliding and rotating object plate; and sliding spring holder, a secondary stage underneath the object stage, with rectangular rotary and vertical movements for the adjustment of achromatic condenser and other apparatus, large concave and plane mirrors, diaphragms, the optical tube has coarse and fine adjustments, and tube with rack and pinion movement, and indicator divided into tenths to the inch for the facilitation of micrometric and erector measurements; Wenham’s binocular arrangement with rack and pinion adjustment to the eye-plates and extra single tube; Nos. 1, 2, 3, and 4, eye-plates, glass stage, stage forceps, two live boxes, large half-eye condenser for opaque objects, polarizing apparatus and achromatic stage, stage condenser, silver side reflector, graphologic reflector, camera lucida, compressium, microscopes, achromatic condenser with stop and diaphragm, Brook’s double nose piece, an erecting eyepiece, 2 inch, 1 inch, 1 inch, 1 inch, and 1 inch object glasses of large angular aperture, and great penetrating power; the whole fitted into an elegant Spanish mahogany or walnut plate-glass case with several drawers for the different apparatus, &c. .............................. £30

A smaller Microscope having one inch motion to the stage, and similar in all other respects to the above ... .............................. £20

Microscopes of simpler construction than the above, but equally useful in many respects, from .................................... £20 to £40

Pillischer’s No. 1 First-class Microscope.
Fig. 1.—A microscope with coarse and fine movements to the optical tube, plane stage, concave and plano mirrors, diaphragm, one eye-piece, 1-inch and 1-inch long-focus-glasses of the respective angles of aperture of 16° and 20°; the whole packed in a neat mahogany case, about 7 inches by 6½ inches, 7½. 7½.

Fig. 2.—Microscope with best rack and pinion stage, coarse and fine movements to the optical tube, concave and plano mirrors, diaphragm, 1-inch and 1-inch long-focus-glasses 15° and 25°, two eye-pieces, live box, stage focuses, condenser for opaque objects, polarizing apparatus, and scientific parabolic reflector, and best Spanish mahogany or oak case, 20 inches by 6½, 15½, 15½.

Fig. 3.—Pillischer's New £5 Microscope.—This microscope has been constructed with a view of supplying the public with a really good and useful instrument, equal, in many respects, to the more costly ones, the prices of which, owing to their delicacy, and, in some instances, complicated construction, are very much beyond the reach of the general public.

The great merit of this instrument is its simplicity, construction, and portability, and being furnished with a moveable stage, invented by Mr. Pillischer, of great usefulness, and with a new combination object-glass, forming three different powers of 1-inch, 1-inch and 1-inch focal distances. These advantages, together with the excellent form of stand, which combines lightness and stability, and to which any form of apparatus may be adapted, make it the most useful instrument ever before submitted to the public at so low a price.
Patronized by Her Majesty, H.R.H. the Prince Consort, the Royal Family, many Scientific Societies, and most of the Nobility and Gentry of the United Kingdom.

These celebrated lamps, so well known now by the name of "Pillischer's Reading and Microscopic Lamps," combine all the advantages sought for by the scientific public; they emit a very pure white and steady light without smoke or disagreeable heat, although the common colza oil only need be used; they burn very economically, the cost of the largest size having an illuminating power equivalent to six wax candles or more, not being a halfpenny per hour.

Their chief recommendation, however, is in the simplicity of the construction and management, and they can be used by any one previously unacquainted with the use of lamps.

These lamps can be used in India or any other tropical climate, since they burn the cocoa-nut oil, and can be adapted to burn perfectly steady under the Punka.

Fig. 1 represents the largest size, Queen's Pattern, so called, it being used by Her Majesty.

Fig. 2 is the same size, with an ornamental reservoir.

Fig. 3 is mounted in china, and beautifully painted with figures or flowers, and forms no unpleasant addition of a drawing-room furniture.
Reade, Rev. J. R., F.R.S., Ellershaw Rectory, Tring.—Hemispherical condenser for microscopes, illustrating a new principle in microscopic illumination.

The Condenser consists of a hemisphere of glass, about 11 inches in diameter, with a new arrangement of stops, applicable to all microscopes, for regulating the source, position, and magnitude of transmitted pencils of oblique light. The central tube obtained over the illumination of test-objects under any magnifying power, not only enables a single lens to compete with expensive achromatic condensers, but it also, for the first time, brings difficult test objects under the command of half-inch objective lenses, and thus tends to advance microscopic investigation, by saving the cost of bihedral necessary apparatus. The hemisphere is set in a thin brass ring, and leaves upon a cylinder, adapted, like other fittings, to the sub-stage of the microscope. Its plain surface is crossed by two similarly placed diaphragms, drawn half size in the engraving, and by the rotation of the upper diaphragm, the lower being fixed, one, two, or three apertures for transmitted light may be obtained, with distance between them varying from 5° to 125°. On taking out the eyepiece and looking down the body of the microscope, the points of light ought to be seen, and they should continue in view throughout the entire circular rotation of the sub-stage, otherwise the condenser is not truly central. The size of the apertures to act on the longitudinal fins; and resolution into dots or squares will be readily effected by adjusting the distance of the condenser. The two apertures used in this case are necessarily 90° apart, whilst for the fluoroscopic cavities, and other objects with triluminous markings, three apertures are necessary in intervals of 60°, and many biliary oblique markings are best seen with two apertures 125° apart. Under this new arrangement of small illuminating pencils, that portion of the light of the ordinary eye-lens, which really tends to obliterate the shadows by throwing them in directions opposite to each other, is skipped out;—the markings, whether elevations or depressions, are illuminated on the same side, and we preserve that uniform direction of the shadows which is the key to accurate definition. With this condenser modes of the Pyrolem, and objects capable of reflecting light, can be viewed upon a black ground by bringing a single pencil of light so near to the stage of the microscope as to be beyond the angle of aperture of the object-glass. It is always desirable to use direct rather than reflected light, the source of light being placed about 10 inches from the condenser.

Reid Brothers, 25 University Street, and Wharf Road, City Road.—Electric telegraph materials.

Rogers, Joseph, 215, 216 Graham House, City.—Telegraph wires and cables—patented.

Ronchetti, John B., 9 Cambridge Street, Golden Square.—Hylometers and thermometers.

Ross, Thomas, 2 & 3 Featherstone Buildings, Holborn.—Optical instruments; microscopes; telescopes and photographic lenses, &c. (See pages 36 & 37.)

Salmon, W. J., 100 Fenchurch Street.—Bifocal and achromatic microscopes.

Sax, Julius, 8 Hatton Garden, E.C.—Chemical and bullion balances on an improved principle, and weights of the finest description.

The following are exhibited:

A CHEMICAL BALANCE, in German alpaca, with 14 in. beams, to carry 1000 grams in each pan, and turn, when loaded, with 1000th part of a gram.

A BULLION BALANCE, with 10 inch beam, to carry 100 ounces in each pan, and turn, when loaded, with 300th part of a gram.

A set of Troy Weights in mahogany box, from 100 ounces to 1000ths part of an ounce.
## Class XIII.—North-East Gallery.

[2951]

**Scott, Westworth E., Westbourne Park, London.**—1. Self-registering maximum thermometer for deep sea, &c. 2. **Microscopic specimens.**

[2956]

**Sharp, Benjamin, Hanwell Parle, Middlesex.**—Improvements in submarine electric telegraphs, paying-out machinery, &c. (Sharp's patent).

[2957]

**Sharp, Henry, 38 Bowden Street, Sheffield.**—Achromatic microscope objectives.

[2958]

**Shaw, William Thomas, Inventor, 6 Parle Villas, Ralston, N.R.**—Stereotrope or stereoscopic thaumatrope.

[2959]

**Siemens, Halsie, & Co., 3 Great George Street, Westminster.**—Telegraphic apparatus for land and submarine lines.

[2960]

**Silver, S. W., & Co., 3 Bishopsgate Street.**—Electrical machine fitted with ebonite plate.

[2962]

**Spencer, Browning, & Co., 111 Minories, London.**—Telescopes, Crooke's spectrosopes, pocket and improved aneroid barometers, and nautical instruments.

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<td>Long range aneroid for the waistcoat pocket, in gold case</td>
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<td>Crooke's pocket Spectroscope for &quot;Spectrum analysis&quot;</td>
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<td>20 0 0</td>
<td>Crooke's large model &quot;Spectroscope&quot; (see illustration)</td>
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**Smith, Edward, 16 Queen Anne Street, London.**—Spirometer; potash-box to abstract carbonic acid during expiration.

[2964]

**Smith, Beck, & Beck, 6 Coleman Street, E.C.**—Achromatic microscopes; objects; achromatic stereoscopes; cabinets; and other optical instruments.

[2965]

**Smith, C. Piazz, Edinburgh.**—Rotary ship clinometer; model of compound rotary apparatus; electric registering anemometer.

[2966]

**Spratt, Alice, 118 Camden Road Villas, London.**—Electric weather indicator.

[2967]

**Spratt, James, 118 Camden Road Villas, London.**—Lightning conductors; reproducing points; lock insulator and attachments—patented 1861.

[2968]

**Stanley, W. F., 3 Great Turnstile, W.C.**—Mathematical and surveying instruments.
Achromatic object-glasses for microscopes, with flat field, perfect marginal definition, and the maximum aperture consistent with the required performance:—

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A large compound microscope, No. 1a, with Wenham's binocular arrangement; a concentric rotating stage, having one inch of motion in rectangular directions, rack and fine-screw movements to the optical path; changing arcs for fixing the instrument in any inclination; secondary stage for holding and adjusting by universal motions all the illuminating and polarizing apparatus beneath the object; flat and concave mirrors, diaphragm plate and apparatus complete (see fig.), packed in mahogany cabinet case.

A ditto, ditto, No. 1b, with Wenham's binocular arrangement; an ordinary rotating object-plate to the stage, and apparatus in mahogany cabinet case.

A smaller binocular microscope, No. 2, having three-quarters of an inch of motion, and ordinary rotating object-plate to the stage, with apparatus, in mahogany portable case.

A smaller microscope, No. 3, having three-quarters of an inch of motion, and ordinary rotating object-plate to the stage, with apparatus, in mahogany case.

A plain microscope (basis of the above, No. 3), in mahogany cupboard case.

Apparatus for the compound microscope.
ROSS, Thomas—continued.

Simple Microscopes.

A simple microscope, with 1 in., ½ in., and ½ in., single lens; ½ in. Wallaston's doublet, Liberrula for ½ in. and ½ in. lenses, and stage forceps, in mahogany case.

A magnifying stand, with universal motions, and two lenses, for dissecting.

A diatom finder (field hand-microscope), with screw adjustment, eye, and single lens.

Coddington lenses and pocket magnifiers.

Three portable telescopes, in German silver, brass, and aluminium mountings, opening from 5 inches to 20 inches; clear aperture 1½ inch, magnifying power 17 times.

Three ditto, ditto, opening from 6 inches to 30 inches; clear aperture 2½ inch, magnifying power 20 times.

Three ditto, ditto, opening from 8½ inches to 28 inches; clear aperture 1½ inch, magnifying power 20 times.

Three ditto, ditto (patent), opening from 12½ inches to 43 inches; clear aperture 2½ inch, and 2½ inches, magnifying powers 30, 40, and 50 times.

One naval telescope, in German silver mountings, with one draw, opening from 17 inches to 25 inches; clear aperture 1½ inch, magnifying power 14 times.

Two ditto, ditto, opening from 24 inches to 29½ inches; clear apertures 1½ in. and 2½ in., magnifying power 20 times.

Two ditto, ditto (patent), opening from 27½ inches to 48 inches; clear aperture 2½ in., and 2½ in., magnifying powers 30, 40, and 50 times.

One signal ditto, ditto (patent), with jointed body, opening from 33 inches to 60 inches; clear aperture 2½ in., magnifying powers 50, 60, and 70 times. Packed in case.

One dressing-table telescope, in brass mountings, opening from 8½ in. to 10½ in.; clear aperture 1½ in., magnifying power 14 times.

Three ditto, ditto, in brass and aluminium mountings, opening from 10 inches to 20 inches; clear aperture 1½ in. and 1½ in., magnifying power 20 times.

Three ditto, ditto (patent), same length and apertures as the preceding, magnifying powers 20, 20, and 30 times.

Two ditto, ditto, same length as the preceding; clear aperture 2½ inch, magnifying power 20 times.

One 3½ inch telescope, with brass tube, rack-and-pinion adjustment, and brass table-stand; clear aperture 2½ inches. This instrument has a patent to day copy-piece, powers 20, 40, and 20, and two astronomical copy-pieces, powers 40 and 70. Packed in case.

Binocular field, race, and opera-glasses in various mountings. Photographing lenses, various.
CLASS XIII.—Philosophical Instruments, and Processes depending upon their use.

[2969] Stevenson, Peter, Edinburgh.—Instruments for brewers, distillers, and others; also scientific apparatus, &c.

[2970] Stewart, Alexander, New Observatory, Richmond, S.W.—Self-recording magnetographs, and other philosophical instruments.

[2971] Submarine Telegraph Company, Chief Offices, 38 Threadneedle Street, and 43 Regent Circus, Piccadilly. L. W. Courtenay, Secretary. Samples of their submarine cables. (See page 30.)


The exhibitor has been a manufacturer of improved adjusting, surveying, and drawing instruments, &c., for a quarter of a century. Transit theodolites, 211. Receiver dials, 106. 3-inch dials, 284. Improved level, 106. Dumby level, 32, 106. Surveying level, 42, 106. He also manufactures the following measuring, and standards of all nations; every instrument requisite for surveyors, engineers, architects, and draughtsmen. Class of drawing instruments for all classes from 3s. to 5s.; and the improved needle-point instruments as exhibited.


[2974] Swift, James, 3 Maton's Terrace, Kingland Road.—Improvements in mechanical construction of microscope; dispensing with rackwork throughout the instrument.

[2975] Tree, James, & Co., 22 Charlotte Street, Blackfriars Road, London.—Rules, scales, and levels for mechanical, scientific, and agricultural purposes.

[2976] Tyed, Edward, 15 Old Jury Chambers.—Train signalling telegraphs and electric telegraphs. (See pages 40 & 41.)


[2978] Varley, Alfred, 1 Regent Terrace, Highbury.—Apparatus for economically heating greenhouses by gas, and regulating the temperature.

[2979] Varley, Cornelius, 7 York Place, Kentish Town.—Ebonite electrifying machine; pair of single needle telegraph instruments; key and printing machine; differential galvanometer; resistance coils; microscope with lever stage.

[2980] Varley, Robert, Fleetwood, 4 Fortesque Terrace, Kentish Town.—Apparatus for indicating the distance of faults in telegraph conductors without calculation; insulators; constant batteries; telegraphic apparatus, &c.

Class XIII.—North-East Gallery.

Submarine Telegraph Company, Chief Offices, 58 Threadneedle Street, and 43 Regent Circus, Piccadilly, L. W. Courtenay, Secretary.—Samples of their submarine cables.

The Submarine Telegraph Company is the only Company in exclusive communication with the Continent of Europe, the Channel Islands, Alexandria, and the East, via France, Belgium, Hanover, and Denmark.

The following Illustrations represent the Company's cables, now in perfect working order, showing 28 Lines of telegraphic communication to the Continent, making in the aggregate a submarine conductor of 2777 miles:

- Dover and Ostend: Laid Nov. 1858; length, 280 miles.
- Dover and Calais: Laid Aug. 1851; length, 24 miles. (First Submarine Telegraph cable ever laid.)
- Dover and Ostend: Laid May, 1853; length, 70 miles. (The second submarine cable that was laid.)
- Dover and Ostend: Laid May, 1863; length, 70 miles. (The longest submarine cable that was laid.)
- Calais and Dunkirk: Laid Jan. 1860; length, 27 miles.
- Calais and Trouville: Laid July, 1839; length, 380 miles.
- Boulogne Head and Dieppe: Laid June, 1863; length, 64 miles.
- Folkestone and Boulogne: Laid June, 1830; length, 25 miles.

Tariff Lists and every information may be obtained at the chief offices, and at all the offices of the London District Telegraph Company.
Class XIII.—Philosophical Instruments, and Processes depending upon their use.

Tyers, Edward, 15 Old Jewry Chambers.—Train signalling telegraphs and electric telegraphs.

System and description of Tyers's patent train signalling telegraphs:—

1. The line of railway is divided into certain portions or signal stations, and no train is to be permitted to pass one of these signal stations unless a notification of the line being clear has been received from the signal station in advance.

2. Each signal station communicates with the signal station on either side of it, so as to announce the approach and departure of every train.

3. The receiver of a signal cannot alter it; the sender alone is enabled to reverse it.

4. The signal once given remains fixed until the next signal be sent, and can therefore be referred to at any moment.

5. The dial of the instrument is divided into two parts: the upper part being for the up line, the lower part for the down line; each part has two needles or indicators, one black the other red. The black indicator is the last signal received at the station. The red indicator is the last signal sent from the station.

6. Each instrument is also furnished with a bell and gong.

7. Only two signals are used—"Train on Line," and "Line Clear."

8. In the event of any obstruction happening upon the line, the signal "Down Train on Line," or "Up Train on Line," as the case may be, is immediately to be given, accompanied with five distinct beats of the "Bell" or "Gong."

9. The station receiving such signal of obstruction will reply by sounding the "Bell" or "Gong" five times, and immediately stop any approaching train, until the sense of obstruction has been ascertained or the indicator again shows "Line Clear."

Code for bells and gongs.

- Down passenger trains: 2 booms on gong
- Down goods or mineral trains: 3 booms on gong
- Up passenger trains: 2 booms on bell
- Up goods or mineral trains: 3 booms on bell
- Inspector's signal for testing instruments: 6 booms
- Acknowledgment of a signal: 1 boom
- Acknowledgment of obstruction code: 5 booms
- Acknowledgment of inspector's signal: 6 booms

10. Should the station to which a signal is sent, not reply, it must be repeated until such reply is received.

11. If no signal is to be considered complete until the reply has been received.
CLASS XIII.—North-East Gallery.

TYRK, EDWARD—continued.

TYRK'S PATENT DIRECT ACTION PRINTING TELEGRAPH.

TYRK'S PATENT RELAY.

TYRK'S PATENT ALPHABETICAL TELEGRAPH.

TYRK'S PATENT MERCURIAL BATTERY.

CLASS XIII.
Walker, Charles V., F.R.S., Fernside, Redhill.—Telegraph instruments for making and for recording train-signals.

A pair of train-signal-bells,—index, peckers, and platinized graphite battery complete. Employed for preparing the safety of railway travelling. The peculiarity of this apparatus, which does not form the subject of a patent, was the introduction of large wires, No. 19 or 18, for the electro-magnets of telegraph instruments, set direct in the signal-box, without the intervention of a relay. Hence extreme simplicity of structure and consequent cheapness are obtained; and an instrument is produced that is in the smallest possible degree liable to damage. The first pair of bells were erected on the Gravesend viaduct of the South Eastern Railway, on January 21, 1852; the last pair on the Admiralty pier and station of the South Eastern Railway at Dover, on January 3, 1852. Every station, goods-houses, and level crossing on the South Eastern Railway is furnished with one or more of these bells, 318 in all. A coming-index is attached to one or more bells, when several are in the same signal-box.

The ordinary train-signals are, one blow, two blows, or three blows; each signal being repeated back in acknowledgment of its receipt; and all signals are booked.

Platinized graphite was exhibited in 1853. Platinized graphite, in form of silver, is now used extensively and with great success.

A line-arrangement for impressing upon copper-thread red marks when bell-signals are given; and black marks when they are received, red and black to mark intervals of time. Mr. D. McCullum's idea worked in form and realised by the exhibitor.

McCullum's Globotype, constructed so as to drop red balls when bell-signals are given, and black balls when they are received; spotted balls in marked hours, and blue balls the quarters or lesser intervals. The arrangement and details are by the exhibitor.

Vessels for瞬间 and afterwards wires giving a maximum of space and protection with a minimum of material, labour, and waste. Joints of the same; and a set of joint-tools.

Walker, James, 17 Water Street, Liverpool.—Barometer and weather indicator. (See page 48.)

Waller, John, 72 Fleet Street, London, E.C.—Improved apparatus for pictorial illustration; philosophical, mathematical, and optical instruments.

Watson, Henry, Newcastle-upon-Tyne.—Armstrong's hydro-electric machine.

Webb, Henry, George Street, Balsall Heath.—Microscopic objects.

Williams & Hall, Mansfield Street, Southwark.—Telegraph conductors, caoutchouc insulation; submarine cables; wires for magnetic coils. (See page 44.)

Wensham, F. H., Effra Vale Lodge, Brixton, S.—A binoocular microscope which may be used as an ordinary instrument.

West, Francis Linzell, 81 Cockspur Street, Charing Cross.—Self-registering mercuorial and standard barometers.

Whitehouse, Nathaniel, 2 Cranbourne Street.—English-made opera-glasses, and Dr. Wolaston's spectacles, &c.

Wilde, H., St. Anne's Square, Manchester.—Alphabetical dial telegraphs, worked by magneto-electricity.


Yeates, Andrew, 12 Brighton Place, New Kent Road, London.—Astronomical, geodetical, and nautical instruments; portable theodolite; improved prismatic compass.
The World's Barometer and Weather Indicator.

Price (in mahogany case, with Sympsonometer), five guineas.

This instrument is also made as a marine barometer, in cases specially designed and adapted for nautical purposes, and with suitable fittings for cabins.

Orders to be addressed to Wilson, Son, and Walter, Liverpool, or J. Bowden, 58 Gracechurch Street, London.

Yeates & Son, 2 Grafton Street, Dublin.—Astronomical, meteorological, philosophical, and mathematical instruments.

Two equatorially mounted Telescopes, on iron columns, the mounting possessing many improvements in detail. The clamping circles are quite independent of the divided circle, and at the opposite ends of their respective axes, that of the polar axis being directly under the northern pivot, and that of the declination circle, close to the telescope. The clamping arrangement also differs from that in present use, being more effective and perfectly free from strain or tension; the mullion stand is particularly adapted for those who have no convenient space to erect an observatory upon; the iron column may be permanently fixed in the open air; the equatorial arrangement permits in a small box, from which it can be lifted into its place on the top of the column in a few moments, and may be thus placed and replaced at the observer's pleasure, without its adjustments being materially affected.

Yeates & Son's New Elliptograph. This instrument differs in three essential points from all elliplographs hitherto constructed. First, there is no limit whatever to the variation in the proportions of the ellipses formed by it. Secondly, the facility of setting it to any ellipse whose major and minor axes are known, and thirdly, the accuracy of the figure formed by it in all proportions.

Yeates & Son's Large Public Barometers—did 3 feet in diameter. This form of instrument was designed by the exhibitor in the year 1828, for the use of agricultural districts and fishing towns, in both of which situations it has been found extremely useful. The index or hand is moved by the mercurial column.

Yeates & Son's Large Public Telescopes—did 8 feet in diameter. This instrument was designed by them last year (1861). The index or hand is moved by a ball of mercury one inch in diameter.
Class XIII.—Philosophical Instruments, and Processes depending upon their use.

Wells & Hall, Mansfield Street, Southwark.—Telegraph conductors, caoutchouc insulation; submarine cables, &c.

Submarine Telegraph Cable (for deep sea) insulated with caoutchouc, having a specific gravity of 1.36, or heavier; made with Russian hemp in combination with longitudinal steel wires, thereby preventing twisting, kinking, or any perceptible elongation, when strained to, and having a tensile strength equivalent to 11,635 fathoms in sea-water. (Government Report on Telegraphy, pages xxviii & 309.)

The following are exhibited:

1. Specimens of submarine cable, sheathed with galvanized iron wire, weighing six tons per mile, for shore ends.
2. Specimens of cable sheathed with galvanized iron wire, weighing four tons per mile, for shore ends.
3. Specimens of cable sheathed with galvanized iron wire, weighing two tons per mile, for shallow waters.
4. Specimen of cable sheathed with galvanized iron wire, weighing one ton per mile.
5. Specimen of cable sheathed with longitudinal steel wires and best Russian hemp, weighing 92 tons per mile, for deep seas. Tensile strength equivalent to 16,840 fathoms.
6. Specimen of cable sheathed with longitudinal steel wires and best Russian hemp, weighing 44 tons per mile, for deep seas. Tensile strength equivalent to 11,635 fathoms.
7. Specimens of light cables sheathed with galvanized iron wire, weighing 220 & 44 lbs. per mile.
8. Specimens of light cables sheathed with galvanized iron wire.
9. Specimens of caoutchouc or indiarubber, insulated wires.
10. Multiple cable, 19 wires, insulated with caoutchouc, for aerial telegraphy, &c.
11. Multiple cable, 20 wires, insulated with caoutchouc, for aerial telegraphy.
12. Multiple cable, 20 wires insulated with caoutchouc, for aerial telegraphy.
13. Caoutchouc insulated wire; diameter of conductor (7 strands) +02925, for deep-sea telegraphs.
15. Caoutchouc insulated wire, diameter of conductor +0871, weight per mile +3 lbs.
17. Specimens of wires for target purposes (grouped).
18. Specimen of Swedish wire, diameter +0958, served with silk.
19. Specimen of Swedish wire, diameter +0963, served with silk.
20. Specimen of Swedish wire, diameter +0971, served with silk.
21. Specimen of Swedish wire, diameter +0979, served with silk.
22. Specimen of Swedish wire, diameter +0053, served with silk.
23. Specimen of Swedish wire, braided with silk, and containing two wires (diameter +0079) and upwards.
CLASS XIII.—North-East Gallery.

[ 2997 ]

Young, John, Gas Engineer, Dalkeith.—Manufactured carbon for electrical batteries, and electrodes for electric lights.

[ 2998 ]

International Decimal Association, Professor Levi, Farrar's Buildings, Temple.—Illustrations of the decimal and metric system of all nations.

[ 2999 ]

Field, R., & Son, New Street, Birmingham.—Microscopes, telescopes, and surveying instruments.

[ 3000 ]

Gutta Percha Company, 18 Wharf Road, City Road.—Submarine telegraph cables, and other insulated wire.

[ 3001 ]

Hall, A. J., 2 William Street, Clerkenwell.—Machine for describing ellipses and other oval curves.

[ 3002 ]

Hallana, J. V., 22 New Street, Spring Gardens.—Steam expansion gauges.

[ 3003 ]

Husbands & Clarke, Denmark Street, Bristol.—Optical instruments.

[ 3004 ]

Microscopical Society, London.—Peters' machine, for microscopic writing.

[ 3005 ]


[ 3006 ]

Registrar General, Somerset House.—Tables calculated and stereoglyphed by the Swedish calculating machine.

[ 3007 ]


[ 3008 ]

Tremlett, R., 7 Guildford Place, Clerkenwell.—Barometers and air-pumps.

[ 3009 ]

Husbands & Clarke, Denmark Street, Bristol.—Traversing theodolite and portable equatorial.

[ 3010 ]

Beckley, R., Kew Observatory.—Anemometer, and original photographs of the sun.

[ 3011 ]

Harris, T., & Sons, 52, Great Russell Street, W.C.—Telescopes, spectacles, and opera-glasses.
Class XIII.—North-East Gallery.

[3012]

[3013]
White, J., Renfield Street, Glasgow.—Portable atmospheric electrometer, water-dropping collector, marine galvanometer, tangent-galvanometer, static-reaction governor.

[3014]
Griesbach, J. H., 19, Carlton Road, Maida Vale.—Apparatus for ascertaining the pitch by printing the vibrations, per second, of strings.
Class XIV.
PHOTOGRAPHIC APPARATUS AND PHOTOGRAPHY.

[ 3029 ]
Adams, A., 26 Bread Street, Aberdeen.—Carte de visite, stereoscopic views.

[ 3030 ]
Alfieri, C., Northwood, Hanley, Staffordshire.—Illustrations of Welsh scenery, &c.; negatives made in field camera.

[ 3031 ]
Amateur Photographic Association, 26 Haymarket, London.—Photographs by the members of the Association.

[ 3032 ]
Angel, O., High Street, Exeter.—Photographs, enlarged by the solar camera from collodion negatives.

[ 3033 ]
Austin, W., 5 Buxton Place, Lambeth Road.—Presses, camera stands, head-rests, &c.

[ 3034 ]
Barnes, R. F., 64a New Bond Street.—Photographs.

[ 3035 ]
Barra, A., 122 Regent Street, W.—Coloured crayon, and plain photographic portraits.

[ 3036 ]
Beard, R., 31 King William Street, London Bridge.—Coloured and plain photographs and microscopic portraits.

[ 3037 ]
Bedford, F., 28 Rochester Road, Camden Road Villas.—Photographs: landscape and architecture by the wet collodion process.

[ 3038 ]
Bennett, A. W., 5 Bishopsgate Without, London.—Photographs: application of photography to illustration of books.

Selection from Sedgfield's English Cathedral Views and other scenery for the stereoscope, the scrap-book, and the album—including interiors and exterior of Beverley, Bristol, Exeter, Winchester, Salisbury, Ely, Norwich, Peterborough, Lincoln, Rochester, Canterbury, and Wells cathedrals, with others. Price 1s. each for the stereoscope, or 6d. each for the album. The ruined castles and abbots of Great Britain (47s.). Specimen of application of Photography to the illustration of books.

[ 47 ]
CLASS XIV.—Photographic Apparatus and Photography.

[3041]
BIRD, P. H., F.R.C.S., F.L.S., 1 Norfolk Square, W.—Photographs of views.

[3042]

[3043]

[3044]
BOOTH, H. C., Harrogate, Yorkshire.—Portraits, photographed from life, on paper and ivory, plain and coloured.

[3045]
BOURNE, S. Moore & Robinson’s Bank, Nottingham.—Photographic landscapes, by the Fothergill dry process.

[3046]

The object of BEVERLEY & Co. has always been to manufacture frames suitable to the various kinds of photographic portraits, landscapes, such as passe-partout, gilt frames, fancy frames, fancy cases, albums, and mounts; the patent mosaic albums, &c. Specimens of these goods are exhibited. The exhibitors are also manufacturers of albumenized paper.

[3047]
BOWERS, H. T., Gloucester.—Photographic views, collodion and wax papers, enlarged copy of ancient print, &c.

Views of Southam de la Bees, the seat of the Earl of Ellenborough; also View of Old Chapel, Southam, which has been in ruins 500 years, and now restored by his Lordship; West Window, Gloucester Cathedral; Views of Gardiner, Allan Towers, &c. (wax paper process); * Memorial of Bishop Monk. Design, “Dominius Beptum.”

[3048]
BREED, C. S., Avelock’s Green, near Birmingham.—Instantaneous transparent stereographs on glass.

[3049]
BROOKES, A., St. Ann’s Square, Manchester.—Group finished in water colours; portrait on ivory; portraits untouched.

Group of nine figures finished in water-colours. Portrait of a lady on ivory. Portraits (untouched) of members of the British Association.

[3050]
BROWN, S. W., 7 Kilmain Terrace, Dublin.—Photographs.

[3051]
BULL, J. T. & G., Great Queen Street, Lincoln’s Inn.—Photographic profiled accessories, and artistic backgrounds.
BURNEET, C. J., 21 Ainslie Place, Edinburgh.—Photographic prints with uranium, copper, palladium, platinum, &c.

C. BURNEET'S Illustrations of original experimental processes, from British Association of 1853, and Royal Scottish Exhibition of 1867.—(See page 50 & 51.)

BURNETT, C. J., 21 Ainslie Place, Edinburgh.—Photographic prints with uranium, copper, palladium, platinum, &c.


CADE, R., 10 Orwell Place, Ipswich.—Machinery and architecture illustrated; also views and portraits.

CAMPBELL, D., Crownth Place, Ayr.—Large views: Land of Burns.

CAITHNESS, Earl of, 17 Hill Street, W.—Photographic views.

CLAUDET, A., 107 Regent Street.—Photographic portraits; stereoscopic and visiting-cards, enlarged to the natural size. (See pages 50 & 51.)

COLEAGH, P. & D., Scott, & Co., 13 and 14 Pall Mall East.—Photographs from ancient and modern pictures, portraits, &c.

CONTENCIN, J., 4 White Cottages, Grove Green Street, Camberwell.—Various photographs from drawings, &c.

CORDINGLEY, W., 14 Wells Street, St. Helen's, Ipswich.—Camera stand.

COX, F. J., 22 Skinner Street, London.—Lenses, cameras, portable field apparatus, and instantaneous shutters.

Camera Shield for producing four carte de visite or sixteen medallion portraits on one plate and with one lens. The dark slide revolves around the axis of the lens, but the plate is always kept vertical, therefore the drainage from flowing back over the surface is prevented.

Specimens taken by the camera shield.

STEREOSCOPIC CAMERAS, with three double backs, holding six plates. The weight is 3½ lbs.; it requires no screwing, and has no loose pieces liable to be lost in use.

STEREOSCOPIC CAMERAS, fitted with instantaneous shutter applied to the central diaphragm.

Central Diaphragm of a lens, showing an instantaneous shutter working without vibration. It can be opened or closed with any degree of rapidity desired.

Reflecting Stereoscope for pictures four inches square.

Field box containing chemicals for a day's use; it also forms a developing box.

PORTRAIT CAMERA, and lens with swing back.

CRAMPTON BROTHERS, Glasgow.—Photographs on ivory; views in Palestine; half life-size portraits, not enlarged.

CRITCHETT, C., 11 Wesburn Square.—Photographs.
Class XIV.—Photographic Apparatus and Photography.

Claudet, A., 107 Regent Street.—Photographic portraits; stereoscopic and visiting-cards, enlarged to the natural size.

Mr. Claudet has obtained the following Medals—

First Class Medal, Great Exhibition of London, 1851; First Class Medal, Great Exhibition of Paris, 1855; Silver Medal, Exhibition of Amsterdam, 1855; Bronze Medal, Exhibition of Brussels, 1856; Silver Medal, Photographic Exhibition of Edinburgh, 1861; Society of Arts Medal presented to Prince Albert in 1853, for Mr. Claudet’s paper on the stereoscope and its application to photography.

Abstrat of an address read the 9th April, 1861, before the Photographic Society of Scotland, by Mr. David Brewster, K.H., F.R.S., and R., president, in presenting Mr. Claudet with the medal of the Society for his best portrait exhibited at their photographic exhibition of 1861. See “Journal of the Photographic Society” for May, 1861, page 161.

In awarding a medal for the best work of art in a photographic exhibition, it is not often, if it has ever occurred at all, that the successful competitor is distinguished by his discoveries and inventions in the art which he practices.

“Three different accomplishments, however, are possessed by Mr. Claudet, to whom the Council have adjudged our silver medal for the best portrait in the Exhibition; and though they were not taken into account, yet I feel it a duty, as well as a privilege, in presenting this medal to Mr. Claudet, to lay before you a brief notice of those discoveries and inventions by which he has achieved the high reputation that he so justly enjoys in the photographic world.

“When an art has arrived at such a degree of perfection, it is a paltriness as well as an unsatisfactory task to record the steps by which it advanced, and to do honour to the men to whom we owe them.

“When Sommerville found that mirror of silver was darkened by light, and hence darker in the violet than in the red rays, he made the first step in photography. A German chemist, M. Ritter, advanced another step when he found that the mirror of silver was most powerfully blackened in the invisible rays beyond the violet; but it is to Mr. Thomas Wedgwood that we owe the practical application of these facts to photographic purposes, and he failed in every attempt to prevent the white parts of his pictures from being blackened by light. The experiments of Wedgwood seem to have been unknown in France, when two ingenious individuals, M. Milneco and M. Daguerre, discovered two entirely different processes of forming photographic pictures. The result of their joint labours was the daguerreotype, that beautiful art with which we are all acquainted, and which was presented to the public by Mr. Claudet, and which has done more than any other individual to bring the present state of photography.

“When the time of Daguerre, from 20 to 23 minutes were required to take the photograph of a landscape by this process, and nearly 10 minutes to take a portrait. In this important state of the art Mr. Claudet discovered, and communicated to the Royal Society of London, in 1811, an easy and certain method of accelerating the action of light upon the film of silver, and thus greatly shortening the process; by this process he obtained in 80 seconds pictures which would have required 4 or 5 minutes by the preparation of Daguerre. So sensitive, indeed, was this new process, that Mr. Claudet was enabled to take portraits by the oxyhydrogen light in 15 or 20 seconds, with an object-glass of short focus. He obtained, also, impressions of black haze by the light of the full moon in 2 minutes, and by the light of the stars in 15 minutes. He likewise obtained in 4 seconds an image of the moon, in which the shadowed parts were visible. In 15 minutes he obtained the image of an alabaster figure by the light of a candle and in 3 minutes a similar image from an excited lamp.

“Next in importance to the acceleration of the photographic process, is the perfection of the image which is formed upon the sensitive plate—not of the visible image which is received and seen upon the gray glass, but of the invisible image which is formed by the photogenic or chemical rays. In studying the subject, Mr. Claudet discovered that the chemical and visual feet were not coincident. He recommended that the rays of the photogenic spectrum should be united in one form, even at the sacrifice of the acuteness of the lens. As the photographic form will change its place with the colour and the intensity of the light and with the distance of the object, the photographer should determine experimentally its place in relation to these varying influences. In order to do this Mr. Claudet invented the Photometer, an instrument ‘for finding the difference between the two feet.’

“In the year 1847 Mr. Claudet communicated to the Royal Society an important paper on different properties of Solar Radiation in photographic operations; and in 1849 he submitted to the Academy of Sciences, in Paris, his interesting ‘Researches on the Theory of the Photogenic Phenomena of Photography in the Daguerreotype Process,’ in which he describes a new and ingenious instrument, which he calls a Photometer, from the measuring the intensity of the photogenic rays, and comparing the degree of sensitiveness of various preparations.

“Another instrument of Mr. Claudet’s invention is the Spectrometer, for establishing the power of various object-glasses, and measuring the intensity of photogenic light.

“In 1853 Mr. Claudet communicated to the Society of Arts in London a valuable paper on ‘The application of the Stereoscope to Photography.’ This paper was thought worthy of the Society’s medal, and which was presented to him by Prince Albert.

“In a brief sketch of the labours of Mr. Claudet, it would be impossible to give an intelligible account of the various improvements which he has made in photography, and of the numerous papers which he communicated to the British Association as examples of the meetings, between 1849 and 1861, and which have been published in their annual Reports and in other periodical works. There is one of his inventions, however, so remarkable that we cannot pass it by without a special notice.

“In 1857 Mr. Claudet communicated to the Royal Society a paper on ‘The Phenomenon of Relief of the Image formed on the Ground Glass of the Camera Obscura; and in the following year he described a new instrument, called a Stereoscope, founded on the principles described in that paper, and exhibiting its
CLAUDET, A.—continued.

...engaged in perfecting the art of photography on metal. Mr. Talbot was occupied with the dryly art upon paper; these two rival arts long struggled for the pre-eminence; but since the discovery of collodion by Mr. Archer, the Talbotype process has superseded the Daguerreotype, and has become the true type of the photographic art.

"Though long occupied with the practice of the daguerreotype, Mr. Claudet has preserved the Talbotype with equal success; and it is for one of his portraits, taken upon paper, that the Medal of this Society has been adjudged to him.

"I am also that the distinguished artists whose works those of Mr. Claudet have come into competition will not disregard of the decision of the Council, and welcome the distinguished stranger, who does the Society honour by his presence, and who has made such valuable contributions to his transactions."

CHITTENDEN, J., Week Street, Maidstone.—Photographs.

CUNDALL, Downes, & Co., 168 New Bond Street, and 10 Belford Place, Kensington.—Photographs from nature and from drawings.

DALLMEYER, J. H., 19 Bloomsbury Street, W.C.—Photographic lenses, cameras, apparatus, &c.

DANCER, J. B., 43 Cross Street, Manchester.—Microscopic photographs; landscapes and portraits.

The exhibits can supply the trade and the public with a variety of minute photographs for the microscope; dissolving-view lanterns, with achromatic lenses, for photographic transparencies, and a variety of photographic views for the lantern; and also with a new form of the dissolving-view apparatus, for the use of schools. The lanterns with achromatic lenses were originally made by Mr. Dancer for the Manchester Mechanics' Institute.

DAVIS, T. S., 3 Stanley Terrace, Stockwell, S.—Photographic manipulating camera.

DOLAMORE & BULLOCK, 30 Regent Street, Waterloo Place, S.W.—Photographs.

ARCHITECTURAL AND LANDSCAPE PHOTOGRAPHY. Engineering and other works in progress.

"The Island Haggis," from Dyce'sman's picture in the National Gallery.

EASTHAM, J., 22 St. Anne's Square, Manchester.—French and English Treaty of Commerce, oval portraits.

FENTON, R., 2 Albert Terrace.—Photographs.

FIELD, J., Dormdle, Tonbridge Wells.—Specimens of photolithography; plates engraved on stone by the sun.
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<thead>
<tr>
<th>Class XIV.—Photographic Apparatus and Photography.</th>
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<td>Gandy, T., 40 South Street, Grosvenor Square.—Portraits.</td>
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<td>Gordon, R. M., 38 Alpha Road, St. John's Wood.—Photographs of Madeira.</td>
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<tr>
<td>Gordon, R., Bembridge, Isle of Wight.—Isle of Wight scenery.</td>
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<tr>
<td>Green, B. R., 41 Fitzroy Square.—Coloured photographs.</td>
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<tr>
<td>Griffiths J., &amp; Barber, 2 Reeves Terrace, Mile-end Road.—Daguerreotypes, with electrotype copies therefrom, and other photographs.</td>
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<tr>
<td>Grisdale, J. E., 73 Oxford Street, W.—Photographic camera.</td>
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<tr>
<td>Gush &amp; Ferguson, 179 Regent Street.—Photographic miniatures, collodion process.</td>
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<tr>
<td>Hamilton, A. R., Maple Road, Surbiton, S.W.—Photographs of the Waterloo medal, by B. Pietucci.</td>
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<tr>
<td>Hare, G., 140 Pentonville Road, N.—Photographic portrait, landscape, stereoscopic, and carte de visite cameræ.</td>
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<tr>
<td>Hart, F. W., 13 Newman Street, Oxford Street, London.—Life-size photograph by exhibitor's apparatus.</td>
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<tr>
<td>Heath &amp; Beau, 283 Regent Street, W.—Miniatures and photographs.</td>
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<tr>
<td>Heath, Vernon, 43 Picadilly.—Various portraits, English and Scottish landscapes.</td>
</tr>
<tr>
<td>Hemphill, W. D., M.D., Clonmel.—Photographs of antiquities, &amp;c., at Cashel and Cahir, Co. Tipperary, Ireland.</td>
</tr>
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</table>
Hennai, T. H., 108 King's Road, Brighton.—Collodion photographs.

Herino, H., 187 Regent Street, London.—Frames of plain and coloured photographs, portraits and views.


Hill, D. O., Edinburgh.—Photographs.

Hockin & Wilson, 38 Duke Street, Manchester Square, W.—Photographic set, and tent; collodion, &c., in hermetically sealed tubes.

Holden, Rev. Dr., Durham.—Photographs of cathedrals and abbeys.

Hopkin & Williams, 5 New Cavendish Street.—Photographic chemicals.

Horne & Thornthwaite, 123 Newgate Street.—Photographic lenses, cameras, apparatus, and chemicals.

James, Colonel, Sir H., R.E., Ordnance Survey Office, Southampton.—Plans reduced by photography, photozincographs, and photopaperyographs.

Jeffery, W., 114 Great Russell Street, Bloomsbury, W.C.—Photographs from busts of Alfred Tennyson, William Fairbairn, &c.


Jones, R., Sullick Villa, Cheltenham.—Photographic pictures from glass negatives.

Joubert, F., 36 Porchonter Terrace, W.—Photographs in vitrifiable colour, burnt in on glass; collodion photographs, and phototypes.

Kater, E., 46 Sussex Gardens, Hyde Park.—Ancient armour from Mr. Meyrick's collection.
Class XIV.—Photographic Apparatus and Photography.

Keene, R., All Saints, Derby.—Photographs illustrating scenery and antiquities of Derbyshire.

Kilduff, W. E., 222 Regent Street.—Photographic portraits.

King, H. N., 424 Milson Street, Bath.—Cartes de visite; portraits of celebrities; views and stereoscopic slides.

Lamb, J., 191 George Street, Aberdeen.—Yiews or portraits, or both.

Leake, J. C., Poplar, London.—Photographic operating tent.

Lickley, A., Allhallows, Ripon, Yorkshire.—Camera, with shade and shutter; positive collodion photographs.

Lock & Whitfield, 178 Regent Street.—Photographic miniatures.

London School of Photography, 163 Newgate Street.—The collodion knapsack, for out-door photography; illustrations of the applications of photography.

London Stereoscopic Company, 54 Cheapside, E.C.—Instantaneous stereoscopic views, large views, and portraits.

MacDonald, Sir A. K., Bart., Woolmer, Liphook, Hants.—Photographic views.

Mackenzie, W., Petersham Row.—Photographic illustrations for the Queen's Bible, by Frith.

McLean, Melrose, & Haes, 26 Haymarket.—Photographic apparatus. (See page 55.)


Maul & Polyclone, 187a Piccadilly.—Photographs.
McLean, Melhuish, & Harris, 26 Haymarket.—Photographic apparatus; untouched and coloured photographs; universal objectives; the simultaneous camera, and highly-finished photographic miniatures.

**OBSERVATIONS ON THE Pini.**


These lens have been constructed by a photographer of long practical experience, with the view of obviating the inconveniences presented by other lenses, and supplying their deficiencies. They aim at universal applicability; and it is believed that this desirable result is obtained by the peculiar construction and arrangement adopted. In the various combinations, each affords a picture equally well defined, from the centre to the margin, without any other advantages whatever being sacrificed. These results are obtained without any increase of complexity: there are no extra portions to add to the necessary incumbrances of the photographer's luggage, or to perplex and baffle him by their loss. The greatest possible simplicity, combined with universal applicability to the various requirements of the photographer, both in portraiture and landscape, were sought by the inventor in these combinations, and it is hoped they have been successfully attained.

**Description.**—The front lens, \( A \), is of the ordinary size, but the back lens, \( a \), is one size larger, thus enabling the operator to throw an equal body of light over the entire surface of the plate, and to take in a larger angle. The diaphragm may be changed without the trouble of Unscrewing any portion of the arrangement, by merely unscrewing the tube, \( t \), thus the disadvantage attendant upon the cut in the middle of the brass mounting, as in Waterhouse's stop, is avoided.

The lens has a double pinion to the back, \( h, h \), so that either hand may be employed in focusing.

The whole may be packed as compactly and in as small a compass as other compound objectives, as shown in the above diagram.

**Combination 1.**—The same as shown in the figure only with the diaphragm portion of cup, \( d, e \), removed. It forms a portrait lens of short focus, and with the diaphragm, \( d, e \), in situ, is suited for enlarging and copying.

**Combination 2.**—As a portrait lens, adapted for pictures up to \( 6 \) by \( 14 \). It is produced by removing \( e, d \) and extra lens \( a \).

**Combination 3.**—As a portrait lens, of long focus, obtained by unscrewing the shade from \( e, a \), and unscrewing the whole of the brass mounting from the flange, \( I I \), then turning it round, and screwing \( x, x \) into the flange, \( I I \).

The lens \( s \) is removed, and the shade screwed at \( s, s \).

Will take a portrait \( 8 \) by \( 6 \).

**Combination 4.**—As a landscape lens, obtained by unscrewing the shade from \( a \), and the brass mounting from the flange, \( I \).

Then withdraw the tube, \( t \), from the mounting, \( m \), and remove the extra lens \( a \), but retaining the diaphragm, \( d, e \), and the small cap \( c \). Screw \( x, x \) into the flange, \( I I \). Yields a picture up to \( 10 \) by \( 8 \).

[Reprinted from "The Photographic News," July 26th, 1860.]

In our notice of Mr. Melhuish's new lenses, of last week, we omitted to mention that the lens described was the 4-plate size, and also to add that Combination 3 has great depth of focus, and is admirably suited for interiors.
CLASS XIV.—Photographic Apparatus and Photography.

MAYALL, J. E., 226 Regent Street.—Portraits of eminent personages, studies from life; a crayon machine and daguerreotypes.

MAYER BROTHERS, 133 Regent Street.—Photographic portraits.

The price of the above portraits is one guinea for twenty-five copies. Extra copies ordered at the same time are charged in each. No fresh order will be executed for fewer than twenty.

Messrs. Mayer execute photographic portraits of every size, plain and coloured. They have every facility for taking groups—such as schools, corporations, &c. At their Brompton establishment they have photographic rooms on the ground-floor.

MAYLAND, W., Cambridge.—Views of the University and its vicinity.

MAYNES, W. J. C., Lentonham.—Views of water supply of ancient Carthage; temples in Greece, and others.

MIDD, J., 10 St. Anne’s Square, Manchester.—Landscape photographs.

MURRAY & HEATH, 43 Piccadilly.—Cameras, lenses, baths, draining-frames, plate-holders, and other photographic apparatus.

NEGRETTI & ZAMBRA, Hatton Garden.—Transparent glass pictures: and apparatus.

NEWCOMBE, C. T., 135 Fenchurch Street, E.C.—Photographs.

NICHOLSON, A., 23 St. Augustine Road, Camden Town.—Photographs from plates prepared by Fothergill’s process.

OLLEY, W. H., 2 Bolingbroke Terrace, Stoke Newington.—Photographs from the microscope, by reflecting process.

OTTEWILL, T., & Co., Charlotte Terrace, Islington.—Photographic apparatus.

PENNY, G. S., 14 Rodney Terrace, Cheltenham.—Photographs by various processes.

PIPER, J. D., Ipswich.—Landscapes, &c., by collodion process.

PONTING, T. C., 32 High Street, Bristol.—Photographs enlarged from small negatives; isolated negative collodion, sensitive for years.

POULTON, S., 352 Strand, W.C.—Stereoscopic slides. Photographs, untouched and coloured.

POUNT, J., Dorchester, Dorset.—Photographs printed in carbon.

PRESCOTT, P., 3 Guildford Place, Foundling.—Printed plates and blocks, produced by photography and electrotype only; photographic engraving and printing with ordinary printers’ ink.

PSEUT, V., 15 Baker Street, Portman Square.—Reproductions of pictures—various subjects.

( 88 )
CLASS XIV.—Central Tower, and North-East Gallery.

PYNE, J. B., Jun., 40 Belzurgh Terrace, Havstock Hill, N.W.—Photographic copies of pictures, sculpture, portraits from life, &c.

Ramage, J., Edinburgh.—Specimens of photolithography.

Rees, A., 257 Tottenham Court Road, London.—Microscopic photographs and microscope.

Reinander, O. G., 42 Darlington Street, Wrexham.—Various photographs.

Richardson, T. W., Brede, Sussex, and Staplehurst.—A reflecting camera.

Robinson, H. P., 15 Upper Parade, Laxton.—Photographs.

Ross & Thomson, 90 Princes Street, Edinburgh.—Photographs by the collodion process.

Ross, T. (only son and successor to the late Andrew Ross), Manufacturer of optical instruments, 2 and 3 Featherstone Buildings, Holborn.—Photographic lenses, cameras, stands, and apparatus. (See pages 56 & 57.)

Rouch, W. W. (formerly Burfield & Rosol), 120 Strand.—Apparatus and chemicals; photographs, taken with new bicinocular camera and Hardwich’s bromo-iodized collodion. (See page 60.)

Russell, J., East Street, Chichester.—Horns of Chichester Cathedral after the fall of the spire.

Shepherd & Co., 97 Farringdon Street.—Cameras, lenses, &c.

The Portrait Lens combines great rapidity with extreme uniformity of sharpness over the whole field, and are therefore particularly adapted for instantaneous pictures (the leading feature in the photographic art).—Price from 12L. to 20L.

The Landscape Lens are remarkable for giving figures of ideal and straight marginal lines, as well as rapidity of action. Price from 12L. to 15L.

Besides superiority of quality, they are the cheapest lenses in the market.

Siderbottom, J., 19 George Street, Manchester.—Photographic landscapes, by the collodion-albumen process.

Simson, H., 1 Saville Place, Lambeth.—Photographic cabinets, forming complete operating rooms.

The Photographic Cabinet when extended forms a complete operating room. When closed it has the appearance of an ordinary chest or valise, and will contain all chemicals, cameras, portable tent, and other apparatus, thus avoiding all photographic risks. It can be extended in one minute, and will then form a dark chamber about four feet square, fitted with sink, drawers, &c., and other conveniences. The sink, drawers, &c., shift, so that light may be admitted from left or right. White light can be admitted at pleasure. There is no combination inside chamber, and abundant ventilation without draught. No dust can arise from chemicals, as they are entirely suspended by India-rubber springs.

For convenience of carrying it may be constructed in parts and fitted with screws, and carefully marked, so that when with the printed directions any intelligent youth may put it together. It may be had painted or unpainted, so that it may be coloured the same as the furniture. Price, unpainted, 6l. 10s.; painted, 6l. 19s.

Various modifications of the above from 3l. to 2l. 15s.
Class XIV.—Photographic Apparatus and Photography.

Ross, T. (only son and successor to the late Andrew Ross), Manufacturer of optical instruments, 2 and 3 Featherstone Buildings, Holborn.—Photographic lenses, cameras, stands, and apparatus. (See also Class XIII.)

Panoramic Lenses and apparatus for pictures, including an angle of upwards of 100°. (For the angular extent of pictures taken by the panoramic and the ordinary Landscape Lenses respectively, see Illustrations.)

Panoramic Lens for pictures 10\(\frac{1}{2}\)×5; camera with screw adjustment, plate-holder, and screen; printing press; gutta percha bath and dipper; frames for holding glass while cleaning; box for one dozen curved glasses, and tripod stand, in varnished pine case.

<table>
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<tr>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>Panoramic Lens for pictures, 10(\frac{1}{2})×5, with apparatus complete</td>
<td>£22.00</td>
</tr>
<tr>
<td>Ditto, ditto, for 17×8, with apparatus complete</td>
<td>£28.00</td>
</tr>
</tbody>
</table>

Stereoscopic and other sizes.

Lenses.

Portrait lenses, with No. 1 and No. 2 back combinations.

Portrait lenses of extra large apertures for producing pictures of children and animals in dull weather.

Cartes de visite Lenses, adapted for operating rooms of any length.

Cartes de visite Lenses, extra quick acting.

Single combination landscape lenses, of the very best construction.

Petzval’s orthographic lenses, for groups, views, and architectural subjects.

Triplet lenses, for views, architecture, and copying, giving straight marginal lines and absolute flatness of field.

Stereographic portrait, landscape, orthographic, and triplet lenses.

Focussing eye-piece, for observing the image on the grayed glass screen.
Class XIV.—Central Tower, and North-East Gallery.

Cameras.

Square mahogany sliding trunk cameras.
Ditto, ditto, with swing backs, screw and rack adjustments, &c.
Plain folding cameras.
Folding and sliding trunk cameras.
Ditto, ditto, with screw adjustment.
Improved Kinnear's portable camera.
Universal portable bellows camera, with swing back and screw adjustment, on tripod stand.

Binocular and multiple cameras, of various constructions, with rising fronts, rising and dividing fronts, swing backs, screw and rack adjustments, and instantaneous shutters for stereoscopic and carte de visite pictures.

Latimer Clarke's stereoscopic camera.
Photographic apparatus, cases of chemicals, &c.

VIEW IN JERSEY.—TAKEN WITH ORDINARY LENS, 5 INCHES FOCUS.
Rouch, W. W. (late Burfield & Rouch), 189 Strand, London.—Apparatus and chemicals; photographs, taken with new binocular camera and Hardwich's bromo-iodized collodion.

From the earliest days of photographic art, the attention of this firm has been directed to the study of the various appliances required for its practice. They have introduced many of the most important improvements in apparatus, and have carried a well-merited celebrity for chemical preparations, which are manufactured by those of any other maker. The whole of their instruments are manufactured on their own premises, by their own workmen, and under the immediate superintendence of Mr. Rouch. They are constructed with mathematical precision, and the materials employed are the best procurable, and are carefully selected to withstand the effects of change of temperature and climate. These conditions are not made a pretext for exorbitant charges, or is frequently the case. The prices affixed to all their goods are strictly moderate, and as low as is compatible with first-class workmanship and material. The best proof that can be given of these statements is the well-known fact, that they have supplied many of the most important sets of apparatus yet constructed; that their apparatus has been sent to nearly every part of the world; and that in no instance has complaint of bad construction ever reached them.

Rouch's New Universal Camera is by far the most suitable camera for hot climates. During the past two years this instrument has been supplied in most of our best photographs, as well as to the various Government Departments, and is acknowledged to be the lightest, smallest, and most portable camera yet devised. It can be made of any size. The same camera can be used for either short-focus portrait or long-focus landscape lenses. It is fitted with a most excellent screw adjustment, thus rendering such adjustment to lens unnecessary, and possesses all the advantages of a moving lens.

Rouch's Model "Carte de Visite." Genres.—In proof of the superiority of the model "Carte de Visite," and stereoscopic camera, it may be stated that, although only recently introduced, it is at the present time in daily use at the leading metropolitan studios. It is fitted with a perfect fixed-driven adjustment, and possesses a range of focus from 3 inches to 37 inches. This admirable and focusing are perfectly new and special advantages, the latter being permanently attached to the camera, so that it is always in its place, and cannot be missed or broken.

Photographic Lenses.—W. W. Rouch is the appointed agent for the most celebrated lens makers, including Ross, Dalmejere, and Grinfich, whose productions are known to possess separate and distinct advantages. Having a most intimate knowledge of the same, he will always take care to select only such as will best fulfill the requirements specified. French lenses (advertised by many as "own manufacture") at Paris prices.

Rouch's New Registered Parallel Instamatic Shutters and Sun Shade is acknowledged to be the only really efficient arrangement for taking children, animals, or scenes.

Rouch's Model "Back-Universal" may be regarded as an essential requisite in every studio. W. W. Rouch is manufacturing largely the New Binocular Cameras, with mobile central partition, which combines in one instrument, at a moderate cost, all the advantages of a landscapes, portrait, "carte de visite," and stereoscopic cameras, and producing the most charming panoramic landscapes, 12 specimens of which may be seen on the screen at the instances. No. 995 in the Catalogue, or one can be obtained by post, with particular instructions for exposure, collodion, and development, on receipt of 2s. 6d. in postages. Size of prints, 7i by 5i, mounted on plate, India-papered. Every photographic studio will possess one of these instruments.

The following are some of the important manufacturers of W. W. Rouch. None are genuine unless stamped with red label and trade mark.

Negative collection, with usual iodiser.
Negative collodion, with caustic iodide.
Negative collodion, with bromo-iodide.
Negative collodion, with bromo-iodide.
Negative collodion, with iodide.
Negative collodion, with iodide.
Negative collodion, with iodide.

These collections are exchanged for a lengthened period, and on a free development, produces the most exquisite results.

Collodion for the Fothergill, tannin, and other dry processes.

New extra sensitive keeping colloidion, prepared especially for portraiture and instantaneous photography, retards its ammonia, and is considerably improved by age.

Formerly prepared by Mr. Hardwich, late Lecturer on Photography, King's College, London, and Author of "Photographic Chemistry.

The laboratory, lately occupied by Mr. Hardwich, and fitted with the most complete apparatus, is now occupied by Mr. Rouch, and devoted exclusively to their manufacture. Every sample is tested, and the utmost care is taken in secure perfect uniformity. Every bottle is accompanied with a new and comprehensive paper of directions.

The uniform character, portraiture, and absolute purity of these collodions, their greatly increased employment by a very large number of our first professional and amateur photographers, justify the assurance that they cannot be surpassed; and that, whether for use in the country or abroad, they will be found to possess, in their various combinations, a universal applicability at any wet or dry process.

The Collodion Committee, numerous correspondents at home, on the Continent, in India, China, Australia, North and South America, Egypt, &c., have unanimously pronounced as to their excellent working qualities under the most trying variations of temperature and climate.

Burfield and Rouch have paid great attention to the expert knowlege of their business, and having adopted an improved method of packing, they can conscientiously recommend their preparations to artists, engravers, photographers, tourists, and shipowners, as the only safe substitute. Mr. Rouch will be happy to advise as to the most suitable iodides for certain climates.

Price List of chemicals etc., forwarded on application. A liberal discount to shipowners, etc.
Exhibition but paper, from Solomon, Smyth Skaife, Spencer, time entire, were met no side paper," having Stovin dilute It The A These The & Hitchcock's, George Street, Euston Square.—Instantaneous photographs and life-size photographs.

Solomon, J., 22 Red Lion Square.—Photographic apparatus, &c.

Stackman, R. L., Kensington Museum.—Photographs of the gardens of Horticultural Society; various art reproductions; Exhibition building.

Spencer, J. A., 7 Gold Hawk Terrace, Shepherd's Bush, W.—Albumenized and other prepared photographic papers.

The articles here exhibited will possess little or no attraction for the general visitor, and will be viewed with interest only by those who are engaged in the practice of photography.

It may, however, be interesting to observe, that it is one of the productions the demand for which has arisen entirely since the former Exhibition of 1851. At that time photography was quite in its infancy, and few or no pictures were exhibited that could compare with those met with at this moment at every turn. Photographs were then obtained generally from "paper" negatives, with the exception of a few from "albumen on glair;" collodium, which is now so generally employed, only having been discovered during the time of that Exhibition, of course had not been brought to the perfection it now possesses.

The proofs from the negatives thus obtained were exclusively obtained upon what is now called "albumen paper," being merely good writing-paper, saturated with a dilute solution of a soluble chloride, or benzol on one side with a stronger solution of a similar salt.

A year or two after, one of the leading French photographers, observing the universal want of sharpness upon those papers, suggested and made use of papers, the salting solution of which contained various proportions of albumen, the action of which was to keep the materials employed in the production of the image upon the surface of the paper, instead of, as heretofore, partly penetrating into its substance, thereby insuring a sharpness and brilliancy in the proof that had not been before attainable. Recently, the enormous demand for the well-known "stereoscopic slides," and later still, of "auto de visite" or "album pictures," in which excessive sharpness is necessary, has made it requisite to increase the quantity of albumen in the preparation of the paper, till now, when pure albumen, without any dilution, is very extensively employed.

When this method of preparing paper was first employed, every photographer probably prepared paper for his own use; but experience proved, in this case as in all similar ones, division of labour to be most economical. Now, the preparation of photographic paper with salted albumen has become, in many hands, a business of itself; and some idea of the quantity used may be found in the statement, that in one establishment alone (that in which the samples exhibited were prepared) upwards of 900,000 eggs have been employed in the course of six months to furnish the requisite quantity of albumen.

Smede, J., Haxeygord Park, near Rugeley.—Proofs from collodion negatives.


Stuart Wortley, Lieutenant-Colonel A. H. P., Carlton Club, Pall Mall.—Photographs of Vesuvius, during the eruption of 1881-2.
CLASS XIV.—Photographic Apparatus and Photography.

SUTTON, E., 204 Regent Street, W.—Miniature photographs, plain and coloured.

SWAN, H., 5 Bishopsgate Without, London.—Large (and apparently single) pictures rendered stereoscopic; new stereoscopes.

Patent Stereoscopic Instruments:—

No. 1. Large Reduced Portrait, which falls into perfect stereoscopic relief on bringing the right eye in front of the small view glass, while both eyes are still kept open. Price 2l.

No. 2. The Correspondent Stereoscope. * This instrument has the following advantages over those in common use: It suits equally for examining opusques and transparencies, paper and glass impressions; it can be used to cover plates bound in books; it adapts itself to all angles of sight and focal length; it is easy to hold in the hand, and admits the light with perfect freedom; it is pretty, compact, and can be put away out of sight.‘—Admironius. Price, from £1 6s.

No. 3. Stereoscopic Spider, an unpublished mode of obtaining a stereoscopic image visible from a distance as well as near.


Telfer, W., 194 Regent Street.—Untouched and coloured photographs.

THOMPSON, G. Teubston, South Kensington Museum.—Photographs from the Raphael cartoons, and pictures by J. M. W. Turner.

THOMPSON, S., 20 Portland Road, Notting Hill, W.—Photographs, landscapes, architectural subjects, and reproductions.

TRANE, J. R., F.R.C.S., 47 Hans Place, S.W.—Photographs of microscopic objects.

TURNER, E. B., Haymarket.—Photographs from paper, negatives taken by the Talbot process.

VERSCHOYLE, Lieut.-Colonel, 23 Chapel Street, Belgrave Square.—Photographs, by wet and collodion-albumen processes.

WALKER, C., & Son, Windsor Road, Lower Norwood.—Carbotype photographs, unchangeable; silver printed duplicates, changeable.

WARDLEY, G., 10 St. Ann's Square, Manchester.—Photographic landscapes: negatives produced by the Tanser process.

WARNER, W. H., Ross, Herefordshire.—Architectural and miscellaneous photographs from enlarged negatives.

Architectural and other photographs from enlarged negatives.

These pictures were enlarged during the month of February, 1862, from negatives of the dimensions of 1½ by 2½ inches. Process, wet collodion. Lens by Ross. Average exposure, four minutes. Development, eight of an hour. For terms apply (with stamp enclosed) to the exhibitor.

WATKINS, H., 215 Regent Street.—Photographic portraits.

WATKINS, J. & C., 34 Parliament Street, S.W.—Portraits, plain and coloured.

(02)
CLASS XIV.—Central Tower, and North-East Gallery.

[3179]
WHITE, H., 7 Southampton Street, Bloomsbury.—Photographic landscapes.

[3180]
WHITING, W., & Sons, Camden Town.—Portable developing cameras for working wet collodion in the open air.

[3181]
WILDING, W. H., 2 Chesterfield Street, King’s Cross.—Universal eccentric camera front; instantaneous camera.

[3182]
WILLIAMS, T. R., 235 Regent Street, W.—Untouched and coloured photographic portraits, vignettes, cartes de visite, &c.

[3183]
WILSON, G. W., Aberdeen.—Views by the wet collodion process.

[3184]
WILSON, Sir T. M., Charlton House.—The Geysers, Iceland.

[3186]
WRIGHT, C., 235 High Holborn.—Photographic portraits and copies of paintings.

[3187]
WRIGHT, Dr. H. G., London.—Portable photographic apparatus, including tent, &c.

[3188]
MULLINS, H., Jersey, Photographic portraits.
Class XV.

Horological Instruments.


[3220] Armstrong, Thomas, Inventor and Manufacturer, Manchester.—Armstrong's improved watchman's detector clocks, steam or speed clock, &c.

The following are exhibited:

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>Armstrong's Improved Watchman's Clock</td>
<td>£ 4 15 0</td>
</tr>
<tr>
<td>same as the above, but in a more highly ornamented case, dial 12 inches diameter</td>
<td>£ 5 10 0</td>
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Armstrong's Improved Steam or Speed Clock indicates the amount of work done in all establishments where steam-power is used. It also compels the engineer to work at the required pressure, by indicating any neglect.

In mahogany case complete, for fixing 2 15 0

[3221] Albert & Linton, 252 Regent Street.—Watches with recent improvements; ornamental clocks for the table and mantelpiece.


[3224] Bayliss, William, Finmere, Oxfordshire.—Model of new remontoire escapement, as put up in Finmere church clock.

[3225] Bennett, John, F.R.A.S., 64 & 65 Cheapside, and 62 Cornhill.—Marine and pocket chronometers; public and private clocks; every description of gold and silver watches.
CLASS XV.—Horological Instruments.

BENSON, J. W., Ludgate Hill.—Gold and silver watches and clocks, highest quality, magnificently decorated with artistic designs.

BLACKIE, GEORGE, 24 Annwell Street, E.C.—A new compound balance to correct the errors in chronometers, and new auxiliary to balance.

BROCK, JAMES, 21 George Street, Portman Square.—Marine chronometers.

BROOKS, S. A., Northampton Square, London, E.C.—Watch jewels; sets of jewel gauges for watchmakers and material dealers. (See page 67.)

CAMERIER, Kuss, & Co., 2 Broad Street, Bloomsbury.—A three-part quarter skeleton on ten bells; a trumpeter clock; a cuckoo clock.

CAMPBELL, ANDREW, 63 Cheapside, E.C., and 43 Tottenham Court Road.—A selection of gold and silver watches.

CHEVALIER, BENJAMIN, 4 Red Lion Street, Clerkenwell, E.C.—Chronometer and watch cases.

CLARK, DR., Fimmel House, Oxfordshire.—Astronomical clock, impelled by gravitation, requires no oil to the escapement.

COATHUP, CAPTAIN H. B., 1 Abingdon Street, Kensington.—Everlasting shilling “silent clocks”; painting-engraving; printing-engraving; printing-painting.

COLE, JAMES FERGUSON, 5 Queen Square, Bloomsbury.—Chronometers, watches, tempered springs; new horological models and descriptive treatise.

COLE, THOMAS, 6 Castle Street, Holborn.—Ornamental and portable clocks of original construction and design.

COTDLIFF, JAMES, 4 Fraser Street, Liverpool.—A skeleton clock.

COOK, THOMAS & SONS, Buckingham Works, York.—Church and turret clock, astronomical clocks, and time regulators.

CROSF, W. B., 81 St. John Street Road.—Chronometers.

DAVIES, C. W., Nottingham.—Clock showing time and longitude at the most important places on the globe.

The exhibitor manufactures the Ebury Dorrington Houses for thin cocks or plates, and is also the inventor and sole manufacturer of the Jewel-hole Gauge, for determining the size of pivots or jewel holes. Specimens of these manufacturers are shown in his case. He can supply merchants and dealers in watch-material with every description of clock, chronometer, and watch jewels, set or unset; diamond-powder, bort, rubies, sapphires, chrysolites, garnet, etc.

The Export Watch-Jewel Case (see engraving), with set jewels arranged and inserted, so that any size required may be instantly found, will be of great service to watchmakers or dealers in material residing in distant parts of the world. A broken jewel can be immediately replaced from it with the greatest accuracy, at a cost of little more than one-third the usual charge, and without the risk and loss of time attending the matter of sending to London the watch or part of watch requiring the jewel.

Persons who do not wish to keep a stock of watch jewels, can be supplied with the Jewel-hole Gauge, which will enable them, by sending the measure of the hole, to obtain the jewel of the exact size required, without the necessity of sending the balance or wheels to a jeweller, whereby risk of loss or damage is insured.

The Jewel-hole Gauges are valuable for all purposes where accuracy is required, as they neither wear nor corrode. They are arranged as follows:

* Gauge: Holes.*
1. 1 to 12 inclusive, will gauge the component pivots in any modern watch.
2. 13 to 24 inclusive, will gauge the small wheel pivots of three-quarter plate and small frame watches.
3. 25 to 36 inclusive, will gauge the small wheel pivots of large frame watches.
4. 37 to 48 inclusive, will gauge centres wheel, the chronometer third and fourth pivots.
5. 49 to 60 inclusive, will gauge chronometer seconds' pivots.
6. 61 to 72 inclusive, will gauge regulator and clock-work pivots, also lower frame and hollow centre plates to watches.
7. 73 to 84 inclusive, will gauge small three-quarter plate fusee upper pivot.
8. 85 to 96 inclusive, will gauge large dials' dito.
9. 97 to 108 inclusive, will gauge frame fusee upper pivot.
10. 109 to 120 inclusive, will gauge large fusee fusee upper pivot.

A set of pivots, numbered to correspond in gauge with each jewel-hole can be supplied, for measuring the size of the hole required, should the balance or wheel pivot of the watch be broken.
CLASS XV.—Horological Instruments.

[ 3241 ]

Davies, W., & Sons, 84 King William Street, City, London.—Chronometers, watches, clocks, and specimens of horology.

The exhibitors are manufacturers of clocks, watches, and chronometers; jewellers; dealers in diamonds and other gems, and in guns, shell, and other curiosities; and importers of Geneva watches, French clocks, bronzes, &c. They keep on hand a stock of church and turret clocks of various sizes, and constructed on approved principles. The time is given by electricity at their city establishment, from the Royal Observatory, Greenwich.

Davis and Sons have a branch establishment at 57 New Street, Birmingham.

[ 3242 ]

Delolme, H., 48 Rathbone Place, Oxford Street.—Regulator, chronometers, clocks, and watches.

[ 3243 ]


[ 3244 ]

Dent, M. F., Inventor and Manufacturer, 33 & 34 Cockspur Street, Charing Cross, London, S.W.—Watches, clocks, and chronometers; new auxiliary compensation balance. (See pages 69 to 71.)

[ 3245 ]

De Solla, J., & Son, 34 Southampton Terrace, Waterloo Bridge.—Original manufacturers of the royal liliputian alarm clocks.

[ 3246 ]

Dietman, Theodore, Minories.—Astronomical clock, constant ball escapement, compensation regulator, &c.; electro-magnetic clock, half-minute time.

[ 3247 ]

Ehrhardt, William, 26 Auguste Street, Birmingham.—Various kinds of watches, and instruments connected with the manufacture thereof.

[ 3248 ]

Fairher, Joseph, 188 St. George’s Street, X.—The “Village Clock,” and other turret clocks, watches, &c.
No. 1.—M. F. Dent’s new compensation balance with outside auxiliary bow for extremes of temperature.

2. A marine chronometer fitted with Dent’s new auxiliary compensation.

3. M. F. Dent’s model watch, in gold hunting-cases, lever escapement, compensation balance, with helical pendulum spring, winding and setting at the knick, and having first and second pendant to prevent robbery; constructed to go two days without winding, and having dial indicator showing the time when last wound. This watch has the “repulsion & touch,” whereby the time can be ascertained by an external hand; the only kind of watch that could be used by one who is deaf and blind.

4. Gold hunting-cased watch with independent centre seconds, lever escapement, compensation balance, Breguet pendulum spring, winding and setting hands without key.

5. Gold hunting-cased chronometer with perpetual calendar.

6. Gold minute repeater in hunting-cases, keyless.


8. Gold observation watch; a valuable instrument for timing the transit of a star, the phase of an eclipse, or for any purpose where definite accuracy is essential to determine the exact time of commencement, continuance, and end of any period of observation.

By pressing a knob on the back of the minute hand, or on the pendulum, the watch is turned on to the required position, and the exact time calculated on the dial. The minute hand, which is attached to the pendulum, is then wound up to the required time, and the watch is wound in a similar manner in the reverse direction. The watch is then ready for use, and can be stopped at any time by pressing the knob, and started again by turning the minute hand to the required position.
DENT, M. E.—continued.
10. A specimen of a gold hunting-cased watch, lever escapement, compensation balance, helical pendulum spring, winding without a key and having fuses.
11. A specimen of a plain gold hunting lever watch with extra fine cases.
12. A specimen of a gold open-faced chronometer watch.
13. A gold open-faced watch in imitation of Brequet’s celebrated flat watches with concentric dial and solid key.
14. Under a glass—'the movement of a chronometer watch taken in pieces'—a specimen of high miniaturization, and the most approved utility.
15 and 16. A specimen of two ladies’ gold watches, engraved cases.
17, 18, and 19. Three ladies’ gold watches, lever escapements, compensation balances, keyless. The cases enamelled and set with diamonds, varied designs.
20. Gold open-faced watch, silver dial, keyless "repetition a tour". The bottom cover blue, enamelled with monogram in diamonds.
22. A miniature regulator with mercurial pendulum and remontoir train.
23. Gold open-face chronometer watch with patent fuse winding.

This chronometer watch is a forerunner of that made in 1840 by M. E. Dent, for Sir William Armstrong, the inventor of the Armstrong Gun, who certified its actual variation at the end of a year to be only 45 seconds.
24, 25, 26, and 27. Four specimens of chronometer chronometers, in gilt and German silver cases.
28. A chronometer clock, with patent balance for extreme temperatures, chiming the quarter upon eight bells, with perpetual calendar of the most perfect construction, indicating the days of the week and month, the phases of the moon, the equinox and the bisextile, in a superbly finished case of gilt bronze and crystal glass.
29, 30. Two marine chronometers of the ordinary construction.
31, 32. Two time-pieces with duplex escapements compensated, gilt bronze cases, plain and engraved.
33. A hunting-case piece, lever escapement, compensation balance; a gilt engraved case, silver dial.
34, 35. Two circular lever time-pieces with compensation balances, one in bronze and the other in a gilt bronze case; specially suitable as portable time-pieces.
36. A specimen of a library clock in bronze case, portable, lever escapement, compensation balance, chiming quarters.
37. A similar clock in Ebony case with improved gongs for fine time.

The following are extracts from the reports of scientific persons as to the accuracy of Dent’s horological instruments:

Sir William Armstrong, inventor of the Armstrong Gun, says,—

"9 Hyde Park Street, W., 11th November, 1861."

"The chronometer watch you made for me in December 1859, has never been affected by travelling or riding; its variation at the end of a year was only 45 seconds. It has proved in every respect a most satisfactory watch."

"W. G. Armstrong.

"33 Cockspur Street, Charing Cross."

The Astronomer Royal, Greenwich Observatory, reporting in 1829 on the celebrated public trial, by order of the Lords of the Admiralty, which lasted thirteen years, during which nearly 500 chronometers were tested, says,—

"Your chronometer, No. 114, is entitled to the first premium. Actual variation in the year 54 hundredths of a second. This is superior to any other yet tried."

"J. Pond, Astronomer Royal."

"33 Cockspur Street, Charing Cross."

The Russian Imperial Astronomer, M. Struve, of St. Petersburg, reporting upon 81 chronometers tested by the Russian chronométrical expedition, in 1843, says,—

"The Dent chronomètres have held first rank in a brilliant manner. They contributed, beyond dispute, the most effectually to the excellence of the results."

"M. Struve."

By command of the Emperor, the Russian gold medal of the highest order of merit was presented to Mr. Dent.

G. R. Aris, Esq., Astronomer Royal (in testimony of the excellence of Dent’s time-pieces), says,—

"Royal Observatory, Greenwich, 21st July, 1845."

"I believe the clock which you have constructed for the Royal Exchange to be the best in the world as regards accuracy of going and of striking."

"G. R. Aris.

23 Cockspur Street, Charing Cross."
CLASS XV.—North-East Gallery.

DENT, M. F.—continued.

38, 39. Specimen drawings of heraldic and other designs, richly executed in enamel and jewels upon the cases of watches, made to special order. The following are a few selections:
CLASS XV.—Horological Instruments.

[3249]

FORREST, John, 29 Myddelton Street, E.C.—Every description of pocket watches, various escapements and springs—London work.

The following specimens of fine London work are exhibited:

Pocket chronometer, spiral spring.
Duplex chronometer, Brequet spring.
Lever chronometer, diito.
Duplex frame, diito, échappée, diito.
Tripos lever, diito, ruby roller, diito.
Best one-pin lever, new balance.
Ditto, £ 7 s. 0 d.
Independent centre seconds, double train.
Ditto, £ 6 s. 0 d.
American block work.

[3250]

FRODSHAM, Charles, 84 Strand, London.—New caliphers of chronometers, watches, and astronomical clocks; new equation double compensation balances. (See page 73.)

[3251]

FRODSHAM & BAKER, 31 Gracechurch Street, City.—Chronometers, watches, and clocks.

[3252]

GANIVAL & CALLARD, 27 Alfred Street, Islington.—Watch, pendulum, spring, and wire manufacturers.

[3253]

GREENWOOD, J., & Sons, 6 St. John's Square, E.C.—Quarter and bracket clocks; regulators, dials, and cases.

[3254]

GUILLET & RAMBAU, 11 Wilmington Square, Clerkenwell, London.—Keyless fusee watches for scientific purposes; pocket chronometers.

[3255]


[3256]

GUMPIT, Charles Godfrey, 2 Gordon Cottages, Holland Road, Brixton.—A system of electric clocks.

[3259]

HAWLEYS, 287 High Holborn.—Regulator—only requires winding once in twelve months.

[3260]

HIGHFIELD BROTHERS, 5 King Edward Terrace, Liverpool Road, N.—Marine and pocket chronometers, duplex and lever watches, and an improved regulator.

[3261]

HILL, Charles John, late W. H. Hill & Sons, Chapel Fields, Coventry.—Watches and patent pearl dials.
The following specimens of high-class horological workmanship are exhibited:

Pocket chronometers, chronometer repeaters, stop-split centre seconds, and other timing and stop-watches.

Specimens of his "new series" lever chronometer watches, drawn to an entirely new caliper of much improved timekeeping properties.

A new marine chronometer.

Large eight-day and two-day marine chronometers.

New model eight-day and small two-day marine chronometers, drawn to new and defined proportions, with important and useful changes, all founded on reliable measurements, and the result of long accurately noted experiments.

Astronomical and terrestrial clocks, with important improvements, the result of long-continued and accurate experiments.

Specimens of portable regulators, carriage clocks with compensation balances and chronometer escapements.

Girage clocks, with lever and chronometer escapements of the highest and finest adjustments.

Small chime clocks.

Instructive specimens of new chronometer and watch movements.

An instrument to illustrate the motion of the compensation balance, showing the causes of the losing error in the existence of temperature.

New double compensation astronomical balance, extremely sensitive to sudden changes of temperature.

A model church and turret clock, constructed after designs proposed for the clock of the New Houses of Parliament, of astronomical accuracy.

G. Frodsham also exhibits an entirely new system of compensators for chronometer and watchmaking.

Tables to facilitate their construction.

CLASSE XV. — North-east Gallery.

Frodsham, Charles, 84 Strand, London.—New calipers of chronometers, watches, and astronomical clocks; new equation double compensation balances.

[Obtained, in 1831, the Government Premium Prize of £170; in 1816, the Telford Medal; in 1855, at the Paris Exhibition, the Gold Medal of Honour; in 1896, the Grand Gold Medal "Praemia Digna," from the Imperial Russian Government, for the superior performance of his Chronometers during the great Russian survey.]

The following specimens of high-class horological workmanship are exhibited:

Pocket chronometers, chronometer repeaters, stop-split centre seconds, and other timing and stop-watches.

Specimens of his "new series" lever chronometer watches, drawn to an entirely new caliper of much improved timekeeping properties.

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Specimens of portable regulators, carriage clocks with compensation balances and chronometer escapements.

Girage clocks, with lever and chronometer escapements of the highest and finest adjustments.

Small chime clocks.

Instructive specimens of new chronometer and watch movements.

Double compound Microcentric, Equation balance, invented and built by G. Frodsham.

Double compound inverted Differential balance, invented and built by G. Frodsham.

Compound triple friction balance, invented and built by G. Frodsham.

New "Das in Up" balance springs for perfecting the adjustments of high-class watches and chronometers in their various positions.

Now standard to facilitate universally the measurement of watches, with tables of comparisons and conclusions in French, new and old measurements, and a work to exhibit Charles Frodsham's system of chronometer, watch, and clock making.

He also exhibits the model of the chronometer-maker's tool-box and even G. P.'s new differential compensation balance, perfect for every degree of temperature, will not be ready for exhibition until August.
Holloway & Co., 128 Minories, and New Square, London.—Pendulum and lever clocks of the simplest construction.

Howard, Raymond, 29 King Square, Goswell Road.—Sunk seconds dials, &c.

Howell, James, & Co., 5, 7, 9 Regent Street.—Clocks, watches, &c. (See page 75.)

Hutton, John, 10 Mark Lane, London.—Marine chronometers, Hartnup pocket chronometer, and other sorts; improved cheap watches.

Jackson, W. H. & S., 60 Red Lion Street, Clerkenwell.—Chronometers, day of month, keyless, and other watches.

[Obtained a Prize Medal in Class X. 1881.]

The following specimens of chronometers and watches, day of month, eight day, local and mean time, keyless, solid key, with several improved modifications of the lever escapement are exhibited:—

A. Two-day marine chronometer.
B. Pocket chronometer.
C. Day of month, adjustable, with ruby solid impale lever escapement.
D. Eight-day (Screw), with J. F. Cole's resilient pallet.
E. Watch (toothed barred, solid key), with J. F. Cole's patent resilient lever escapement.
F. Watch showing local and mean time from one train. Hands set independently; lever escapement, with horizontal ruby pin, adjustable.
G. Various keyless and solid key watches.
H. Tool for indicating pallet angles and shape of lever escapement.
CLASS XV.—North-east Gallery.

HOWELL, JAMES, & Co., 5, 7, 9 Regent Street.—Clocks, watches, &c.
JOHNSON, EDWARD DANIEL, 9 Wilmington Square, Clerkenwell, London.—Chronometers, watches, pendulums, horological machinery, and various improvements and inventions.

Magnetic Dispenser for Marine chronometers. Rotating machinery in the case causing the chronometer to revolve on its own axis in 24 hours, thus dispersing the effects of local magnetism.

Surveying Chronometer. An ordinary single-sized weekday movement, fitted in a silver case as well as the ordinary grade, so as to make it portable in the pocket as well as suitable to the navigation of a ship. Removed from the grinding by turning round the glass cover.

Pocket Chronometers, half plate and frame.

Duplex watches, half plate.

Lever watches, half plate and three-quarter.

Railway watches, half plate and three-quarter.


Combination of both these last.

"Universal seconds" a new watch, designed and patented especially to commemorate the Exhibition of 1862 held horologically; consisting of a new collet and train of wheels, effecting the union of "Automaton seconds" and permanent side seconds without complexity.

A new Escapement for Equatorial Timekeepers, for circulating pendulums; consisting of a single crank motion, giving freedom to the motion of the pendulum, with the equal continuous rotary motion to the telescope required.

New and improved models of mercantile pendulums.

Model suspensions for pendulums.

New auxiliary compensator for wooden pendulums: can be applied to any pendulum in one minute, at a cost of 7s. 6d. It consists of a glass tube, divided into two chambers by being drawn out into an upper and a lower part, joined by a small tube; the lower, and part of the upper chamber containing mercury. This arrangement effects the transposition of small quantities of the mercury long distance, doing proportionately more work. Adjustable by a screw at the summit.

Model of a public Timeball, discharged by electric current from Greenwich Observatory.

Groups of watches, movements, showing various constructions and qualities of workmanship.

Manufacture of Chronometers and Watches, of which fair samples only are exhibited in Class IX.

No article among those shown is made at unusual expense on purpose to show, but each is a fair representation of the ordinary work, and his stock is manufactured of the same material and workmanship.

Examiner and Patentee of—

The automaton-seconds watch,
The self-contained watch,
The magnetic dispenser,
The hermetic box or chronometer safe,
The universal seconds watch,

And manufacturer of goods for all the foreign markets, on the models specially suited to each.

Endorsed by the Admiralty.

Jones, John J, 338 Strand.—Watches.

Class exhibiting the following specimens of watches—

1st Class—Ladies' gold watches, with a new application of jewels in the motion of minutes on the dial, and diamond cases.

2nd Class—Gold watches, with a new application for colour for the adornment of the cases, and diamonds.

3rd Class—Specimens of the perfection of railway watches adapted for position and temperature; also 3-day watches with correct adjustments.

Klaptenberger, Charles J, 157 Regent Street.—Minute repeaters, chronometers, lever and duplex watches.

Kullberg, V., 12 Cloudesley Terrace, N.—Chronometers, watches, and clocks.

Lange, Christian, 9 Salisbury Street, Strand, London.—Watches and timepieces.

Leonard, G. W., 1 Cloudesley Terrace, Liverpool Road.—Compensation balances.

Losada, José R, 105 Regent Street.—Watches, marine chronometers, table clocks, turret clocks, and astronomical pendulums. (See pages 78 & 79.)

Marriott, Benjamin, 38 Upper Street, Islington, London.—Watches, gold chains, &c.

Mercer, Thomas, 45 Spencer Street, Clerkenwell.—Marine chronometers.

Moore, R. R. & J., 38 Clerkenwell Close.—Turret and other clocks.
Class XV.—North-east Gallery.

3285. Morris, William, Blackheath, S.E.—Electric regulator with centre seconds, and other companion clocks, all beating simultaneously.

3286. McPhee, James, & Son, Glasgow.—House, turret, and railway clocks, engine counters, ship chronometers, &c.

3287. Murray, James, 20 Cornhill, London.—Chronometers, watches, clocks, patented keyless watches, patented regulator, models, jewelry, &c.

3288. Neal, John, Watchmaker and Jeweller, 18 Edgware Road, London, W.—Onyx clocks; duplex, lever, and chronometer watches—new construction.

3289. Nicole & Capt, 14 Soho Square.—Nicole's patent keyless watch, and conteur.

3290. Oram, George John, 19 Wilmingston Square, Clerkenwell.—Watches, and chronometers.

3291. Parkinson & Froodsham, 4 Change Alley, Cornhill, E.C.—Chronometers, watches, regulators, astronomical clocks, &c.


3293. Poole, John, 57 Fenchurch Street, London.—Marine and pocket chronometers and watches.

3294. Posthouse & French, 16 Northampton Square, Goswell Road.—Specimens of marine chronometers and watches for home and foreign markets.


Wyetherley, J. Alcock, J.

Copple, J. & W. Jacques, J.

Scarsbrick, C. Smith, J.


Ford, R. Heyes, Thos.

Welshy, J.

3297. Qualite, Thomas, Clockmaker, Hawkhurst, Kent.—Chime clock, fifty changes, in marble and gold; and chronometer.

3300. Rotherham & Sons, Coventry.—Gold and silver watches, and parts of a watch in every stage of manufacture.

3302. Russell, Thomas, & Son, Liverpool.—Watches, hard tempered nickel movements, patented; especially adapted to hot climates.
DE SS. M.M. C.C., REAL FAMILIA Y ARMADA MILITAR.

[Thrice decorated by her Catholic Majesty for merit in his art.]

1. Astronomical pendulum, escapement jewelled, in glass case.
2. Two astronomical pendulum movements complete, escapements jewelled, dial unfinished.
3. Master chiming clock, to strike the quarters on eight bells, and the hours on a deep gong; plays one of four different overtures at each of the hours; in rosewood case, gilt engraved dial.
4. Same as No. 3, in oak case and allover dial.
5. Chiming quarter clock, with centre seconds and duplex escapement, compensated and adjusted, carved mahogany case, with carved dolphins as supports, gilt engraved dial.
6. Skeleton centre seconds clock, under glass shade, with chronometer and escapement compensated and adjusted, with emblem of Fidelity.
7. Small table chronometer with brass engraved and gilt case, and gilt engraved dial.
8. Ting long carriage clock, with lever escapement, brass gilt case, and gilt engraved dial.
9. Rimsole clock, with Lambert and reflector, lever escapement compensated and adjusted, brass bronzed case.
10. Cabin dial, with lever escapement compensated and adjusted, in black mahogany case.
11. 8-day marine chronometer.
12. 2-day dials.
13. Two marine chronometers in construction.
14. Two silver companions with mahogany case.
15. Gold hunting grand clock watch, to strike the hours and quarters, and to repeat the hours and quarters every quarter of an hour, and hours, quarters, and minutes at pleasure, showing the days of the week and month. Jewelled in 40 holes.
16. Gold hunting clock watch to strike the hours and quarters, and to repeat the hours and quarters every quarter of an hour, and at pleasure. Jewelled in 24 holes.
25. Gold open face duplex, centre seconds.
**Class XV. — North-east Gallery.**

**Losada, José R.**—continued.

32. Gold demi hunting lever watch.
33. Gold hunting lady's lever watch. Highly ornamented.
34. Gold hunting lady's lever watch. Plain.
35. Watches in construction.
36. Silver hunting duplex watch.
37. Silver hunting lever watch.
38. Three orders, conferred by her Catholic Majesty, Isabella the Second for merit in his art, viz.:—
   a. Cross of Charles the Third.
   b. & c. Orders of Comendador de Numero of Isabella the Catholic.

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39. A very elegant brooch, being the device borne on the reverse of the Mexican doubloon, and representing the secretary bird destroying a serpent; the body of the bird is composed of a very large pearl; the head, neck, wings, tail, and feet of brilliant and rose diamonds, on a spray, also of diamonds and gold, with a large single pendant, the snake of gold beautifully enamelled; the whole set in gold.

Yseas anunció en los Catecismo de Diminudo.

(79)
CLASS XV.—Horological Instruments.


[3304] Sanders, John, 15 West Bar, Sheffield.—Regulator, timepiece, and keyless watches.

[3305] Schoof, William George, 9 Ashby Street, Northampton Square.—Regulator, with detached escapement and mercury pendulum.

[3306] Sewill, Joseph, 61 South Castle Street, Liverpool.—Gold and silver watches; pocket and marine chronometers.

[3307] Shepherd, Charles, 53 Leadenhall Street, City.—Galvanic-magnetic clocks.

[3309] Smith, J., & Sons, St. John's Square, Clerkenwell, London.—Church, turret, and house clocks, &c.; illuminated and other dials. (See page 81.)

[3311] Stram, Numa, Ashby Street, Northampton Square.—Reversible and self-winding watch.


[3313] Tanner & Sons, Lewes.—Clock with perpetual register of day, week, and month—requires no correction.


English skeleton clock, supported by figures emblematic of day, night, twilight, and dawn, designed and manufactured by the exhibitors. English chronometer repeating clock. The specimen of engraving on brass case is unique. Chronometer timepiece in gilt case, ornamented with river gods, &c.

English timepieces of various kinds.

Tell-tale timepiece registering time within five seconds; could be adapted for astronomical and meteorological observations. English watches with the latest improvements, winding and setting hands by pendant, the engraving and enamelling on cases of the best and most elaborate description. Gold chains, &c.

Marine set, bracket, brooch, necklace and earrings with dolphins and shells enamelled and set with rubies, emeralds, and diamonds.

Further particulars may be learned upon application.
Smith, J. & Sons, St. John's Square, Clerkenwell, London.—Church, turret, and house clocks, &c.; illuminated and other dials.

1. Turret clock; tower and summer-house, with eight-day turret striking clock, with four faces 3 ft. 6 in. diameter, intended for illuminating. The clock is constructed on the repeating principle; has maintaining power to keep it going during winding; inside dial plate to set the four pairs of outside hands by; and various other improvements. The clock tower is surrounded by seats and bronze rail, and surrounds the summer-house, which has wings that may be used for choice flowers, &c. The intention of the whole arrangement is to supersede the old custom of placing a turret clock on stables, by rendering this most useful article an ornament to the park, lawn, or ornamental garden.

2. Turret timepiece, suited for railway tunnel or public buildings, stables, &c.

3. Eight-day skeleton clock, strikes on cathedral tone gong, and the half-hour on bell. The decorum of this clock is of a very elaborate character.

4. Skeleton striking clock (design, Temple of Flora).

5. Ditto ditto, plain design.

6. Eight-day chiming bracket clock, in carved oak case of Old English style, introducing dolphins and acorns; chimes the quarters on eight musical bells, and strikes the hours on a gong.

7. Striking bracket clock, carved oak case (new design).

8. Ditto ditto, solid mahogany carved case.


10. Ditto ditto, ditto, solid mahogany carved case.

11. Regulator or astronomical clock, monumental compensated pendulum, suited for a gentleman’s hall, ornamental carved Spanish mahogany case.

12. Detector clock, or watchmaker’s clock, which, in addition to forming a bracket timepiece, detects and registers neglect of duty in watchmen or night watchmen.

13. Skeleton eight-day striking clock, mosaic pattern.

14. Model of the turret clock tower and summer-house, erected by Messrs. J. Smith and Sons in the Eastern Annex, Class IX.

15. Various models and samples of eight-day office or shop dials. Clocks for various climates, all manufactured by the exhibitors.

16. Samples of materials and tools used in the manufacture of English clocks.

17. Eight-day turret or church clock, of the same construction and material as that supplied by the exhibitors to the order of the Government Department of Science and Art, and which may be seen in the Museum, South Kensington. The wheels and hones for the pivots to act in are of gun metal, the mixture being the same as that used for the manufacture of ordnance bearings, the plates of wrought steel, cut and finished in an engine as well as the wheels; thus securing the greatest possible accuracy. The frames are of iron, and so constructed that any part can be removed for cleaning without disturbing the remaining parts. The component is on the principle of Graham’s dead beat, and the steel pads are made to slide in turned grooves, so as to set the pitch with the greatest exactness; they may be removed, as they are secured by screws. The striking apparatus is on the repeating principle, which prevents the possibility of striking wrong hours—a fault so common in many clocks with locking plates. The maintaining power to keep the clock going during winding is by lever and bell; there is a small inside dial to set the hands by. The pendulum has a heavy spherical ball, and the rod, which is of prepared pine, coated with varnish and afterwards French polished, is thus secured against the action of air or damp; the pendulum is set in heat by means of a traversing screw, and the crutch has also two large screws to regulate and reduce its friction.

18. Metal drum case dial, made expressly for India, China, and tropical climates. The face of this is twelve inches diameter, though all sizes are made on the same principle and construction. The front of the case solid brass, with thick plate-glass; the movement has jointed steel chains, and similar case nor clock can be injured by climate or insects.

19. Revolving machine, strong spring movement in mahogany box, with circular plate, for the exhibition of figures in slop windows; adapted for “hallidresses,” models, &c., &c.

20. Small models of office dials in oak, walnut tree, and mahogany, carved in various styles, suited for public buildings, lecture-rooms, in Elizabethan, Gothic, Grecian, Mediseval, and modern styles of architecture.

21. Illuminated dial, for outside of public buildings; the numerals, minute stops, and lines of day are of copper, and glazed with opal glass. By the construction of this dial perfect distinctness and durability are secured, and the gas light equally diffused over the surface of the clock face.

22. Eight-day school dial in solid oak case.

23. Eight-day bedroom clock with alarm.

24. Eight-day striking kitchen or country clock in long case.
CLASS XV.—Horological Instruments.

WHITE, EDWARD, 20 Cockspur Street, Pall Mall, S.W.—Chronometers, watches, clocks, and gold chains.

No. 1. A monthly astronomical clock, with mercurial compensation pendulum, and pallets jewelled with sapphires.

2. An eight-day marine chronometer.

3. A two-day do. do.

4. A ditto, with auxiliary compensation.

5. An eight-day chronometer timepiece, in plain gilt metal case, with enamel dial and engine-turned gilt dial cover.

6. A smaller do., in ornamental gilt metal case with chased columns, enriched moldings and chased lion on top. (Registered design.)

PORTABLE CLOCKS.

7. An eight-day lever clock with compensation balance (striking hours and half-hours, and repeating the last hour on bell-spring, with very fine cathedral tone), in German silver case.

8. A do. of different pattern.

9. A do. in bronze metal case.

10. A do. chiming the quarter on four bells (Cambridge chimes) and striking the hours on bell-spring, in very handsome gilt metal case, with chased columns and figure on top. (Registered design.)

Class XV.—Gallery, North Court.

White, Edward—continued.

Bracket Hall Clocks.

12. An eight-day clock, striking hours on bell-spring, and quarters on four bells, in richly carved oak case, with columns, roof, crockets, finials, crestings, and panels in polished brass. (Registered design.)
Class XV.—Horological Instruments.

White, Edward—continued.

13. An eight-day 3 part quarter clock, chiming the quarters on 4 bell-springs, and striking hours on large dittos. Black wood case with chased gilt metal maskings; the cornice supported by carved figures of the four seasons, and with eagle on top. (Registered design.)
14. A ditto chiming quarters on four bells (Cambridge chiming), and striking hours on large bell. Carved Gothic case of various woods. (Registered design.)
15. A dito in carved oak Gothic case, with crevets, crestings, dials, and side panels in polished brass. (Registered design.)

Keyless Watches.
17. A gold hunting pocket chronometer, with two dials—one to show English and the other Turkish time—the case richly engraved with oak leaves and acorns, and with very handsome gold Albert chain to correspond.
18. A gold hunting minute repeater, with dark-blue enamel dial to show the repeating work in the centre—the case richly engraved with vine leaves and grapes, and with very handsome gold Albert chain to correspond. (See opposite page.)
19. A gold hunting quarter repeater, with duplex escapement and compensation balance—the case ornamented with "lines of the valley," the base being in green enamel and the flowers in diamonds, and with brooch and chain to correspond. (See opposite page.)
20. A gold hunting duplex watch, with compensation balance; the case set with diamonds on dark-blue enamel ground, and with brooch and chain to correspond.
21. A dito, the case set with pearls and diamonds on Moron enamel ground.
22. A gold hunting lever watch, with compensation balance and independent seconds.
23. A gold open face "blind man's" watch.
24. A gold hunting duplex watch, with compensation balance, repeating hours and quarters.
25. A dito, repeating half-quarters.
26. A gold open face observation watch, with double eccentric stop seconds, to register the commencement and termination of an observation without stopping the watch. Eight other keyless watches of different patterns.

Winding Watches with a Key.
27. A gold hunting pocket chronometer.
28. Ditto, open face.
29. A gold hunting lever watch, with compensation balance and bracket pendulum spring. Plain case, with hour circle on cover.
30. A gold open face dito.
31. A dito dito, with double roller escapement.
32. A dito dito, with gold balance.
33. Six ladies' gold watches, with engraved cases and dials of different patterns.
34. An assortment of gold Albert and neck chains, with buckles and other pendants.
CLASS XV.—Gallery, North Court.

White, Edward—continued.

GOLD HUNTING MINUTE REPEATER.

GOLD HUNTING QUARTER REPEATER.
CLASS XV.—Horological Instruments.

VIVIER, Os., 21 Sclford Street, Clerkenwell.—Patent fusee keyless watches, with various movements.

WALMS & McCulloch, 56 Cheapside, and 32 Lombard Street.—Gold and silver watches.

The exhibitors will send post free, on application, an handsome drawing-room clocks, in gilt cases, at 5l. 5s. illustrated catalogue of their stock. They can supply and in variegated marble, at 36 ls.

WALKER, John, 68 Cornhill, and 48 Princess Street, Leicester Square.—Watches and clocks.

WALSH, A. P., 48 Wilmington Square, Clerkenwell.—Watches and chronometers.

WATKINS, Alexander, 67 Strand, London.—Model of the new patent direct action time-keeper; watches, and movements of the same.

WEBSTER, Richard, 74 Cornhill.—Watches, chronometers, keyless watches, centre seconds, repeaters, touch watches, regulators, and railway clocks.

WHITE, Edward, 20 Cockspur Street, Pall Mall, S.W.—Chronometers, watches, clocks, and gold chains. (See pages 92 to 95.)

WITTAKER, Richard, 7 Great Sutton Street, Clerkenwell.—Improved dome-capped lever watch, combining quality, cheapness, and flatness.

WOOD, Thomas James, 12 Long Lane, City.—English-finished Black Forest clocks, with brass works.

1. The International clock... 6... price 5 6
Exhibited as the smallest clock at which a really durable and accurate clock has yet been produced.

2. A small dial... 7 6

3. The school and workshop dial... 12 0

4. Clock to strike the hours... 12 0

5. Ditto, large size... 16 0

6. Striking clock, with hood frame... 27 0

7. Ditto, large size... 30 0

Nos. 6 and 7 are exhibited as specimens of ornamentation.

8. An alarm clock... 14 0

9. Ditto, large size... 18 0

10. Double action alarm clock... 14 0

11. Alarm clock, striking the hours... 14 0

12. Ditto, large size... 18 0

Gravity being both the maintaining and regulating power of these clocks, they possess an accuracy of performance unsurpassed by the most costly productions.

YOUNG, James, Knaresborough.—Improvements in the construction of lever watches to save time in repairing, &c.

McLENNAN, J., 6 Park Place.—Pocket chronometers.

PETIT, S. A., 69 Princess Street, Leicester Square.—Regulators, watches, &c.
CLASS XVI.

MUSICAL INSTRUMENTS.

ALLISON, Ralph & Sons, Wardour Street, W.—Elegant oak piano, temp. Charles L. and Improved London Model. (See page 88.)

A semi-cottage pianoforte in Italian walnut wood case, handsomely carved; compass seven octaves; trichord, treble, &c.

BESSON, F., Manufacturer, late of Paris, now of 108 Eaton Road, N.W.—Musical instruments (brass).

Family of transposition instruments, enabling the player to perform the most difficult music, and to change instantly from one key to another without once removing the lips from the mouthpiece. The system may be adapted to any three-valve instrument, to which it gives the equality and almost the resources of the violin.

Family of reed-form instruments—with moveable bell. The main advantage of this model, and which F. Besson's [a somewhat similar shape being made by other houses] alone possess, is that the instruments are perfectly equi- poised, and accordingly will stand upon their bell; thus rendering them commodious and less liable to injury.

Family of bugles—simple or chromatic at will.

Circular instruments (passing over the shoulder), very suitable for cavalry and the field, equi-poled.

Usual form instruments, with F. Besson's latest improvements. New French horns, with and without piston attachment (2 and 3 valves); keyed horns, pocket drawn ecclesi, for officers, amateurs, and for presentation. Ophicleides, trombones with double slides (only half the length of the single slide instruments with increased power of tone), new trumpets, chromatic and regulation; duty bugles, &c.

BETTS, ARTHUR, 27 Royal Exchange.—Viols.

BEVINSON & Sons, 48 Greek Street, and Rose Street, Soho, London.—An organ, of three manuals and pedals: chanced organ, two, and five stops. (See page 90.)
CLASS XVI.—Musical Instruments.

ALLISON, RALPH, & SONS, Wardour Street, W.—Elegant oak piano, temp. Charles I., and Improved London Model.

The following are exhibited.—

Small rosewood pianoforte, known as the "London Model," suitable for the boudoir or schoolroom—exhibited to show the progress made in the manufacture of pianos by machinery, by the aid of which every part of this little instrument is made.

An elegant oak cottage piano; style, Charles I. (For detailed description, see handbills.)

An elegant walnut-tree (Italian wood) semi-cottage piano.

Warerooms.—108 Wardour Street.

"Steam-power Pianoforte Works."

Worthington Street, N.W.
Class XVI.—North Court.

Bond, William & John, 44 Norton Street, Liverpool.—Pianoforte: construction of wrest plank on a new principle.

Boosey & Chung, 24 Holles Street, London.—Six harmoniums—two with pedals, one having self-doubling machine. (See pages 92 & 93.)

Boosey & Sons, 24 Holles Street, London.—Military band instruments, reed and brass; Pratten’s perfected flutes. (See pages 94 & 95.)

Brinsmead, J., 15 Charlotte Street, Fitzroy Square.—Pianos. (See page 91.)

Broadwood, John, & Sons, 23 Great Pulteney Street, London.—Four grand pianofortes; also parts and models illustrative of construction.


Butler, George, Greek Street, Soho, London.—Cornets, saxhorns, flutes, and drums.

Caddby, Charles, 3, 33, 38, & 39 Liquorpond Street.—Pianofortes and harmoniums.

Cadby, Charles, 3, 33, 38, & 39 Liquorpond Street.—Pianofortes and harmoniums.

Card, E. J., 29 St. James’s Street.—Semi-metallic and metal flutes.

Challen, Charles, & Son, 3 Berners Street, Oxford Street.—Oblique grand and cottage pianofortes.

An Oblique Grand Pianoforte, in the Louis XVI. style, of walnut, inlaid with box and purple wood, and with ornate mouldings and enrichments; closed and gilt. Also two Grand Cottage Pianofortes, in fine Italian walnut cases, ornamented with simple carvings in the Elizabethan style, and finished internally with patent double actions, which can be regulated to suit a dry or damp climate with the greatest facility.

These exhibitors (whose business has been established nearly sixty years) have not only an English, but a foreign reputation, and are favourably known for the general excellence of their instruments. The examples exhibited will bear the test of comparison with the workmanship of any other makers.
Bevington & Sons, 45 Groce Street, and Rose Street, Soho, London.—An organ, of three manuals and pedals: chancel organs, two and five stops.

Builders of the great organ, Paris Exhibition of 1855, which gained the first-class medal for tone and workmanship.

Also of the celebrated organs in the chapel of the Foundling Hospital, the churches of St. Martin's in the Field, St. Gabriel's, Mansion, St. Paul's, Covent Garden, and Dublin Exhibition of 1853.

Establishments of the great organs, showing the mechanism, in the Royal Horticultural Society entrance.

Also of chancel organs, at 85 guineas and 75 guineas, being Nos. 1 and 3 on the annexed list of prices.

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**CHANCEL ORGAN, NO. 1.**

<table>
<thead>
<tr>
<th>Sizes</th>
<th>3 feet deep, 5 foot 2 inches wide, 10 foot 6 inches high. Octave of German Pedals.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>Price 35 Guineas.</td>
</tr>
<tr>
<td>Stops</td>
<td>Prices.</td>
</tr>
<tr>
<td>1. Open diapason, wood bass, CC to C</td>
<td>49</td>
</tr>
<tr>
<td>2. Principal, metal, CC to C</td>
<td>49</td>
</tr>
<tr>
<td>Total</td>
<td>98</td>
</tr>
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</table>

**CHANCEL ORGAN, NO. 2.**

<table>
<thead>
<tr>
<th>Sizes</th>
<th>3 feet deep, 5 foot 2 inches wide, 10 foot 6 inches high. Octave of German Pedals.</th>
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</thead>
<tbody>
<tr>
<td>No. 2</td>
<td>Price 50 Guineas.</td>
</tr>
<tr>
<td>Stops</td>
<td>Prices.</td>
</tr>
<tr>
<td>1. Open diapason, metal, G to F</td>
<td>47</td>
</tr>
<tr>
<td>2. Stop diapason</td>
<td>wood, CC to C</td>
</tr>
<tr>
<td>3. Principal, metal, CC to F</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>155</td>
</tr>
</tbody>
</table>

**CHANCEL ORGAN, NO. 3.**

<table>
<thead>
<tr>
<th>Sizes</th>
<th>3 feet deep, 6 foot 6 inches wide, 12 foot high. Octave of German Pedals.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 3</td>
<td>Price 75 Guineas.</td>
</tr>
<tr>
<td>Stops</td>
<td>Prices.</td>
</tr>
<tr>
<td>1. Bechdel, CCC to CC, 16 feet four, wood</td>
<td>18</td>
</tr>
<tr>
<td>2. Open diapason, metal (G), wood bass, CC to F</td>
<td>54</td>
</tr>
<tr>
<td>3. Stop diapason</td>
<td>wood, CC to F</td>
</tr>
<tr>
<td>4. Claribel</td>
<td>wood, CC to F</td>
</tr>
<tr>
<td>5. Diapason, metal, C to F</td>
<td>42</td>
</tr>
<tr>
<td>6. Principal, metal, CC to F</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>217</td>
</tr>
</tbody>
</table>

**CHANCEL ORGAN, NO. 4.**

<table>
<thead>
<tr>
<th>Sizes</th>
<th>3 feet deep, 6 foot 4 inches wide, 11 foot high. Octave of German Pedals.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 4</td>
<td>Price 100 Guineas.</td>
</tr>
<tr>
<td>Stops</td>
<td>Prices.</td>
</tr>
<tr>
<td>1. Bechdel, CCC to CC, 16 feet four, wood</td>
<td>18</td>
</tr>
<tr>
<td>2. Open diapason, metal (F), wood bass, CC to F</td>
<td>54</td>
</tr>
<tr>
<td>3. Stop diapason</td>
<td>wood, CC to F</td>
</tr>
<tr>
<td>4. Claribel</td>
<td>wood, CC to F</td>
</tr>
<tr>
<td>5. Diapason, metal, C to F</td>
<td>42</td>
</tr>
<tr>
<td>6. Principal, metal, CC to F</td>
<td>54</td>
</tr>
<tr>
<td>7. Flute, wood, C to F</td>
<td>42</td>
</tr>
<tr>
<td>8. Mixture, metal (12th and 15th), CC to F</td>
<td>108</td>
</tr>
<tr>
<td>Total</td>
<td>307</td>
</tr>
</tbody>
</table>

Manufactory, Great Street, and Rose Street, Soho, London.
CLASS XVI.—North Court.

BRINSEMEAD, JOHN, 15 Charlotte Street, Fitzroy Square.—Pianos.

The exhibitor's perfect Check Repeating Grand and Upright Pianos were patented by him February 1862. The characteristics of this action is its very rapid repeat, the check acting with the slightest movement of the key, an advantage long desired, but until now unattained; the simplicity of mechanism renders these pianos most durable. The equally balanced arrangement of metal and wood in the construction of the case particularly adapts them to meet the requirements of extreme climates.

BRINSEMEAD'S PATENT CHECK-REPEATING PIANO.
No. 1.—The above is a drawing of the Organ Har-mon-ium in a carved oak case, with two rows of keys and two and a third octaves of pedals, with independent ranks, 32 and 16 feet scales. The upper row of keys represents the swell, and the lower row the great organ. Couplers from pedal to great, and from swell to great. This instrument has eleven rows of vibrators, and all the attributes of a fine organ.

No. 2.—This harmonium is in a very elaborate and handsome walnut case, richly carved, with two rows of keys and eight rows of vibrators. Attention is directed to the great resources of this instrument, although it is of such moderate dimensions.

No. 3.—This harmonium has a single row of keys and the percussion action. The design and execution of the case of this instrument are worthy of particular attention. * * * The cases of the above instruments are from designs by Mr. Hugh Stans, of the Sheffield School of Art.
Class XVI.—North Court.

Boosey & Chino—continued.

No. 4.—Harmonium in an American walnut case, with one row of keys and two and a fourth octave of pedals. Attached to the side of this instrument is the new patent self-acting blowing machine. Although many attempts have been made to manufacture a self-acting blowing machine, Boosey and Chino believe that this is the only one of the kind that has ever proved successful.

No. 5.—A specimen of the School or ten-guinea Harmonium.

No. 6.—A specimen of the cottage or six-guinea harmonium in a polished pine case. Double pedals and full compass of five octaves.

General remarks about Evans' Harmonium.

These instruments first introduced by Mr. Evans in 1841, were brought prominently before the public in 1850, when Messrs. Boosey undertook the full development of the plans Mr. Evans had so successfully designed. Since that period they have rapidly increased in popularity, and have been the means of dissipating the prejudice which formerly existed against the harmonium. Quickness of "speech," flute-like quality of tone, and a great combination of delicacy and power of expression, are some of the characteristics of the English harmonium. Very beautiful effects may be produced by the combination of the harmonium with the pianoforte and chamber stringed instruments, so as to form a miniature orchestra capable of rendering the highest class of chamber music.

Case's Patent Conertinas, Manufactured and Exhibited by Boosey & Chino, 24 Holles Street, London.

The universal popularity of the concertinas may be ascribed to the many advantages which it possesses over other musical instruments. Its tones are pure, sweet, and brilliant. Its compass is greater than that of the flute, and almost equal to that of the violin. It admits of very great execution and expression. Music written for the pianoforte, violin, flute, or any other instrument, can be performed with equal effect on the concertina. By creating harmonies of any number of parts, it produces a variety of tones and effects only attempted on the pianoforte. The concertina is more easily learnt than any other instrument. It is compact and portable, and appears to equal advantage in the hands of ladies and gentlemen.

The Concertinas by Case are manufactured by Boosey and Chino, under the personal superintendence of Mr. George Case, the eminent professor and performer, with the aid of experienced workmen and patent machinery. These instruments will be found to remain well in tune—an important feature peculiar to Case's concertina.

The case exhibited contains specimens of treble, baritone and bass concertinas.
Boosey & Sons, Manufacturers of military band instruments, 24 Holles Street, London.—
Military band instruments, reed and brass, and Prattent's perfected flutes.

A case of reed and brass instruments containing specimens of the following—

An Emphonic or solo bass in B flat, with four rotary cylinders.
A Bombardon in B flat, with four rotary cylinders.
An Altohorn in B flat, with three ditto ditto.
A Trumpet in F, ditto ditto.
A Flugel horn in F, with four rotary cylinders.
A dito in B flat, ditto ditto.
Two Cornet-a-pistons of the new gold metal, one with cylinders and the other with valves.
A round or rotary model Cornet-a-piston.
A sterling silver presentation field bugle.
Several Clarinets in B flat and E flat.

Particular attention is directed to the very superior workmanship displayed in the manufacture of the above instruments.

H. S. Prattent's Perfected Flutes, Pipes, and Piccolos, Manufactured and Exhibited by Boosey & Sons,
24 Holles Street, W.

The Concert Flute Number 14, is the facsimile of that upon which Mr. Prattent played at the Royal Italian Opera, musical festivals, &c, and is so constructed that all the keys are within the reach of the fingers whilst in the act of playing. The holes, which are extremely large, and the same size throughout the instrument, are closed with keys regulated to obey the most delicate touch; and can be fingered with perfect ease by the smallest hand, as all unnecessary extension of the fingers is avoided. Thus perfect equality is obtained, and the performer can produce the most rapid passages either piano or forte, with the same facility as upon the small-holed flute, and without endangering the intonation. The fingerings are the same as that of the old flute, with the addition of a perfect C½ in the two middle octaves, fingered without the aid of the C½ key, thus simplifying all the sharp keys where arpeggios are concerned, as also the D½ in flat keys.

The top octave possesses advantages which facilitate the execution of passages almost impracticable on other flutes, whilst its peculiarly convenient arrangement of the keys under the fingers renders all notes perfectly easy to produce, without in the least altering the position of the hand.

Several of the Concert Flutes as well as Military Flutes and Piccolos in E flat and F, and Pipes are also exhibited.

(94)
The Basso Profondo, or double slide Contrabass Trombone in B flat; lowest note

The Basso Profondo was first introduced at the Crystal Palace Brass Band contest in July, 1861, and excited the universal admiration of the judges in consequence of the depth and brilliancy of its tone, and the ease with which they were produced. Although bombardons in B flat are occasionally to be met with, their great weight, and the inability of men with ordinary lungs to perform upon them with any satisfaction, have prevented their general adoption. The basset profondos, on the contrary, weigh only eight pounds and a few ounces, and are played with as much ease as an ordinary bass trombone. Boosey and Sons have purchased of the inventor the original instrument, with the sole right of manufacture, and fully expect the bass profondo will in future be an indispensable bass instrument in every military band. Price, complete with scale and exercises, 14 guineas.

(95)
CLASS XVI.—Musical Instruments.

Chappell, Arthur, 214 Regent Street.—Military clarions, bassoons, flutes, Azeman’s silent practice drum, &c.

Chappell & Co., 50 New Bond Street.—Patent pianofortes and harmoniums, with and without pedals.

Chidley, Edward, 28 Store Street, W.C.—Treble and baritone concertinas.

Chidley, Rock, 135 High Holborn.—Harmoniums and concertinas.

Clinton & Co., 35 Percy Street, Tottenham Court Road.—Wood and metal flutes of every description.

EDMONSON’s Flute. This instrument is the only flute equal in tone and tune throughout. The system of fingering (which is nearly the same as the ordinary flute) offers unprecedented facilities for every description of passages. Clinton and Co. now manufacture the equipment, the Boehm, and the eight-keyed flute with the cylindrical bore and parabola head, both in metal and wood; but having discovered the means of removing the inequalities and objectionable parts of that system, their cylinder flutes will be found far superior to any others ever offered to the public. One trial will prove their superiority. They can be obtained only of the patentees and manufacturers, Clinton & Co., 35 Percy Street, Tottenham Court Road. Explanation gratis.

Collard & Collard, 16 Grevener Street, W., and 26 Cheapside, E.C.—Four pianofortes. (See pages 98 to 101.)

Cook, E. & F., 81 John Street, Tottenham Court Road.—The interior action of a piano.

Cook, Charles & H. E., Tavistock Place.—Pianoforte silk-fronts.

Cooper, Edward, 28 Bedford Terrace, Old Ford Road, Victoria Park.—Musical strings.

Coxhead, Charles J., Castle Street, Shrewsbury.—Oblique pianoforte, with new patent action.

Cregeen, Thomas, 483 Oxford Street, London, W.C.—Zolian harps, educational, transposing; metallic harmonicon and metronome, for giving sixty or any number of vibrations in a minute for music, photography, or marching. (See page 97.)

Davis, J. Mohrato, 40 Baker Street, Kennington Lane.—Valves to musical instruments—action inclosed, free from dust.

Dearlove, Mark William, 156 North Street, Leeds.—Violins, viola, &c.—own make.
The most delightful effect is obtained by Thomas Croger’s New Patent Zeugan Harp, which will produce music in the garden, conservatory, summer-lounge, on the balcony, or window-ledge, on board any vessel on the water, or on the branches of a tree, or "any other places" without a performer. It merely requires placing on a table or stand, or laying across the branches of a tree, or it may be suspended from one, or from any convenient place. It does not signify whether it is placed perpendicular, horizontal, or diagonally; the object is to cause the draught to pass through where the strings are, which will set them in vibration, and bring forth the most melodious sounds ever heard, far superior to anything else. At a distance the tones are truly delightful; and what renders it so amusing is, that any one not being aware of its position cannot trace from whence it proceeds; the effect is so peculiar it seems to be in every direction at ones. All persons are sure to be surprised and delighted at the romantic effect; it may be used by persons totally unacquainted with music; and will produce an endless source of amusement by its various sounds. Full instructions are attached to each one.

**SINGLE HARPS.**

<table>
<thead>
<tr>
<th>24 Strings</th>
<th>48 Strings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain wood</td>
<td>£0 18 0</td>
</tr>
<tr>
<td>White varnished</td>
<td>0 10 0</td>
</tr>
<tr>
<td>Amber varnished, and ornamented with black and crimson lines, last finish</td>
<td>0 18 0</td>
</tr>
<tr>
<td>Of Honduras Mahogany French Polished</td>
<td>1 4 0</td>
</tr>
<tr>
<td>Of choice Spanish Mahogany Rosewood, Walnut Wood, or Bird’s-eye Maple, with a bend round the edges, about 3 in. wide, of Zebraswood or black ebony, handsomely French polished, very elastic, for the drawing-room</td>
<td>1 10 0</td>
</tr>
</tbody>
</table>

**DOUBLE HARPS.**

<table>
<thead>
<tr>
<th>24 Strings</th>
<th>48 Strings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plain wood</td>
<td>£1 0 0</td>
</tr>
<tr>
<td>White varnished</td>
<td>1 6 0</td>
</tr>
<tr>
<td>Amber varnished, and ornamented with black and crimson lines, last finish</td>
<td>1 8 0</td>
</tr>
<tr>
<td>Of Honduras Mahogany French polished</td>
<td>1 10 0</td>
</tr>
</tbody>
</table>

**Of choice Spanish Mahogany Rosewood, Walnut Wood, or Bird’s-eye Maple, with a bend round the edges, about 3 in. wide, of Zebraswood or black ebony, handsomely French polished, very elastic, for the drawing-room.**

- **24 Strings.**
- **48 Strings.**

The Double Harps are so contrived that they can be separated, thus forming two single ones, for two different positions if required.

All the above harps are 32 in. long, and may be had shorter at the same prices; but if ordered longer, they will be charged extra as follows: those at 34s., 16s., and 18s., 6d. per inch for every inch beyond 32 in.; those at 36s., 30s., 24s., 10s., 6d., per inch; do.; those at 38s., 36s., 30s., 16s., and 10s., 6d., per inch do.; and those at 42s., 36s., and 30s., 16s., per inch do.

**The New Patent Educational Transposing Metallic HARMONICA.**

The quality of the notes or sound is the same in them all; it is the finish of the case which makes the difference in the price of any one size, for example:

- Octaves, with semitones: £3, 30s., 40s., and 30s.
- 24 Octaves, 22 notes: 9s., 10s., 12s., and 16s.
- 48 Octaves, 44 notes: 7s., 8s., 9s., 10s., and 12s.

**Notes or vibrators, lozenges, steps, &c., for harmonium making or organ building.**

**Thomas Croger’s newly revised, illustrated explanatory price list, for musical instruments of every description, with testimonials from eminent professors, amateurs, and opinions of the press, should be in the possession of every person as a book of references, before purchasing anything whatever in the musical business, and which may be had gratis, or post free, from the manufacturer as above.**
The following Pianofortes and Models of Actions are exhibited by Collard & Collard:—

1. — A Concert Grand Pianoforte of 7 octaves, A to A, with patent repetition action, in very choice walnut-wood case, with carved enrichments in the Renaissance style.

2. — An Elaborate Concert Grand Pianoforte of 7 octaves, A to A, with patent repetition action, in very choice rosewood case, with massive carved cabriole trusses.

3. — An Oblique Grand Pianoforte of 6\|\ 4 octaves, C to A, with patent escapement and repetition action, in satinwood case, with carved and gilt decorations in the Italian style.

4. — An Oblique Grand Pianoforte, on extended scale, of 6\|\ 4 octaves, C to A, with patent escapement and repetition action, in very choice walnut-wood case, with carved and gilt enrichments in the Louis Seize style.

**The Oblique Grand Pianoforte (of which Nos. 3 and 4 are very unique specimens) is an instrument of comparatively recent introduction. The application of Collard and Collard's well-known and important improvements in upright pianofortes have tended in no
A WALNUT WOOD CONCERT GRAND PIANOFORTE BY COLLARD AND COLLARD, IN THE RENAISSANCE STYLE.

The greatest power of resisting the destructive influence of East Indian and tropical climates, without the usual reliance on the adhesive properties of glue. This result has been most successfully accomplished, and the experience of several years has proved that under the most trying ordeals, these instruments have satisfactorily stood the test;—public opinion in India having awarded them the highest praise. The principle of the action is illustrated by the model No. 2.

5.—A SOLID WOOD SPANISH MAHOGANY SQUARE SEMI-GRAND PIANOFORTE of 6\frac{1}{2} octaves, C to A, with patent repetition action and transverse bass strings, as manufactured by Collard and Collard expressly for the East Indies and tropical climates.

* * * The principle of construction of this pianoforte differs in a striking degree from that of the ordinary Grand Square. The object sought to be attained is the smallest degree to strengthen the favourable judgment which musical connoisseurs and the fashionable world have bestowed on them. Convenient and elegant in form, and effective in the highest degree, both as regard power of tone and perfection of touch, these charming instruments are found to be, for rooms of limited size, the most effective substitute for the full Grand Pianoforte, to which, in character of tone, they closely approximate.

The principle of the action is illustrated by Model No. 3.

6.—A PLANKING, or SMALL COTTAGE PIANOFORTE, in plain rosewood case, of 6\frac{1}{2} octaves, C to A, O G fall; fretwork front and octagon legs.

* * * This instrument is an example of the cheapest upright instrument manufactured by Messrs. Collard & Collard. Such is the popularity of these instruments that, during periods of active trade, the yearly demand reaches the large number of nearly 2000.

CLASS XVI.—North Court.

COLLARD & COLLARD—continued.
LIST OF MODELS.

No. 1. — The action of the Concert Grand Pianoforte.
No. 2. — The action of the New Square Semi-Grand Pianoforte.
No. 3. — The action of the Oblique Grand Pianoforte.
No. 4. — The action of the Cottage Pianoforte.
No. 5. — The Model of a Cottage Pianoforte, in two divisions, and extensively manufactured for the South American market. The weight of the instrument being equally divided and brought within the limit of a mule’s burden, its transport over the Andes (otherwise impossible) is thus rendered of easy accomplishment. The parts are readily adjusted without the smallest difficulty, and the instrument in no respect suffers from its temporary disarrangement.

1827.—March 2nd.
For "certain improvements in pianofortes, and in the mode of stringing the same," viz., an application of the cheek action to the square pianoforte, thenceforward called the grand square; and a new mode of stringing, adapted to instruments of all kinds by passing the wire round a single pin,—thus superseding the use of the noose or eye before in general use: also for a new arrangement of the damper, known as the elongated damper-head, by which the jarring consequent on the old method was entirely prevented, and more effectual damping secured.

1829.—November 2nd.
For "improvement in upright pianofortes," viz., applying a cheek to the under hammer to prevent the rebound of the hammer against the string.

1835.—January 15th.
"For improvements in the mechanism of horizontal grand and square pianofortes," consisting of an entirely new construction of the action, the escapement being placed upon the key and coming in contact with a lever or crank, and thus regulating the rise and fall of the hammer, thereby imparting greater vigour to the blow and increased durability to the touch.

* This mode of stringing has become almost universal since the expiration of the patent.

(109)
LIST OF PATENTS, &c.—continued.

1838—January 1st.
The introduction of a new class of square pianoforte, entitled the "patent square semi-grand pianoforte," being a further improvement of the grand square, by which a closer approximation to the peculiarities of the grand pianoforte was attained.

1841—November 1st.
For "certain further improvements in the action of horizontal pianofortes," consisting of the introduction of the traversing escapement fixed upon the hammer rail, resulting in a greater amount of precision and increased vigour of action, as also the introduction of a repetition movement.

1843—April 29th.
For "further improvement in the action of pianofortes," viz., the application of the repetition movement to square and to vertical or upright instruments.

1844—January.
For the construction of a cottage pianoforte in two divisions, for the purpose of facilitating transport on the backs of mules in the mountainous districts of Central America, otherwise insurmountable by reason of weight.

1847—October 15th.
Registered. A new design for the shape of a square pianoforte, entitled the "symmetrical grand square," by which greater beauty of form was secured. The keyboard being placed in the centre of the instrument, thus obviating the inelegant appearance of the old instruments.

1855—May.
Registered. "An improved key-board," the ends of the sharps being rounded for the purpose of giving to the performer increased facility for rapid execution, and imparting to the key-board a more pleasing appearance.

1857—February.
Patented. "Further improvement in the action of vertical pianofortes," having for its object to add increased vigour to the blow of the hammer, giving to the performer the power of a more prompt repetition, and imparting increased durability to the touch.
CLASS XVI.—Musical Instruments.

DISTIN, HENRY, 9 & 10 Great Newport Street, St. Martin's Lane.—Military musical instruments of every description.

INTERIOR OF HENRY DISTIN AND CO.'S MUSICAL INSTRUMENT MANUFACTORY.

The exhibition are manufacturers of musical instruments to Her Majesty's army and navy, the forces in India, volunteer corps, and the Royal and Imperial Italian Opera of London and St. Petersburg.

Persons interested in the manufacture of musical instruments are invited to visit the above factory.

DODD, JAMES, Image Cottage, Holloway Road, Islington, N.—Violin, tenor; violoncello bows; silvered musk-strings; specimen of workmanship.

DEPP, HODGSON, & Co. (late TOWNS), 20 Oxford Street.—Pianofortes.

The exhibition beg to call the attention of the musical world and the public to the excellence of the improved pianofortes made by them; specimens of which may now be seen at the International Exhibition, where they have met with the unqualified approbation of some of our most distinguished pianists. These instruments, for quality and quantity of tone, delicacy of touch, and durability of construction, cannot be surpassed. They have been exported to the most trying and extreme climates, and have been found superior to most others.

The following is a descriptive and priced list of those most in demand:

1. Solid walnut or mahogany boudoir, full compass

2. Elegant rosewood or zebrawood boudoir

3. In French walnut (of great beauty)

4. Ditto, extra elegant

5. Ditto, with carved scroll legs and plinths

6. Rich rosewood cottage, ditto

7. Ditto, walnut cottage, ditto

8. Rosewood cottage

9. French walnut cottage

EAVESTAFF, WILLIAM, 17 Stone Street.—A trichord walnut-wood pianoforte, seven octaves.

EAVESTAFF, WILLIAM GLEN, 60 Great Russell Street, Bloomsbury.—Pianoforte.
CLASS XVI.—North Court.

FYNCHAM, John, 110 Easton Road, London.—Six stops of organ-metal pipes shown in a skeleton organ.

FORSTER & ANDREWS, Hull.—A grand church organ and a model chancel organ. (See page 104.)

FRENCH, James Martin, 67 Bull Street, Birmingham.—Cottage grand pianoforte, with tubular braced back.

GRANT, John, Prince of Wales Road, Kentish Town.—A rosewood piccolo pianoforte; a walnut truss semi-cottage pianoforte.

GLASSBARROW, C., 104 Great Russell Street.—Now and improved piano.

GLEN, Thomas, 2 North Bank Street, Edinburgh.—Highland regimental bagpipes in metal, made expressly for tropical climates.

GREAVES, Edward, 76 Milton Street, Sheffield.—Æolian pitch-pipes, tuning-forks and hammers, chromatic tuning-forks, portable metronomes, &c.

GREENER & SANDILANDS, 1 Golden Square, London.—Boudoir, grand, and cottage pianofortes, with patented choir tuning.

HAMPTON, Charles, 31 Charlotte Street, Fitzroy Square.—Improvements in the construction of first-class pianofortes. (See page 105.)

HARRISON, Joseph, & Co., 65 John Street, Fitzroy Square, London, W.—A pianoforte with patent iron clipper plates and gilt steel wire, that will not rust.

HESWORTH, Joseph, Victoria Bridge, Manchester.—Brass musical instruments.

HILL, William Ebsworth, 192 Waterloo Bridge Road, London.—Gold and silver-mounted violin, &c.; bows, viola, and a violin.


HOLMAN, J. & E., 43 London Street, Fitzroy Square.—Patent model action of piano.

HOPKINS, Thomas M., Worcester.—Double bass, with apparatus attached, for producing enharmonic scales of harmonics.
### Class XVI.—Musical Instruments.

**Forster & Andrewes, Hull.—A grand church organ and a model chancel organ.**

#### Great Organ CC to G.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Dispersion</th>
<th>Feet</th>
<th>Pipes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Double open</td>
<td>10</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Open dispasion</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gambe</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Principal</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Principal</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Principal</td>
<td>4</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pedal</td>
<td>4</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Tenor</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Mixture</td>
<td>8</td>
<td>56</td>
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</tr>
<tr>
<td>10</td>
<td>Conga</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Clarion</td>
<td>4</td>
<td>56</td>
<td></td>
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</tbody>
</table>

#### Pedal Organ CC to F.
<table>
<thead>
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<th>No.</th>
<th>Name</th>
<th>Dispersion</th>
<th>Feet</th>
<th>Pipes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open dispasion</td>
<td>10</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Stopt dispasion</td>
<td>10</td>
<td>30</td>
<td></td>
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<tr>
<td>3</td>
<td>Principals</td>
<td>8</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Stopt</td>
<td>8</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Tenor</td>
<td>8</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Pedal organ</td>
<td>16</td>
<td>30</td>
<td></td>
</tr>
</tbody>
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#### Swellless Organ CC to G.
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<th>Pipes</th>
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</tr>
<tr>
<td>3</td>
<td>Bell Flute</td>
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<tr>
<td>4</td>
<td>Eight feet</td>
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<tr>
<td>5</td>
<td>Open</td>
<td>4</td>
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</tr>
<tr>
<td>6</td>
<td>Double</td>
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<td>7</td>
<td>Mixture</td>
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<td>8</td>
<td>Double Trumpet</td>
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<tr>
<td>9</td>
<td>Organ</td>
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<td>36</td>
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<tr>
<td>10</td>
<td>Hautboy</td>
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<td>36</td>
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</tr>
<tr>
<td>11</td>
<td>Clarion</td>
<td>4</td>
<td>36</td>
<td></td>
</tr>
</tbody>
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#### Choir Organ CC to G.
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<th>No.</th>
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<th>Dispersion</th>
<th>Feet</th>
<th>Pipes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lieblich</td>
<td>10</td>
<td>56</td>
<td></td>
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<tr>
<td>2</td>
<td>Dulciana</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Stopt dispasion</td>
<td>8</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>dulcitone</td>
<td>4</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Diatonic</td>
<td>4</td>
<td>56</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Gemshorn</td>
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<td>56</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Harmonic piecado</td>
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<td>56</td>
<td></td>
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<td>8</td>
<td>Clarine</td>
<td>2</td>
<td>56</td>
<td></td>
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<tr>
<td>9</td>
<td>Grand octavio</td>
<td>8</td>
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<td></td>
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</tbody>
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#### Accessory Movements and Couplers.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Dispersion</th>
<th>Feet</th>
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<tbody>
<tr>
<td>1</td>
<td>Great to pedas</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>2</td>
<td>Swell to pedas</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>3</td>
<td>Choir to pedas</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>4</td>
<td>Swell to great</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>5</td>
<td>Choir to great</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>6</td>
<td>Swell to swell</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>7</td>
<td>Sforzando pedal 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Sforzando pedal 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Sforzando pedal 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Combination pedal</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Remarks.
The whole of the necessary movements are labelled similar to the registers. Sforzando pedal No. 1 couples the great organ to the swell. Sforzando pedal No. 2 couples the pedal organ to the great. When this pedal is down and the various couples drawn, the full power of the instrument is concentrated on the great organ and pedal, and although forty-six pipes speak for each key pressed down, and fifty-one for each pedal, the touch remains the same as for a single pipe. The pedal pneumatic combination pedal acts simultaneously on the stops in the various organs, producing eight different combinations from one pedal. Interiors or Organs. The movements are principally direct action. Improved pneumatic movements are applied to the great and pedal organs, which also act on the whole of the complete. The bellows are blown by Joy's patent hydraulic engine, supplying wind at different pressures. The scales of the pipes have been arranged by F. C. Tiptoe of Weimar, on the proportion of 1 : \sqrt{3}. The wood pipes from four feet C upwards are of silver plate. The large pedal open dispasion, and the 10-feet metal double dispasion have conical valves under foot. This valve was introduced by F. & A. in 1800. The organ is tuned equal temperament, and the pitch is for C, 528 vibrations in a second. The registers are arranged at an angle of 45° (first introduced by F. & A. in 1800). The pedal stops are crescent and melodic. The total number of pipes is 2,475, and of registers 40.

#### Model Chancel Organ, containing—
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Dispersion</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Double dispasion</td>
<td>8</td>
<td>56</td>
</tr>
<tr>
<td>2</td>
<td>Stopt dispasion</td>
<td>8</td>
<td>56</td>
</tr>
<tr>
<td>3</td>
<td>Principal</td>
<td>8</td>
<td>56</td>
</tr>
<tr>
<td>4</td>
<td>Octave coupllet</td>
<td>8</td>
<td>56</td>
</tr>
</tbody>
</table>

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(104)
CLASS XVI.—North Court.

HAMPTON, CHARLES, 51 Charlotte Street, Fitzroy Square, London.—Improvements in the construction of first-class pianofortes.

Height, 4 ft. 2 in.; Width, 4 ft. 6 in.

The principle upon which these pianofortes are made, absolutely prevents settling in the groundwork of the instrument, the long-sought desideratum. See "Hunt's Handbook." It also improves the tone, renders the necessity for tuning less frequent, and the pianofor
tes much more durable.

C. Hampton's Cottage Pianofortes are warranted to stand in tune in any climate, and are especially adapted for exportation at prices varying from 20 to 30 guineas.

C. H. begs respectfully to thank those who have so kindly given him their support from his commencement in '51, and to invite the critical attention of the scientific world to his invention of 1860, called "The Double Tension or Compressed Principle," as shown in the glass case No. 7. It will be observed that the "back" or groundwork of the instrument is simply suspended in and otherwise entirely independent of the glass case. The object being to show the construction of the back, and the time and method of applying the compression referred to.

The three tension rods or bars remaining here each a ton pressure on them; three other bars have been applied in the same direction and at the same tension in the treble part of the instrument from its commencement, till it was strong and tuned; hence it follows that six bars pressure has been equally distributed over the piano in the same direction as the strings, before the strings were applied, or even the sound-board was fixed in its place; it must be evident, therefore, that the shrinking or settling of the groundwork by the pull of the strings, which do not exceed five tons, is obviated by the appli-
cation of this principle.

These pianos are especially adapted for exportation, or exposed situations, for three reasons:

1st. They are compressing in principle, and will not rise and fall in pitch with the alternation of tempera-
ture; the iron bands being of the same length and in the same direction as the steel strings contract and expand in the same ratio.

2ndly. The whole of the internal mechanism having been manufactured on the premises for the last eleven years, is warranted first-class, and

3rdly. The cementing being laid in cement instead of glue, will bear an immense amount of heat or damp before it will strip from the underwood. Unwards of 300 on this principle have been sent out, and not a single complaint has been made against them.

In answer to those who think that metal should not be used in the construction of cottage pianos, C. H. begs to draw attention to the fact that our most eminent makers have hitherto taken the best prices for grands which have contained the greatest quantity of metal in their construc-
tion; and respectfully states that his constant endeavour is to insinuate the cottage to the grand, both in its construc-
tion and tone, and leaves the public to judge how far he has succeeded.

C. Hampton's pianoforte may be purchased through any music-seller, at the same price as at the factory; but if purchased direct they will be packed and sent free to the nearest railway station in any part of England, and a warranty of three years given with each instrument.
CLASS XVI.—Musical Instruments.

Hopkinson, John & James, 235 Regent Street, London.—Patent grand and cottage pianofortes and models.

[Obtained First Class Prize Medals at the Exhibitions of 1851 and 1855.]

PATENT CONCERT GRAND PIANOFORTE. WALNUT, INLAID WITH IVORY, TULIP, BOX, AND KING WOODS.

COTTAGE GRAND PIANOFORTE, WITH CARVINGS IN THE ITALIAN STYLE.
Hughes, W., & Co., 148 Drury Lane.—Covered strings for pianofortes; copper and other music wires.

Imhof & Mickle, 54 Oxford Street.—Orchestron, or self-acting organ. (See page 108.)

Ivory & Prangley, 275 Huston Road, London.—Semi-cottage pianoforte with patent grand action and keys.


Kind, Carl, 50 George's Grove, Holloway, N.—Model of a grand pianoforte action, new invention—patented.

Kirkman, Joseph, & Son, 3 Soho Square.—Pianofortes. (See pages 109 to 111.)

Knoll, Charles, & Co., 187 Tottenham Court Road, W.—Grand pianofortes; oblique grand, and cottage.

Köhler, John, 35 Henrietta Street, Covent Garden.—Brass musical instruments of every kind for military bands. [Obtained Prize Medal at the Exhibitions of 1851.]

The following new inventions and modifications will be found among the instruments exhibited by Mr. Köhler.

1. The Patent Harmonic Cornopean, introducing a fourth valve, by means of which an instantaneous echo can be produced.

2. The addition of a double slide to the "Harper's Slide Trumpet" rendering the chromatic scale of that instrument perfect in the lower as well as in the upper notes.

3. An invention to substitute the water-key in all brass instruments, preserving a perfectly level surface in the wind passage, and facilitating the discharge of the accumulated water.

Lachenal, Louis, 8 Little James Street, Blofield Row, W.C.—Manufacturer of English patent concertinas. (See page 112.)

Locke, Edward Charles, 7 Great Ducie Street, Manchester.—The peri, campanula, or fairy bells.

Luff, G., & Son, 103 Great Russell Street, Bloomsbury, W.C.—Model piccolo piano.

Matthews, William, & Sons, 5 St. James's Street, Nottingham.—Pianoforte with propeller action.

[3421]
[3422]
[3423]
[3424]
The Orchestrion, built for the International Exhibition of 1862, is a striking example of the capabilities of mechanism for producing perfect music. On this instrument hundreds of different effects, variations, and shades of tone can be produced. The mechanism is so perfect that its action is instantaneous, and free from noise and inconvenience to the person working it. The great simplicity of its construction renders the Orchestrion a most durable instrument. As the two barrels can be conveniently removed from the front, the Orchestrion does not require more space than its width.

The deepest notes are placed in the centre of the instrument, so that the inner can tune each and every pipe easily from the sides without removing anything. By the application of an additional fly, the speed can be regulated to the greatest nicety, so as to give detailed effects to the music in performing. In this and many other respects the Orchestrion is different and superior to other self-acting musical instruments.

Imhof & Mukle are the manufacturers of the "Flutonichorde," which can be instantly attached to any pianoforte. Subjoined is a price list of musical instruments manufactured by this firm, and also instruments for which they are agents:

Orchestrions, 1000 guineas and upwards.
Euterpeons, 300 to 800 guineas.
Flute instruments a la Davraillville, 30 to 400 guineas.
Self-acting organs, 24 to 60 guineas.
Musical clocks, 24 to 300 guineas.
Portable organs and pianos, 5 to 30 guineas.
German handl-organs and pianos for schools and nurseries, 5 to 60 guineas.
Pianofortes, 1st class quality, 25 to 100 guineas.
Nicole Freres' musical boxes, 4 to 40 guineas.

All these instruments are built to stand tropical climates.
CONCERT GRAND PIANOFORTE, with seven octaves, A to A, under-dampers, repetition action, and all the latest improvements, in solid rosewood case, elaborately carved. The case of this instrument was carved at Madras, East Indies; the designs and working drawings were sent from England by J. Kussman & Row; the case was made, and the carvings executed, by the native workmen in the most correct manner. As a specimen of native Indian skilled labour it is interesting, as showing the ready capacity of the native carvers to apply the art in which they excel to any purpose that may be required. The top of this pianoforte is made out of a solid piece of rosewood, without a joint; it is 3 feet wide, and even in India it is rare to meet with rosewood of such large dimensions.

* * *
This piano is exhibited in the Indian Department.
KIRKMAN, JOSEPH, & SON—continued.

PATENT IMPROVED TETHERED SEMI-COTTAGE PIANOFORTE, with seven octaves, A to A, and all the latest improvements, in ebony case richly carved and gilded.

CONCERT GRAND PIANOFORTE, with seven octaves, A to A, repeating action, and under-dampers, with new and improved up and down bowing bridges to preserve the sounding board in perfect equilibrium, and prevent its sinking; in English petral oak case richly carved and gilded.
Class XVI.—North Court.

**Oblique Grand Piano forte, with seven octaves, A to A; grand check action, and under-dampers, with improved sounding board, in Amboyna-wood case richly carved and gilt.**
### Class XVI.—Musical Instruments.

LACRENS, Louis, 8 Little James Street, Belford Row.—English patent concertinas.

**Left, as follows, with glass studs.**

1. Ten Parts Concertina, Mahogany, in neatly-curved Box.  Rosewood Box.  
2. Rosewood, Selective tone and finish.  Mahogany Box.  
5. Ditto, extra best finish, Five-fold Rosewood, plain to be inlaid, with ornamental paper, German silver studs, and in every respect as the Concertina before its improvement.  Rosewood Box.  
6. Ditto, Neatly Improved, Ornamented throughout, with Silver Touches for Concertina, contain tender and avoid less tono than any Trouble Concertina ever before produced, and is adapted to all the most eminent Performers.  Rosewood Box.  
7. Ebony, Neatly Improved, etc., as above, with glass studs.  Box to match.  
8. Amboyna Heartwood Zebras (or any description of wood preferred, with holes and all pertaining to exterior finish tastefully matched, Silver Touches or Glass Nails, as preferred).  Box of any wood.  
9. Ivory Tops, all pertaining to exterior appearance tastefully matched, Silver Touches or Glass Nails, as preferred.  Box of any wood.  

**Right, as follows, with Glass studs.**

10. Rosewood, Ivory Keys, three octaves and three notes, sound the octave below the full compass Treble Instruments. Finished on Rosewood Box.  
11. Ebony, Silver Touches, Finished as No. 6.  Rosewood Box.  
12. Amboyna, etc., Finished as No. 6.  Rosewood Box.  
13. Ivory Tops.  9 Box in any kind of Wood.  

**TUNING APPARATUS (Mahogany), supplied, with screw-silver, box, etc., complete, by name of which particular at distance from a timer can keep their own instrument in repair.**


**ALL 44 KEYS, DOUBLE ACTION, IRON SCREWED BASS NOTES, AND WARRANTED.**

*Instruments of a Smaller compass made to Order only, at the usual Prices.*

### List, 1862, of English Patent Concertinas.

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ten Parts Concertina, Mahogany</td>
<td>£ 3 0Le.</td>
</tr>
<tr>
<td>Rosewood, Selective tone and finish</td>
<td>£ 4 0Le.</td>
</tr>
<tr>
<td>Ditto, best finish, Five-fold Rosewood</td>
<td>£ 5 0Le.</td>
</tr>
<tr>
<td>Ditto, extra best finish, Five-fold Rosewood</td>
<td>£ 6 16Le.</td>
</tr>
<tr>
<td>Ebony, Neatly Improved</td>
<td>£ 8 10Le.</td>
</tr>
<tr>
<td>Amboyna Heartwood Zebras</td>
<td>£ 10 12Le.</td>
</tr>
<tr>
<td>Ivory Tops, all pertaining to exterior appearance tastefully matched</td>
<td>£ 13 15Le.</td>
</tr>
</tbody>
</table>

**STOCK ON LARGE RARE CONCERTINAS.**

15. Rosewood, Ivory Keys, three octaves and three notes, finished as No. 1.  Rosewood Box.  
16. Ebony, etc., Finished as No. 6.  Rosewood Box.  
17. Amboyna, etc., Finished as No. 6.  Rosewood Box.  
18. Ivory Tops.  9 Box in any kind of Wood.  
19. Tuning Apparatus (Mahogany), supplied, with screw-silver, box, etc., complete, by name of which particular at distance from a timer can keep their own instrument in repair.  £ 9 12 6.  
20. Ditto, ditto, superior quality, with four holes.  £ 9 18 6.  

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### Conversion Table

<table>
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<th>English</th>
<th>Arabic</th>
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<tr>
<td>1 £</td>
<td>50 د.</td>
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<tr>
<td>10 £</td>
<td>500 د.</td>
</tr>
<tr>
<td>100 £</td>
<td>5,000 د.</td>
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</table>
Class XVI.—North Court.

METZLER, G., & Co., Great Marlborough Street, W.—Brass military instruments, clarionets, &c., &c.; specimens of printed music.

BRASS MILITARY INSTRUMENTS of improved circular form. Clarionets, &c., &c. Patented. The Sonorophone. Invented by Mr. J. Waddell, Bandmaster of the First Life Guards. The excellence of these new instruments, and the marked improvement of their formation over the old system, has been admitted by the most competent judges. They are now in use in the bands of the First Life Guards, Royal Engineers, several Regiments of the Line, the Navy and the Volunteer Corps. The following drawing is intended to show the relative size of two Contre-bass Instruments in E flat. Fig. 1.—the old form of the Sax-horn; Fig. 2—the Patent Sonorophone. The advantage and portability of the new form over the old may be seen at a glance.

Fig. 1.

Fig. 2.

Drawings, Testimonials, and Lists of Prices of Metzler & Co.'s various new Circular Brass Instruments may be had on application as above.

[ ] 3425

MINASSI, C., 3 St. James’s Terrace, Kentish Town Road.—Music-stool; harmonium.

[ ] 3426

MOORE, JOHN & HENRY, 104 Bishopsgate Street Within, City.—Microchordon grand pianoforte.

[ ] 3427

MURPHY, GEORGE, Albert Street, Camden Road, and 28 Cheapside.—Pianofortes.

[ ] 3428

OATES, JOSEPH PIMLOTT, Erdington, Birmingham.—Cornet with equi-tritubular, or champion, pistons and improved water-exit.

[ ] 3429

OETZMAN & PLUMB, 151 Regent Street, London.—Three pianofortes.

[ ] 3430

PEACHEY, GEORGE, Pianoforte Manufacturer, 73 Bishopsgate Street Within, E.C.—Improved tri-chord piccolo pianofortes.

PEACHEY’S IMPROVED TRI-ChORD Pianofortes are remarkable for their durability, power, and quality of tone. They may be bought or hired, with option of purchase from the maker.

[ ] 3431

POTTER, HENRY, 36 Charing Cross, W.C.—Improved flute-valve, brass instruments, and drums.
CLASS XVI.—Musical Instruments.

Priestley, Frederick, 15 Berners Street, Oxford Street, W.—Small pianofortes.

Priestley, Frederick, 15 Berners Street, Oxford Street, W.—Small pianofortes.


Russell, George, 35 Brook Street, Eaton Road, N.W.—Rosewood grand pianoforte.

Rust, Robert Anderson (Rust & Co.), 34 Great Marlborough Street, W.—Pianoforte with patent tubular sounding-board, and newly-constructed case.

Scowen, Thomas Layzell, Allen Road, Stoke Newington, London.—Compass for dividing circles; ocular music timekeeper.

Simpson, John, 266 Regent Street.—German concertinas, with Simpson's easy method; English concertinas, flutes, and flageolets.
CLASS XVI.—North Court.

[ 3441 ]
SPARKS, W. J., 13 Eversholt Street, Oakley Square.—Pianos.

W. J. Sparks, inventor and manufacturer of the Triplebord Cottage Pianos, equal in power and quality of tone to the Horizontal Grand, price from 50 guineas. Superior concert piano from 23 guineas. Pianos for hire. W. J. Sparks, 13 Eversholt Street, Oakley Square, London, N.W.

[ 3442 ]
STARCk, JOHN EDWARD, 25 Old Street, St. Luke's, E.C.—Flutes, flageolets, clarionets, drums, fifes, &c.

[ 3443 ]
THOMPSON, H., 322 Regent Street.—Orchestral piano, extra pedal, producing chords and octaves.

[ 3445 ]
WALKER, J. W., 27 Francis Street, Bedford Square, W.C.—Church and chamber organs.

[ 3446 ]
WARD, HENRY, 100 Great Russell Street, Bloomsbury.—Piano.

[ 3448 ]
WILLIAMS, HENRY, Albany Street, Regent's Park.—An organ with four manuals and pedal organ, and 60 stops.
Class XVI.—Musical Instruments.

Wilson, William, Fairbank Villa, Talfourd Road, Camberwell. — An omnitonic flute, adjustable at will to any key.

The most important features of this flute are its perfection of intonation and capability of adjustment, combined with simplicity of manipulation. The several parts of the flute adjustable at pleasure to vary the distance between the finger-holes; by which means the relative intervals are determined with mathematical precision, and (being variable) are preserved perfectly true alike in all keys; while the fingering is reduced to the utmost simplicity. The instrument being tuned to the key of the piece to be performed, it is only necessary generally to learn one simple scale, as the scale D on an ordinary concert flute.

Wornum, R., & Sons, Store Street, Bedford Square, London.—Upright and horizontal pianofortes.

Fohllmann & Son, Halifax.—Grand upright action, oblique, and pianos with three unisons, &c.; piano made in 1779.

Nutting & Addison, 210 Regent Street.—A piano.

Pohlmann & Son, Halifax.—Grand upright action, oblique, and pianos with three unisons, &c.; piano made in 1779.

Nutting & Addison, 210 Regent Street.—A piano.

Stidolph, G. F. & J.—Woodbridge, Suffolk.—Minima organ, the whole of the pedal notes produced from a single pipe.

Nutting & Addison, 210 Regent Street.—A piano-forte.

Kelly, C., 11 Charles Street, Middlesex Hospital, W.—Harmonium, with forty stops and two rows of keys.

Hedgeland, W.—Church organ, with three sets of keys, the movement reversed; Gothic case.

Jones, H., Fulham Road, Brompton.—An organ.
CLASS XVII.

SURGICAL INSTRUMENTS AND APPLIANCES.

[ 3482 ]
Abbuck, Joseph, South Bridge, Edinburgh.—A hernia truss; illustrations; improvements on working tools for making trusses.

[ 3483 ]
Ash, Claudius, & Sons, 7, 8, & 9 Broad Street, Golden Square, London.—Artificial teeth, and dental materials.

[ 3484 ]
Atkinson, Benjamin Frederick, 3 Heneage's Row, Charing Cross.—Trusses for piles, prolapsus ani and uteri, and inguinal and scrotal hernia; splint for diseased hip-joint.

[ 3485 ]

[ 3486 ]
Barling, Joseph, 7 High Street, Maidstone, Kent.—Specimens of crystal gold in sponge and leaf, for dentists.

[ 3487 ]
Bassingham, Benjamin, Manufacturer, 5 Ruby Street, Wisbeach.—Artificial leg upon self-acting principles, &c.

[ 3488 ]
Bigg, Henry Heather, 20 Leicester Square.—Orthopaedic and anatomical appliances for bodily deformities, weaknesses, and deficiencies. (See page 118.)

[ 3489 ]
Blackwell, W. & Co., Cranbourne Street, and Bedford Court.—Surgical instruments, crutches, trusses, &c.; tailors' shears, razors, crayons, cutlery, &c.

[ 3490 ]
Blundell, Walter, Dentist, 3 Holles Street, Cavendish Square, London.—Improved artificial teeth.
This collection of inventions and appliances is intended to illustrate the rapid progress of the new science of Mechanical Orthopraxy, of which the exhibitor is one of the most active promoters. The case contains 42 new inventions, amongst which are—

1. Apparatus for treatment and cure of spinal curvature.
2. 3. Appliances for cure of contracted knee, club foot, and deformities of the foot and ankle (tibio-tarsal region).
3. 5. Triple lever truss, for the treatment of hernia or rupture.
4. 6. Sand pad truss, for inguinal, spermatic, and femoral hernia.
7. Artificial arm, with wrist and finger articulations, spring-thumb, &c., for use after amputation below elbow.
8. Artificial arm, with movable elbow, wrist and finger joints, for use after amputation above elbow.
9. Artificial leg, for amputation above knee, with elastic tendons and muscles acting as they do in nature.
10. Artificial leg, for amputation below knee, with knee, ankle, and toe articulations moved by elastic springs.
<table>
<thead>
<tr>
<th>Patentee</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BROWN, Samuel Shaw</td>
<td>Ellesmore Works, Runcorn.—Flax and cotton list, elastic stockings, abdomen</td>
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<td></td>
<td>and bowels, knee-epaulets, &amp;c.</td>
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<tr>
<td>BROWNING, Edward</td>
<td>38 Montague Square, W.—Artificial teeth, &amp;c.</td>
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<tr>
<td>CALKIN, Joseph</td>
<td>12 Oakley Square, N.W.—The &quot;oechienen,&quot; or patent transparent ventilating</td>
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<tr>
<td></td>
<td>eye protector.</td>
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<tr>
<td>CAPLIN, Dr.</td>
<td>9 York Place, Baker Street.—Electro-chemical bath, for the cure of chronic</td>
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<tr>
<td></td>
<td>diseases of all kinds.</td>
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<tr>
<td>CAPPIE, James, M.D.</td>
<td>Edinburgh.—Obstetric forceps, in which the handle and blade are united by</td>
</tr>
<tr>
<td></td>
<td>socket-joint.</td>
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<tr>
<td>CARTER, Alexander, M.D.</td>
<td>T.C.D., F.R.C.P.I., Royal Hospital.—Instrument for the treatment of</td>
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<td></td>
<td>aneurism by compression.</td>
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<tr>
<td>CLELAND &amp; HILL</td>
<td>146 George Street, Glasgow.—Artificial limbs on a new principle, strong,</td>
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<td></td>
<td>light, and substantial.</td>
</tr>
<tr>
<td>CLOVER, J.</td>
<td>3 Cleveland Place.—Inhaler, chloroform, &amp;c. Gives chloroform vapour any</td>
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<td></td>
<td>strength required, under ¼ per cent.</td>
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<tr>
<td>COGHLAN, John, M.D.</td>
<td>Wexford.—A probe-pointed knife for dividing the neck of the womb; a</td>
</tr>
<tr>
<td></td>
<td>drill-carrier for dentists, to be used within the mouth.</td>
</tr>
<tr>
<td>COLLINS, Daniel &amp; Joseph</td>
<td>48 Foley Street, London, W.—Surgical appliance; also various</td>
</tr>
<tr>
<td></td>
<td>instruments, dental and surgical.</td>
</tr>
<tr>
<td>COXETER, James</td>
<td>23 &amp; 24 Grafton Street East, Tottenham Court Road.—Surgeon's instruments,</td>
</tr>
<tr>
<td></td>
<td>including new form of lithotrite and double current catheter.</td>
</tr>
</tbody>
</table>

The following are exhibited, viz.:—

Coxeter's Lithotrite, with new movement which greatly facilitates the alternate use of oblique sections and curve sections, a description of great importance in aiding and evening the stone.

Coxeter's double-current catheter, with opening for inlet stream, so formed as to keep the "debris" in motion, to promote its more speedy exit.

Urachotome and catheter combined, by H. Thompson.

Rheometer of new form, by T. Griffin, Eq.

Coxeter's Magnetic electro machine, worked by the foot instead of the hand.

Coxeter's Syringes, for Prolap. Uteri.

Coxeter's Syringes, of new and simple form.

Coxeter's Compound Uterine Syringe.
Evans & Stevens, 12 Old Fish Street, St. Paul's, London.—A complete collection of surgical instruments.

Ernst, Caleb, The Hospital, Birkenhead.—Arm splint.
CLASS XVII.—North-East Gallery.

[ 3509 ]
EVANS, JOHN, 35 Charles Street, Middlesex Hospital.—Instrument for lithotripsy; bone-cutting forceps, with parallel action; dental instrument.

[ 3510 ]
FAULKNER, HENRY, 24 Keppel Street, Russell Square.—Improved method of constructing artificial teeth in vulcanite.

[ 3511 ]
FAULKNER, JOHN, Practical Dentist, 2 Mornington Crescent, Hampstead Road, N.W.—Specimens of pink vulcanite base for artificial teeth.

[ 3512 ]

[ 3513 ]
FITKIN, WILLIAM, 88 Fleet Street.—Patent safety elevator for the instantaneous and painless extraction of teeth and stumps.

The object of FITKIN'S PATENT SAFETY ELEVATOR is the extraction of teeth and stumps with greater safety and much less pain than attends the use of the ordinary instruments.

[ 3514 ]
FRANCOIS, HENRY, 42 Judd Street, Finsbury Road.—Artificial teeth, with bases of india-rubber, corals, gold, &c.

Various specimens of gold, vulcanized india-rubber, and corals bases for ARTIFICIAL TEETH.

A complete set and a partial set in gold.

Complete sets and pieces of from one to ten teeth, in various kinds of vulcanized india-rubber, namely, pink, red, coral, and black; the teeth modelled after the best mineral, and none have artificial mineral gums. Vulcanized india-rubber as a base for artificial teeth has many advantages; the models from its adoption are very numerous. All sharp edges are avoided; no springs, wires, or ligatures are required; no extraction of stumps, nor other painful operations, are necessary; a greatly increased freedom of motion is supplied; a natural elasticity, hitherto wholly unattainable, and a fit performed with the most perfecting accuracy, are secured; while, from the softness and elasticity of the agents employed, the greatest support is given to the adjoining teeth when loose or rendered tender by the absorption of the gums; the teeth are fitted to the mouth without agency or the proposed india-rubber, all impositions of taste and smell being at the same time prevented against.

A complete set in gold varies from 10s. 10s. to 21s.; partial sets, from 10s. 6d. to 15s. per tooth. Sets in vulcanized india-rubber, from 3d. to 15s.; partial sets, from 3d. to 10s. 6d. per tooth.

[ 3515 ]
FRISCO, ANDRE, 7 Grosvenor Street, Grosvenor Square.—Artificial teeth.

[ 3516 ]
GABRIEL, M. & A., 27 Harley Street, and 34 Ludgate Hill.—Artificial teeth, with improved air-cells and soft gums. (See page 122.)

[ 3517 ]
GANNON, THOMAS, Manufacturing Gas-fitter, &c., Longfellow Street, London.—Improved patent self-adjusting leg and foot-rest.

[ 3518 ]
GORDON, DR., Edinburgh.—New forceps and elevator, adapted for the extraction of all kinds of teeth and stumps.
The exhibitors are the patentees and sole proprietors of the Osteo Ideon, or artificial bone, as a base for Gabriels' Indestructible Mineral Teeth and Self-adhesive Gums. One set will last a lifetime, and is warranted to answer every purpose for mastication and articulation, even when all others fail. They are adjusted without springs, wires, or any unpleasant operation. Specimens of Messrs. Gabriels' patented improvements may be seen on their stand; where also a descriptive catalogue, in French and English, with the cost of the various descriptions of artificial teeth, may be obtained gratis. Complete sets of these teeth can be made with one visit, where time is an object.

Gabriels' Patent White Enamel, for restoring and preserving front teeth, retains its colour without injury to the enamel.

Their addresses are:—27 Harley Street, Cavendish Square, and 34 Ludgate Hill, London; 131 Duke Street, Liverpool; 68 New Street, Birmingham.

Garrett, James Alexander, 38 Wardour Street, W.—Trusses and surgical bandages.

Gray & Halford, 171 Goswell Road, E.C.—Artificial human eyes.

Gray, Joseph, & Co., 154 Fitzwilliam Street, Sheffield.—Surgical, dental, veterinary trusses; enema apparatus, lancets, &c.

Griﬃths, Raymond, 2 Duke Street, West Smithfield.—Medicine chests and sample cases.

Grossmith, William Robert, 175 Fleet Street, London.—Patent and prize-medal artificial eyes, legs, arms, hands, &c. (See page 123.)

Hallam, F. H., 9 Endell Street, Long Acre, W.C.—Dental instruments.
GROSSMITH, WILLIAM ROBERT, 175 Fleet Street, London.—Patent and prize-medal artificial
eyes, legs, arms, hands, &c.

[Obtained Prize Medals at the Exhibitions of 1851 and 1855.]

Artificial Legs, Arms, Hands, Noses, &c., with the
following newly invented improvements:

1. A limb for contracted knee-joints (amputation below knee), giving a perfect artificial action at the knee.
2. A foot apparatus, for Symes and Chopart's operations, securing a neater appearance and firmer bearing than has been yet obtained for these cases.
3. A new limb for "Thigh amputations," containing all the advantages of the tendon action, Palmer's patent, and Grossmith's patent knee and ankle actions, with thorough durability and lightness in weight. Also a new method of making the joints of artificial limbs waterproof and noiseless in action.
4. Artificial eyes, of a new and hardened enamal, to prevent corrosion and assure a more lasting brilliancy and life-like appearance.
Class XVII.—Surgical Instruments and Appliances.

Lawson, Buxton, & Co., Shales Moor Works, Sheffield.—Surgical, dental, and veterinary instruments.

Learwood, Thomas, Fairman St, Truro, Cornwall.—Artificial limbs for all kinds of amputations; trusses without spring.

Lemal, T., & Co., 62 Chandos Street, W.—Artificial teeth and gums.

Lindsey, Mark John, 37 Lunchgate, City.—Lindsey’s patent truss, without steel spring, and various other trusses, &c., with improvements.

Lindsey’s New Patent Truss, the most recent invention for hernia, consists of a covered plate with patent padding to support both hernia rings, and an elastic waist-belt: the pressure can be regulated by the patient, and the truss is perfectly easy and effective. Prices 15s. 6d., 21s. 6d., 26s. 6d., 31s. 6d.

Longdon, F., & Co., Derby.—Surgical elastic stockings, knee-caps, belts, and other bandages.

Lows, Andrew, 19 Lowther Street, Carlisle.—Specimens of dental workmanship.

Macintosh, Charles, & Co., Cawson Street, London; and Cambridge Street, Manchester.—Vulcanized rubber surgical and chemical apparatus.

Macintosh, John, 40 North Bank, Regent’s Park.—Collodion, used as a setting for artificial teeth.

Marsden, W. J., Upper Thorpe Road, Sheffield.—Patent respirators; registered shield chest protectors; ventilated eye-shades; animal oil wool knee-cap.

Masters, Moses, Manufacturer, 1 Paragon Street, New Kent Road, London.—Artificial hands, arms, legs, and crutches.

Matthews, William, 8 Portugal Street, Lincoln’s Inn Fields, W.C.—Surgical instruments and appliances.

Maurice, Joseph, 3 Langham Place, W.—Artificial teeth, showing the various applications of vulcanized India-rubber.

Maw, S., & Son, 11 Aldersgate Street, London.—Surgical instruments. (See page 125.)

Miller, Claudius Montague, M.D., Claremont Villa, Stoke Newington Road.—Spectacles for the relief of conical corns.

Miller, John (late Bigg & Miller), 9 St. Thomas’s Street, Borough.—Surgeons’ instruments and appliances.
Surgical Instruments.

A cheap earthenware inhaler, with a new patent application and valve, by S. Maw and Son.

Litotritory Instrument. Lithotritory instruments, complete sets in cases.

Latest Case, silver, handsome, engine-turned, engraved and chased, specimens in all sizes.

Middleby Instruments, a complete set, in chequered ivory handles and mahogany case.

Minor Operating Instruments, a complete set, in case.

Nipple Shield, of glass, with elastic tube and test, a perfect little instrument, in box complete, retail price, 1s. 6d.; also a variety of indiarubber tests. Glass, metallic, and indiarubber shields.

Pessaries, an assortment of indiarubber, valnium, and boxwood; also a beautiful specimen in thin ivory.

Pill Machines, of superior make, with marble and mahogany slabs.

Pocket Instruments, several complete sets in elegant cases, mounted in handsome engine-turned gift handles with fluted backs; also in tortoiseshell and ivory.

Respiration, Etherom, plated with silver and gilt; also the Etherom Scarc Respirator.

Sissors for surgeons' and druggists' use, in great variety.

Spindles, an elegant assortment for the eye, ear, vagina, rectum, and nose.

Stethoscopes, a variety of specimens, in ebony, ivory, cedar, &c.

Stomach-pump, in mahogany case.

Trephining Instruments, a full set in mahogany case; also Maw & Son's improved set, consisting of three Trephines, electro-plated, fitting into spring socket, and mounted in ivory.

Uretines, specimens of several kinds, improvements upon expired patents; also of the ordinary common and patent trusses, of superior make, for hospital and general use.

Urinals Instruments.—Full set of Walsh's dilating cisterns, with elastic and silver catheters, in case complete. A set of Brodin's silver catheters, in chased ivory handles. A set of three prostate catheters, in chased ivory handles.

Urinometers.—Urinometers and uriniae instruments.

Veterinary Instruments.—Complete sets of pocket and dissecting instruments, in cases; also Maw's improved veterinary enema and stomach-pump, in mahogany case.
MOORRIDGE & DAVIS, 18 George Street, Hanover Square.—Specimens in dentistry.

The Patent Postumatic Palate, in gold, brass, and their celebrated flexible base.
Two heads illustrating the same face with and without teeth.

No. 1.—A set of mineral teeth on a flexible base, with artificial palate, cheek, alveolus, and uvula.
No. 2.—A set of mineral teeth on a flexible base, with an artificial palate, air-sleeper, and uvula.
No. 3.—A set of mineral teeth on gold plate and flexible gum.
No. 4.—A set of mineral false teeth, with gold sockets inserted in a flexible base.
No. 5.—Specimens of mineral teeth on flexible bases, suited to various cases.

MORRISON, JAMES DAVIS, Edinburgh.—Dental appliances, processes, and products; safety couch for chloroform patients.


NORMAN, S., Jun., 1 Cheltenham Place, Westminster Road, S.—A lift for a short leg, and shell for foot: also a boot for a wooden leg.

O'CONNELL, EDWARD, Bury, Lancashire.—Patent spilomia, or infant's feeding bottle; also for applying drinks to invalids and others. (See page 127.)

PARSONS, JAMES, & Co., 15 Manor Row, Bradford.—Artificial teeth.

PATRICK, HUGH W., 18 Broad Street, Golden Square, W.—Artificial palates, block and single teeth, continuous gum work; dental application of artificial ivory, coral, vulcanite, and materials in the process.

PAUL, ANDREW, Surgeon, 27 Mecklenburgh Square.—Douche bath (two models), applicable in diseases requiring aspiration or percussion with water.

PEARCE, WILLIAM, & Co., Bridge Street, Bristol; and Brooke Street, Holborn, London.—Surgical appliances.

PEARCE & Co.’s newly invented True for Heroes, is so constructed that the pressure may be increased or decreased as required, and the necessity of an under-strap is obviated. An elastic spring is introduced at the back, which yields to the motion of the body, thereby rendering the true easy and comfortable to wear.

PEARCE & Co. are manufacturers of spinal supports, mineralized belts, obsidian belts, artificial legs, &c.

PEARCE & Co.’s Improved Biplancope consists of various kinds of wood, so joined as to render it a good conductor of sound, and making it considerably stronger and much less liable to break than the ordinary wooden ones.

FINDAR, CHARLES, Maker and Inventor, 19 John Street, Holland Street, Brompton Road.

POLLARD, CHARLES & EDWARD, Brompton Turkish Baths, Alfred Place, Thurloe Square.—Turkish bath, gout, invalid, and bathing sandal.
O'Connell, Edward, Bury, Lancashire.—Patent siphonia, or infant's feeding bottle; also for applying drinks to invalids and others.

The great facility and comfort afforded by this truly valuable invention in the nursing of infants, has elicited from patentees of all classes the warmest expressions of their approval, and gratitude to the original inventor of so great a boon.

Among the many who have borne testimony to its value, the following distinguished persons have permitted the inventor of the Siphonia to make use of any extracts from their letters to him expressive of their high opinion of his useful invention.

The Countess of Hopetown will gladly give Mr. O'Connell permission to quote from her letters of last month, or from this one, if he pleases, the effect which this invention has had upon the health, joy, and comfort of her little one, who has been subject to colicky attacks, and her son of the greatest service to them both. By the marvellous and beautiful arrangement.—Levenshall Hall, Kington, March 1861.

Lady Bamford will wish pleasure grant Mr. O'Connell permission to add her name to the list of ladies who have experienced the comfort afforded by his charming Siphonia. She has already frequently recommended the Siphonia among her friends. —The Mount, Yarmouth, April 23, 1861.

The Hon. Mrs. Bailey, of Sandon Hall, Stone, Staffordshire, will be very happy for Mr. O'Connell to make any use he pleases of her name, being glad to bear testimony to the great value of his excellent invention the Siphonia, which has been of the greatest service to her little one, and has given an hour's truce or suffered from the change in the last. She cannot, therefore, sufficiently praise, and recommend Mr. O'Connell's valuable and beautiful arrangement.—Levenshall Hall, Kington, March 1861.

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CLASS XVII.—Surgical Instruments and Appliances.

Powell, Samuel, 2 Surrey Cottages, Surrey Grove, Old Kent Road, S.—Breast drawers, glass syringes, tube bottles, &c.

Pratt, Joseph Francis, 420 Oxford Street, W.—Apparatus for various deformities, and surgical instruments.

Puckridge, F. L., 4 York Place, Walworth.—Liston's membrana plaster, court plasters, and gold-beaters' skins.

Pulvermacher, T. L., 73 Oxford Street.—Patent galvano-piline, a flexible galvanic constant battery for medical use, &c. (See page 129.)

Redford, George, M.R.C.S. (late Army Medical Staff), Cricklewood.—Portable stretcher in halves fitting universally: medicine pouch.


Rein, Mrs. S., 108 Strand, London.—On a new principle elastic abdominal supports; improved elastic stockings, knee-caps, and every support for the human body.

Reynolds, John, 20 St. Anne Street, Liverpool.—Artificial leg, with improved knee-joint and springs; trusses for hernia, and appliances for deformity.

Rimell, Eugene, 96 Strand.—Patent aromatic disinfecter, for destroying all bad smells and purifying the air in hospital wards, dissecting rooms, dead-houses, coroners' inquests, sick-rooms, lodging-houses, ships, steamers, &c. (See page 100.)

Rogers, Charles, Inventor, 40 Great Tindell Street, Birmingham.—Either side double lever truss for single or compound hernia.

Rogers, Maurice, 18 New Burlington Street, W.—Specimens of artificial teeth.

Rooff, William B., 7 Willow Walk, Kentish Town.—Respirators, acoustic and medical instruments; patent safety seat.

Rooff's Patent Inhaler permits easy respiration, and prevents the expelled breath contaminating the incoming vapour.

Rooff's Patent Tympani, or invisible sound-magnifier, has proved of great service to numbers afflicted with deafness.

Rooff's Patent Lavement apparatus is widely patronised on account of its great convenience and lightness.

Rooff's goods are sold by all chemists; descriptive catalogues may be obtained from the manufacturer, post free.
**CLASS XVII.—North-East Gallery.**

**PULVERMACHINE, J. L., 73 Oxford Street.—Patent galvano-piline, a flexible constant battery for medical use, &c.**

**PULVERMACHINE'S PATENT GALVANO-PILEIN (for Moderate Intensities) is a fabric composed of galvano-metal wires and a linen texture, representing a diminutive voltaic battery described in page 31, Class XIII. It possesses the same properties and advantages there enumerated, which, combined with its extreme pliability and durability, admirably adapt it for every imaginable mode of physiological experiment, or medical application, of intermittent or continuous currents. A monometallic, prolonged, localised, or diffused action can be administered by it with equal ease and comfort.**

**According to the mode of application required, the Galvano-PILEIN is arranged, firstly, as a diminutive self-supplying plug battery, for monometallic operations, secondly, in the form of bands, belts, necklaces, &c., for the prolonged application of diffused and gentle currents. These are easily worn on the part affected; turning into the system a steady supply of gentle galvanic currents, analogous to the physiological functions of the animal economy. These facts are seen in operation at Messrs. J. L. PULVERMACHINE & Co.'s (Galvano Establishment), 73 Oxford Street, London, adjoining the Prince's Theatre.**

**PRICE LIST.**

<table>
<thead>
<tr>
<th>Flexile Batteries, manufactured from the Galvano-Piline, for the instantaneous generation of volta-electric currents of intensity, to be charged with the existing liquid simply by immersion.</th>
<th>£</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galvano-Piline battery of 50 elements, each element 2 square inches in surface, complete</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Ditto, ditto, of 100 elements, each element 2 square inches in surface, complete</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Ditto, ditto, of 100 elements, each element 6 square inches in surface, complete</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Ditto, ditto, of 100 elements, each element 12 square inches in surface, complete</td>
<td>6</td>
<td>20</td>
</tr>
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Galvano-Piline batteries can be made to order for immense quantities, whatever, with any number and size of elements required. Batteries can be made of sides of cylinders of zinc and platinum, planned for obtaining a double effect with the same surface.

**GALVANO-PILINE DIALECTIC BATTERIES for the prolonged and steady application of moderate continuous currents in form of chain-bands to be worn on the body, charged with the existing liquid simply by immersion.**

| No. 1, narrow, full electric power, 36 inches long, applicable for limbs | £ | d |
| No. 2, narrow, weak power, 36 inches long, applicable for the limbs and stomach | 0 | 18 |
| No. 3, narrow, medium power, 36 inches long, applicable for the limbs, head, and face | 0 | 15 |
| No. 4, narrow, weak power, 18 inches long, applicable for the head and face | 0 | 10 |
| No. 5, narrow, weak power, 8 inches long, applicable for the head and face | 0 | 5 |
| No. 6, broad, full power, 18 inches long, spinal band | 1 | 20 |
| No. 7, broad, weak power, 36 inches long, applicable for the head, spine, and stomach | 0 | 18 |

**No. 6, broad, medium power, 15 inches long, applicable for the abdomen, head and face | £ | 10 |

**No. 5, broad, weak power, 6 inches long, applicable for the head and face | 0 | 5 |
Rimmel, Eugene, 96 Strand.—Patent aromatic disinfectant, for destroying all bad smells and purifying the air in hospital wards, dissecting rooms, dead-houses, owners' inquests, sick-rooms, lodging-houses, ships, steamers, &c.

Pocket cases for medical men, or persons visiting the sick, 11s. Aromatic Compound to be used in the disinfectant, in small bottles for household use, 1s.; in large quantities, 10s. per lb.

Rimmell's Aromatic Disinfector acts on the same principle as the Perfume Vaporiser exhibited in Class 4, and well known in fashionable circles, but it is of a more simple and economical form, and is confined to sanitary purposes. The aromatic compound prepared for it is not extracted from flowers, as that used in the Vaporiser, but from plants noted for their beneficial and prophylactic action—such as rosemary, thyme, &c. It is therefore incapable of affecting the most nervous invalid, or of growing unpleasant even to those most averse to perfume.

It removes instantaneously all sorts of bad smells, whatever may be their nature or intensity; and substitutes a reviving and grateful atmosphere. The potency and rapidity of this system may be judged from the fact that it only takes five minutes to saturate an immense area like that of Covent Garden Theatre with fragrant vapours.

The apparatus and modes of use are both very simple. The former consists in a pan heated with an oil lamp, and half filled with hot water, into which a few drops of the compound are poured; the effect is produced as soon as the water commences to boil.

Some scientific men are of opinion that aromas are not positive disinfectants, but merely cover one smell by means of another. It may be said in reply to this, that many nostrums efferve have hitherto satisfied all attempts at analysis, and that it has likewise been found impossible to ascertain the true nature of fragrant volatile emanations, their solid basis only being known; and in such a case we may admit the evidence of our senses for want of better tests, and if we find a bad smell replaced entirely by a pleasant one, we may fairly assume that the former has become neutralised. In fact, E. Rimmel has had positive proofs of his apparatus answering when all other disinfectants had failed, which is probably to be attributed to the penetrating influence of fragrant molecules, developed ad infinitum by means of steam, and perhaps also to their reviving or oxygenating properties. These aromatic dissipations have even been tried and found to succeed in arresting the progress of infectious diseases, and some very interesting experiments might be made in that way by medical practitioners.

Rimmel's Disinfector has been adopted by the Royal College of Surgeons for their direction meetings, and by many of the London hospitals to be used in the wards. It has also been tried successfully at the Antiquitatis de Clamart Paris, and at the principal hospitals in Vienna. It was introduced on board Her Majesty's Steam Yacht, the Victoria and Albert, to remove the nauseous smell proceeding from the engines, and is now in use on some of the Peninsular and Oriental Company's vessels, and other steamers, where it is found most useful and agreeable to the passengers, producing a reviving atmosphere, and allaying the sufferings of sea sickness.

E. Rimmel, will be happy to present gratuitously any hospital or charitable institution with his apparatus and the necessary compound. He hopes that in return medical men when quite convinced of its efficacy in the sick-room, will do him the favour of recommending it to their patients.

N.B.—E. Rimmel has received many letters from eminent scientific men bearing testimony to the useful qualities of his Disinfector, and is ready to show them privately to any members of the profession who may favour him with a call at No. 96 Strand.
RUSSELL, Capt. Godfrey, Swan Hill, Shrewsbury.—Improved hospital bed appliance; ditto hospital stretcher; camp hospital spring-bed or stretcher; incontinent urinal.

Improved Hospital Bed Appliance.—This model of the pattern in the Tower is shown by the kind permission of the Hon. Secretary for War, with the hope that its use may become more general, and that by thus giving it for the public benefit, and leaving competition, it may be still improved and the cost of its construction reduced. It has been in constant beneficial use in two of Her Majesty's military hospitals for more than two years, has undergone every test and examination by numerous boards of the highest medical authority, and has been found of great service to the medical profession in diseases and injuries of the hip joint, palsies, spines, and all extreme cases in which absolute rest is required. Long trial has shown that by preventing painful movements, the patient is saved a good deal of exhaustion; and it may be added that a single nurse has full control over the invalid. It was given to the army and navy.

Improved Hospital Stretcher.—Accepted by Her Majesty's Service, and is shown and given to the public on the same authority and grounds as the improved bed appliance. The chief object is to remove patients to and from the operating-room, or extreme cases, as it may be removed without their feeling any motion.

RUSSELL'S CAMP HOSPITAL SPRING BED or DOOLITTLE STRETCHER.—This forms a very comfortable bed, and being on springs, prevents any shock on changing horses. It has a sun and rain-awning, and packs up in a small compass. It was expressly made for Her Majesty's Service, has undergone examinations, and a certain number sent to the camps; but circumstances have compelled the inventor, unwillingly, to seek protection by patent. He considers that the commoner form would be of great service at hospitals and railway stations, for the easy conveyance of injured persons.

Inconvenient Urinal, for day and night use, expressly made for Her Majesty's hospitals and invalid depots. Considering the great importance of appliances of this kind, the inventor has shown it in order that it may be more generally adopted and improved. Many experiments have been made, by an eminent Professor of Chemistry, to test the material, and find manufactured by the successors to Charles Goodyear, 11A Adam Street, Adelphi, has been found to be superior.

SANSON, Dr. A. E., M.B., Ashburton Villa, Lower Road, Islington.—Apparatus for the gradual administration of chloroform.

Savory & Moore, 118 New Bond Street.—Portable medicine chests, &c. (See page 132.)

Sills, Francis, 2 George Street, Euston Square, London.—Artificial legs, hands and arms, spring crutches, and hand instruments.

Simpson, Henry, 55 Strand, London.—Surgical instruments (various).

Skelt, Brothers, 19 Great Marlborough Street, London.—Mineral teeth, dental implements, and appliances.

Smith, John Cox, Wey Street, Maidenhead.—Tooth instruments for the especial use of army and navy surgery.

Smith, William & Francis, 253 Tottenham Court Road, London.—Water bed, or floating mattress for invalids.

Sparks & Sons, 28 Conduit Street, Hanover Square, W.—Surgical bandages and appliances for the relief and cure of deformities, and giving support to the human frame.

Spratt, William Henry, 2 Brook Street, Hanover Square, W.—A collection of trusses and orthopedic instruments.
Moore, Savory & Moore, of New Bond Street, exhibit a very complete collection of Medicine Chests, from the larger box, adapted to the use of a detachment on active service, to the small, but no less efficient pocket case, that may be conveniently packed in the perambulator of a tourist, or even conveyed in the coat-pocket in case of emergency.

These latter small travelling Medicine Chests are noted in their design, and compact in their arrangement. A strong leather case, six inches by nine, and only two and a half in thickness (in fact of the form and size of an ordinary octavo volume, and opening in much the same manner), contains a pair of scales, with the necessary weights, a small glass measuring, eight small bottles adapted to receive either powders or pills, eight of larger size, stoppered for liquids, and two still larger for holding any medicines required in greater bulk. This little case, which would scarcely take up any appreciable room in the travelling bag, will contain all the Medicines required in any case of emergency. Its value to a party of tourists, or to a single traveller, removed from medical aid, can hardly be overrated.

The "Special Correspondents" of our daily papers have used these cases to satisfy every quarter of the globe, and have spoken most highly of their utility.

Large Leather Cases, of the same character, containing a greater number of remedies, are also shown by the firm.

The YACHT MEDICINE CHEST, as its title implies, is adapted for use in short sea voyages. It contains sufficient medicine for a crew of twenty persons, and in addition a few surgical appliances that may be required in an emergency, such as plasters and bandages for lacerations.

The most important articles exhibited by Moore, Savory & Moore are unquestionably those valuable aids to military surgery which they have put together. Under the title of a Medical Field Companion, Savory & Moore have designed a case, weighing only ten pounds, to be carried on the march by a mule or muleteer.

This Companion contains all that could be required during a reconnaissance; such as mixtures for disinfecting, tincture of opium, chloroform, and volatile, also packets of powder most likely to be useful in an emergency in their proper doses; several varieties of pills, and all the appliances likely to be required, as flint, bandage, plasters, splices, sheathing, bandages, etc.

The Improved Medical Panniers, for the use of the army, are designed to convey all the appliances, both medical and surgical, that may be required by a regiment in the field and during a march. Within the compass of two panniers of ordinary size, and the regulation weight, are contained, on the one side, some thirty different drugs, with all the required necessaries of wood, weights, etc., so accessible as to be obtained in a moment; medical comforts for the sick and wounded, such as bandage, concentrated beef tea, arrowroot, etc.; a lamp with reflector and such adjustment as enables it to be used in warming a small quantity of food. In the other pannier may be found the case of operating instruments, bandages of different kinds for field use, bandages, plasters, sheathing, splints, and everything to hand.

The panniers may be used on or off the mule's back, and are so constructed that they can be made to form a very good and firm operating table, by placing them on the ground, throwing upon the lids, and securing them in the required position. The advantage of this arrangement, when the surgeon is in the open field, far from hospital, is obviously very great.

The Army Detachment Medicine Chest is a strongly-bound polished oak box, containing, in the compass of a few feet, a larger and more complete assortment of medicines and materials than would be found in most ordinary surgeries.

This Military Chest is so constructed that, by merely opening the lid, a dispensing counter of convenient height is at once formed; and, without shifting his position, the dispenser will find everything at hand, the whole being so admirably arranged that no one article has to be displaced to gain access to another.

In addition to these valuable aids to Military Surgery, Moore, Savory & Moore also exhibit Eye and Ear Discs of improved construction. The great peculiarity of these instruments is that, in addition to the elastic bottle and tube conveying the stream of liquid to the eye or ear, there is a second tube from the glass cup, which is placed against the affected organ; this tube conveys away the water into a basin, and so prevents it running down the face or neck, to the great discomfort of the patient.

The ENTRAILS shown by the same firm are supplied with an elastic tube in the place of the usual inflexible hose or metallic tube. This affords a very great facility for introduction into the bowel, and removes all risk of lacerating the living membranes. As thus fitted, these instruments are especially adapted for the self-administration of injections, which are so valuable in the removal of habitual constipation, without the necessity of continuously having recourse to purgative medicine.
CLASSE XVII.—North-East Gallery.

Sykes, Mary Ely, 280 Regent Street, Castle Square, Brighton.—Corrects for pregnancy, and an abdominal bandage for after accouchement.

Terling, Charles, 5 Little Randolph Street, Camden Town.—Inodorous commode for the sick chamber; cheap arm-sling.

Tompson, W. A., 18 Cecil Street, Strand.—Inhaler for applying caustic solution internally in throat diseases.

Tuffnell, Jolliffe, Mount Street, Dublin.—Tubular bougies for the cure of strictures of the rectum.

Tweedie, William, 337, Strand, London.—The respirator, composed of ten layers of gold wire—a perfect instrument. (See page 134.)

Walters, Frederick, 16 Moorgate Street, City.—Surgical instruments, and instruments for deformities.

Westons, T., Surgeons' Instrument Makers, Hart Street, Bloomsbury, London.—Instruments for microsopical preparations, morbid anatomy, and animal preserving.

Weiss, J., & Son, 62 Strand.—Variety of surgical instruments.

Welsh, George S., 50 Eaton Square.—Artificial teeth and gums.

Welton, Thomas, 13 Grafton Street, Fitzroy Square.—A case with jointed pin-leg, artificial human leg, and others.

Welton & Monckton, 13 Grafton Street, Fitzroy Square.—A magnetic chain and battery for curing diseases.

Westbury, Robert, 26 Old Milgate, Manchester.—Trusses and deformity instruments.

The following trusses and deformity instruments are exhibited:

No. 1. Instrument for correcting lateral curvature and torsion of spine; with eight distinct movements for adjustment.

No. 2. Instrument for a case of disease of upper cervical vertebrae close to the occiput; with seven movements for adjustment.

No. 3. Apparatus for remedying permanent contraction of fingers, after burns or other injuries. Cast No. 1 shows such a case previous to the use of this instrument, and Cast No. 2 the same after three months' treatment.

No. 4. Instrument for hippus, epicondylitis, or club foot. Case No. 3 represents such a case as the instrument is adapted for; with special arrangement for neck and spine, and rotary movements in the sole of the shoe.

No. 5. Truss withremove pad, for a case of irreducible femoral hernia.

No. 6. Truss with coil-spring pad, for a case of double inguinal hernia.

No. 7. Frames, showing construction of imperceptible covering tube; with rotary movements for adjusting the pad.

No. 8. Truss for umbilical hernia.

No. 9. Children's trusses, single and double.

No. 10. Splint support, for cases of slight curvature.

No. 11. Simple apparatus, used as a preventative in case of tendency to curvature of the spine.

Nos. 12 & 13. Instrument for genu-valgum, or knock-knee; with improvements.
The word "Respirator" was introduced into the language twenty-six years ago by Mr. Julius Jeffreys, F.R.S., shortly after his retirement from the Indian Medical Staff. This word was chosen as an appropriate name to designate an instrument of a peculiar and elaborate metallic construction, which, when respired through (i.e. breathed through both ways in drawing and expelling breath), should have the property of promoting a free and easy respiration, by transferring warmth and moisture from each outgoing breath (the impure gases of the breath being freely voided) and importing that warmth and moisture to each fresh-entering breath—thereby rendering it genial and soothing to irritable breath-passages. Thus may be produced a climate for the lungs, variable at will, and fulfilling many important pathological purposes which cannot be here enumerated.

But the name Respirator has been so prostituted by its association for articles bearing an outward appearance to the true instruments (as a toy-watch may to the real one), that Mr. Jeffreys is very doubtful if any public object can be served by this occupying of space in the International Exhibition Catalogue with mere sketches of the different forms of the true Respirator. Figs. 1, 2, and 3 refer severally to the orinal respirator for the mouth and nostrils, and to the dwarf (which will henceforth be discontinued) and the standard and Respirator, instruments for the mouth alone. Besides these, there are the Nasal, an instrument for the nose only, and the Hand Respirator—both in the hand and applied to the mouth or nose according to the make of the instrument.

It is these instruments which have acquired for the name Respirator its world-wide reputation by the benefits they have conferred upon a multitude of sufferers from all varieties of pulmonary disorder—benefits which they who have recourse to trashy articles in lieu of the true instruments will never experience.
CLASS XVII.—North-East Gallery.

WETHERFIELD, JOHN, Henrietta Street, Covent Garden.—Amandou plaster—a surgical appliance for purposes of support and defence.

WHITBY, ERENSEER, 41 Rushor Street, Chelsea.—Surgical operating table.

WHICKER & BLAISE (late SAVVIN & Co.), 67 St. James's Street, S.W.—Surgical instruments and appliances.

WHITE, JOHN, 228 Piccadilly.—White's non-main patent lever truss; elastic surgical appliances for hernias; new patent elastic stockings.

White's Moc-Main Patent Lever Truss and elastic surgical appliance for hernias; new patent elastic stockings; spiral machines, spiral corsets, chest expanders, ladies and gentlemen's belts, spring trusses with spiral springs and ivory pads, improved prosthesis and.

White's Moc-main Patent Lever Truss is allowed by 100 medical men to be the best for hernias. It consists of an elastic pad, with a lever, and instead of the usual spring, a soft band, fitting so closely as to avoid detention. A descriptive circular may be had by post.

Single, 18s., 21s., 26s., & 32s. 6d.; postage, 1s.

Double, 38s., 42s., & 52s. 6d.; postage, 1s. 6d.

WHITING, WILLIAM, & SONS, High Street, Camden Town.—Improved spinal supports for lateral and angular curvatures.

WILLIAMS, G. J., 17 Cavendish Place, Cavendish Square, W.—Improvements in artificial palates and teeth.

Fig. 1. Case of complete fissure of the hard and soft palate, the fissure extending through the whole of the hard palate and uvula.

Fig. 2. Represents one of Mr. G. J. Williams's improved Obturators for the above case. The portion a, which covers the palate as far as the second molar teeth, is constructed of hard vulcanite; theumen, or soft palate, b, b, is formed in soft vulcanite, the two portions being united by a narrow band of elastic gold, allows the artificial value to follow the muscular action of the palate, by which means the patient can perform the acts of deglutition and articulation with comparatively ease.

WOOD, WILLIAM ROBERT, Dentist, Carlyle House, Brighton.—Models presenting irregularities of teeth, and their cure; also general models. Models of nine months, illustrating irregularities of teeth, with the conditions and results of treatment.

(185)
Class XVII.—Surgical Instruments and Appliances.

[3611]

Young, James Anderson, 47 Bath Street, Glasgow, Scotland.—Patent dental forceps, &c.

[3612]

Read, Messrs., 8 Holles Street, Cavendish Square.—Artificial teeth.

[3613]

Nunn, R. M., Grays, Essex.—Medical inspirator.
SECTION III.

CLASS XVIII.

COTTON.

[3640]
Ashworth, Edmund, & Sons, Egerton Mills, Bolton.—Sewing cotton of every description; embroidery and skein cotton.

[3641]
Auld, Berrie, & Mathieson, 111 Union Street, Glasgow.—Plain and fancy Scotch muslins.

[3642]
Barlow, Goody, & Jones, Manchester.—Toilet Marseilles quilts, counterpanes, cotton blankets, quiltings, dimities, and cotton damasks.

[3643]
Brittain, Thomas, Manchester.—Patent sponge cloths for cleaning machinery and firearms; protective garden nets.

[3644]
Brooke, J., & Brothers, Meltham Mills, Huddersfield. (See page 2.)

[3645]
Brown, Sharps, & Tyas, 18 Watling Street.—Embroidered muslins.

[3646]
Carlile, James, Sons, & Co., Barkend Mills, Paisley.—Cotton and linen threads, in balls, bunks, and on reels.

[3647]
Carstairs, Hector, Blackfriars Mills, Manchester.—Samples of doubled, gassed, dyed, printed, satinised, and polished yarns.

Class XVIII.

2
The exhibitors are the manufacturers and winders of Brook's Patent Glazed Threads, nine, six, and three-eighth, for hand and machine sewing, also crochet and embroiling cottons, all of guaranteed lengths, and marked with the name of 'Brook,' and a 'Goat's Head' crest.

They exhibit a Case of Threads, in every process of manufacture, in Class XVIII; and in the Machinery Department, Class VII, they work a Self-Acting Winding Machine in motion, manufactured by Messrs. Sharp, Stewart, & Co., Manchester.

[Obtained Prize Medal at the London Exhibition, 1851, and the First Class Prize Medal at the Paris Exhibition, 1855.]

Brook, J., & Brothers, Meltham Mills, Huddersfield.—Sewing cottons, crochet, and embroidery; finished and in process.
CLASS XVIII.—South-East Gallery.

[3648] Christy, W. M., & Sons, Fairfield, near Manchester.—Royal Turkish towels, blankets, huckaback or Brighton towels, and patent Terry counterpanes.


[3651] Clarke, I. P., Leicester.—Sewing cottons, reels, spooling and mill bobbins.


The Agent in London for the sale of Messrs. Coats' sewing cottons is William Gilmour, 37 King Street, Cheapside.

The Paris Agents are L. & R. Curtis & Co., 6 Boulevard Poissonnière.


[3654] Copestake, Moore, Crampton, & Co., 5 Bo'w Churchyard, Sewed muslin manufacturers.

Copestake, Moore, Crampton, & Co.'s first and second cases contain a quantity of Leno and herring bone curtains of Scotch manufacture. Their third case contains the following examples of muslin embroidery:

[3655] Crewson & Worthington, Manchester.—Medium and fine shirtings, bleached.


[3657] Ermen & Engels, Manchester.—Sewing, crochet, and knitting cotton, and Godfrey Ermen's patented polished thread.

[3658] Evans, Walter, & Co., Derby.—Samples of cotton threads for sewing, crochet, knitting, and embroidery.

Established A.D. 1783.
FAULKNER, Henry, 6 Castle Court, Lawrence Lane.—Cotton twines, run 30 per cent. longer length than hemp, same weight.

FORD, Francis, Stanley Street Mills, Manchester.—Sewing, crochet, knitting, embroidery, and marking cottons; spools, balls, skeins, &c.

GILLES & HARTLEY, Wood Street, London; Cannon Street, Manchester.—Double and single coutils for stays.

GOODAIR, SLATER, & SMITH, Kent Street Mills, Preston.—Blanched long cloths, twilled and plain shirtings.

GREENWOOD & WHITAKER, 15 Marsden Square, Manchester.—Water twist, shirting calicoes.

HASTINGS, WILLIAM, Huddersfield.—Cotton yarns for warps and wefts.

HAWKES, John, & Sons, Green Bank Mills, Preston, Lancashire.—Cloths for shirts &c. (See page 5.)

HAWORTH, Richard, & Co., Manchester, Spinners and manufacturers of jeanettes, India twills, silicias, casbans, and mediums.

HOLLINS, Edward, Sovereign Mills, Preston.—Cotton shirtings and sheetings.

HOPWOOD, Robert, & Son, Nova Scotia Mills, Blackburn.—Calicoes, and the incidental processes of manufacturing them.

HOBBES, MILLER, & Co., 9 Bread Street, London; Manchester; and Preston.—Long cloths and twilled shirtings.

HOLLENSWORTH, THOMAS, & Co., Manchester.—Fine cotton yarn, single and doubled.

HEDSON, J., & SONS, Leicester.—Sewing cotton of various kinds on reels.

JACK, John R., 37 Virginia Street, Glasgow.—Jacquard muslin window-curtains.

JOHNSON, James, & Fildes, Spring Gardens, Manchester; Moor Mills, Bolton.—Quiltings, quilts, counterpanes, toilette-covers, skirts, &c.
Class XVIII.—South-East Gallery.

HAWKINS, JOHN, & SONS, Green Bank Mills, Preston, Lancashire.—Plain and twilled cloths for shirts &c.

The exhibitors are Cotton Spinners, and Manufacturers of Power-loom Shirtings, Long Cloths, Twills, Striped Dimities, &c.

Warehouses: 8 Faulkner's Street, Manchester; and 22 Lawrence Lane, London.

[ 3675 ]

JOHNSON, J. MARSHALL, Britannia Mill, Mirfield.—Single and double cotton yarns, Teviots, and fancy warps.

[ 3676 ]


[ 3677 ]

KERR & CLARK, Linsdale Thread Works, Paisley; and 88 & 90 Beale Street, New York. Spool cotton, enamelled and six-cord.

The Branch Establishments of Kerr & Clark are at

No. 17 Silver Street, City, London.

97 Boulevard de Sebastopol, Paris.

No. 88 & 90 Beale Street, New York.

No. 8 Bank Street, Philadelphia.

No. 27 Devonshire Street, Boston.

[ 3678 ]

KESSELMER & MELLOREW, Manchester.—Fast pile silk, imitation silk, and cotton velvets, velveteens, cords, beavereteens, moleskins, &c.
Class XVIII.—Cotton.

Lowthian, Fairlie, & Co., Carlisle.—Gingham, checks, stripes, drills, &c.

Manchester Cotton Twine Company, 51 Corporation Street, Manchester.—Cotton twine and cotton mill bands, by steam power.

These Cotton Twines, manufactured by steam power, are stretched in the single strand so as to prevent slack bands, thereby saving much waste in slack yarn. Samples will be sent on application.

Manlove, Simeon, Holy Moor Mills, Chesterfield.—Sewing cotton on reels; embroidery, crochet, and knitting, in skeins.

This case contains reels of Patent Glazed Thread, six and nine-thread Sewing Cottons, Crochet, Embroidery, Knitting, and Mending Cottons.

Martin, Johnson, & Joule, Bolton and Manchester.—Furniture dimities and damasks.

Moore, J., 33 Piccadilly, Manchester.—Velvet ribbons, with patent edges.

Morgan, Joseph, Ducie Works, Manchester.—Plaited and self-consuming wicks for hard material, tallow, mould, and dip candles.

CLASS XVIII.—South-East Gallery.

[ 3687 ]
Outram, R., & Co., 13 Walling Street.—Plain and figured muslins, counterpane, quilt, &c.

[ 3688 ]
Phillips, James, 8 Lawrence Lane, Cheapside, London.—Woven fancy quiltings, and printed fancy quiltings for waistcoats.

[ 3689 ]
Raworth, John Thomas, Leicester.—Nine-cord, six-cord, and glazed sewing cotton.

[ 3690 ]
Shaw, Jardine, & Co., Manchester.—Spinning and doubling, lace, sewings, and cotton crepe yarns.

[ 3691 ]
Smith, W. J., & Co., 40 Faulkner Street, Manchester.—Satins, drills, royal rils, quiltings, corset ribs.

[ 3692 ]
Swainson, Birley, & Co., Fishwick Mills, Preston; Portland Street, Manchester; and 42 Cheapside, London.—Calicoes for shirts and ladies' under-clothing.

The calicoes manufactured by this firm for the home and export trades, are especially adapted, both in texture and finish, for shirts and ladies' and children's under-clothing.

[ 3693 ]
Symington, R. B., & Co., 9 Cochran Street, Glasgow.—Harness figured muslin curtains, lappets, and linings.

[ 3694 ]
Townsend, Thomas, & Son, Coventry.—Grey, dyed, and dressed cotton yarns.

[ 3695 ]
Wilson, T. & D., & Co., 145 Ingram Street, Glasgow.—Plain and fancy muslins.

[ 3696 ]
Wrigley, H. & E., Huddersfield.—Single and double cotton yarns, grey, gassed, bleached, and coloured granderelle.

( 7 )
Yates, Brown, & Howat, Springfield Court, Glasgow.—Plain and fancy muslins, Jacquard muslin curtains, &c.

Hale & Udale, Manchester.—Cotton velveteens.
CLASS XIX.

FLAX AND HEMP.

[ 3728 ]
AINSWORTH, Thomas, Chator Mills, Whitehaven.—Sewing machine and other linen threads; flax yarns.

[ 3729 ]
AUSTIN, James, Princess Street, Finsbury.—Imperial patent sash, blind, and picture lines; military cord; crinoline steel.

[ 3730 ]
BARBOUR, William, & Sons, Lisburn.—Linen, tailors’, and shoe threads, various colours; yarns, flax, and linens.

[ 3732 ]
BAXTER BROTHERS & Co., Dundee.—Linen yarns and linen manufactures.

[ 3733 ]
BELFAST LOCAL COMMITTEE, Belfast.—Trophy: flax, and flaxen manufactures of Ireland.

[ 3734 ]
BELL, Richard, & Co., 13 Donegul Street, Belfast.—Damask goods.

[ 3735 ]
BENNETT & THOMS, 190 High Street, Borough, London.—Hemp, flax, jute, ropes, twines, lines, mats, cocoamattings, &c.

[ 3736 ]
BIRD, Robert, Crewkerne, Somerset, Manufacturer of linen and woollen saddlery webs, also brace; upholstery; and patentees of straining webs.

[ 3737 ]
BURREL BROTHERS, Dunfermline.—Damask table-cloths, with napkins and slip-cloths to match.

Class XIX.
Class XIX.—Flax and Hemp.


Brown & Lindell, Belfast.—Table linen, bird’s-eye diaper, sheetings, linen and cambric handkerchiefs.

Brower, W., Patent Rope Works, Wivenhoe, Colchester.—Improved patent cordage, rope lines, and twines.

Buckingham, John, 33 Broad Street, Bloomsbury, W.C.—Twines, lines, rope, web, matting, mats, suckings.

Brown & Liddell, Belfast.—Table linen, bird’s-eye diaper, sheetings, linen and cambric handkerchiefs.

Browne, W., Patent Rope Works, Wivenhoe, Colchester.—Improved patent cordage, rope lines, and twines.

Buckingham, John, 33 Broad Street, Bloomsbury, W.C.—Twines, lines, rope, web, matting, mats, suckings.

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Buckingham, John, 33 Broad Street, Bloomsbury, W.C.—Twines, lines, rope, web, matting, mats, suckings.

Carter brothers, Oak Mills, Barnsley.—Sheetings, towellings, huckabacks, diapers, damasks, domestic linens in general, drills, &c.

Charley, John & William, & Co., Seymour Hill, Belfast.—Irish linens. The following are exhibited:

The following are exhibited:

Reamed Linens (in Case).

| 1 parcel | Linen at width, French style. |
| 1 parcel | Linen de cerce. |
| 1 parcel | Bleached fine. |
| 6 parcels | Fronting linens. |
| 6 parcels | Fronting linens. |
| 1 parcel | Fronting linens. |

Reamed Linens (on Wall).

| 1 parcel | Linen at width, French style. |
| 1 parcel | Linen de cerce. |
| 1 parcel | Bleached fine. |
| 6 parcels | Fronting linens. |
| 6 parcels | Fronting linens. |
| 1 parcel | Fronting linens. |

Unreamed Goods. Samples of fine cloth direct from loom.


Cleburne, Hill, & Co., Banbridge, County Down, Ireland.—Bird’s-eye diapers, bleached.

Connell, Foster, Linen Hall, Belfast.—Linen drills of all classes.

Costerton & Nayler, Flax Works, Scole, Norfolk.—Prepared flax, tow, yarn, and waste for paper-making.

Crosbie & Co., 2 Dowgate Hill, E.C.—Asphalte roofing &c. (See page 11.)

Dagnall & Tiberet, Farm Lane, Waltham Green, S.W.—Mats, matting lines, twines, coir yarn and fibre.

Dewar, D., & Sons, Wood Street, London; Dunfermline, Scotland; Waringstown, Ireland, Manufacturers of table linens, cambric handkerchiefs, sheetings, Irish linens, &c.

Dunbar, Dicksons, & Co., Belfast.—Linens, sheetings, cambric and linen handkerchiefs, damask, diapers, and lawns.
The Patent Asphalt Felt for Roofs

In patented by

Her Majesty's Woods and Forests.
The War Department.
The Leeds and Manchester.
The London and North Western.
The Liverpool and Manchester.
The Chester and Holyhead.
The Norfolk.
And other Railways.
The Corporation of the City of Edinburgh.
The Duke of Beaufort.
The Marquis of Anglesey.
The Marquis of Westminster.
The Birkenhead Dock Company.
The Dock Trustees of Liverpool.
Most of the Nobility, Gentry, and Agriculturists.
And many Members of the Royal Agricultural Societies of England, Scotland, and Ireland.

The Felt has been extensively used and pronounced efficient, and particularly applicable for warm climates.

1. It is a non-conductor.
2. It is portable, being packed in rolls, and not liable to damage in carriage.
3. It affords a saving of half the timber usually required.
4. It can be easily applied by any unpractised person.
5. From its lightness, weighing only about 42 lbs. to the square of 100 feet, the cost of carriage is small.

The Felt has been extensively used under slates, in church or other roofs, to regulate the temperature.

Inodorous Felt,
For damp walls, and for damp floors, under carpets and floor-cloths; also for lining iron houses.

Price—One Penny per square foot.

Croogon & Co.'s Patent Felting Sheathing,
For covering ships' bottoms &c., and

Dry Hair Felt,
For covering steam boilers, pipes, &c., preventing the radiation of heat, and saving 20 per cent. of fuel.

Samples, testimonials, and full instructions may be obtained on application to the exhibitors.
Class XIX.—Flax and Hemp.


[3753] Edginton, F., Thomas Street, Old Kent Road.—Marquees, tent, flag, rickcloth, sack, and tarpaulin manufacturer.


[3756] Edgington, F., Thomas Street, Old Kent Road.—Marquee, tent, flag, rickcloth, sack, and tarpaulin manufacturer.


The exhibitors are flax spinners and manufacturers of Bleached and Coloured Linen Threads, plain and satin finish, Shoe Threads, Saddlers’ Threads, and Filling Twines. The ‘strength, taste, and neatness’ of these Threads were mentioned by the Jurors in 1851 as the ground of their award.

[3760] Fox, Charles James, Doncaster.—Wool sheets, canvas, tarpaulins, sacks, &c.

Canvas, Wool Sheets, Carpets, Sacking, &c.

(12)
CLASS XIX.—South-East Gallery, South-East Transept.

[ 3761 ]

Fraser, Douglas, & Sons, Arbroath.—Sail canvas, duck, tarpaulin, &c.

[ 3762 ]

Gavin, Peter, & Sons, Leith Ropey, Leith.—Power-loom sailcloth.

[ 3763 ]

Gill, Joseph, Headingley, near Leeds.—Grey, bleached, and dyed linen yarns and twines.

1. Sample of Grey or Unbleached Linen Yarns.

2. Sample of Half-bleached Linen Yarns, as used in the Manufacture of Horse Linens.—The process to which the yarns are subjected facilitates a remarkable degree of the lustre of the cloth, while goods woven from such yarns take a very superior finish.

3. Sample of Coloured Linen Yarns.—This colour is much used in the manufacture of goods, &c., where a lightish or yellow shade is required.

4. Sample of Half-bleached Linen Yarns.—This colour is much used in the manufacture of drills &c. for the home trade, as well as for the American, Spanish, and Italian markets. Goods woven from yarns in this colour take a very superior finish in the cloth.

5. Sample of Blended Coloured Linen Yarns.—This colour is produced by a peculiar process not known to many bleachers, and is a favourite colour in the South American and Spanish linen clothing trade.

6. Three-quarter Bleached Linen Yarns.—A colour much used by the manufacturers of Union cloths, being well fitted with coloured cotton yarns for the West Indian trade.

7. Sample of Full-bleached Linen Yarns.—Used in the manufacture of the finest class of linen goods.

Where the quality of the yarn is sufficiently good, a beautiful pure white colour can be obtained without injuring the strength of the yarns; while the uniformity of the shade, the glossy lustre of the thread, and the superior whiteness of the thread, recommend this colour to all manufacturers of first-class goods.

8. An Assortment of Dyed Linen Yarn Samples, in all the different shades and colours in which such goods are used.

9. An Assortment of Linen Twine Samples, grey, white, and coloured, and in all qualities and thicknesses; suitable for grocers, druggists, general shopkeepers, upholsterers, Jacquard machine makers, paper makers—in fact, for all purposes to which such goods are applied.

Samples of all colours in bleached and dyed yarns, of all the regular qualities of twines, with note of prices and charges, will be supplied on application to Mr. Gill, who has also stocks of grey and bleached linen yarns in all the different qualities and counts for sale.

Yarns are bought to order on commission, and bleached at low prices by the exhibitor, from whom full particulars may be learned on application.

[ 3765 ]

Grimond, J. & A. D., Bow Bridge Works, Dundee.—Jute carpeting, hesians, sackcloth, dyed and undyed jute yarns.

[ 3766 ]

Grimston, R. & T., & Co., Clifford Mills, near Tadcaster.—Shoe threads &c.

[ 3767 ]

Guyton, Joseph, & Co., & Pymore Mill Co., Bridport, Dorsetshire.—Shoe threads &c. (See pages 14 and 15.)

[ 3768 ]

Harford, George, Newcastle-on-Tyne.—A sailcloth improved in closeness of texture and strength.

Improved sail cloth, combining closeness of texture and strength with durability.

[ 3769 ]

Harris, Jonathan, & Sons, Devens Mill, Cockermouth.—Samples of linen threads, dyed, bleached, and variously finished and made up.
### CLASS XIX.—*Flax and Hemp.*

**Gundry, Joseph, & Co., Bridport, Dorsetshire.**—Seines, nets, lines, and twines for fishing &c.

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>XVII</td>
<td>Seines, nets, lines, and twines for fishing</td>
<td>Made by Improved Machinery.</td>
</tr>
<tr>
<td></td>
<td>Seines, nets, lines</td>
<td></td>
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<tr>
<td></td>
<td>do for cod, barked, Newfoundland and British America.</td>
<td></td>
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<tr>
<td></td>
<td>do for caplin. do. do. do.</td>
<td></td>
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<tr>
<td></td>
<td>do for mackerel. do. do.</td>
<td></td>
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<tr>
<td></td>
<td>do for herring.</td>
<td></td>
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<tr>
<td></td>
<td>do for cod, barked. Newfoundland and British America.</td>
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<td></td>
<td>do for lance. do. do. do.</td>
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<td></td>
<td>do for caplin. do. do. do.</td>
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<tr>
<td></td>
<td>do for mackerel. do. do. do.</td>
<td></td>
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<td></td>
<td>do for herring.</td>
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<tr>
<th>Class</th>
<th>Description</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Best Hemp Netting for cod, barked, Newfoundland and British America.</td>
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<tr>
<td></td>
<td>Best Hemp Netting for cod, barked, Newfoundland and British America.</td>
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<td></td>
<td>do for caplin. do. do. do.</td>
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<td>do for mackerel. do. do. do.</td>
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<td>do for herring.</td>
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<td>do for cod, barked. Newfoundland and British America.</td>
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<td>do for lance. do. do. do.</td>
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<td>do for caplin. do. do. do.</td>
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<td></td>
<td>do for mackerel. do. do. do.</td>
<td></td>
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<tr>
<td></td>
<td>do for herring.</td>
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**Pymore Mill Company, Pymore, near Bridport.**—Shoe threads, yarns, shop twines, &c.

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Shoe Threads. No. 1.—Brown or Grey.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fine Flax.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fine. No. 1 Fine.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fine Thread.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S. C. Best Com. No. 1 Com.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>s. 2 Com.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. 2.—Bleached.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. 9 Patent.</td>
<td></td>
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</tbody>
</table>

<table>
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<tr>
<th>Class</th>
<th>Description</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Shoe Threads. No. 2.—Yellow.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nos. 25, 11, 3, 1, 2, and 9.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. 4.—Slate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No. 9 Patent.</td>
<td></td>
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<tr>
<td></td>
<td>Fine. Best.</td>
<td></td>
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<tr>
<td></td>
<td>No. 5.—Green.</td>
<td></td>
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<tr>
<td></td>
<td>Nos. 12, 10, and 9.</td>
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<tr>
<td></td>
<td>No. 6.—Green Hemp.</td>
<td></td>
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<tr>
<td></td>
<td>No. 7.—H. B. Closing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nos. 46, 28, and 8.</td>
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<tr>
<td></td>
<td>No. 8.—Yellow Closing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nos. 46, 28, and 8.</td>
<td></td>
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</tbody>
</table>
Class XIX.—South-East Gallery, South-East Transept.

PYMORNE MILL COMPANY, Pymore, near Bridport.—Shoe threads, yarns, shop twines, &c.

GEORGE'S PATENT AND STANDARD THREADS.

No. 9.—Brown or Grey Patent.
10.—Brown or Grey Standard.
11.—Bleached Patent.
12.—Bleached Standard.
13.—Yellow Patent.
14.—Yellow Standard.
15.—Green Patent.
16.—Silver Grey Patent.
17.—Silver Grey Standard.
18.—Bleached Closing.
19.—Yellow Closing.

SHOP TWINES AND CORES.

No. 20.—Surgeons' Twines.
21.—New Zealand.
22.—Sealing Twines.
23.—Fine Fine.
24.—Middle Thread.
25.—Lay Cords.
26.—Bleach and Ed Twines.
27.—Box Cords.

SAIL TWINES.

No. 28.—Seaming.
29.—Hoping.


HAWKE, E. H., & Son, Scorrier, Cornwall.—Various descriptions of rope for mining, marine, and other purposes. Patent safety fuse.

HIND, JOHNS, & Sons, Durham Street Mills, Belfast.—Brown and bleached linens, linen and cambric yarns.

HOLDSWORTH, Wm. B., & Co., Leeds.—Hemp and flax yarns, sewing threads, shoe threads, twines, and netting threads.

JAPPE BROTHERS, Belfast.—Linens, linen and cambric handkerchiefs.

JOHNSTON & CARLISLE, Brookfield Mills, Belfast.—Yarns and linens. (See page 16.)

KINNIS, Wm., & Co., Dunfermline, Fifeshire, N.B.—Damask and diaper table linen, huckabacks, sheetings, &c., manufactured by hand and power looms.

LOCKHART, N. & N., Kirkcaldy, Scotland.—Fishing nets, hemp and cotton, herring, and other kinds.

LOCKHART, N., & Sons, Kirkcaldy, Fife.—Ticking, sheetings, towellings, sackings, and sacks.
**CLASS XIX.—Flax and Hemp.**

**JOHNSTON & CARLISLE, Brookfield Mills, Belfast.—Flax and tow yarns, brown linens, bleached family and fronting linens.**

Irish linens, brown and bleached, with specimens of the flax and yarns from which they are manufactured, viz.

Samples of flax used by exhibitors in their manufacture, grown in Ireland and Belgium.

Samples of Irish and Cornish flax after being heckled.

Samples of linen yarns of various qualities, viz.

<table>
<thead>
<tr>
<th>Line yarn, quality No. 1.</th>
<th>Per Bundle</th>
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<tbody>
<tr>
<td></td>
<td>Loss</td>
</tr>
<tr>
<td></td>
<td>d.</td>
</tr>
<tr>
<td></td>
<td>40 7 3</td>
</tr>
<tr>
<td></td>
<td>45 5 9</td>
</tr>
<tr>
<td></td>
<td>50 6 14</td>
</tr>
<tr>
<td></td>
<td>55 6 14</td>
</tr>
<tr>
<td></td>
<td>60 6 0</td>
</tr>
<tr>
<td></td>
<td>65 6 0</td>
</tr>
<tr>
<td></td>
<td>70 6 3</td>
</tr>
<tr>
<td></td>
<td>75 6 3</td>
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<tr>
<td></td>
<td>80 6 0</td>
</tr>
<tr>
<td></td>
<td>90 7 6</td>
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<tr>
<td></td>
<td>100 8 6</td>
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<td>110 9 6</td>
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<thead>
<tr>
<th>Line yarn, quality No. 2.</th>
<th>Per Bundle</th>
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<tbody>
<tr>
<td></td>
<td>Loss</td>
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<tr>
<td></td>
<td>d.</td>
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<tr>
<td></td>
<td>50 6 0</td>
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<tr>
<td></td>
<td>55 6 14</td>
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<tr>
<td></td>
<td>60 6 3</td>
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<tr>
<td></td>
<td>70 5 44</td>
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<tr>
<td></td>
<td>75 5 46</td>
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<tr>
<td></td>
<td>80 5 46</td>
</tr>
<tr>
<td></td>
<td>90 6 0</td>
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<tr>
<td></td>
<td>100 6 3</td>
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<td></td>
<td>110 6 9</td>
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<td></td>
<td>120 7 6</td>
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<tr>
<td></td>
<td>130 8 6</td>
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<tr>
<td></td>
<td>140 9 6</td>
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<table>
<thead>
<tr>
<th>Line yarn, quality No. 3.</th>
<th>Per Bundle</th>
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<tbody>
<tr>
<td></td>
<td>Loss</td>
</tr>
<tr>
<td></td>
<td>d.</td>
</tr>
<tr>
<td></td>
<td>120 6 0</td>
</tr>
<tr>
<td></td>
<td>130 6 3</td>
</tr>
<tr>
<td></td>
<td>140 6 9</td>
</tr>
<tr>
<td></td>
<td>150 7 3</td>
</tr>
<tr>
<td></td>
<td>160 8 3</td>
</tr>
<tr>
<td></td>
<td>170 9 6</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Tow yarn, quality No. 1.</th>
<th>Per Bundle</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>25 6 0</td>
</tr>
<tr>
<td></td>
<td>30 6 0</td>
</tr>
<tr>
<td></td>
<td>35 6 6</td>
</tr>
<tr>
<td></td>
<td>40 5 3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Line yarn, extra quality, No. 0</th>
<th>Per Bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50 10 9</td>
</tr>
<tr>
<td></td>
<td>70 11 3</td>
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<tr>
<td></td>
<td>100 12 0</td>
</tr>
</tbody>
</table>

(The prices quoted are per bundle of 60,000 yards.)

Sample bunches of line and tow yarns, boiled.
Sample bunches of line and tow yarns, bleached full white.

Samples of unbleached hand-loom linens, viz.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>3/4 heavy family linens, Nos. 1 to 15.</td>
</tr>
<tr>
<td>2.</td>
<td>Medium linens, Nos. 6 to 16.</td>
</tr>
<tr>
<td>3.</td>
<td>Light linens, Nos. 7 to 17.</td>
</tr>
<tr>
<td>4.</td>
<td>Fine fronting linens, Nos. 8 to 17.</td>
</tr>
<tr>
<td>5.</td>
<td>Superior fronting linens, Nos. 9 to 17.</td>
</tr>
</tbody>
</table>

Samples of unbleached power-loom linens, viz.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2.</td>
<td>28 inch light linens, Nos. 10 to 16.</td>
</tr>
<tr>
<td>3.</td>
<td>34 inch light linens, unbleached yarns, No. 16.</td>
</tr>
<tr>
<td>4.</td>
<td>Bleached yarns, No. 16.</td>
</tr>
<tr>
<td>5.</td>
<td>Bleached yarns, No. 17.</td>
</tr>
</tbody>
</table>

Samples of bleached linens, including all the above qualities of power-loom and hand-loom linens.

Bleached linens, unfinished.

Dry heckled linens, Nos. 8 to 16.

Dyed and finished linens and hollands.

Shirting and pillow-case linens.

Brown and bleached linen drills.

Woven shirt-fronts.

Linens and cambric handkerchiefs.

Sample of 1/4 fronting linen, exhibited as a specimen of the finest quality of linen woven in Ireland.
Class XIX. — South-East Gallery, South-East Transept.

McIntyre & Patterson, Belfast.—Specimens of Irish flaxes and linen yarns.


Mathewson, James, & Son, Dunfermline, Scotland.—Double damask table-cloths and napkins &c.

Matty, Henry, & Co., Belfast.—Linens and handkerchiefs, plain, printed, and sewed.

Miller, O. G., Dundee.—Line, tow and jute yarns, grey, bleached, and otherwise prepared.

Moir, John, & Son, Dundee.—Linens woven by power; ducks, dowlas, osnaburghs; brown, cream, and bleached sheetings, &c.

Moncur, A., & Son, Dundee.—Linens, salt and grain sacks, and sacking.


Normand, James, & Sons, Dysart, Fifeshire, Scotland.—Linen, cotton, and union table damasks, diapers, and handkerchiefs.

Nutt, Richard, 31 Trippett, Hull.—Oil press, hairs, and press bagging.

Paterson, James, Dundee.—Hemp carpeting, Manilla and coir matting, hearth rugs, corn sacks, &c.

Preston, Smith, & Co., Belfast.—Flax; yarns; linens, bleached and grey; handkerchiefs, linen and cambric.

Class XIX.
CLASS XIX.—Flax and Hemp.

Richardson, James N., Sons, & Owens, Belfast, Ireland.—Flax, linen, damask, &c.

Robertson, John, Middle Hills, near Coupar Angus, Perthshire.—Flax-tow sheetings, bessiains, sackings, &c. Linen shirtings, ticks, paddings, canvas, &c.

Russell, J. N., & Sons, Limerence Mills, Limerick.—Flax, yarns, linens, &c., the produce of the province of Munster.

Samson, Hugh, & Sons, Hill Bank, Dundee, Scotland.—Flax, yarns, linens, &c., the produce of the province of Munster.

Richardson, James N., Sons, & Owens, Belfast, Ireland.—Flax, linen, damask, &c.

Robertson, John, Middle Hills, near Coupar Angus, Perthshire.—Flax-tow sheetings, bessiains, sackings, &c. Linen shirtings, ticks, paddings, canvas, &c.

Russell, J. N., & Sons, Limerence Mills, Limerick.—Flax, yarns, linens, &c., the produce of the province of Munster.

Samson, Hugh, & Sons, Hill Bank, Dundee, Scotland.—Flax, yarns, linens, &c., the produce of the province of Munster.

Stuart, J. & W., Musselburgh, Scotland.—Patent pilchard, sprat, and herring fishing nets, and fishing twines in cotton and hemp, all manufactured entirely by machinery.

These twines, herring, pilchard, and sprat nets, made by machinery from cotton and hemp, are very superior to hand-made goods of the same description. They are now universally adopted by the British fisheries, and generally by foreign countries. These nets are more durable and more successful in taking fish, from the exactitude of their make. J. & W. S. are the sole patentees.

Terrell, W., & Sons, 6 Welsh Back, Bristol.—Manilla and other cordage, twine cord and line, dressed flax and hemp, &c.


Utter, John, 130 Edgware Road, London, W.—Hemp and flax in its raw state, also manufactured.

Walker, John, & Co., Arbroath.—Sailcloth and sail twine.

Walker, J. & H., Dundee.—Jute yarns, sackings, guano bags, wool packs, &c.

Wilford, John, & Sons, Brompton, Northallerton, Yorkshire.—Plain and fancy linen drills, white, paddled, and printed.

Wilks Brothers & Seaton, 50 Watling Street, London.—White, coloured, fancy and silk and wool flannels.
CLASS XIX.—South-East Gallery, South-East Transept.

[3807]
Wilson Brothers, 29 Lowther Street, Whitehaven.—Double-twilled, diamond-twilled, and plain double sailcloth.

[3808]
Wilson, George, Hatton Rudby, Cleveland, Yorkshire.—Long cloth, and flax sailcloth.

In this case are samples of the 'Cleveland Sail Cloth,' now so extensively used, and appreciated for its strength and durability.

[3809]
Yeoman & Co., Osmotherley, Northallerton.—Linen drills, ducks, huckabacks, and yarns suitable for their manufacture.

[3810]
Hounsell, W., & Co., Bridport.—Twines, lines, nets, canvas, &c.
CLASS XX.

SILK AND VELVET.

[ 3840 ]
Adshead, William, & Co., Higher Fence, Macclesfield.—Dyed silks.

[ 3841 ]
Allen, Joseph, Spa Mills, Derby.—Elastic gusset webs, worsted braids, &c.

[ 3842 ]
Alsop, Downes, Spilsbury, & Co., Leek, Staffordshire, and Haggin Lane, London.—
Braids, bindings, serges, buttons, sewings, twist.

[ 3843 ]
Ballance, Thomas, & Son, 13 Spital Square.—Rich black silks and velvets.

[ 3845 ]
Bickham, Pownall, & Co., 2 York Street, Manchester.—Broad silk goods.

[ 3846 ]
Birkesough, John, Macclesfield, and 38 Gresham Street, London.—Gentlemen's scarfs,
neck and pocket handkerchiefs, sarcenets, &c.

[ 3848 ]
Brocklehurst, J. T., & Sons, Macclesfield, and 33 Milk Street, London.—Thrown silk
and waste silk goods.

[ 3849 ]
Browett, Frederick, Coventry.—Ladies' dress trimmings, gimps, and fringes.

( 21 )
CLASS XX.—Silk and Velvet.

[ 3851 ]

[ 3852 ]
CARR, THOMAS, & Co., Leek.—Bindings, tailors' and machine twist, sewings, serges, &c.

[ 3853 ]
CARTER & PHILLIPS, Coventry.—Plain and fancy ribbons.

[ 3854 ]
CASH, J. & J., Coventry.—Ribbons and cambric frillings.

[ 3855 ]
CADDICK, John, 12 a Mosley Street, Manchester.—Plain and fancy silks.

[ 3856 ]
CADDICK, Joseph, 33 Fountain Street, Manchester.—Silks.

[ 3857 ]
CHEETH & Co., Stockport.—Power-made hat plushes, velvets, and piled fabrics.

[ 3858 ]
CORNELL, LYELL, & WEBSTER, 15 St. Paul's Churchyard.—Ribbons and moiré antiques.

[ 3859 ]
COE, W. W, & Co., Macclesfield, and No. 1 Wood Street, London.—Gentlemen's scarfs, cut up cloth, dress silks, ladies' ties, shawls.

[ 3860 ]
COX, R. S., & Co., Coventry, and 7 St. Paul's Churchyard, London.—Crapes and aerophanes, black and coloured.

[Obtained Gold Medal at the Paris Exhibition, 1855.]

Black and Coloured Crapes and Aerophanes. As the exhibitors were jurors for this Class in the Exhibition of 1851, they were not permitted to compete for the Prize.

[ 3861 ]

[ 3862 ]
CRITCHLEY, BEESLEY, & Co., Macclesfield, and 1 Wood Street, Cheapside, London.—General assortment of ladies', gentlemen's, and boys' silk handkerchiefs and scarfs &c.

[ 3863 ]

[ 3864 ]
COTTRELL, PIGGOTT, & Co., Spring Gardens, Manchester.—Black glaces, and other plain and fancy silks.

[ 3865 ]

[ 3866 ]
DALLAS & BARTON, 173 Aldergate Street, London, and Coventry.—Ribbon, carriage lace, and upholstery trimmings.
Class XX.—South-East Gallery.

[3865]
Davidson & Myatt, Leek, Staffordshire, Manufacturers of machine twist for patent sewing machines, tailors' twist, &c.

[3866]
Ellis, L. M., & Isaacson, F. W., 170 Regent Street.—English silks, own manufacture.

[3868]
Franklin, William, & Son, Coventry.—Medium qualities of plain ribbons, &c.

[3869]
Gibson, Silas, jun., Leek.—Machine twist, legge and silk twist, sewing silks, sewn buttons, &c.

[3870]
Grant & Gask, 59 to 62 Oxford Street.—Tissue de verre.

[3871]
GROUT & Co., 12 Foster Lane, London.—Crepes, aerophanes, and lises.

[3872]
Hadwen, J., Wilson, Kelvroyal Mills, Halifax.—Silk waste yarns and tissues; silk waste and mohair yarns and tissues.

[3873]
Hart, James, Coventry.—Silk ribbons made by steam power.

[3874]
Hennell & Elb, Coventry and Derby.—Raw and thrown silk.

[3875]
Houldsworth, James, & Co., 23 Portland Street, Manchester.—Silk damasks, brocatelles, and other furniture fabrics; machine-embroideries &c.


These silk and other furniture fabrics are woven by power-looms, and are sufficiently wide for curtains without seams. The recent application of power to their manufacture places them within the reach of large houses hitherto unable to obtain such goods. Silk brocatelles equal in fineness of fabric and color to any produced either in France or England, are here exhibited; the cost of which at any of the large upholstery and furnishing establishments in the kingdom will not exceed 2s. 6d. to £10. 10s. per window, independent of making up, lining, &c.

The French have not yet succeeded in applying steam power to the manufacture of such goods; and as these are equal in design, quality, color, &c., they compete successfully with French goods in the principal markets of the world.

The embroidery is done by machinery, and at a very moderate cost. This firm makes a great variety of fancy goods in silk, viscose, cotton, &c., for the South American, African, Indian, and other markets; many of them in imitation of native productions; but those it has not been thought desirable to exhibit.

[3876]
Keith & Co., 124 Wood Street, London.—Furniture silks; silks for carriage lining.

[3877]
Kemp, Stone, & Co., 34 & 35 Spital Square, N.E.—Broad silks and velvets.

[3878]
La Mare, Ebenezer Robert, Manchester.—Plain and fancy silk goods.

[3879]
Newsome, Charles, Coventry.—Plain and fancy ribbons of Italian and Chinese silk.
CLASS XX.—Silk and Velvet.

[3880]
Payn, J. J., Aldermanbury.—Plain and figured silk reps, tissues, brocatelles, borders, &c.

[3881]
Peel, Greenshalne, & Co., Bury; Whitatt, George, & Son, Manchester.—Silk union velvets by steam power.

[3882]
Ports & Wright, Manchester.—Saracenets, and black handkerchiefs.

[3883]
Pownall, Stubs, & Co., Leek, Staffordshire.—Sewing silks, twists, needleworked buttons, military ornaments, machine twists, whip lashes, tassels.

[3884]
Raylock, John, & Son, Coventry.—Plain and fancy ribbons.

[3885]
Russell, Dalgliesh, & Co., Blackhall Factory, Paisley.—Thrown silks, gum and soft-dyed and spooled; fringes, sewings, &c.

[3886]
Salkeld, John, & Co., Dalton, near Huddersfield.—Silk samples, illustrative of the processes of silk throwing and spinning; also patent sewings.

[3887]
Seamer, Thomas, 5 Milk Street, Cheapside.—Moire antiques, velvets and plain silks.

[3888]
Slater, Buckingham, & Slater, 35 Wood Street, London, E.C.—Gentlemen's silk cravats, scarfs, and ties.

[3889]
Simpson, M. & W., Leek.—Machine-sewing silk, without knots; unweighted dye; also bindings, trimmings, &c.

[3890]
Slingsby, Henry, Park Street, Coventry.—Specimens of silk scarfs, neck-ties, badges, mantle and shawl trimmings, &c.

[3891]
Small, William, Macclesfield, and 20 & 41 Gutter Lane, London.—Saracenets and gentleman's scarfs.

[3892]
Sudeley Local Committee, Sudbury.—Specimens of silks, velvets, and brocades manufactured at Sudbury, Suffolk.

[3893]
Taylor, Sheerbrook, 45 Friday Street, London, E.C.—Plain and fancy silks; moire antiques, plain and figured; velvets, satins, &c.

[3894]
Thompson, William, & Co., Galgate, near Lancaster.—Material in its several processes, from waste to yarn.

[Obtained the Silver Medal at the Paris Exhibition, 1855.]

Specimens of waste silk in the raw material; illustrative. | hanks; thick and fine sewings; single and double spinnings of the same in the dressed state and carded; slubbed silk yarns; lace and dyed yarns.
CLASS XX.—South-East Gallery.

[3896]
THORP, JOHN & SAMUEL, 20 Piccadilly, Manchester, and Macclesfield.—Galloons, doubles, bindings, ribbons, &c.

[3897]
VATASSEUR, TAYLOR, & Co., 3 Watling Street.—Silk scarfs and handkerchiefs; and silk for ladies’ garments.

[3898]
WALTERS, DANIEL, & Sons, 43, 44, & 45 Newgate Street, and New Mills, Braintree, Essex. Furniture silks.

[3899]
WANKLYN, WILLIAM, Fountain Street, Manchester; 42 Cheapside, London.—Thrown silks, printed and woven silk handkerchiefs, &c.

[3900]
WATSON & HEALEY, Rochdale.—Velvet and plush, made from spun silk waste.

[3901]
WINKWORTH & PROCTER, Manchester.—Coloured glazed; plain and figured chines; and figured crystalline.

[3902]

[3903]
Cross, P. E., Sudbury, Suffolk.—Respirator scarf.

[3904]
CLARKE, Sons, & CREST, Norwich.—Silk shawls.
Class XXI.

WOOLLEN AND WORSTED, INCLUDING MIXED FABRICS.

Aber, Scott, 115 Regent Street.—Scotch clan tartans, plaids, dresses, vicuna wools, shawls, cloakings, linsey woolseys.

[3935] Aikens, James, & Son, Halifax.—Worsted yarns and fabrics, mixed fabrics, furniture and dress goods, coatings.

Anderson, J. & A., Princess Square, Glasgow.—Gingham and fancy dresses.


Armitage Brothers, Huddersfield.—Fancy coatings and doeskins.

[3939] Armitage, Samuel & Benjamin, Shepley, near Huddersfield.—Cloakings, coatings, cassimeres, fancy vestings and quiltings, Balmoral skirts.

[3940] Barber, Joshua, & Sons, Holmebridge Mills, near Huddersfield.—Fancy trouserings and fancy coatings.

Barker, B., & Son, Cookridge Street, Leeds.—Superfine woollen cloths, beavers, and cassimeres.

[3942] Barrow, Robert, Gillroyd Mills, Morley, and Leeds.—Union cloths, made from Sydney wool and mungo.

Bennett, Samuel, & Son, Winslham, near Chard, Somerset.—Woollen cloths, livery drabs, Kerseys, and drab Devon.

These exhibitors are manufacturers of Livery and Kersey Cloths, and spinners of Lambswool.
CLASS XXI.—Woollen and Worsted, including Mixed Fabrics.

[ 3945 ]
Birchall, J. D., Wellington Street, Leeds.—Woollen cloths, ladies' mantle cloths, and fancy woollen coatings.

[ 3946 ]
Bird, Oliver, Southfields, Stroud, Gloucestershire.—Scarlets, blues, blacks, green billiard-cloth, doeskins, &c.

[ 3948 ]
Bishop, Son, & Hewitt, Leeds.—Waterproof tweeds &c.

[ 3949 ]
Blakeley brothers, Dewsbury.—Shoddy and mungo, made from woollen rags.

[ 3950 ]
Bliss, Wm., & Co., Chipping Norton, Oxon, and 26 Basinghall Street, London.—Shawls and cloakings from a variety of furs and woofs; bed coverlets; all kinds of woolens &c.

[ 3952 ]
Bolingbroke, C. T., & Jones, Norwich.—Paramattas, poplins, poplinets, shawls, fancy cloakings, and fancy dresses.

[ 3953 ]
Bowman, Jas., & Son, Langholm, Scotland.—Scotch tweeds.

[ 3954 ]
Bradford Local Committee, Bradford.—Wools.

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[ 3955 ]
Yarns.

[ 3956 ]
Alpacas and mohair goods, plain and figured.

[ 3957 ]
Orleans cloths, plain and figured.

[ 3958 ]
Cobourg, paramatta, barathea, reps, cords, cloths.

[ 3959 ]
Lastings, sergo de Berri, crapes, stockinetts, gambroons, camlets.

[ 3960 ]
Italian summer cloths, Russell and mottled cords.

[ 3961 ]
Umbrella cloths.

[ 3962 ]
Mixed and mottled worsted and alpaca goods, and winseys.

(28)
Class XXI.—South-East Gallery.

Bradford Local Committee.—Fancy goods: alpaca, mohair, worsted, silk, &c.

Worsted goods: merinos, sayes, shalloons, &c.

Moreens.

Damasks, reps, and table-covers.

Wool shawls, delaines, and shawl cloths.

Braithwaite & Co., Kendal.—Plain and fancy woollens, coatings, coat linings, linseys, and collar checks.

[Braithwaite & Co. obtained a Medal at the Paris Universal Exhibition in 1855.]

The Committee appointed by the Huddersfield Chamber of Commerce to report on the Paris Exhibition, state as follows:—

"The black and white tweeds from Kendal are very good in colour and mixture; ..." The Kendal tweeds, sheepers' plaid, and shawlings are superior to any exhibited, in purity and firmness of colour, and fine soft woolly handle.

Brewin & Whetstone, Leicester.—Worsted, lamb's wool, and merino yarns, for hosiery, knitting, and weaving.

Bridges & Sons, 4 Park Lane and Carlton Cross Mills, Leeds.—Woollen shawls of various fabric and material.

Brown brothers, Buckholm Mills, Galashiels, Scotland.—Fancy Scotch tweeds.

Brown & Collander, 20 Bread Street, and Yeadon, near Leeds.—Tweeds, meltons, and fancy cloakings.


Bull & Wilson, 52 St. Martin's Lane, London.—Woollen cloths and vestings.

Burgess, Alfred, Leicester.—Samples of English and foreign and colonial wool.

Butterworth, James, & Son, Granbooth Mills, near Rochdale.—Flannels and the incidental processes of manufacturing them.

Caley brothers, Windsor.—Furniture, silk damasks, and satins; silk and cotton diaphane, for transparent window-blinds.

Carr, Isaac, & Co., Twerton, Bath.—Fur, Twerton and patent beavers, elastic meltons, &c.

Carter, William, & Geisler, Hermann, Kirkburton.—Cloakings, coatings, livery Valencias, shepherd checks, trousering, &c.
Class XXI.—Woollen and Worsted, including Mixed Fabrics.

Cheetham, C., G., & W., Woodbottom Mills, Horsforth, near Leeds.—Volunteer army cloths.

Child, J. & J., Shelley, near Huddersfield.—Waistcoats, ladies' skirts and mantles.

Clarke, Sons, & Cope, Norwich.—Patented figured silk shawls, paramattas, tanatives, grenadines, poplins, and fancy dresses.

Clark, John & Thomas, Trowbridge, Wilts.—Woollen cloths, various.

Clay, J. T., Rastrick, near Huddersfield.—Woollen and worsted fancy goods.

Cochrane, J. & W., Mid Mill and Nathadale, Galashiels.—Scotch tweeds.

Cogswell, James, & Co., Trowbridge, Wilts.—Woollen doeskins, diagonals, Bedford ribs, cross ribs, deerskins, Venetians.

Collier, Horatio, sen., Cracley Mills, Witney, Oxon.—Samples of Witney blankets.

Comins, Alexander, Son, & Co., 10 College Green, Dublin.—Finest Irish friezes and tweeds.

Cook, A. M., 115 Cheapside.—Alpacas, mohairs, &c.

Cook, Thomas, Son, & Wormald, Dewsbury Mills.—Blankets for home and shipping trades, rugs and cloths.

Cooper, Arthur, & Co., Leeds.—Plain and fancy woollens and unions, and cloth caps.

Cooper, D. & J., Leeds.—Woollen and union cloths.

Craw, J., Thornton, near Bradford.—Superfine llama d'Ecosse, rep, and other shawls.

Crombie, James & John, Grandalme Works, Aberdeen.—Woollen goods.

Crosland, Benjamin, Oaks Mill, near Huddersfield.—Mohairs, sealskins, furs, and velvet cloths.

Crosland, W. & H., Huddersfield.—Fancy woollen and Angola goods.

Cros, William, 62 Queen Street, Glasgow.—Tartan and fancy woollen shawls and piece goods.
Class XXI.—South-East Gallery.

[4001]
Crowther, B., 60 Albion Street, Leeds.—Blankets and woollens.

[4002]
Curtis, Wilson, & Randall, 36 King Street, Cheapside, London, and at Banbury.—Printed mohair tapestry, Utrecht velvets, livery and other plumes.

[4003]
Dalrymple, William, Union Mills, Isle of Man.—Woollen goods, manufactured by the exhibitor.

[4004]
Davies, Robert S., & Sons, Stonehouse Mills, Gloucestershire.—Black, blue, and scarlet cloths, cassimeres, and doeskins.

[4005]
Day, Nephew, & Co., Dewsbury.—Pilots, Cheviots, velvet piles, fancy and heavy woollens.

[4006]
Day & Watkinson, Huddersfield.—Drab kerseys and Bedford cords.

[4007]
Dicksons & Lains, Wilton Mills, Hawick.—Cherriot, Australian, and Saxony wool tweeds and plaids.

[4008]
Dixon, Thomas Daniel, Morley, near Leeds.—Black medium union cloth, black milled union cloth, made from Sydney wool and waste.

[4009]
Dobson, J. & A., Invercauld, N.B.—All-wool tweeds, shirtings, shawls, cloakings, and Indian cloths, to order.

[4010]
Dobson & Riley, Pennsy Mills, Huddersfield.—Fancy woollen manufactures.

[4011]
Doran, J. C., Britannia Street, Leeds, and Horsforth.—Army, police, and export cloths.

[4012]
Drinkwater, William, Salford Woollen Mills, Manchester.—Woollen cords, worsted and cotton tweeds.

[4013]
Early, Edward, & Son, West End, Witney.—Witney blankets, tiltings, yarns, rugging, collar cloths.

[4014]
Early, John, & Co., Witney.—Blankets, pilot cloths, and tweeds.

[4015]
Early, Richard, jun., Witney.—Prince’s checks, webs, kerseys, tiltings, mop yarns.

[4016]
Early, William, & Sons, Lonsway Mills, Barnley.—Worsted and mixed stuffs &c. (See page 32.)

[4017]
Esmonds & Co., Bradford, Wiltshire.—Sample of superfine blue cloth, two samples of wool dyed black.
Egrov, William, & Sons, Lomahaye Mills, Burnley.—Worsted and mixed stuffs, dyed and mixed fabrics for printing.

The exhibitors manufacture stuffs and mixed fabrics for dyeing and printing. The following specimens of their goods are exhibited:

1. WARP OF COTTON, WEST OF WOOL.
   - Coburg Cloth, twist, heavy.
   - Do, do, medium.
   - Do, do, light.
   - Union Morris, do, heavy.
   - Double Twill, twisted on both sides.
   - Italian Cloth, sateen, twist.
   - Union Sutherland, do.
   - Satin de Chine, do, light and fine for linings.
   - Summer Cap, rod, for dresses.
   - Canton Cloth, plain, do.

2. WARP OF COTTON, TWO-FOLD, AND MIXED BEFORE WOVEN, WEST OF WOOL.
   - Parmatissi, twist, for dressings.
   - Do, do, twisted on both sides.
   - Selandia Cloth, rod, for dressings.
   - Canton Cloth, plain, do.
   - Union Princess, twist.
   - Union Shalloon, twisted on both sides.
   - Italian Cloth, sateen, twist.
   - Union Russell, do, extra heavy.
   - Russell Cord.

3. FABRICATION SATEEN WORKED WITH WOOL.
   - Mousseline de Laine.
   - Merino, single and double warp.
   - Shalloon, for old and new mills.

4. WARP OF SILK, WEST OF WOOL.
   - Parmatissi, or Henrietta Cloth, twist.
   - Venetia Cloths, twist, lighter.
   - Italian Cloth, do, very light.
   - Castilian Cloth, twisted on both sides.
   - Canton Cloth, plain.

5. FABRICATION FOR PRINTING, EXHIBITED SOUCHAR.
   - Mousseline de Laine, plain, all wool.
   - Do, do, cotton warp.
   - Odissea Cloth, plain, double warp and blest, wet.
   - Do, do, double warp and demi-lustre wet.
   - Do, do, single warp and blest, wet.
   - Do, do, single warp and demi-lustre wet.
   - Persian Cloth, plain, light, and soft.
   - Challis Cloth, do, very light and soft.
   - Twill, soft wool wet.
   - Sicilia Cord, blest wet.
   - Do, demi-lustre wet.

Henry Foulard, for autumn.
Light do, for spring.

The dimensions of all cloths can be varied for special orders.

William Egrov & Sons supply wholesale homes only. All goods sold by them, and bearing their trade mark, are their own manufacture, and are variable in dimensions, quality, or substance, to any article, so long as it retains the same quality mark. All special orders are registered at the works, to ensure exact reproduction.

Elworthy, W. & T., Wellington, Somersetshire.—Serges, blankets, yarn, &c.

The following goods, of which samples are exhibited, are manufactured by this firm, viz.:

Serges, cottons, long- or China, and swansdowns for Newfoundland, &c.
Shale, serge, genuine boucliers, summer raceing cloths,

Fild, Richard, Skelmores, Hebbardsfield.—Silk, worsted, and cotton vestings,
Balmainor skirts, &c.

Fielding & Johnson, Leicestershire.—Worsted, plain and fancy horsehair, knitting and power looms.

Firth, Edwin, & Sons, Heckmondwike and London.—Blankets, cloths, sealkins, mohairs,
railway rugs, and horse rugs.

Forbes & Hutchinson, 5 Forbes Place, Paisley.—Shawls and dresses.

Fox, John James, & Son, Derizes.—Broad and narrow cloth, entirely of English wool.

This case contains examples of Devon kerseys, Bolden ors, brodies, and various fancy tracings,
coloured, dyed, and undyed. These are all made entirely

of Bollish Sandbloom wool, and for durability are unassured by any other cloths whatever.

Class XXI.—Woolen and Worsted, including Mixed Fabrics.

[ 4019 ]

[ 4023 ]

[ 4024 ]

[ 4025 ]

[ 4026 ]

[ 4027 ]

[ 42 ]
Class XXI.—South-East Gallery.

[ 4028 ]

Francis & Flint, Nailsworth Mills, Stroud.—Wool-dyed black and blue cloths, and ditto doekskins.

[ 4029 ]

Fry, William, & Co., 31 Westmoreland Street, Dublin.—Irish poplins or tabinets, and brocatelles for curtains.

[ 4030 ]

Fyfe, Alexander, & Co., 77 Queen Street, Glasgow.—Fancy dress fabrics.

[ 4031 ]

Fyfe, H., & Son, Glasgow.—Ginghams, drugget skirts, fancy dresses.

[ 4032 ]

Garyie & Deas, Perth.—Dress, linen, and cotton fabrics; dress wincies; fingering, lambs-wool, and wheeling hosiery.

[ 4033 ]

Gill, Robert, & Son, Inverleithen.—Scotch tweeds, wool tartans, &c.

[ 4034 ]

Gloyne, C. G., Bradford Road, Dewsbury.—Plain and figured pilots, witneys, velvet piles, Cheviots, mantle cloths, &c.

[ 4036 ]

Gott, Benjamin, & Sons, Leeds; 37 Milk Street, London.—Woollen cloths, mantle cloths, blankets, woollen yards.

[ 4037 ]

Gow, Butler, & Co., 55 Wilson Street, Glasgow.—Shawls and fancy dress fabrics.

[ 4038 ]

Greenwood & Cartwright, Rawfolds, near Leeds.—Woollen cloaks for the Eastern markets.

[ 4039 ]

Greenwood, John, & Sons, Dewsbury.—Pilots, petershams, witneys, cheviots, &c.

[ 4040 ]

Grist, Sons, & Co., Brinscombe, Gloucestershire.—Mattress wools, woollen and shoddy flocks made from woollen rags.

[ 4041 ]

Grist, Henry, Son, & Tabram, Nailsworth, Gloucestershire.—Shoddy, a preparation of wooden rage for remanufacture; flocks for beds and mattresses.

Case of samples of shoddy for manufacturing purposes, flocks for beds and mattress wools, with prices.

[ 4043 ]

Harbey & Nessets, Farnley Lov Mills, near Leeds.—Fancy and superfine woollen cloths.

[ 4044 ]

Hartley, John, & Co., Low Fold Mills, Leeds.—Plain and fancy union cloths, beavers, woollens.

[ 4045 ]

Hartleys & Hardwick, Aire Street, Leeds.—Cloths, unions, tweeds, and coatings.
Class XXI.—Woollen and Worsted, including Mixed Fabrics.


[ 4047 ] Hatterley, George, & Son, Quarry Wharf Mills, near Huddersfield.—Fancy union cloths.


[ 4051 ] Hey, Geo., Kirkbarion, near Huddersfield.—Fancy woollen cloths.


[ 4053 ] Hinchcliffe, John & James, Morley and Leeds.—Union cloth made from Sydney wool, waste, and mungo.

[ 4054 ] Hyde, F., & Son, Norwich, and 82 Walling Street, London.—Paramattas, tamatives, grendines, poplins, &c.

[ 4055 ] Hitchcock, George, & Company, 72, 73, 74 Saint Paul's Churchyard.—Ladies' fancy dresses, in woven and printed fabrics.

[ 4056 ] Hodger, T. W., & Sons, Leicester; 18 Noble Street, London; 13 Lever Street, Manchester.—Elastic webs.


Howse, Mead, & Sons, 18 St. Paul's Churchyard, London.—Woollen manufactures.

Hudson & Bousfield, Leeds.—Plain and fancy woollen and union cloths.

Hunt & Co., Lodgemove and Frome Hall Mills, Stroud, Gloucestershire.—Superfine black cloths and doeskins, scarlets, billiards, &c.

Hunt & Winterbotham (late Thomas Hunt & Co.), Cam and Dursley Mills, Gloucestershire.—Superfine woollen cloths.

Ireland, John, & Co., Kendal.—Railway rugs, kerseys, linseys, saddle-cloths, coat linings, Prince's checks, and collar checks.

Irwin, Edward, Leeds.—Douhle-milled woollen cloths, beavers, and pilots.

Jay, George, & Son, Albion Mills, Norwich.—Mohair and alpaca yarns.

Jebbson, J. & J., Skelmorlie, near Huddersfield.—Fancy waistcoatings and skirtings.

Jenkins, William, Carmarthen Road, Swansea.—Welsh cloth and Welsh striped flannel.

Johnston, James, New Mill, Elgin.—Tweeds and mantles of Cheviot and Australian wool; ditto made from Vicugna wool.

Joxas, Simonsen, & Co., Huddersfield.—Woollen and union goods, and patent felt carpets.

Jones, Raeburn, & Wat, 127 Cheapside.—English and Scotch fancy woollen goods, original designs.

Jordan, James, Huddersfield.—Fancy vestings, coatings, mantle cloths.

Kenton, J. & T., Huddersfield.—Fancy woollens.

Kelsall & Kemp, Rochdale, Lancashire.—White and coloured flannels, swanskins and domes.

Kerr, Scott, & Kilner, 58 Cannon Street West, London.—Shawls.

Koensstam, Herman, 33 Dogate Hill, Cannon Street, London, E.C.—Leather cloths, with materials for its manufacture.
CLASS XXI.—Woollen and Worsted, including Mixed Fabrics.

[4081] Laidlaw, William, & Sons, Hawick, Yarn spinners, manufacturers of Scotch hosiery, tweed trousseings and coatings.

[4082] Laird & Thomson, 69 Ingram Street, Glasgow.—Mixed fabrics, woollen cloth, and poncho cloth.

[4083] Laverton, Abraham, Westbury, Wilts.—Fancy woollen cloths, silk mixtures, Meltons, Venetians, Arctic fur, and mable bosiers.

[4084] Leach, John, & Sons, 2 Yorkshire Street, Rochdale; 83 Wood Street, Cheapside, London. Flannels, baizes, &c.

[4085] Lees, George, Gala Bank Mill, Galashiels.—Saxony shawls and clothings, Angolas or Saxony tweeds.

[4086] Liddell, Bennett, & Martin, Upperliead Mills, Huddersfield.—Fancy woollens.

[4087] Liebmann, M., Huddersfield.—New felted carpet, called 'Airdale Felt.'


[4089] Locke, Crozer, & Edwards, 64 Friday Street, E.C.—Shaws, mantle cloths.

[4090] Lockwood & Knightley, Huddersfield.—Patent woollen cords, all-wool cords, and woollen velvetens.


[4092] MacDougall & Co., Inverness.—Tweed, tartans, &c. (See page 37.)

[4093] Mallerston, David, Lepton, near Huddersfield.—Fancy vestings, skirts, and trousseings.

[4094] Marriott, Thomas, & Son, Wakefield, Yorkshire.—Yarns and worsteds.

Single and double yarns and worsteds, in low and fine qualities, dyed, undyed, mixed, corded or counted, thick or small numbers.

[4100] Mellor, Joseph, & Son, 30 New Street, Huddersfield.—Doeskins, satins, and fancy unions.
CLASS XXI.—South-East Gallery.

MacDougall & Co., Inverness.—Highland tweeds, tartans, linseys, plaid, shawls, knitted hosiery, &c.

[Obtained a Prize Medal at the Exhibition of 1851.]

Since the International Exhibition of 1851, the exhibitors have effected great improvement in the quality, design, and colour of their woollen manufactures. Their hand-made fabrics are largely patronised by several Euro-

pean courts, and the nobility and gentry of their own country. Many poor families of the remote straths and glens of the Highlands find employment in the manufacture of these goods.

The following Specimens of these well-known fabrics are exhibited:—

Deer-stalking and Shooting Tweeds.

Heather and Granite Mixt Elastic Tweeds for Gentlemen's Clothing for travelling, country, and town wear, and for tropical climates.

Hand-knitted Stockings and Socks in natural colours and dyes.

The Highland Dress for Men, Youth, and Boys.

Wool Clan Tartans in fine textures and brilliant colours.

Linsey Woolseys, the favourite fabric for Ladies' Dresses, in pretty natural tints.

Hand-knit Shetland Shawls in plain and various fancy colours.

Fine Clan Tartan Plain Shawls.

Vicuna Shawls and Wrappins.

Patterns sent post free on application, and goods forwarded to all parts of the world free of risk.

(37)
Class XXI.—Woollen and Worsted, including Mixed Fabrics.

[ 4101 ]

[ 4102 ]
Millman, L., & Foxwell, Nind Mills, Wotton-under-Edge.—Superfine woollen cloths and doekkins.

[ 4103 ]
Milner & Hale, Huddersfield.—Fancy coatings and mantle cloths.

[ 4104 ]
Milner & Nokes, Thurlstone, near Penistone, Yorkshire.—Claret, drab, grey, and fancy hairlines.

[ 4105 ]
Mitchell & Whytlaw, Glasgow.—Fancy dress fabrics.

[ 4106 ]
Morris, John, & Co., 110 Causeyside, Paisley.—Shawls and woollen tartans.

[ 4107 ]
Newby & Woodhouse, Bookfoot, Brighouse, Yorkshire.—Fancy unions.

[ 4108 ]
Nolda, Charles, & Co., 2 Church Court, Old Jewry.—Fancy woollens.

[ 4109 ]
Norton, Joseph, Clayton West, near Huddersfield.—Shawls, mantle cloths, coatings, rugs, dress goods.

[ 4110 ]
Oates & Blakeley, Dewsbury.—Frieze, figured pilot, and velvet cloths, Cheriot tweeds, and fancy cloakings.

[ 4111 ]
Oakes, Henry, & Son, Heckmondwike, near Leeds.—Blankets, woollens, army goods, &c.

[ 4112 ]
O'Reilly, Dunne, & Co., 30 College Green, Dublin.—Irish poplin and tabinets.

[ 4113 ]
Paton, John, Son, & Co., Kirkcudbright, Scotland.—Woollen shawls and cloakings, in clan, shepherdess, and fancy patterns.

[ 4114 ]

Woollen Yarns for hosiery and other purposes.

[ 4115 ]
Peace, David, Shelley, near Huddersfield.—Waistcoatings.

( 38 )
Peace, W., Skipton, near Huddersfield.—Vestings.

Peach, Henry, & Co., Darlington and Bradford.—Worsted mixed fabrics (Coburgs, Henriettas, Barathes) and worsted yarns.

[Obtained Prize Medals at the Exhibition of 1851; at the New York Exhibition, 1853; and the Paris Exhibition, 1855.]

The exhibitors' London Agents are:—

For Piece Goods: Thomas Lawes, 6 Castle Court.

For Yarns: Henry Bateman, 15 King Street, Cheapside.

Pim Brothers & Co., South Great George's Street, Dublin.—Irish poplins of every description.

Playne, P. P. & C., Nailsworth, near Stroud.—Superfine woollen cloths.

Podd, Thomas, & Co., Leicester.—Worsted, woollen, and Berlin yarns; for embroidery, knitting, and weaving.

Ratcliffe & Sons, Staley, Huddersfield.—Plain and fancy flannels.

Reid & Taylor, Langholm, Scotland.—Scottish tweed and maud manufacturers.

Rhodes, Daniel, & Sons, Dewsbury.—Sealskins, velvet piles, Cheviots, travelling rugs, &c.


Roberts, Jowlings, & Co., Lightpill Mills, Stroud.—Woollen cloths and doeskins.

Robertson, John, Middle Hills, near Coupar Angus, Perthshire.—Fast-coloured mixtures of flax &c., with volunteer uniforms of same, costing 15s. only.

Salter, Samuel, & Co., Trowbridge, Wiltshire.—Plain and fancy woollens.

Schofield, John, & Sons, Commercial Mills, Huddersfield.—Tweeds, wool and angola yarns, knickerbocker yarns.

Schwans, Kell, & Co., Huddersfield.—Cloakings and coatings.
Class XXI.—Woollen and Worsted, including Mixed Fabrics.

Scott, Alexander, & Son, Alice Valley Mills, Morley, near Leeds.—Woollen and union cloths from 3s. 6d. to 15s.

[ 4136 ]

Shaw, J., Huddersfield.—Trouserings.

[ 4138 ]

Shaw & Beaumont, Kirkheaton and Huddersfield.—Fancy woollen trouserings and coatings.

[ 4139 ]

Sheard, M., & Sons, Batley, Yorkshire.—Pilots, velvets, and reversible cloths.

[ 4140 ]

Sheppard, W. B. & G., Prance.—Superfine cloths and fancy woollen goods.

[ 4141 ]

Shirland, John, & Co., Abbot's Mill, Galashiels.—Fancy Scotch woollen trouserings.

[ 4142 ]


[ 4143 ]

Smith, Robert, & Son, Hayford Mills, near Stirling.—Wincey, linsey, and woollen manufactures.

[ 4144 ]

Smith, William, Son, & Co., 14 Cookridge Street, Leeds.—Woollen cloths, fancy meltons, naps, witneys.

[ 4145 ]

Steers, David, & Co., 167 George Street, Paisley.—Paisley long and square shawls, and Scotch woollen shawls.

[ 4146 ]

Spence, James, & Co., 77 & 78 St. Paul's Churchyard, London.—Shawls of various textures, poplins, mohairs, challies, and alpacas.

[ 4147 ]

Stalcomb, William & John, Trowbridge, Wilts, and 8 Basinghall Street, London.—Fancy woollens.

[ 4148 ]

Stanley & Co., 112 Jermyn Street, St. James's.—Hand-knit Shetland goods.

[ 4149 ]

Stanton & Son, Stafford Mills, near Stroud.—Woollen cloth.

[ 4150 ]

Starkie, James & Abel, Shepbridge, near Huddersfield.—Woollen cords, Bedford cords, and velveteens.

[ 4151 ]

Stockdale, William, High Burton, near Huddersfield.—Fancy cloakings and coatings.

[ 4152 ]

( 40 )
Class XXI. - South-East Gallery.

[4156]
Seyes, David, Brookfield Mills, Hunslet.—Woollen cloths.

[4157]
Seyes, Godfrey, Dalton, Huddersfield.—All-wool and mixed fancy coatings, trouserings, fancy vestings, and Balmoral skirts.

[4159]
Taylor, John, & Sons, Newcome, Huddersfield.—Fancy woollen and silk trouserings and coatings; fancy vestings, quiltings.

[4161]
Thorpe, William, Almondbury, near Huddersfield.—Trouserings, coatings, and tweeds.

[4162]
Treshner & Glenst, 152 Strand, London.—Kashmir flannel, India tweed, Madah cotton.

These exhibitors are the only manufacturers of
Treshner’s Kashmir flannel shirts.
Treshner’s Kashmir woollen socks.
India tweed suits.
India gauze waistcoats.

Their establishment is situated next door to Somerset House, Strand.

[4163]
Tolson Brothers, Dalton, near Huddersfield.—Quiltings, and other waistcoatings, dresses, &c.

[4164]
Towler, Bowling, & Allen, 15 Watling Street, E.C.—Norwich paramattas, poplins, fancy dress, shawl, hosiery.

[4165]
Turnbull, William, & Co. 21 Glassford Street, Glasgow.—Scotch tweeds and hosiery.

[4166]
Turner & Mutzer, 14 West Nile Street, Glasgow.—Dresses in mixed fabrics of cotton, mohair, and silk.

[4168]
Vickermann, B., & Sons, Huddersfield.—Broad and narrow cloths.

[4169]
Wade, Joseph, & Son, Morley, near Leeds.—Union cloths for home and export.

[4170]
Holroyd, J., & Co., Leeds.—Plain and fancy woollen and union cloths.

[4171]
Walker, G., Lindley, near Huddersfield.—Coatings.

[4172]
Wall & Co., Welshpool, North Wales.—H.M. Majesty’s own and other flannels, tweeds, and clothing of Welsh manufacture.
The following are exhibited:

- Thick close-knit shawls and handkerchiefs, in white and natural colours.
- Various articles of under-clothing, elastic, light, and warm, for children, ladies, and gentlemen.

The exhibitors manufacture railway wrappers, Scotch tweeds, coat linings, horse clothing, girth webs, &c.

[Obtained Prize Medal at Exhibition of 1861, and Silver Medal at the Paris Exhibition, 1855.]

- Checkered serge, Prince's checks, roller and girth webs, &c.
- Woolen coat linings, chintz, horse clothing.

The following are exhibited:

- Blankets, hammock-sheets, and neck ties, in white, black, natural colours, and dyed colours.
- Vails in black, white, and natural colours.

The exhibitors manufacture railway wrappers, Scotch and Cheviot tweeds.

**Class XXI. — Woollen and Worsted, including Mixed Fabrics.**

[4173]

Wandle Felt Company, Hanover Street, Long Acre, and Royal George Mills, Manchester. Cloths and felts for mechanical operations.

[4174]

Watson & Naylor, Pike Mills, Kidderminster. — Samples of worsted yarns, carded and combed.

[4175]

Watson, Wm., & Sons, Dungeryfield Mills, Hawick, Scotland. — Scotch tweeds and plaids.

[4176]


[4177]


[4178]


[4179]

White, John (Successor to W. B. MacKenzie), 12 Frederick Street, Edinburgh. — Shetland woollen articles, hand knitted in Shetland.

The following are exhibited:

- Lace shawls, handkerchiefs, and neck ties, in white, black, natural colours, and dyed colours.
- Vails in black, white, and natural colours.

[4180]

Whiterhead, Edmund, 21 Rook Street, Manchester, and Springwood Mills, Middleton. — Poplins and poplinettes.

[4181]


[4182]

Whitelst, Thor., & Son, Stainland. — Tweeds.

[4185]

Wilks brothers & Seaton, 80 Watling Street, London. — Irish linens.

[4186]

Wilson, John J. & William, Kendal. — Railway wrappers, Scotch tweeds, coat linings, horse clothing, girth webs, &c.

[Obtained Prize Medal at Exhibition of 1861, and Silver Medal at the Paris Exhibition, 1855.]

The exhibitors manufacture railway wrappers, Scotch and Cheviot tweeds.

- Checkered serge, Prince's checks, roller and girth webs, &c.
- Woolen coat linings, chintz, horse clothing.

[4187]

Wilson, Walter, Alters Crescent, Hawick, N.B. — Tweeds and cloakings.

[4188]

CLASS XXI.—South-East Gallery.

[4189] Wise & Leonard, Nailsworth; and Holcombe Mills, near Stroud.—The finest superfine black and blue cloths, single kersaymer and double beaver.


[4235] Hinns, Godfrey, & Sons, Deighton, near Huddersfield.—4 tweeds, diagonals, and fancy coatings of every description.

[4197] Walker, J., & Sons, Linley, near Huddersfield.—Mohairs, Hudson bays, sealskins, cashmeres, furs, brennas, shells, rugs, &c.
CLASS XXII.

CARPETS.

Boyle, J. W., 9 Great Marlborough Street.—Carpets.

Briston & Lewis, Kidderminster. (See page 46.)

Cawley, John, 28 Red Lion Street, Clerkenwell, E.C.—Adelaide mats and rugs.

Adelaide hearth-rugs and mats can be made of any size or colour to please, with Axminster rug or padded back.

These Hold mats are very suitable for private or rail-way carriages, as they do not get matted with dust, and can be easily cleaned, without injury to the colour, as they are dyed ingrain.

Cooke, Hindley, & Law, 12 Frikey Street, London; Manufactory, Livermolyne, near Leeds. Specimens of various descriptions of carpeting.

Crossley, John, & Sons, Halifax.—Carpet rugs &c.


Downing, George F., Knightsbridge, London.—Specimens of floor-cloth, ten yards wide, without seam or join.

Fairfax, Kelley, & Sons, Heckmondwike.—Carpets, blankets, sealskins, and carriage rugs.
CLASS XXII.—CARPETS.

BRENTON & LEWIS, KILDEERMANSTER.—Velvet pile carpets made by power loom, and also chenille and other rugs.

[Mr. Brenton, in Class 23, Carpets, in the International Exhibition of 1862.

*Holders of a Prize Medal at the Exhibition of 1851.*]

This firm, established in the late and present hands upwards of forty years, is the largest carpet manufactur- ing concern in the locality, and, in connection with their warranted spinning mills, affords employment to about 600 workpeople. Special attention is devoted to produce, in the higher as well as in the ordinary carpet fabrics of daily use, excellence of design and durability of wear, so as to equal the French manufactories in style, and by adopting all the recent improvements of power-loom machinery, far to surpass them in economy of production. These exhibitions employ their own artists on the spot (some of them trained in the School of Design), and while they superintend their own designs personally, they avail themselves also of the services of other artists of celebrity. The chief fabrics manufactured by Brenton & Lewis are—Persian and velvet pile carpets by steam power, chenille carpets and rugs, with soft carpets, figured and other rugs by power and hand loom.'

The patterns exhibited are as follows:

*In the Furniture Court.*

No. 1. A MSALONE SATYRE DESIGN, double breadth, in the illuminated style, in which the combination of rich colours with others more subdued imparts a mellow tone to the whole. The crimson medallions are contrasted with the rich tracery of the arabesques which surround them.

No. 2. A MEDALLION TURKISH ALHAMBRA.—The figures here are disposed upon a crimson ground, united with small tasteful objects, the colours employed being something similar to those of No. 1, but presenting quite a different effect.

No. 3. A CARPET ALHAMBRA.—A Dining-room carpet, tesselated ground. The leading colours are crimson and brown, with arabesque tracery in green, crimson, and blue.

No. 4. A KNOTTED AND LOOPED RUSIEN DESIGN, in self colours, grouped in trellis form. The colours are rich crimson upon a dark ground, with a jewel-ornamented border attached to the same. This carpet is specially intended for drawing-rooms.

On the Walls over the Grand Staircase

(Picture Gallery Entrance).

No. 5. PERSIAN CARPET.—This design is derived from manuscripts of the fifteenth and sixteenth centuries. The colouring is a combination of greens, blues, and browns, toned down the richer colours and harmonising with the full pavement ground.

No. 6. DRAWING-ROOM CARPET, crimson centre and brown border. This carpet is intended to represent a novel medallion pattern, the design coloured in shades of harmonised crimsons. The border which surrounds the medallion is upon a white ground, and while the crimson and brown are interwoven with a ribbon, the intention of this treatment of the border being to relieve the general weight of colour in the medallion, and to add to its appearance. It should be observed that the effect of this and other carpets hung upon the walls of the building is naturally very different to what the same would be seen on floors, as intended by the producers.

No. 7. SNAKE PATTERN.—This is a parlour or small sitting-room best Brussels carpet, and, as its name implies, is in the jewelled style. The objects on the green ground are introduced for the purpose of giving a sparkling lively effect, and when seen in the evening by artificial light the appearance is equally pleasing as by day.

No. 8. STAIR CARPET, also a best Brussels, intended to go with the preceding Jewell pattern, the figures being arranged to work continuously forwards upon a staircase, and to harmonise in tone and effect with the jewelled carpet, or others of this class.

The design and colouring of these carpets are of the advanced taste now in general preference to the gaudy and bunting style of the past. The Persian objects are arranged to produce an inlaid effect. The colours are so harmonised as to enhance the general furnishing of the apartments they are intended to occupy.

BRENTON & LEWIS have contributed also a RENAISSANCE CARPET POWER LOOM in the Machinery Department of the Western Arches, in full process of weaving carpets for Messrs. Jackson & Graham.

In the South Kensington Museum, (Raw Materials section,) they also exhibit, as their contributions, specimens of worsted, and Worsted in their various stages of working, from the fleece into the finished state of carpet.

Duplicate patterns of the above may be seen at the London Warehouse, 90 Newgate Street, and at the Manufactory, Kildernister.
CLASS XXII.—Under North-East Gallery, and on Gallery Walls.


[4238] Goatley & Cneley, 59 Westminster Bridge Road.—Floor-cloth.

[4239] Gregory, Charles, 212 Regent Street, London.—Two patent Axminster carpets; Brussels and velvet pile Brussels carpets; Axminster rugs.


[4241] Hare & Co., Bristol.—Floor-cloths; Corinium pavement complete, tiles and marbles, with centres &c.


[4243] Hawksworth, Samuel, Baker Street, Doncaster.—Floor-cloth in paint imitation of Mosaic pavement.


[4246] Jackson & Graham, Oxford Street, London.—Carpets. (See page 48.)

[4247] Kindon & Powell, Sheep Street, Old Kent Road, E. S.E.—Floor-cloths, table-covering, and stair-cloths.

[4248] Lapworth Brothers, 22 Old Bond Street, and Wilton, Wills, Carpet manufacturers and dealers; importers of Turkey and foreign carpets.

A Patent Axminster Carpet, 25 ft. by 18 ft., the ground of rich maroon colour, with crimson rosettes, the centre with group of flowers, on white ground, surrounded by rich brown and gold ornamental framing, intersecting with the border, which consists of arabesque scrollwork on white ground, with shields and festoons of flowers at each corner. Upon the margin, outside the border, a light arabesque ornament has been introduced.

Samples of different designs, some with borders, of velvet pile carpet, woven by steam power in Jacquard loom. Sample of patent tapestry velvet carpet.
Class XXII.—Under North-East Gallery, and on Gallery Walls.

Nairn, Michael, & Co., Scottish Floor-Cloth Manufactory, Kirkcaldy.—First-class printed floor-cloth.
CLASS XXII.—CARPETS.

NAIRN, MICHAEL, & CO.—First-class printed floor-cloth—continued.

These floor-cloths are made in sizes of twenty-five yards long, and from half a yard to eight yards wide, without seams. The foundation canvas is warranted to be manufactured from flax alone; and the points, silk, lead, and other ingredients are guaranteed to be genuine. These goods can be procured from all first-class carpet ware-houses and upholsterers in the province; and, in London, from J. Shoolbred & Co., Tottenham Court Road.

PALMER BROTHERS, KIDDERMINSTER.—Specimens of hand-loom Brussels carpet, exhibited for quality, correctness of design, and colouring.

ROLLS, JAMES, & SONS, KENNINGTON LANE, LAMBETH, S.—One piece of floor-cloth 18 feet square.

SEWELL, HUBBARD, & BACON, COMPTON HOUSE, OLD COMPTON STREET, AND FRITH STREET, SOHO. (See page 51.)

SMITH, TERRERVILLE, & CO., 9 GREAT MARLBOROUGH STREET, W.—Carpets 25 feet by 18 feet square.

SMITH & BARR, 1 SOUTH PLACE, KINNETFIELD, LONDON.—Two specimens of floor-cloth.

SOUTHWELL, H. & M., BIRDWOOD; AND 29 CRANON STREET WEST, LONDON.—Bordered Wilton carpet.

STEPENSON, WILLIAM, 16 PICCADILLY, LONDON.—Bordered pile carpet.

SWALLOW, MICHAEL, & SONS, HOCKNOMDICK.—Carpets, alpaca coat linings, &c.

TAPLING, THOMAS, & CO., 1 TO 8 GRESHAM STREET WEST, CITY.—Axminster and Turkey carpets.

A carpet commemorative of the Treaty of Commerce between England and France, designed specially for THOMAS TAPLING & CO. by Mr. William A. Parris.

TAYLER, HABRI, & CO., 19 GUTTER LANE.—Kamptullion floor-cloth. (See page 52.)

TERRY, J. & J. S., GLASGOW AND LONDON.—Carpets. (See page 53.)

TERRY, J. & J. S., GLASGOW.—Improved patent Axminster carpeting, woven by power; silk and wool curtains and covers.

WATSON, BOSTON, & CO., 35 & 36 OLD BOND STREET. (See page 54.)

The design on page 54 illustrates a handsome velvet carpet, by Waynes, Boston, & Co., of Old Bond Street, in the Grecian style of ornament, with appropriate borders. (50.)
Sewell, Hubbard, & Bacon, Compton House, Old Compton Street, and Frith Street, Soho.
Kamptulicon, or Elastic Floor-Cloth, is an article possessing advantages peculiar to itself. Composed of non-absorbent water-repellent and warm materials, the result is an invaluable covering for damp and stone floors. The materials are non-conductors of heat and electricity, are soundless, durable in themselves, and when amalgamated produce a material possessing the united advantages of carpet and oiled cloth, being warm, noiseless, impermeable by damp, impermeable by dust, and extremely durable, thereby recommending itself for general use in all public buildings and private houses.

In designing for this material, the manufacturers have been exceedingly careful to figure the cloth with only such patterns as will leave the ground as much as possible exposed, so as not to interfere with its warmth. Most of the designs are of a purely architectural character.
CLASS XXII.—Under North-East Gallery, and on Gallery Walls.

TEMPLETON, JAMES, & Co., Glasgow and London.—Carpets without seam, and in breadths; hearth-rugs, mats, &c.

The drawing No. 2650 represents a quarter of one of the carpets prepared by Messrs. Templeton for the International Exhibition of 1862. The other drawings or diagrams (on which are merely indications of pattern) are intended to represent the capabilities of making carpets in one piece to any form of room, however elaborate or simple its design.

i. Circular: on which a pattern of any style or colouring, with or without medallion, can be arranged and woven without seam.

ii. Represents two rooms, separated at a by folding doors, but when the folding doors are open appear as one, with the border running round both rooms, including projections at a. This figure may also be filled with two distinct carpets, separated by a piece of carpet similar to figure iv. between the projections a. This arrangement, however, can still be woven as one carpet, as well as in three distinct pieces.

iii. Shows an oblong drawing-room with two columns, one at either side towards the centre; and represents a carpet prepared for it with three medallions: the centre one (that within the pillars) being smaller than those at either end. The room has a bow window, and shows how the border is carried round the bow.

iv. Represents the piece of carpeting which divides the drawing-room from the octagon-shaped room adjoining. A complete pattern is indicated on this small piece.

v. This octagon, while it indicates the arrangement of pattern for a room of this form, at the same time shows how the border of a carpet can be carried into bay windows, after the manner of the bow of Diagram iii., or otherwise. These diagrams, from i. to v., are merely indications of how carpets can be woven in one piece to the shape of any room.
Class XXII.—Carpets.

Watson, Bostor, & Co., 35 & 36 Old Bond Street.—Indian, Turkish, and velvet carpets.
Class XXII.—Under North-East Gallery, and on Gallery Walls.

Whitlock, Richard, & Co., 9 George Street, Edinburgh.—One Wilton carpet, and one Scotto-Axminster carpet.

A Wilton carpet for drawing-room of the Louis XVI. style, which has recently been revived in a very pure manner in France. The design presents a marked contrast to the other carpet exhibited by this firm, being an example of the shaded style of ornament.

A Scoto-Axminster carpet, Byzantine style. This is an example of the much-approved flat, or unshaded ornamentation, in carpet design. The warm neutral colouring is an agreeable advance upon the showy combinations of colour hitherto so much in demand.
WOODWARD BROTHERS & Co., Kidderminster.—Brussels velvet pile carpeting and rugs.

WOODWARD, HENRY, & SONS, Stour Vale Mills, Kidderminster.—Brussels and Tourney velvet carpets.

HUMPHRIES, J., & Sons, Mile Street, Kidderminster.—Velvet pile carpets.

HARVEY, NICHOLS, & Co., Knightsbridge.—Carpets &c.
WOVEN, SPUN, FELTED, AND LAID FABRICS, AS SPECIMENS OF PRINTING OR DYEING.

BARLOW, SAMUEL, & COMPANY, Stakehill, Chadderton, Manchester.—Cotton goods bleached by Barlow's patent, dyed and finished.

BAXEES & Son, Queen's Road, Bayswater, London; Works, Blackman Street, Borough, London.—Dyed furniture hangings &c.


BERRIE, JOHN, 13 Oldham Street, Manchester.—Specimens illustrating new methods of dyeing and finishing silk &c. (See page 58.)

BLACK & WINGATE, Glasgow.—Imitation French cambrics and bishop's lawns, handkerchiefs white and printed, embroierys, &c.

BOTTEILL, JOHN, Leeds.—Specimens of dyed articles.

BROWSE, HAMMOND, & Co., Levenshulme Works, and 33 Mosley Street, Manchester.—Variety of calico prints produced by machine throughout.

BUTTERWORTH & BROOKS, Manchester.—Calico prints and muselines de laine.

CALDER VALE PRINTING COMPANY, Calder Vale, Burnley.—Patent furniture, damask-printed on both sides by machinery.
CLASS XXIII.—Woven, Spun, Felted, and Laid Fabrics, &c.

Berrie, John, 13 Oldham Street, Manchester.—Specimens illustrating new methods of dyeing and finishing silks, merinoes, &c.

This case contains the following samples, viz.

French merinoes, finished in an improved manner by the newly invented machinery of the exhibitor.

Silks dyed in the usual manner by hand, and as dyed by the exhibitor’s machinery without handling. The advantage of the new process will be seen in the freedom of the machine-dyed silk from the cracked appearance common to those dyed by hand.

Samples embossed with various patterns. The material of the sample is an old plain shawl. Shawls cleaned, showing the fringes as usually done, and as cleaned by J. Bebrie’s method, the latter being as good as when new.

The following machinery is used by this exhibitor, over and above the ordinary apparatus of most dyers in the country:

Large Steam Cleaning Machine for merinos, damasks, carpets, &c.

Patent Hydro-Extractors, in which all goods are dried in five minutes, without wringing or pressure, thereby saving delicate fabrics, and preserving the colours.

New Glazing Machines, for chintz curtains and covers, and the only one of its kind ever yet made.

Steam Finishing Frames, rendering it impossible for goods to be marked.

New Steam Apparatus, for finishing French merinos, &c., giving to the small pieces a surface equal to the large ones.

Boston Muslin Machines, for finishing lace and muslin curtains.

New Machines, for taking frame marks from bases after being finished.

New Machines, for taking the pieces of dresses together for dyeing and finishing.

The following are some of the articles which he cleans and dyes, &c.,—

Dresses. Silks, satins, moiré antiques, velvets, poplin.

French merinoes, stuffs, and all kinds of fancy dresses; children’s clothing; ribbons, lace, hose, handkerchiefs, and bonnets.

Shawls. All kinds of Paisley, India, and China scarves.

Cashmeres, handkerchiefs, woollens, and silks.

Curtains. Damasks, muslins, tabarets, satins, poplins, reps, &c. Lace and muslin curtains get up like new at 1 pound a square yard.

Taschentücher, such as gimps, tassels, silk and worsted fringes, &c.

Choice Furniture, Blankets, Gentlemen’s Wearing Apparel, Gloves, Fans, Feathers, Table-Covers, Carpet, Hook, and Druggists.

Persons having much dyeing and cleaning to be done, will find the methods employed by the exhibitor conducive to economy. Should they reside at a distance, special arrangements may be made as to carriage.

Circulars and catalogues may be obtained on application.

[ 4310 ]

Clarkson, Thomas, & Co., 17 Coventry Street, Haymarket.—Specimens of block and machine printed chintz furnitures.

[ 4311 ]

Daly & Co., 9 & 10 St. James’s Place, Hampstead Road.—Specimens of French dyeing and cleaning; improved method of dyeing and finishing velvets; embroidering silks; re-watering moiré antiques.

[ 4312 ]

Dewhurst, Samuel, & Co., Broughton Works, Manchester.—Bookbinders’ cloth, patent tracing cloth, beeched twills.
CLASS XXIII.—South-East Gallery.

[4313] Donovan, R., 2 Great Pulteney Street.—A piece of tapestry, one part cleaned by the exhibitor's own method.


[4317] Hands, Son, & Co., Coventry.—Specimens of silks dyed in the skein.


[4319] Hoyle, Thomas, & Sons, Mongfild, Manchester.—Printed cambrics, challis, and de laines.


[4322] Lockett, Joseph, Sons, & Leake, Strandgeorgia Engraving Works, Manchester.—Specimens of engravings for printing calicoes and other woven fabrics.

[Obtained the Gold Medal at the Paris Exhibition, 1855.]


[4324] Mackar, James, 145 Ingram Street, Glasgow.—Printed calicoes and muslins in dresses and handkerchiefs.

[4325] McNaughton & Thomson, 80 Mosley Street, Manchester.—Printed calicoes.

[4326] Montgomerie, Henry, & Co., Glasgow.—Turkey red and other dyed and printed goods, and Turkey red yarns.

Class XXIII.—Woven, Spun, Felted, and Laid Fabrics, &c.

Newton Bank Printing Company, 51 Mosley Street, Manchester.—Printed cottons.


Ormerod, R., & Co., 50 Mosley Street, Manchester.—Patent printed ribbons.


Palmer & Co., Holme Works, Carlisle.—Beetled silesias, taffetas, silk and cotton umbrella cloths.

Pullar, Robert, & Sons, Perth.—Umbrella cloths, and various descriptions of dyed cotton goods.

Richardson, Benjamin S., Dyer, Priory Fields, Coventry.—Set of silk patterns, as samples of dyeing.

Salomons, A., Old Change, London.—Printed cottons and muslins of British manufacture.


Stead, McAlpine, & Co., Cummersdale Print Works, Carlisle.—Calico, and cotton damask chintz furniture.

Sterling, William, & Sons, Glasgow.—Turkey red plain and printed cottons.

Tatton, Samuel, Patent Dye Works, Mill Street, Leek.—Sewing silk, and twist for the sewing machines.

Turner, Cornelius, Airedale Felt Mills, Leeds, and 18 Lawrence Lane, London.—Felt carpets and felted goods.

Turner, Norris, & Turner, Manchester, and Hayfield, Derbyshire.—Printed cottons.

Victoria Felt Carpet Company, Leeds, and 8 Love Lane, Aldersmaunbury, London.—Felt carpets, table-covers, tablings, thick felt, saddle-cloths, waddings, shoe cloth, &c.
Walford, Fairer, & Harrison, London, Manchester, and Glasgow.—Printed bandannas and silks.

Watson & Stark, 51 George Street, Manchester.—Printed vestings, trouserings, coatings, and cambrics.

Welch, Thomas, Merton, Surrey.—Woollen cloth printed patterns, designs produced since 1851.

Wilkinson, John, Son, & Co., Leeds.—Felt carpets, rugs, squares, nummahs, wadding, padding, sheathing, boot felt.
Specimens of Felt Carpeting, shown for superiority of manufacture and printing.
Also Nummahs or Cavalry blankets and Saddle-Cloths.
Boot Cloths, and Boots made therefrom.
Shipping, tarred and untarred.

Yates, Matthias William, 2 Woo Street, Cheapside, London, and Fountain Works, Mitcham.—Table-covers.

Rosendale Printing Company, 8 Nicholas Street, Manchester.—Prints.

Whitwell, Bushee, & Co., Kendal.—Dyed worsted yarns.

Thwaites, J., Kendal.—Chromatic arrangement of woollen carpet yarns.
CLASS XXIV.

TAPESTRY, LACE, AND EMBROIDERY.

[4381]

Abraham, R., & Sons, 5 Lime Street, W.—Cover for the Law and other articles used in Jewish synagogues; also various specimens of embroidery &c.

[4382]

Adams, Thomas, & Co., Nottingham.—Curtains and other descriptions of lace.

[4383]

Allen, Charles, 108 Grafton Street, Dublin.—Irish, point, appliqué, and guipure lace.

[4384]

Austin, James, Princes Street, Finsbury.—Improved patent blind, curtain, picture, and sash-lines, chandelier rope, &c.

The following lines, of which the exhibitor is the manufacturer, are shown:—

Imperial patent flax and coloured thread blind lines. Wreathed blind, curtain, lamp, and picture lines. Chandelier rope. Cotton blind and curtain lines. Silk blind, curtain, and picture lines. Metallic picture cord, sash-lines, Albert lines, &c.

Special attention is directed to the great strength and durability of the metallic picture cord, and to the superior quality of the Albert lines.

[4385]


[4386]

Barnett, Maltby, & Co., Stone Street, Nottingham.—Silk laces, nets, falls, black Spanish laces, shawls, &c.

[4387]

Bates, J., Miss, Newington, Surrey.—A lace fall and other articles worked by hand.

[4388]

Blackborne, Anthony, 35 South Audley Street, London.—Irish, English, French, Spanish and Brussels laces.

[4389]

Borwick, Miss, 2 Henridge Villas, St. John's Wood.—A raised crochet counterpane.

(63)
Class XXIV.—Tapestry, Lace, and Embroidery.

Bradbury, Cullen, & Fisher, Broadway, Nottingham.—Lace shawls, falls, &c.

Cardwell, Cooper, Northampton.—Articles of pillow lace manufacture.

Catt (late Sloan), 198 Sloane Street.—Ladies’ dress trimmings and fancy needlework.

Chambers, James, & Co., 4 Upper Sackville Street, Dublin.—Irish embroidery insewed muslins, initialled handkerchiefs, silk embroidery on cloth, &c.

Clarke, Esther, 18a Margaret Street, Cavendish Square.—Honiton lace, flounce, and other specimens of the same manufacture.

Copestake, Moore, Crampton, & Co., 5 Bow Church Yard, Lace manufacturers.

Copestake, Moore, Crampton, & Co. exhibit in the stained glass gallery a collection of lace curtains, the production of their Nottingham factory.

In their second case they exhibit black pusher or royal point tunic and shawls, black Spanish laces and shawls, productions of Nottingham (machine-made).

Cowan & Co., 24 St. Vincent Place, Glasgow.—Embroidered muslins &c. (See page 65.)

Croome, Miss Mary Alonia B., Middleton Cheney, Banbury.—Egyptian-work dress, and lace, made at Middleton Cheney.

Dart & Son, 12 Balford Street, Covent Garden.—Lace for carriages.

Durellam, Son, & Frewery, 42 & 44 Wigmore Street.—Various articles in Honiton, Buckinghamshire, and Nottingham lace.

Dixon, George, 13 Goldsmith Street, Cheapside.—Trimmings &c. (See page 66.)

Duncliff & Smith, Nottingham.—Valenciennes and other lace.
This case contains a choice assortment of useful and beautifully designed Embroidered Muslins, the great proportion most serviceable in ornamenting ladies' and children's dresses, as well as for baby linen purposes.

Messrs. Cowan & Co. are also the Patentees of the "Patent Household Frillings" (see engraving), numerous specimens of which are shown in the case.

CLASS XXIV.

This frill, by an ingenious process in the manufacture, is attached to a double cloth band, and at the same time is made sufficiently full for goffering, thus saving ladies the trouble attending the use of a gathering thread. It is a most economical and useful frill for the purpose of trimming under-clothing, children's dresses, baby linen, &c.

It is made in various widths.
CLASS XXIV.—Tapestry, Lace, and Embroidery.

Dixon, George, 13 Goldsmith Street, Cheapside.—Patent velvet pile cornice fringes, general upholstery trimmings, and carriage laces.

This patent has been applied to various classes of upholstery trimmings, with results which, in richness, beauty, and cheapness, are surpass those of any other process. The designer is not limited to the ordinary commonplace styles in fringes made by his patent, as it admits of the execution of the most elaborate patterns without any of the irregularities or other defects observable in fringes made by other machines. A striking merit preserved by these fringes, is, that they do not alter in shape with use.

Ehrenzeller, Ferdinand, 15 Gower Street, Islington; and 35 Cannon Street West, City.—Needlework, lace articles, &c.


Erne, Countess of, 95 Eaton Square.—Irish Valenciennes lace.

Evans, Richard, & Co., 24, 25, & 74 Watling Street, London.—Trimmings &c. (See page 67.)

Forrest, James, & Sons, 101 Grafton Street, Dublin.—Irish laceet, point lace, tunic; Irish, point, Brussels lace, tunic; Irish, point lace, tunic.

Gilbert, Thomas, High Wycombe.—Pillow lace goods.

Godfrey, H. F., 20 Milk Street, City.—Irish crochet, tatting, lace, and needlework.

Godfrey, Esmond, Buckingham.—Black point, ground, tunic, flounce; black guipure, tunic, flounce; veils and lappets.

Graham, Alexander, 34 York Street, Glasgow.—Patterns on cloth for needlework; and ornamental cut velvet, silk, &c.

Obtained the Prize Medal in Class 19, 1851.

No. 1. Dutch-shaped Cornice Fringe, for a drawing-room window, tipped and richly ornamented.
No. 2. Curtain-Holders, in crimson and gold silk, with side ornaments.
No. 3. Bell-Horns, blue and white (made to any length).
No. 4. Double Curtain-Holders, green and gold (used in the arranging and suspending the drapery of windows).
No. 5. Fancy Border Gimp, for trimming curtains and drapery, crimson and gold silk.
No. 6. Ditto, same in green and gold.

The following are also exhibited with the above—


These exhibitions manufacture for the trade only. Their factories are situated at 197 Upper Thames Street, and 13 Garlick Hill, City.
Class XXIV.—Tapestry, Lace, and Embroidery.

Green, Alexander, 136 Buchanan Street, Glasgow.—Fancy needlework, materials used, velvets, scales, bullion, &c.

Hayes, Miss E. J., 24 Richmond Place, East Street, Walworth.—Infant’s embroidered cloak and bed embroidery.

Hatwards [Daniel Biddle], 81 Oxford Street.—Lace. (See pages 69 and 70.)

Herbert, Thomas, & Co., Houndsditch, Nottingham.—Manufacturers of tattings, crochets, muslins, Valenciennes, laces, fringes, &c.

Herzog, Wright, & Co., 56 Friday Street.—Arnold’s patent stitched frilling.

Hettmann & Alexander, Nottingham.—Nets, laces, and curtains.

Higgins, Eagle, & Hutchinson, 57 Cannon Street West.—British lace goods.

Hornsey, Joseph, Bedford.—Point, ground, and Maltese laces, coiffures, collars, sets, white and black falls.

Howell, James, & Co., Regent Street.—Lace.

Hyde, Mrs., 7 Finsbury Place South.—Embroidery from nature on velvet &c., imitations of natural flowers, principally crochet.

Hyde, Archer, & Co., 7 Finsbury Place South, London.—Valences embroidered, and upholstery trimmings.

Industrial Society (established 1847), 76 Grafton Street, Dublin.—Irish point, guipure, and crochet laces.


The exhibitors are manufacturers of every description of cotton and silk lace goods—not, curtains, antimessers, shawls, bed-covers, &c. They also manufacture Valenciennes lace by a patent process.

Jones, William, & Co., 236 Regent Street, London.—Gold lace embroidery, army, navy, and volunteer accoutrements.

Keith & Co., 124 Wood Street, London.—Fringe for purposes of upholstery.

Lachèse, Achille, 2 Foley Street, Portland Place.—Chromo on velvet applied for decorative tapestry, curtains, sofa and table-covers.

Méry, Léon, & Co., 87 Upper Ground Street, Blackfriars.—Patent velvet application.
CLASS XXIV. — South-East Gallery.

Lester & Sons, Bedford.—Collars, sets, crowns, laces, falls, flouncings, lappets, colifures, handkerchiefs.

Long, George, Loudwater, Wycombe, Bucks.—Manufacturer of hats and bonnets made on the pillow lace principle; and straw embroidery.

Macarthur, D., & Co., 26 Bathwell Street, Glasgow.—Manufacturers of lace, embroidered muslin, fancy linen, and crape goods.

Macdonald, Helen J., 1 Stafford Street, Edinburgh.—Silk patchwork table-cover.

Madders, William, & Co., Leamington Place, Manchester.—Table-cover, cradle coverlet, and pair of antimacassars, embroidered by machinery.

Mallet, Henry, Nottingham.—Thread and Valenciennes laces, guipures, black and white silk blonde and Spanish laces, shawls, mantillas, &c.

Manley, Allot, & Livesey, Bloomington Place, Manchester.—Table-cover, cradle coverlet, and pair of antimacassars, embroidered by machinery.

Manly, George N., 43 New Finchley Road, St. John's Wood.—Specimens of Irish lace.

Mee, Cornelia, 71 Brook Street, Grosvenor Square.—Embroidery and ornamental needlework.

Newman & Purney, 118 Oxford Street, W., Fringe and trimming manufacturers.


Palmer, Helen, Dunse, Berwickshire, Scotland.—Specimens of embroidery in coloured silks, ditto of white embroidery.

Palmer & Othrell, 87 Blackfriars Road, S.—Painted velvet and cloth work, with designs for embroidery and braiding.

Parsons & Son, 82 Long Acre.—Carriages and other laces.

Pulling & Moody, 39 Gresham Street, E.C.—Manufactured crape goods. (See page 72.)

Radley, Edward, 20 Lamb's Conduit Street, W.C.—Upholsterers' trimmings.

Reckless & Hickling, Nottingham.—Pusher and new grenadine lace shawls; half shawls and flounces.
Class XXIV.—Tapestry, Lace, and Embroidery.

Haywards [Daniel Biddle], 81 Oxford Street.—Honiton, British point, guipure, black point, and other British lace.

HAYWARDS',
81 Oxford Street, opposite the Pantheon.

Importers of foreign lace and embroideries. Manufacturers of Honiton and other British laces. Ready-made linen for wedding and India outfits. Layettes, berceauettes. Lace and embroidery robes, etc. Silk and velvet mantles. Paris millinery.

The exhibitors have a large stock of lace flounces, squares, &c., especially designed for wedding orders, with every requisite in the linen-outfit department, from prices suited to the most economical.

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brussels lace squares</td>
<td>from 10 guineas.</td>
</tr>
<tr>
<td>Honiton lace squares</td>
<td>1 guinea.</td>
</tr>
<tr>
<td>Brussels lace tunic</td>
<td>2 guineas.</td>
</tr>
<tr>
<td>Honiton lace tunic</td>
<td>2 guineas.</td>
</tr>
<tr>
<td>Brussels lace double flouncings</td>
<td>4 guineas.</td>
</tr>
<tr>
<td>Swiss lace squares</td>
<td>2 guineas.</td>
</tr>
<tr>
<td>Black real point lace flouncings</td>
<td>3 guineas.</td>
</tr>
<tr>
<td>Brussels lace collars and sleeves</td>
<td>6 guineas.</td>
</tr>
<tr>
<td>Honiton lace collars and sleeves</td>
<td>6 guineas.</td>
</tr>
<tr>
<td>Limerick and point d'Angleterre lace and embroidered sets</td>
<td>6 guineas.</td>
</tr>
<tr>
<td>Limerick and point d'Angleterre double-skirt dresses</td>
<td>8 guineas.</td>
</tr>
<tr>
<td>Embroidered muslin handkerchiefs</td>
<td>25 guineas.</td>
</tr>
<tr>
<td>Trimmed lace</td>
<td>10 guineas.</td>
</tr>
<tr>
<td>Black lace mantillas and shawls</td>
<td>25 guineas.</td>
</tr>
</tbody>
</table>

A large assortment of flounces, squares, &c., in Limerick, point d'Angleterre, and other inexpensive laces.

<table>
<thead>
<tr>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brussels lace, sets of collars and sleeves</td>
<td>from 2 to 5 guineas.</td>
</tr>
<tr>
<td>Honiton lace, sets of collars and sleeves</td>
<td>25 to 60 guineas.</td>
</tr>
<tr>
<td>Full trimmed sets of collars and sleeves in lace and embroidery</td>
<td>25 to 40 guineas.</td>
</tr>
<tr>
<td>Muslin and cotton embroidered sets</td>
<td>2 to 5 guineas.</td>
</tr>
<tr>
<td>Lace and muslin double-skirt dresses</td>
<td>16 to 25 guineas.</td>
</tr>
<tr>
<td>Embroidered muslin handkerchiefs</td>
<td>25 to 50 guineas.</td>
</tr>
<tr>
<td>Trimmed lace</td>
<td>15 to 25 guineas.</td>
</tr>
<tr>
<td>Black lace mantillas and shawls</td>
<td>25 guineas.</td>
</tr>
</tbody>
</table>

The ladies' and infants' ready-made linen department is replete with every article of under-linen, dressing gowns, &c., at prices saving to customers all intermediate profit.

Messrs. Haywards have no other establishment than 81 Oxford Street, opposite the Pantheon.

Mr. D. Biddle, the present head of the firm, being a Juror for lace and embroidery, no official recognition of the merit of the articles exhibited by this firm can be admitted.
CLASS XXIV.—South-East Gallery.

Haywards [Daniel Biddle], 81 Oxford Street.—Honiton and point lace—continued.

Honiton Guipure Tunic Flounce, Exhibited by Haywards [D. Biddle].

Messrs. Haywards exhibit in the British Lace Department a tunic flounce and square to match, coiffures, headdresses, caps, infant's robe, &c., of Honiton lace, and a black point lace tulle flounce of Buckingham manufacture.

They also display several flounces, shawls, mantles, &c., in the Belgian and Spanish Lace Departments.

The real ground Brussels lace square (rare), exhibited in the case of J. Stehr, is especially worthy of attention. The process of manufacture is shown in the same case.

Near this a black real point lace shawl, of superior design, manufactured by Beyneel and, will attract the notice of connoisseurs. The price of this shawl, and of many other articles exhibited by Messrs. Haywards, is marked in plain figures.
CLASS XXIV.—Tapestry, Lace, and Embroidery.

### Class XXIV.—South-East Gallery.

<table>
<thead>
<tr>
<th>Entry</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4450</td>
<td>Robinson, Henry, Watling Street and 42 Gannon Street West.—Real and imitation lace goods of British manufacture.</td>
</tr>
<tr>
<td>4451</td>
<td>Sargent, John, Sandy, Bedfordshire.—Lace handkerchiefs, collars, sets, and lace.</td>
</tr>
<tr>
<td>4455</td>
<td>Standing, John, &amp; Brother, Manchester.—Bruids, cords, laces, fringes, &amp;c.</td>
</tr>
<tr>
<td>4457</td>
<td>Stillwell, Son, &amp; Ledger, 25 Barbican, City, London.—Gold lace, embroidery, and army and navy fittings.</td>
</tr>
<tr>
<td>4458</td>
<td>Ulling, G. F., 224 Regent Street.—Tunic; handkerchief; coiffure collar and sleeves in very fine Honiton lace.</td>
</tr>
<tr>
<td>4459</td>
<td>Verkézé &amp; Co., 96 Hatton Garden.—Traced embroideries, the same worked; their new patented gold drawings on velvet &amp;c.</td>
</tr>
<tr>
<td>4460</td>
<td>Vickers, Richard, Padbury, Buckingham.—Pillow lace, white Maltész laces, single flounce, collars, and sets.</td>
</tr>
<tr>
<td>4461</td>
<td>Vickers, William, Nottingham.—Black silk lace (imitation point de Chantilly) in shawls, points, and other articles.</td>
</tr>
<tr>
<td>4462</td>
<td>Vokes, Frederick S. T., Royal Surrey Theatre.—Specimen of the best novel braiding for clothes and regimentals.</td>
</tr>
<tr>
<td>4463</td>
<td>Webster, Honoria, Ballywalter, Castletownroche, County Cork.—Pocket-handkerchiefs and other articles.</td>
</tr>
<tr>
<td>4464</td>
<td>Wills, S., &amp; Co., Broadway, and Mansfield Road, Nottingham.—Lace &amp;c. (See page 74.)</td>
</tr>
<tr>
<td>4465</td>
<td>Wilson, Charlotte G., Guildhall, Broad Sanctuary, Westminster.—Chemise needlework.</td>
</tr>
<tr>
<td>4466</td>
<td>Woolcock, C. M. &amp; A., 13 Old Quebec Street, Oxford Street.—Tapestry, drapery, portiere, folding screen, &amp;c.</td>
</tr>
</tbody>
</table>

Riego, De la Branchardière, Mlle., 1 Princess Street, Cavendish Square, W.—Crochet and modern point lace.
CLASS XXIV.—Tapestry, Lace, and Embroidery.

Wills, S., & Co., Broadway, and Mansfield Road, Nottingham.—Machine lace, nets, curtains, &c.

HALF DESIGN FOR STUMP LACE CURTAINS

Wrought entirely by machinery. Manufactured by S. Wills & Co.

[4467]

Fetley, C., Trafalgar Street, Bradford.—Embroidered quilt on satin &c.

[4468]

Dean, Miss H. L., 55 Manchester Road, Bradford.—Machine quilted skirts.

[4469]

Clarke, J., Eastbrook Mills, Bradford.—Netted table-cover.
CLASS XXV.
SKINS, FUR, FEATHERS, AND HAIR.

SUB-CLASS A.—Skins and Feathers.

BEVINGTON & MOORES, 67 Cannon Street West.—Manufactured furs, sheep-skin and Angora goat rugs.

CLARK, CYRES & JAMES, Street, near Glastonbury.—Sheep-skin hearth, door, and carriage rugs; boots and shoes.

DRAKE, ROBERT, 25 Piccadilly.—Manufactured furs, various.

HOLMEN, JOHN TRIPPETT, Collis Works, Birmingham.—Self-fasteners for victorines and mantles.

ISCH, THOMAS H., & Co., 75 Oxford Street.—Fashionable furs.

JEFFS, RICHARD, 244 Regent Street.—Fur skins and manufactured ditto.

LILLCRAFFT, W., 19a Davies Street, Berkeley Square, Real fur seal-skin cloak maker, and general furrier.—Skins dressed and mounted.

METER, S. M., 71 Cannon Street West, and Bow Lane.—Furs, various.

POLAND, G., & SONS, 90 Oxford Street, W.—Furs and skins. (See page 2.)

ROBERTS, EDWARD BODE, 239 Regent Street.—Manufactured furs.

CLASS XXV.
Class XXV.—Skins, Fur, Feathers, and Hair.

Poland, G., & Son, 90 Oxford Street, W.—Manufactured furs and specimens of skins.

The following are exhibited:

Real fur seal cloak, trimmed with dark sable.
Velvet cloak, trimmed with chinchilla.
Real fur seal cloak, trimmed with grebe.
Fine Hudson Bay sable circular cloak.
Real ermine cloak, lined with quilted satin.
Real Russia sable muff and boa.
Fine Hudson Bay sable muff and mantilla.
Astracan muff and collar.
Real ermine muff and mantilla.

Real fur seal coat and waistcoat.

Gentleman's real fur coat and waistcoat.

White Arctic fox carriage wrapper, lined with quilted silk.
Carriage wrapper, made of the throats of the sable.
Lynx wrapper, lined with moleskin.

White Arctic fox, handsomely mounted.

A fine Bengal tiger, mounted with black bear, as rug.

Several specimens of fur rugs.

A variety of furs of the most recherché description.

[4509]

Senger, A. H., 3 Lamb Alley, Bishopsgate Street.—Fur seal-skin in different stages of manufacture.

[4510]

Smith, George, & Sons, 9 to 11 Watling Street.—Manufactured furs.

[4511]

Tussaud Brothers, 105 Marylebone Road.—Method of saving skins from furs, and applying artificial pelts.

[4512]

Nicholay, E. J., 82 Oxford Street.—Furs for ornaments, carpets, rugs, &c.

Sub-Class B.—Feathers.

[4522]


[4533]

Squires, Son, & Nephew, 12 & 16 Aldermanbury.—Case of ostrich and fancy feathers.
CLASS XXV.—South-East Transept, South-East Court.

Sub-Class C.—Manufactures from Hair.

[4534]

Aston, John, 20 Dale End, Birmingham.—Household and saddlery brushes of a very superior quality.

[4535]

Barrett, Andrew, 63 Piccadilly; 186 Oxford Street; 29 St. George's Place, Knightsbridge.—Toilet, household, and stable brushes.

[4536]

Bath & Sons, 4 Chiswell Street, London; and Henry Street, Liverpool.—Feathers, horsehair, and woods.

[4537]

Booth & Fox, 80 Hatton Garden, London; and Cork.—Patent feathers, down quilts, and petticoats.

No. 1. Roman White Goose Feathers.
   2. Irish White.
   3. Russian Grey.
   4. Indian Grey.
   5. Hudson's Bay.
   7. White Goose Down.
   8. Turkey Hackles.

Patent feather for hats, victorines, and feather trimmings.

Eider down quilts of Arctic (goose) down in glass.

[4538]

Browne, Frederick, 47 Fenchurch Street.—Perukas, head-dresses, and ornamental hair generally, made on human hair foundations.

[4539]

Carrick, H. R., 45 New Bond Street, W.—Imperceptible capillaments. (See page 4.)

[4540]

Child, W. H., 21 Providence Row, Finsbury.—Specimens of electro-galvanic, metallic, and other brushes, in ivory, bone, and wood.

[Obtained a Prize Medal at the Paris Exhibition, 1855.]

Child's Patent Elecrto-Galvonic and Metallic Hair and Floss Brushes for preventing matting, loss of colour, and the falling off of the hair. These are superior to the ordinary hair brushes, as they do not soften in use, have the same action as the braid, and do not tear or injure the hair. The exhibitor manufactures all other brushes for the home or colonial markets.

[4541]

Cliff, John, Bristol.—Specimens of ornamental hair in wigs &c.; specimens of human hair dyed.

[4542]

Condron, T. & R., 51 Bingfield Street, Caledonian Road, N.—Fancy brushes.
CARLES, Hyacinth R., 45 New Bond Street, W., Peruke and Hair Dresser.—Imperceptible capillamenta.

Imperceptible Capillamenta.

1. The Decre or an Old Man. A study.
The hair of the head and beard implanted on removable hair not.

4. LADIES' HEAD-DRESSES.

To whatever excess and absurdity fashion might have at times, and particularly during the long period of the last three centuries, carried the misapplication of human hair, there are evidences in the writings of Xenophon, Tacitus, Stesichorus, and Juvenal, that even in remote antiquity it was felt that human hair contributes to the more or less pleasing expression — to the more or less striking setting off of the character of the countenance, — and that those whose age or infirmity have deprived of it endeavored to supply it by art, in many instances not out of vanity, to which the world is prone to attribute it, but out of the praiseworthy desire to spare to others unpleasant impressions. And as the hair is the only ornament derived direct from the human frame itself, for its embellishment it requires by its very nature not only a mechanical but also an artistic treatment, to produce the most becoming effect.

The exhibitor having always endeavored during his long practice to combine the best workmanship which his ability afforded, with an artificial arrangement and finish, is desirous of exemplifying in the articles exhibited this twofold treatment of the hair.

Thus, considered from the material and mechanical point of view, the objects exhibited show—

Uncommon beauty and quality of the principal material, viz. the hair;

A preparation of that material, peculiar to the exhibitor, which preserves the color, and, without making the hair stiff or brittle, causes it to retain its lust, or any form or position, unless exposed to excessive wet or too profuse perspiration;

A peculiar outline and fixing of the formations, adapted to the shape and character of the head, ensuring the firmest and most comfortable fit;

Hair partings, which the exhibitor was the first to introduce, and a specimen of which was the first time seen at the Great International Exhibition of London in 1851. The hair of which these partings are made being white and transparent, produces the imperceptibility which, until their introduction by the exhibitor, was neither known nor attainable;

Finally, skilful dressing, and most careful workmanship and finish, in which the exhibitor endeavored not to be surpassed by any of his fellow competitors.

As to the artificial result of these specimens, the exhibitor would beg to direct attention in the first instance to the fact, that effect is less imposing, in works made of hair, by the colour of that material, than by its properties, and chiefly depends upon the style, and the artistic touch of the comb. A glance of an experienced eye at the full-bottomed wigs of Belisarius (the hair-dresser of Louis XIV. of France), or any eminent performer, well acquainted with the effects which a well-chosen cofiffure produces,—at the bob wigs introduced some time after,—at the hair-dos, knots, and tails,—at the statues of antiquity (particularly when those of NERO and Marcus Aurelius are contrasted),—will easily detect this fact, corroborated even by history.

For what called forth the admiration of the quiet and staid people of that time, and Mr. Prynne’s quart volume of reminiscences and commemorations of the so-called ‘Love Lock’ of which Charles I. set the fashion, but that air of orquestill frolicksome which it imparts to the wearer?

Indeed, to produce the desired effect, and give to the head-dress a style corresponding with the character, or modifying the expression, of the countenance, the hair-dresser must not only copy the same, but by which nature produces those effects, but thoroughly study the types of character and expression, so as to be able to adapt to them even the fanciest, sometimes absurd, modes of the fashion of the moment, to which the eye becomes so accustomed as to consider handsome and becoming what, at other times, it would pronounce improper and ugly.

The exhibitor trusts that his views will be borne out by the specimens exhibited; and if he ventures to suggest those few hints, it is because none of the treatises on head-dress known to the exhibitor, even the one of La Fère (1778) which the French Academy selected for insertion in their ‘Encyclopédie,’ have ever examined the subject from an artificial point of view; and the public seems to be but imperfectly aware of the fact that not more mechanical skill, but a sound conception of art, and a well-trained artistic taste, are required for the production of intended effects, and the proper application of the hair for the ornament of the head.
Cooper & Holt, 50 & 51 Bunhill Row, Finsbury.—Curled horsehair, bed feathers, and wood.

DICKINSON, JONATHAN, & SON, South Market, Meadow Lane, Leeds, General brush manufacturers, wholesale and for exportation.

Doherty, the Misses, Sligo.—Horsehair ornaments, made by peasant girls.

Dougle, Thomas, 18 Bartlett’s Buildings.—Brooms, brushes, and combs.

Dow, Andrew, 1 Hardwicke Street, Liverpool.—Brushes for plate, watches, and jewellery, with wooden backs, filled with horse, goat, and human hair.

Ellington & Ridley, 89 Watling Street, London, E.C.—Purified bed feathers and eiderdown bed quilts.

Essex, Frederick, 53 Percival Street.—Wool rugs, foot muffs, boots, furs, &c.

Farrant, Richard E., 16 Queen’s Row, Buckingham Gate.—Tooth, nail, shaving, cloth, hat, and hair brushes.

Forster, George, 9 Hatton Wall, London.—Shaving brushes, ivory and bone.

Gosnell, John, & Co., 12 Three King Court, Lombard Street.—Perfumery and soaps; hair, and other kinds of brushes.

Gray, E. M., 44 Ebury Street, Pimlico.—Hair flowers.

Gray, L., 44 Ebury Street, Pimlico.—Hair coronet.

Greenwood, Benjamin, Bond Street, Tyrrel Street, Bradford, Yorkshire.—Improved brooms and circular brushes.
CLASS XXV.—Skins, Fur, Feathers, and Hair.

HASTINGS, Stephen, Limerick.—Shoe, hose, cloth, and hair brushes, &c., made of oak taken from the old Cathedral of Limerick after being 700 years in use.

HERMANN, Auguste, 4 Ozenden Street.—Fancy hair work on a new principle; landscapes in cork; imitation in lace work; and a crown of victory in natural leaves.

HEWLETT, ANTHONY III, 5 Burlington Arcade, Piccadilly.—Wigs, fronts, scalps, and several kinds of artificial hair; also specimens showing the effects of a new hair dye.

HOPEKINS, Walter, 88 Westminster Bridge Road.—Ladies' wigs and partings for thin hair; gentlemen's wigs and scalps.

HOYTENDS, R., & Sons, Great Marlborough Street; and Crown Street, Finsbury.—Human hair, raw and manufactured.

1. Specimens of the raw human hair; of the principal descriptions in use.
2. Specimens of human hair, showing it in the various stages of preparation from the raw state to its completion into a gentleman's wig, a lady's band, and a lady's back plait.
3. Heads of hair washed.
4. Do. Do. drawn even at point.
5. Do. Do. further cleansed.
6. Do. Do. finished into the different lengths.
7. Do. Do. curled for a lady's wig.
8. Natural curling hair for a gentleman's wig.
9. Crimped hair for a lady's crinoline.
10. Wigs, hair, ready for wig-making.
11. Partings of various descriptions for gentleman's wigs.
12. Partings of various descriptions for a lady's bands.

15. Specimen of various descriptions.
16. A gentleman's wig, as a specimen of knotting upon genus.
17. A specimen of hair 24 inches long (6 feet 2 inches) supposed to be the longest and most extraordinary piece of human hair in the world. It was cut from the head of an English lady.
18. A gentleman's wig, manufactured entirely of human hair, no other material being used in it.
19. A wig for a gentleman's wig, made in one piece, and entirely of human hair.
20. Specimens of human hair used by RADFORD'S "Instantaneous Columbian Hair Dye"—H. & Sons sole wholesale agents.

HOWARD, William, 23 Great Russell Street, Bloomsbury.—Introduction of gutta percha for securing the hairs in brushes.

GUTTA PERCHA SUREDO TOLETRY BROKERS.—The application of gutta percha prevents the decay of the wire and consequent loosing off the hair. No extra charge is made for this improvement. These brushes are specially adapted for first-class India and colonial trade.

Painting and stable brushes are made on the same principle.

Prices can be learned by application to the exhibitor.

JEFFCOAT, Joseph, 9 Middle Queen's Buildings, Bromley.—Painters' brushes, the bristles being tied on self-tightening principles.

FANEY'S BRUSHES, the bristles secured on self-tightening principles. The binding string used by the exhibitor being prepared by him to resist the action of water, oil, acids, &c., will not yield or burst by the working of the bristles when the brush is saturated in use, a fault very common with brushes usually manufactured. The bristles of brushes tied with binding string thus prepared do not work loose; and they are tied upon a principle which prevents their working hollow or wearing swallow-tailed; and they are effectually secured by each of the many turns of the binding string round them exercising a much tighter grip upon the whole of the bristles than can possibly be obtained by the use of metal staples or pins and other swivel and bands. The durability and working qualities of brushes made upon these principles are well vouched for in the service of the manufacturers of this Exhibition building, of Messrs. Cobett, Erith, Lucas, Myers, Green, Kendal, and other eminent firms. The cost of the brushes to the consumer is not increased by the application of these improvements.
Class XXV.—South-East Transept, South-East Court.

[ 4564 ]

King, George, & Son, 116 Bunhill Row, London.—Brushes, more especially for manufacturing purposes.

[ 4565 ]

Kolle, H., & Son, 65 Queen Street, Cheapside.—Seatings, curled hair, crinolines, drawn white hair, drafts.

[ 4566 ]

Lotter & Son, 33 Gracechurch Street.—Patent self-supplying water brush, or carriage varnish and paint preserver.

SELF-SUPPLYING WATER-BRUSH FOR CARRIAGES.

This apparatus is simple, and cannot get out of order. One end of an india-rubber tube is attached to a water tap, and the other end to the brush, through which the water flows continuously, and at once removes each particle of dirt as soon as detached, thereby preventing the varnish or paint being sanded, or scratched. Its use effects an immense saving of time and labour. A slight pressure of water is required, so that the flow may be more abundant. Apparatus and brush, from 25s.

[ 4567 ]

Marsh, J., 175 Piccadilly.—Manufactured hair, perfumery, and brushes.

[ 4568 ]

Mason, Thomas, 40 Portland Street, Leeds.—Transparent front and parting, hair restorative, and Turkish dye.

[ 4569 ]

Metherell, John Kinward, 47 Carey Street, Lincoln's Inn, W.C.—Extra light full-bottomed wig.

[ 4570 ]

Nash, Thomas, jun., 134 Great Dover Street, Borough, London.—Patent paint and other brushes.

[ 4571 ]

Nightingale, William & Charles, Wardour Street.—Bed feathers and downs; horse hair, curled and spun.

[ 4573 ]

Pemberton, Abraham, 15 Broad Street, Worcester.—Saddlery and stable brushes.
Class XXV.—Skins, Fur, Feathers, and Hair.

[ 4574 ]
Sayville, H., Leeds.—Scalp with mechanical movement; specimens of invisible fabric for wig-making; &c.

[ 4575 ]
Smith, Augustus, Wentworth Street, Whitechapel.—Brushes and specimens of piazzas.

[ 4576 ]
Taylor, Robert, 3 Brunswick Place, Brompton Square, South Kensington.—St. Neots Church, Hunts, worked with hair on glass; ornamental designs in human hair.

[ 4577 ]
Truefitt, H. P., 20 & 21 Burlington Arcade.—Specimens of wig-making &c.

[ 4578 ]
Truefitt, Walter, 1 New Bond Street.—Perukes, ladies' head-dresses, and articles in hair.

[ 4579 ]
Unwin & Albert, 24 Piccadilly.—Perukes and ornamental hair, combining art and nature, on the most perfect principles.

[ 4580 ]
Vickers & Short, 12 & 13 Bower Lane, Leeds, Yorkshire.—Perukes, scalp, ornamental hair, &c.

[ 4581 ]
Wall, Thomas, 3 Upper Arcade, Bristol.—Vase of artificial flowers, size of nature, worked in human hair.

[ 4582 ]
Watkins, C. A., 10 Greek Street, Soho Square.—Patent wire-bound painting brushes, round and oval, graining tools, shaving brushes, &c.

[ 4583 ]
Webb, Edward, Worcester.—Plain and figured hair seating, curled hair, elder and hop cloth, crinoline, fine cloth for buttons, &c.

[ 4584 ]
Whitfield, Samuel, & Sons, Birmingham.—Samples of purified and unpurified bed feathers.

[ 4585 ]
Williams, John, 46 Westminster Road.—Improved brooms and brushes, of various descriptions, for household and toilet use.
WINTER, William, 205 Oxford Street, London.—Ornamental hair, combining lightness, durability, and elegance with good workmanship.

W. Winter's Patents Remedies restores the hair in all cases of sudden baldness or bald patches, where no visible signs of roots exist. Frequently one or more bald patches make their appearance in the hair, and, if neglected, spread over the head, causing entire and permanent baldness; but by the use of the above the hair is restored to its natural colour, if quite white, and becomes as strong as on any other part of the head. Price 6s. 6d.

In W. Winter's Union Head Dress, the foundation is perfectly transparent, so that the hair appears to grow from the pores of the skin, and detection is impossible.

W. Winter's Union Head Dress produces natural and permanent colours, from the lightest brown to black, without any green, purple, red, or other extraordinary tints, unpleasant odour, or the least injury to the hair or skin, leaving the hair softer and more glossy than before the dye was applied. In cases of 12s. 6d., 16s. 6d., and 21s. Each colour is quite a different preparation.

W. Winter's Quinine Balsam, the original preparation, invented and made only by him. The extraordinary effect produced by its use on dry heads of hair, where there is a want of tone and deficiency of natural support in the nutrient tubes of the hair, is well known. It not only causes the young growth under hair to grow up strong and prevents the hair from falling off, but also prevents it becoming grey.

As there are numerous counterfeits, purchasers should observe that the original quinine balsam bears the name and address of W. Winter, 205 Oxford Street, near Fortman Square, London, W., inventor of the celebrated genuine quinine balsam extract, for clearing the hair and combating the dandruff. This innocent and efficient compound has been in use now for sixty years.

WYATT, Cornelius, 1 Conduit Street, Regent Street, W.—Specimens of ornamental hair; various shades of dyed hair.
Tussaud Brothers, 105 Marylebone Road.—Specimens of fur and feathers which have been separated from their natural skins and attached to a woven fabric.

UNDER BRITISH AND FOREIGN PATENTS.

[Obtained Prize Medal 1862.]

Messrs. Tussaud's feel that the following extracts will best explain the articles exhibited by them—

The South Kensington Museum Catalogue justly says, that 'one of the greatest benefits that science can confer on man is the rendering useful these substances which, being the refuse of manufacturers, are either got rid of at great expense, or being allowed to decompose, produce disease and death. A large number are now used in various ways which were formerly regarded as offal and cast away; but a great number still exist to invite the ingenuity of the man of science to find for them useful applications.'

The advantage of the Messrs. Tussaud's invention consists in this—that what was formerly rejected by the tanner, and either disposed of to the plucker or consigned to the manure heap, is now manufactured into a useful fabric at a price within the reach of all.

The same applies to feathers; and as every feather or hair, when attached to the new fabric, retains the same place with regard to its fellows as it had in the natural skin, it follows that these furs with artificial pelt must present exactly the same appearance as in their natural state.

Another part of the South Kensington Museum Catalogue alluding to an art known to the ancient Chinese, which has been lost, states 'that the Princess Tashiki engaged a skilful artist to collect feathers of every description in order to make of them two dressing which should, when looked at in front, present one colour, when viewed otherwise another, and when held up to the light a third.' The articles exhibited in our case being made from the feathers of the mallard duck present this variety of colour, appearing alternately green, purple, or black, according to the light in which they are viewed.

The Messrs. Tussaud have referred twice in the above account to the South Kensington Museum Catalogue; they might do so more frequently, and acknowledge with a grateful feeling that whatever merit their system may possess must be attributed to information gleaned from its pages, insomuch as they were induced to undertake a series of experiments which have resulted in the production of a perfect feather fur, as well as in the saving and turning to account of what has up to the present time been considered little better than offal.

To show the enormous result of a successful application of the process, it will be only necessary to state that the United Kingdom alone annually furnishes to the skin market four millions of ox and cow hides, five hundred thousand calf skins, one hundred thousand horse hides, and eight hundred thousand goat skins, the hair of which has hitherto been lost for manufacturing purposes, but can now be made useful.

The advantage derived from the Messrs. Tussaud's method are detailed under the following heads, viz.:

1. All furs made light.
2. Not affected by wet.
3. Great facility of cleaning.
4. Great facility of dying.
5. Not affected by moth.
6. Practical from all others.
7. Pelt s red from fur.
8. Increased suppleness.
10. Hair saved from hides.
LEATHER, INCLUDING SADDLERY AND HARNESS.

Sub-Class A.—Leather.

[4618] Batt, Joshua, Tottenham.—East India and English sheep skins and seal fleshers.

[4619] Bevington & Morris, 67 Cannon Street West; Manufactory, Blue Anchor Road, Bermondsey.—Leather.


[4621] Boak, Allan, 59 West Port, Edinburgh.—Rough and curried hog skins, tanned and patent leather.


[4624] Clark, Joseph, & Sons, 76 Dean Street, Soho Square, London.—Leather manufactures.

[4625] Cooper, Frederick Eden, Brunswick Court, Artillery Street, Bermondsey.—Leather for bookbinding and upholsterers’ purposes.

[4627] Deed, John S., & Sons, 461 Oxford Street, London.—Leather &c. (See page 12.)

[4628] Drake, Richard, Bristol.—Oak bark and valonia tanned leather.

(11)
CLASS XXVI.—Leather, including Saddlery and Harness.


[Obtained the Prize Medal in 1851; Two Prize Medals at New York, 1853; and a Bronze Prize Medal at Paris, 1855.]

Morocco, in various colours and styles of finishing for carriage linings, furniture, bookbinding, casemaking, &c.

Calf skins, roans, and skivers in various styles, for bookbinding, casemaking, &c.

Carried hides, enamelled raw hides, and border hides for carriage and harness purposes.

[ 4639 ]

DRAPE, HENRY, Kemilworth.—Two butts, tanned two years. Soles from three butts, tanned two years.

[ 4630 ]

ESSEX, WILLIAM, & SONS, 28 Stanhope Street, Strand, London.—Leather for carriages, saddles, harness, army accoutrements, &c.

[ 4631 ]

FISHER, N., & SONS, 31 Maze Pond, Southwark, S.E.—Enamelled, curried, and coloured leather.

[ 4632 ]


[ 4633 ]


[ 4634 ]

GEORGE, CLEMENT, 102 Dean Street, Soho Square.—Morocco and Russia leather for furniture and dressing-case purposes.

[ 4635 ]

HEMSWORTH, LINLEY, & WILKES, 30 West Smithfield, London.—Leather adapted for boots and shoes.

[ 4636 ]


[ 4637 ]

HOLDEN, EDWARD THOMAS, Walsall.—Couch, saddle, and harness leather; japanned, enamelled, and coloured leather.

[ 4638 ]

HOLMES, THOMAS, & SON, Antoby Road Tannery, Hull.—Patent walrus-hide belting.

These belts have been well tested for upwards of five years in all the principal manufactories and raw mills in Hull (to which reference can be made), and are in use in London, Liverpool, Manchester, Leeds, Birmingham, Newcastle, Sheffield, and other places.

For strength and pliability, as well as from their being less liable to stretch (having undergone a powerful tension in process of manufacture), they are acknowledged by those who have used them to be superior to any other article in use. They may be had of any thickness, from six to fifty of an inch, and of any width to twenty-four inches.

[ 4639 ]

HUDSON, SAMUEL, 65 Dawson Street, Dublin.—Saddlery, harness, &c.

[Obtained Three Prize Medals at the Exhibitions of the Royal Dublin Society; also Three Honorary Certificates at the Exhibitions in Dublin, London, and Paris.]

The following are exhibited:—

A set of Yoke-piece Harness.
A set of Single Harness.
Two Hunting Saddles.
A Lady's Saddles, with Victoria leaping-band, invented by exhibitor.
A Windsor Crap.
An American style Harness Saddle.

( 12 )
HYDE, ARCHER, & CO., 7 Finsbury Place, S.—Collection of superior coach, harness, and saddle leather.

JONES, W. H., & SON, 179 High Street, Borough; and Russell Place, Bermondsey.—Enamelled and curried leather.

LAMBERT, BLAIR, & MOWBRAY, Bermondsey New Road.—Blocked boot fronts, white and brown tops, jockey legs, Spanish cordovan, kip butts, Memel skins, &c.

LEVY, JOHN, Next street, Colbury Road, Old Kent Road.—Vellums and parchments.


LLOYD, T., 16 Newcastle Street, Strand.—Parchment, vellum, forrel, &c.

MCRAE, J. & J., 43 & 46 Bermondsey Street, and Mitcham Common, S.—Sole leather, buff leather for army purposes, chanclas leather, enamelled and japanned leather.

MARSHALL, WILLIAM, & SON, Ladyburn, near Greenock.—Saddlers' basils.

MATHERS, GEORGE, Market Street, Bermondsey.—Goat, calf, sheep, and seal skins; and horse hides.

MATHERS, WILLIAM, Spa Road, Grange Road, Bermondsey.—Enamelled and patent leather.

MOFFAT, JOHN, Musselburgh.—Sample Scotch crop hides and curried leather.

MONTGOMERY, G. F., Dowgate Hill, London.—Hides preserved, prepared, and tanned by Laperaun’s process.

MUNDY, W. P., Tyers’ Gateway, Bermondsey.—Tanned East India kips and English calf skins.


POOLE, JOHN & CHARLES, Walworth Common, London.—Boot tops, legs, and fronts.

PELLMAN, ROBERT & JOHN, 17 Greek Street, Soho, and Lostford Mills, Surrey.—Chamois, deer, and buff leather.

RICHARDSON, EDWARD & JAMES, Newcastle-on-Tyne.—Furniture and shoe rooms, kid, calf, seal, and enamelled leathers.
CLASS XXVI.—Leather, including Saddlery and Harness.

ROBERTS, Daniel & E. W., Pope’s Walk, Bermondsey.—Morocco, patent, enameled, kid, calf, and sheep leather.

SAXTON, Waddington & Carey, 85 to 89 Bartholomew Close.—Skins, kips, fronts, shoe legs, jockey legs, cordovan, grained calf.

SHAW & MORRIS, Wyld’s Rents, Bermondsey.—Patent, enameled, and harness leather in black and colours.

SIBLEY, Alfred, Crown Street, Camberwell.—Kid skins for gloves.

SMITH, Eusebius, Camomile Street, London.—Boot fronts, boot tops, jockey legs, enameled horse and cow hides.

SOMERVILLE BROTHERS, Netherfield, Kendal.—Shoe and harness leather. (See pages 15 & 16.)

SOUTHET & Co., 16 Little Queen Street, Lincoln’s Inn Fields, W.C.—Manufactured hides and skins.

SPARKS, William, 37 Long Lane, and 69 Bermondsey New Road.—Curried and blocked calf leather.

SETON, William, Scotby Works, near Carlisle.—Boot and shoe leather in Spanish cordovan, shoe hides and kips.

TOMKINS, William, Black Swan Yard, Bermondsey Street.—Morocco and sheep leather, parchment, and vellum.


WINSOR, George, & Son, 58 Russell Street, Bermondsey, London.—Sheepskin wool rugs of every description.

YORKSHIRE LEATHER CO., 482 New Oxford Street.—Harness, bridle, and saddle leather.

FOORD & MOIR, Pontefract Tan Works, Edinburgh.—Tanned and curried leather, grained shoe butts and calf skin, &c.

MASON, E., Dean Gate, Manchester.—Hose pipes.
SOMERVILLE BROTHERS, NETHERFIELD, Kendal.—First-class shoe and harness leather, manufactured especially for foreign markets.

[For outside view of the Works, see Advertisement at end of Port 8.]

SOME LEATHER.

Light English Calf Skins and Kip Butts for foreign markets, £8, £14, and £20 per dozen.

These Skins are all selected so as to be free, or as nearly so as possible, from flaws and imperfections. In some cases half of the Skins are thrown out when they come from the tan-yard, in others one-third, all of which are disposed of for other purposes.

English Calf Butts in various weights.

Kip Butts: East India, Petersburg, and English.

Grained Kip Butts for shooting boots.

Black and Russet Grained Hides.

Spanish Cordovan Hides.

English do. do.

Spanish Calf do.

English Side Butts, back tanned.

Foreign do. do. do. do.

English Shoulders, light, middling, stout.

Foreign do. do.

English Belly Middle.

Do. Inside Bellies.

Foreign do. do.

Curried Waist Shoulders.

Calf Kids, light, middling, stout.

Satta Kid Calf, do. do. do.

Samas Grained Calf.

Bark do. do.

Grained Morocco.

Do. Persian.

Russet Grained Calf.

Do. Lining do.

COLOURS.

Germanium, Green, Amber, Bronze, Blue, Violet, Cream.

BLACK FROM KINS.

White, Pink, and Blue Shoe Kids.

DOY MOROCCO.

Violet, Marine, Green, Germanium, and Black.

Coloured Shoe Moroccos in all shades.

Blue, Pink, and Black Lambes.

Enamelled Hides.

Enamelled Skins.

Patent Boot Skins.

White Sheep and Lambes.

White Wool Lambes.

Living Batts, glass finished.

Kid and Chevalier Bindings.

Striped Seal do.

Striped Goat do.

Do. Cordovan do.

Black Persian do.

JOCKEY TOES.

White, Brown, Mahogany, Amber.

Nagle Jockey Legs.

Wellington Frontier.

Albert do.

Charm do.

GRANTS.

Harness, Carriage, and Army Leather.

Black Harness Hides, light, middling, stout.

Do. Backs do.

Brown do. Hides do.

Do. do. Backs do.

Striped Hides and Butts.

Bridle do. do.

Black and Brown Roe Hides.

Do. do. Backs.

Brown Boots for Royal Hides.

Russet Bridle Belts.

Handpart Middlings.

Brown Collar Butts.

Brown Strap Hides.

Skirt Hides.

Skirt Shoulders.

Seat Shoulders.

Hog Skins.

Covering Skirts and Flaps.

Solid do. do.

Chaise do. do.

Housings.

White Horse Hides.

Buff Army do.

White Enamelled Hides.

Chamois.

Enamelled Hides.

Patent Middlings.

Patent Horse Hides.

Do. do. Backs.

Do. Bag Hides.

Do. Split.

Do. Sheep.

Do. Calf.

Bag Hides.

Black Chaise Hides.

Collar Basil.

Stretched do.

Lining do.

For list of prices apply to SOMERVILLE BROTHERS, Netherfield, Kendal; who have besides a distinct branch for the manufacture of first-class Closed Boot and Shoe Uppers and Leggings in 100 different kinds. See Catalogue for Class XXVII., p. 58, for description and sketches.
Class XXVI.—Leather, including Saddlery and Harness.

Somerville Brothers, Netherfield, Kendal.

Shoe and harness leather—continued.

One of the Leather-dressing Rooms, Netherfield, Kendal.
SUB-CLASS B.—Saddlery, Harness, &c.

[4680]
Aches, John, & Co., 131 Trongate, Glasgow.—Saddle trees, wood and iron cart hames, and saddlery chains.

[4681]
Banton, Edward, Walsall.—Saddlers' ironmongery &c., including saddles, harness, hunting bridles, breastplates, and martingales.

[4683]
Bartley, Charles Alfred, 20b Portman Street, Portman Square, W.—Harness and saddlery.

[4684]
Blackwell, Samuel, 259 Oxford Street.—Saddlery and harness. (See pages 18 and 19.)

[4685]
Blyth, Robert, & Sons, 4 Park Lane, W.—Ladies' saddle and Somerset saddle, harness pad, &c.

Lady's Saddle, with horizontal elastic seat. Improved light Somerset Saddles.

[4686]
Bourne, Thomas, 5 College Road, Cork.—Set of carriage harness, with improved tug buckles.

[4687]
Bryce, Henry, Walsall.—Saddles, bridles, harness, and horse appointments.

[4688]
Brilefold, Charles, 21 Wellington Street.—Patent saddle trees.

[4689]
Brown & Son, 7 Meat Row, Birmingham.—Saddle trees. (Awarded the Prize Medal in 1851.)

[4690]
Callow, Thomas, & Son, 8 Park Lane, Hyde Park Corner.—Whips for riding, driving, and hunting.

[4691]
Campbell, James, & Co., Adams Row, Walsall.—Ladies' and hunting saddles, deer saddles, harness, bridles, bits, stirrups and spurs, &c.

[4692]
Carter, Lieut.-Colonel, Monmouth.—Harness on new principles. (See page 20.)

[4693]
Clark, William, & Son, Leeds.—Assortment of saddlery, harness, and horse clothing, for home and exportation.

CLASS XXXVII.
Blackwell, Samuel, 259 Oxford Street. — Saddlery and harness, with four patented improvements, gutta percha crib straps, dumb jockeys, and India-rubber springs.

The following are exhibited:

Patent GUTTA-PERCHA Jockeys, elastic, for breaking horses easy-mouthed and temperate, and exercising in frosty weather in loose boxes and stalls, and on led horses; preventing falling and broken knees. They yield easily if a colt rolls over on his back, and are not injured as with the old wooden jockey. They are fitted with elastic vulcanised rubber springs of varied strengths to the reins, of from 3 lbs. to 10 lbs. each, making the total pull of the four springs 40 lbs. A few very violent horses require two sets of springs, making a pull of 80 lbs. These jockeys are used by the first breeders and owners of horses in the kingdom and abroad; above 5,000 are now in use.

Price from 56s. to 60s.; on hire, 2s. per week, with option of purchase.
Vulcanised Rubber Straps for saddle straps, girths, rollers, martingales, and any part of saddlery and harness where elasticity is useful, 2d. each.

Hooks (vulcanised rubber spring) in brass, iron, galvanized and German silver, of all strengths, for reins, pillar reins, chains, ropes, and where spring hooks are used, from 1d.

A large assortment of Racing, Military, Artillery, Harness', and Dog Whips, with springs, making dog leads and couplings.

Web, Fetlock, Speedy, Splint, Leg, Hock, Hoof, and Strengthening Boots, 3s. to 9s.

Travelling Knee Boots, 8s.; with patent springs, 10s.; and rubber knee caps, 12s.

Safety Straps, for riding and driving reins, to both bits, and one rein in hand, to act on the bradoon, and when the horse pulls hard the spring stretches, and the rein then acts on the curb. For light-mouthed horses in harness that occasionally run away, they are invaluable, as they act as two pairs of reins. Ladies and timid riders cannot use the wrong rein. 8s. and 12s. per pair, 1,000 in use. Springs to hawse, side, and gag reins, to allow the horse to lower his head.

Anti-Crib-Straps, elastic, of gutta percha, iron, and leather, constructed not to injure the mane. A sure preventive against crib-biting keeping a crib-biter in condition. 18s.

Exhibited at the Museum of Patents, South Kensington.

Agents:—Auld, Saddler, Quebec; Morris, Saddler, Montreal; Herouz & Vanwagel, 56 Rue de Paris, Paris; Hay & Hayes, Merchants, Cornhill, Boston, U.S.; Mr. Verona, Merchant, 41 Collins Street West, Melbourne, Australia.
Class XXVI.—Leather, including Saddlery and Harness.

Carter, Lieut.-Colonel, Monmouth.—Harness on principles securing the steadiest draught and greatest power of management.

[By Royal Letters Patent.]

Lieut.-Colonel Carter's Perfected Harness.

The advantages gained by this harness are:

1st. The chief power of control is in the hame of the collar, where the points of the shafts terminate and are attached; consequently the awkward, unsightly, and dangerous projections of the points of the shafts are got rid of.

2nd. Leather traces are dispensed with.

3rd. A small-sized pad only is necessary.

4th. The tugs are only one inch in diameter.

5th. Encircling the shaft with a portion of the backhand is not required.

6th. The straps to the pad and the surcingle are to the horse as one strap.

7th. The objectionable crupper-dock is, or can be, dispensed with.

8th. Should the horse fall, the shafts (which are the traces) are not liable to fracture.

9th. In crowded thoroughfares the shafts protect the horse from injury.

10th. The horse cannot touch the shafts, nor can he kick over them or reach the splash-board.

11th. As the pad is placed in the centre of the horse's back, the girths do not interfere with the action of the fore-legs, and the motion of the shafts is the least possible.

12th. The carriage is turned, not by a push and a strain upon the pad, but by the collar.

13th. For retarding, stopping, or backing the carriage, the pull back is as direct as the pull forward, and in its action is almost as immediate.

14th. The powers of the horse—as relating simply to horizontal draught—are usually taxed in five different ways:—(1) He draws the carriage with the collar; (2) he turns it by pushing with his shoulder and side, and he steeps it conjointly with (3) his thighs, (4) his tail, and (5) his withers. In the ‘perfected harness’ the horse has but to learn two things—to pull forward with the collar, and to pull back with the breeching.

15th. The carriage is turned, not by a push and a strain upon the pad, but by the collar.

16th. For retarding, stopping, or backing the carriage, the pull back is as direct as the pull forward, and in its action is almost as immediate.

17th. When retarding the carriage, ventilation is obtained under the collar.

18th. The powers of the horse—as relating simply to horizontal draught—are usually taxed in five different ways:—(1) He draws the carriage with the collar; (2) he turns it by pushing with his shoulder and side, and he steeps it conjointly with (3) his thighs, (4) his tail, and (5) his withers. In the ‘perfected harness’ the horse has but to learn two things—to pull forward with the collar, and to pull back with the breeching.

19th. The horse is put to and removed from the carriage without the necessity of either being moved from their respective positions.

20th. The twisting of the reins, when driving, is prevented by an improved terret.
CLASS XXVI.—South-East Transept, South-East Court.

[ 4698 ]

DEER, FREDERICK A., North, Glamorganshire.—Saddles, harness, and ornamental leather frame, on an improved principle.

[ 4699 ]

DOTTET, FRANCES, 30 Brownlow Street, Drury Lane, London.—Saddle trees.

These saddle trees are made of well-seasoned timber, and are moderate in price. A large stock of trees of various qualities and patterns is always kept by the exhibitor.

[ 4700 ]

DEPTT, JOSHD. Market Harborough, Leicestershire.—Economical safety collar, for all purposes.

[ 4701 ]

DUNLOP, JAMES, Haddington.—Farm harness for two horses in cart and plough, with expanding neck collar.

[ 4702 ]

ELLAM, BENJAMIN, 213 Piccadilly.—Whips of every description, saddles, bridles, horse clothing, harness, military appointments, &c. &c.

Among the articles in this case are a great variety of rich race prize whips, of the newest designs; ladies' riding whips, also of novel construction, with fan or semi-shade attached; ladies' and gentleman's improved cheswite or Arab riding whips, with horse-hair plumes, especially adapted for India or other parts where horses and rider are subject to annoyance from insects; ladies' and gentleman's riding whips of entirely new patterns and devices, and all of excellent workmanship; state carriage and position whips; ladies' and gentleman's riding whips of new patterns and extraordinary finish; driving whips with horns and warning whistles in the handle; prize or gift hunting whips, with sporting devices; riding cases with novel mountings.

Saddles, bridles, horse clothing, harness, and every requisite for the stable, manufactured of the very best materials at exceedingly moderate prices. Merchants, shippers, and saddlers purchasing at the above establishment will find a great advantage.


[ 4703 ]

GARDNER & SONS, 200 Piccadilly.—Saddles and harness.

[ 4704 ]

GARNETT, WILLIAM, 4 Bridgepom Plows, Walsall.—Four gentlemen's saddles, one lady's saddle, one set of gig harness.

[ 4705 ]

GIBSON & CO., 6 New Coventry Street, Leicester Square.—Saddlery &c.

[ 4706 ]

GORDON, ALFRED, 39 Lime Street, Leicester Square, and 99 Piccadilly.—Harness and saddles.

[ 4707 ]

GRAY, EDWARD, 44 High Street, Sheffield.—Saddles and harness.

[ 4708 ]

GREATKES, CHARLES, & SONS, Walsall.—Harness, saddlery, whips, &c.
Class XXVI.—Leather, including Saddlery and Harness.

Davies, Alexander, 33 Strand, London.—Saddles, harness, horse clothing, bridles, ladies' saddles, &c.

1. Rose Saddle, embroidered in coloured silks on pig-skin, after a medieval design.

Embroidery, as applied to saddlery, has generally been employed by letting the finished parts of embroidered work into pieces cut out of the skin. In this instance the embroidery is worked into the skin itself, and thus forms part of the material. Care has been taken to ensure its general application, at a small cost, after special designs (such as family crests, arms, &c.); and this very novel and beautiful saddle will be likely to lead to an extension, hitherto wanting, of the higher class of ornamental art to this branch of manufacture. Attention is also drawn to the fine lines of the saddle itself, and the fit, as applied from the latest practical experiences and works of the best authorities.

Designs and estimates will be furnished on application.


Attention is drawn to this class as exhibiting beauty of shape, especially with the object of acquiring the greatest ease and comfort to the rider, and fitting the horse with exactness in its various points of bearing. Workmanship and materials specially deserve notice.

3. Pair-Horse Harness for Phaeton. Furniture silver on German silver.

Attention is drawn to the very fine quality and texture of the leather, to the light and yet substantial forms of the various portions of the harness, the bridles, pads, and martingales. The bits, furniture, and ornaments have been especially designed with a view to grace and strength united, and particularly to give true and artistic forms in place of the fantastic ornament much employed. The collars, harness, and tugs are added to give the horse the least fatigue in drawing the vehicle. Workmanship and finish are of the most superior kind.

Prices of the various descriptions of harness at the manufacturer or benchers.


Same as above in quality, and general notice of otherwise distinctive features.


This clothing, after a novel and beautiful design, is the most calculated to give warmth to the horse, fitting him comfortably and closely; also to give a beautiful appearance when clothed. The kersey is beavered, a new process giving great glass and finish to the pattern; the pieces padded to fit the horse with ease, and keep the cloth in its place.

Prices on application.
6. A Suit of Summer Horse Clothing, from a new design. Newmarket kersey, bound with cloth, and stitched with silk. This material facilitates the perspiration of the horse, and is superior to linen, which absorbs the same.

Remarks as to other distinctive features as above.

General Features.

In all manufactures emanating from this factory, there are three points to which general and particular attention is paid, viz.:

1. Beauty of form; designers being employed to produce new shapes, and handsome forms.

2. Quality of materials employed.

3. Lowness of price.

On parle Français.
Deutsch gesprochen.

Price lists on application.
Class XXVI.—Leather, including Saddlery and Harness.

Hargraves, John, & Son, Carlisle.—New styles of horse clothing, girth, roller, brace and shoe webs.

1. The Poncho Horse Sheet (Registered) combines sheet and breast cloth in one garment, which is close at the breast, and draws on over the head. For comfort to the horse, elegance of appearance, durability, and cheapness, the poncho is unequalled.

2. The Double-breasted Newmarket is close at the breast, and fastens with a sliding strap and buckle.

3. Specimens of girth webs, roller webs, brace and belt webs, machine webs, and shoe webs.

Price for the sheet as shown upon the model horse, £1 17s. 6d.; for the suit complete, £4 4s. Crests and initials extra.

Holmes, Derby, Lichfield, and London.—Double and single carriage harnesses, for private use.

Holmes, Herbert Mountford, jun., London Road, Derby.—Pillar rein and saddle drier.

Hood & Stephenson, Dunse, Berwickshire, N.B.—Complete set of agricultural harness for pair of horses; complete set of gig harness; riding saddle and bridles.

Houghton, George, Tewkesbury.—Elliptical spring-seat saddle, and tree showing action of spring.

Jackman, John, 110 Wardour Street.—Bridles, holsters, and saddle-bags.

Lane, Henry William, 3 Little Compton Street, W., Saddle-trees.
In pursuing horse exercise, it is essential that the saddle should possess such amount of elasticity as to be able to accommodate itself to the action of both the horse and the rider.

The exhibitors have therefore manufactured and patented an Improved Fitting Saddle, which combines great firmness with flexibility, and is constructed at the same time with so much simplicity as to render it well deserving the consideration of all lovers of horse exercise. Henton & Son's principle is to have fixed points of pressure only where actually necessary,—that is, at the head or pommel, and at the cantle or back part,—leaving the intermediate space elastic by the simple contrivance of a strong leather foundation, with two steel plates acting as springs on either side, between the head and cantle. The dotted lines represent the extent of the spring.

1. A more accurately fitting saddle.
2. A more perfect bearing and distribution of the weight upon the back of the animal.
3. Clothing and sore back are thus to a great extent, if not entirely, avoided.
4. A firmer and more comfortable seat, with a greater power of purchase.
5. Less fatigue to the horse, arising from the elastic action of the saddle.
6. Increased ease and a more agreeable motion to the rider.

The advantages gained by this mode of construction over the old form of the stiff wooden tree, are many, and may be thus enumerated:

Class XXVI.
Class XXVI.—Leather, including Saddlery and Harness.

[4724]
LANGDON, Messrs., 9 Duke Street, Manchester Square, London.—Improved side-saddles and harness.

[4725]
LEA, Corporal Major, Royal Horse Guards.—Collar for prevention of crib-biting, practically proved to be effective.

[4726]
LENNAN, William, 29 Dawson Street, Dublin, Saddler to Her Majesty.—Saddlery, harness, &c.
Set of Pair-horse Harness, richly chased and plated on solid nickel silver.
Set of light Pair-horse Harness.
Lady's Saddle, quilted all over, with spring leaping-head and safety slipper.
Gentleman's Somerset Saddle, quilted all over.

[4727]
MCDougall, Archibald, 11 & 200 Upper Thames Street, City.—Van harness and cart harness.

[4728]
McNaught & Smith, Worcester.—One pair-horse harness &c. (See page 27.)

[4729]
MARTIN, William Henry, 64 & 65 Burlington Arches.—Whips, canes, sticks, &c.

[4730]
MIDDLEMORE, William, Holloway Head, Birmingham.—Saddlery &c. (See pages 26 and 28.)

[4731]
Merry, Samuel, 21 St. James's Street, London.—Harness, bridles, saddles, and horse clothing.

[4732]
MORE, John, & Son, Market Street, Finsbury.—Double and single harness, pads, collars, round reins, pole pieces.

[4733]
Nanson, Robert, English Street, Carlisle, Cumberland.—Ladies' and gentlemen's saddles and portmanteaux.

[4734]
NICHOLSON, William Henry, Jun., 57 Market Street, Manchester.—Lady's side saddle and gentleman's hunting saddle.

[4735]
Nickolls, George Albert, 1 Oxford Market, London.—Harness crupper, which prevents kicking and makes the horse carry its tail gracefully.

The Culteron Elevator, or Improved Harness Crupper Dock.
The great advantages obtained by the use of Nickolls' Improved Harness Dock consist in making the horse carry its tail well, gracefully, and with perfect ease. It is also a preventive against kicking, can be attached to any crupper, cannot be seen when worn, and never galls. The invention has been pronounced by competent judges to be a perfect success. Price £1. 6s.

(26)
Class XXVI.—South-East Transept, South-East Court.

McNaught & Smith, Worcester.—One pair-horse harness, two single ditto, one West India mule harness.

Oerton, Francis R., Walsall.—Saddlery, harness, and saddlers' ironmongery.

Oldfield & Son, 1 Motcomb Street, Belgrave Square.—Saddlery and harness.

Owen, John A., 7 Lisle Street, Leicester Square.—Saddlery and harness.

Pearl, James John, 2 Friendly Place, Old Kent Road.—Pad cloths, fronts, and rosettes.

Peat, Henry, 14 Old Bond Street, London.—Ladies' and gentlemen's saddles and harness.
CLASS XXVI.—Leather, including Saddlery and Harness.

[4741]
Percy, Thomas, 40 Albert Street, Hampstead Road, London, N.W.—Gig harness, saddles, pads, &c. Ditto tops and trees.

[4742]
Rand & Beckley, 297 Oxford Street, London.—Saddlery and harness.

[4743]
Shattock, James M., & Co., Bristol.—Gig, carriage, and American buggy harness, saddles, and saddle trees.

[4744]
Shipley, John George, 181 Regent Street.—Whips, saddlery, harness.

[4745]
Smith, R., & Co., 1 Beech Street, City.—Riding and driving whips, hunting crops, and walking canes.

Middlemore, William, Holloway Head, Birmingham.—Saddlery, harness, and saddlers' ironmongery.
Foundation, explaining the principle of the 'Patent Albert Spring-Seat Saddle,' viz. the insertion of spiral springs in the webs of the tree.

Foundation, explaining the principle of the 'Patent Elastic-Seat Saddle,' viz. the substitution of india-rubber instead of linen web for the foundation of the tree.

Hunting saddles made up with either of the above trees.

Swayne & Adeney, 183 Piccadilly.—Whips, thongs, and canes. (See page 30.)

Tibbits, John, & Son, Walsall.—Bits, stirrups; ladies', hunting, military, and harness bridles; heraldry and harness mountings.

Urich & Co., 84 Long Acre.—Saddlery, harness, and horse clothing, &c. (See page 31.)

Weir, John, English Street, Dumfries.—Riding saddles, cart and gig harness.

Whillock, Daniel, 24 Tabernacle Row, St. Luke's.—A youth's improved saddle; a young lady's ditto, adapted for riding either side. (29)
Swaine & Adern, 185 Piccadilly, London, W., opposite Burlington House. Manufacturers to the Queen and Royal Family.—Whips of all descriptions, thongs, canes, and sporting apparatus.

[Obtained a Prize Medal at the Exhibition of 1851.]

1. Prize Racing Whip, richly mounted in silver gilt; the mounts illustrative of the universal and pacific character of the Exhibition, and also of equestrian sports.

2. Royal Prize Whip.


4. Ladies' Riding Whips, with fan or sun shade attached, of novel construction, also with parasol.

5. Ladies' and Gentlemen's Improved Patent Arms on Crowbar Rhinoceros White, with horse-hide plumes.


7. Ladies' Driving Whips, with parasols attached, elegantly mounted.

8. Prize or Gift Hunting Whips, with superb mountings.

9. Two Gentlemen's Driving Whips, one with mail horn in handle, the other with warning whistle.

In addition to the above, a general assortment of ladies' and gentleman's riding and driving whips of new patterns or extraordinary finish.

Riding and walking cases, with beautiful and novel mountings.

Ladies' and gentleman's driving whips, made from rhinoceros horn, handsomely mounted in gold and silver.

Rhinoceros horn riding whips and walking sticks.

Australian stock whips.

Depôt in Paris.—Messrs. Dabee & Texier, à l'Étoile du Faubourg St. Honore.

[ 4751 ]

Whippy, Steggall, & Co., North Audley Street.—Saddles and harness.

[ 4752 ]

White, J. James, Chadnor, Liverpool Street, City, London.—Harness. (See page 31.)

[ 4753 ]

Wilkinson & King, 207 Oxford Street.—Saddles and harness.

[ 4754 ]

Williams, William Evan, High Street, Wandsworth, Surrey.—Elastic frame patent leather horse collars; harness and saddlery.

[ 4755 ]

Wright, Samuel, Stonemarsh, Suffolk.—Set of gig harness; plated furniture, light and very strong.
Class XXVI.—South-East Transept, South-East Court.

Uack & Co., Army, Hunting, and Colonial Saddlem and Harness Makers, 84 Long Acre, London.—Army and hunting saddlery, harness, and horse clothing, &c.

Price lists and designs of harness and saddlery may be obtained on application.

White, James Chadnor, Liverpool Street, City, London.—Harness with improved tugs, saddles &c., wholesale and retail.

[Obtained Prize Medal at the Exhibition of 1851.]

Inventor of the patent tugs for traces &c., the greatest improvement ever made in harness, by the use of which many serious accidents have been prevented, and for which a prize medal has been awarded. See the difference between the Patent Tug and the Buckle.

Class XXVI.—Leather, including Saddlery and Harness.

Sub-Class C.—Manufactures generally made of Leather.

[4766] Crosbie, Archibald William Geddes, Tanner, Shakespeare Street, Dumfries.—Snuff boxes made of leather.


[4768] George, Joseph, 81 Dean Street, Soho.—Ornamental leather for walls, screens, and covering furniture.


[4770] Nicholls, H., 52 Regent Street.—Leather habiliments; prepared skins.

[4771] Revell, James, 272 Oxford Street, W.—Ornamental leather work, and other potichomania.

[4772] Stagg, Thomas, 37 Devonshire Street, Bloomsbury.—Ornamental gilding on leather, velvet, silk, &c., executed by hand.

[4773] Turner, Peter, 31 Dean Street, Soho.—Leather prepared for embroidery, with finished specimens.
CLASS XXVII.

ARTICLES OF CLOTHING.

Sub-Class A.—Hats and Caps.

[ 4804 ]

Ashons, Joseph, & Sons, 54 & 55 Cornwall Road, Waterloo Bridge, London, S.—
Gentlemen's Paris hats; and 'Prince of Wales Exhibition hat,' registered for 1862.

Black and drab beaver hats, patent granted 1813.
The 'Raglan Pakis Satin Hat,' registered Dec. 13, 1864.
The 'Prince of Wales Exhibition Hat,' registered November 5, 1861.

Class XXVII.

Celebrated for the lightness and elasticity of their manufacture.

Beaver and Paris hats on gossamer and felt bodies.
Class XXVII.—Articles of Clothing.

Blair, John, & Co., Glasgow.—Satin hats (by royal letters patent).

The following extract from the Practical Mechanics’ Journal of December, 1846, sufficiently describes Blair’s Patent Hat.

“The benefit of ventilation in head coverings seems now to be generally recognized, and the various manufactures are bent on discovering the best means of securing it. Amongst these, Mr. Blair puts forth his claim in the invention which is the subject of the present patent; and he arrives at the desired result by constructing the bodies of hats in such a manner as to form a thin space between the interior surface and the outside of the hat, at the part where the hat fits upon the head, such space communicating by perforations with the interior of the hat above, or round the upper part of the head.

Our engraving is a vertical section of a hat, as constructed according to the improved system. The cylindrical portion, a, of the hat body is composed of plies or layers of woven material, stiffened by means of shellac or other suitable preparations. Three plies are formed into a single thickness from the crown of the hat, a, to the point, c, rather more than half-way down the side of the hat. The lower part, from c to a, is formed into two thicknesses in my convenient manner, as, for example, by inserting additional plies of material between the inner and outermost plies of the body. The inner thickness, n, thus formed, is slightly contracted in circumference, so as to leave a thin annular space between itself and the outer part.—being joined to the body at n. The brim, f, of the hat is attached at p to the bottom of the outer thickness, c, of the cylindrical portion of the hat body, whilst the usual leather lining, e, is attached by its outer bottom edge to the inner thickness, n. By these means an annular passage or air space is formed between the lining and the outside of the hat; and the inner thickness, n, being perforated at n, above the level of the head, whilst the crowns of the hat is perforated at p, a free passage is left for the air, so that the interior of the hat is kept constantly well ventilated. It will be obvious to the practical hatter, that the same general form of hat body may be produced in a variety of ways besides that especially described herein; but the essential feature of the invention is the formation of a thin or narrow air space round the portion of the hat body which fits the head of the wearer, this space communicating with the interior of the hat for the purpose of ventilating it.

“The invention is obviously applicable to helmets and other head coverings; and in all cases of its application, its use not only induces a good system of ventilation, but also an easy and soft fit to the head.

“We are well able to give an opinion upon this effective contrivance, for we have practically tried it. In about a couple of days, the inner lining takes the exact shape of the head—there being no undue bearing upon any one part—whilst the coolness of the enveloping part is very refreshing after the obtrusiveness of the common hat.”

The principal advantages derived from wearing Blair’s Patent Hat are—

First.—The immediate yielding of the hat to any form of head, produces at once an extremely easy and exact fit.

Second.—By the correct principle on which this hat is ventilated, the head is kept always cool and comfortable, thereby avoiding to the general health of the body, and preventing premature baldness or loss of the hair.

Third.—From the construction of the same or body of the hat, it is impossible that the brim or side-crowns can become saturated, or in the least destroyed by grease or perspiration.

Fourth.—The part of the hat that fits on the head being double, with a space between the two thicknesses, and the inner one only taking the shape of the head, the exterior of the hat retains its proper and original shape.

The above advantages, which are in every respect of the greatest importance, cannot be claimed for any other hat at present in use.
CLASS XXVII.—South-East Angle.

[4806]
Booth & Pike, Manchester.—Hatters’ trimmings, imperial plush and other materials used for hats.

[4807]
Brideg & Perley, 98 Gracechurch Street, corner of Leadenhall Street.—Hats, caps, felt hats, and umbrellas.

[4808]
Carrington, S. & T., Stockport, Cheshire.—Felt and silk hats, patent corrugated ventiduct hat.

[4809]
Crosites, Messrs., London and Stockport.—Illustrations of the manufacture of felted and silk hats.

[4810]
Douglas & Ure, Glasgow.—Hand-knitted Scotch caps.

[4811]
Ellwood, J., & Sons, Great Charlotte Street, Blackfriars Road.—Air-chamber hats, helmets, &c.

Ellwood’s Patent Air-Chamber Helmet.

Ellwood’s Patent Air-Chamber Shooting Hat.

Ellwood’s Patent Air-Chamber Hats, Helmets, &c., manufactured upon the only principle by which the head can be effectually protected from the heat of the sun in tropical climates. The annexed section will show that these hats are composed of two parts, the outer part forming a space or air-chamber round the inner one. The non-conducting properties of the air in this space or chamber have the effect of intercepting the rays of the sun, and prevent them from passing to the head of the wearer.

[4812]
Gaimes, Sanders, & Nicol, 22 Birch Lane, Cornhill, and 111 Strand.—Light ventilating hats, entirely new manufacture.

Plant ventilating hats of very light weight, from 2½ oz. on improved porous bodies.

[4813]
Garrard, Robert & John, Leman Street, Southwark.—Japanned leather and felt hats, cap peaks, cockades, &c.
HEATH, Robert, 25 St. George's Place, Knightsbridge.—Patented inventions in hats and umbrellas.

About the year 1850 the exhibitor directed his attention to the more careful and systematic use of straw as a material for ladies' and children's hats. Wholesale hats made from straw plait were of the simplest form, for possessing any feature of proportion or elegance to recommend them. They were generally seen together now by row, according to the taste or idea of the sexes: any little irregularity perhaps being partially corrected in an after process of blocking.

The exhibitor, considering straw plait in its best qualities to be well worthy any care and attention that could be advantageously brought to bear upon it, proceeded to initiate a more scientific and painstaking regularity in its due attention to measurement and design, and afterwards to bring to the wearer, at once created a demand for the hats made from a material so well suited for this climate. Fashion acknowledged and accepted the improvement. This exhibitor was honoured with the personal command of Her Most Gracious Majesty the Queen and the Royal Family of England, the ladies of the Court, and the nobility; and, in rapid succession, with the patronage of the Courts of France, Italy, Austria, Prussia, Hanover, Sweden, Denmark, Belgium, the Netherlands, Wurttemburg, Germany, and Naples. The good qualities of straw plait at once assured a very increased value, and an increasing demand ensured its usefulness liberal prizes for their beauty, rendering it a valuable auxiliary employment for the females and children of the home counties of England. In this case will be observed the feeling, hat, or sleepers been, a very ingenious adaptation, so convenient that it recommends itself to ladies as a most desirable companion de voyage, and as a protection from exposure upon leaving the opera or the ball-room. This exhibitor also displays a great number of shapes patented by him during the last seven years for the especial use of his lady patrons, forming together an interesting illustration of how much can be prepared with care and diligence from so simple a staple as the straw off the harvest field.

Umbrellas constructed upon a patent by Captain Francis Powis, R.E., and upon an improved principle patented by Robert Heath.

These umbrellas are undoubtedly the most compact and the lightest of any yet manufactured; and these advantages are not gained at the expense of their durability. These simple yet scientific principles upon which they are constructed ensure far more service to the purchaser than he can hope to procure from any umbrella as usually manufactured. These umbrellas do not exceed the dimensions of the ordinary walking cane, and in this climate of sunshine and shower they will certainly become the constant companion of ladies. The walking cane will be discarded in favour of so compact, yet so desirable, a protection for the promenade and the journey.

HUSBAND, Richard, Pavement, Manchester.—Patent spring leathered ventilating and other hats in silks and fezes.

JACOB, William, Dovercoast, Dorset.—Specimens of police and other hats, waterproof and ventilating; registered.

LINCOLN & BENNET, 1 Sackville Street, Piccadilly.—Hats &c.

MELTON, Henry, 194 Regent Street, St. James's.—Ladies' and gentlemen's hats.

MOLLAD, John, & E. E., Denton, near Manchester.—Felt and silk hats.

PUGH, A. &, F., 31 Stamford Street, London.—Hats; silk, silk on cork, felt, and combined cork and felt for India.

SIMMONS & WOODROW, Oldham.—Gentlemen's silk and felt hats, and ladies' and children's felt hats.

The advantage of these hats is, that by a simple, easy, and common-sense appliance, the natural hardness of the silk hat has been completely overcome. The hat is rendered soft, and as elastic as the beaver hat of former days.

Smith, J., 8 Merchant Street, Bristol.—Hats and caps.

Tress & Co., 27 Blackfriars Road, London.—Silk, felt, and beaver hats.


Wilson, William, & Co., Newcastle-on-Tyne.—Hatters' furs, silk and felt hats and caps.

Zox, Lames, 85 Long Acre.—Fancy hats and caps.

Sub-Class B.—Bonnets and General Millinery.

Borke, C., & Son, from Paris, 11 Queen Street, Oxford, and Regent Circus.—Drawn front bonnet, shapes, and crowns.

Emes, Miss, 31 St. John's Villas, N.W.—Patent dress fastenings.

Foster, Son, & Duncan, 16 Wigmore Street, London.—Artificial flowers made of various materials.

Francis, Miss E., 26 Wellington Road, Stoke Newington.—Ladies' night-caps.
CLASS XXVII.—Articles of Clothing.

[4844] Jones, William, 85 Chapel Street, Pentonville.—Artificial May-tree, made of muslin and cambric.


[4846] Stuart & Taylor, 37 Old Change.—Millinery, bonnets, caps, head-dresses, flowers, wreaths, and dress trimmings.


[4848] Valli, Dominico, St. John's Lane, Smithfield.—Manufactured sprays, birds, leaves, seeds, and other artificial florists' materials.

[4849] Vine & Sons, London.—Straw plaitings, straw hats and bonnets, flowers, feathers, mantles, shawls, millinery, juvenile dresses.


Sub-Class C.—Hosiery, Glove, and Clothing in general.

[4861] Allen & Solly, Nottingham, Godalming, and London.—Hosiery; also samples showing cotton-spinning from earliest date.


[4863] Austin, James, Prince's Street, Finsbury, E.C.—Crinoline steel, military and other cords, blind and picture lines.

Imperial patent Albert lines, military cords, crinoline steels; stay, skirt, bonnet, and mat cords; thread blind lines in all colours; worsted blind, curtain, lamp, and picture lines; cotton blind and curtain lines; silk blind, curtain, and picture lines. Special attention is invited to the superior quality of the Imperial patent Albert lines.

(28)
Bares, William, & Son, 7 Edmund Street, Birmingham.—Umbrella furniture.

Bags, John, & Sons, Leicester.—Plain hosiery and under-clothing; fancy hosiery, gloves, piece webs, boots, and shoes.


The goods shown in this case are made expressly for the export to the markets of Australia, New Zealand, and South America.

Boss, J. A., 1 Little Love Lane, Wood Street, Cheapside.—Umbrellas, sunshades, and parasols.

Honourable Mention, Great Exhibition, 1851.

The exhibitor is the originator of the application of steel to the manufacture of ribs for umbrellas, sunshades, and parasols.

The following are exhibited:
- Umbrellas in plain and coloured gingham
- Parasols

Suitable for all markets and for export and home use.

Parasols, sunshades, frames, &c.; sticks, ribs, and furniture applicable to same; umbrellas in different stages of manufacture.

Bowen, Benjamin, Chipping Norton, Oxfordshire.—Leggings made from pure oak bark; tanned leather, and gloves.

Black and dark enamelled and tan leather leggings, made from leather of a pure oak bark tanning.

Price lists will be sent free on application.

Bride, John Henry, 68 Grange Road, Bermondsey.—Shirts, collars, and fronts.

The exhibitor manufactures shirts, collars, &c., and invites public attention, more especially that of the trade, to the specimens exhibited in his case.

Bosie, Joseph, & Co., 43 Conduit Street.—Shirts, collars, &c. (See page 40.)

Brockopp, Thomas, 114 Wood Street, London.—Hosiery &c.

Carpenter & Co., 43 Temple Street, Birmingham.—Braces, belts, &c. (See page 41.)
Class XXVII.—Articles of Clothing.

Berk, Joseph, & Co., 43 Conduit Street.—Shirts, shirt fronts, collars, under waistcoats, drawers, dressing gowns, handkerchiefs, &c.

[Obtained Honourable Mention and a Prize Medal at the Exhibition of 1851.]

The exhibitors devote special attention to the making of flannel shirts and under waistcoats. These are made on their premises from flannel which have been thoroughly shrunk.

[4875]

Cartwright & Warners, Loughborough.—Merino hosiery.

[4876]

Coles, William Fletcher, 5 Aldermanbury Postern, E.C., and 61 Paul Street, Finsbury.—Cork soles, and patent fleecy hosiery.

The following are exhibited, viz.:

Cork soles of fifteen different kinds, covered with wool manufactured of the finest lambswool and cotton, one side being soft and fleecy. Patent cork linings for boots and shoes.

Silk and cotton fleecy linings for gloves &c.

[4877]

Cooper, Thomas, & Co., 2 South Bridge, Edinburgh.—Braces.

[4878]

Corah, Nathaniel, & Sons, Leicester and Birmingham.—Hosiery and hosiery yarns.

[4879]

Desborough, S., 24 Noble Street, E.C.—Patent umbrella and parasol ribs and stretchers.

[4880]

Dicksons & Lings, Hawick.—Yarn and Cheviot and lambswool hosiery and under-clothing.

[4881]

Ellis, J., & Co., 79 Castle Street, Bristol.—Ladies' stays and corsets.

[4882]

Ensor, William, 19 Woolstoek Street, Oxford Street, opposite Marylebone Lane.—Belt, breeches, and trousers.

[4883]

Ensor, Thomas, & Sons, Milborne Port, Somerset.—Gloves.
No. 1. The Lever Buckle, which has no prongs, moves with perfect ease in either direction, and does not tear the web or prick the fingers. Applied to braces, belts, garters, waistcoat backs, &c., &c.

No. 2. The Adjuster, for the backs of trousers or waistcoats, which adjusts these garments with great strictness, and remains firmly fixed where it is placed.

No. 3. The Umbrella Protector, by which the owner can instantly attach his name and address, written by himself, to any umbrella, walking stick, whip, carpet bag, &c., &c.

Carpenter & Co., 43 Temple Street, Birmingham.—Webs, braces, belts, part wove; also crinoline steel &c.
Kwen, Robert, Hawick, Scotland.— Lambswool hosiery and under-clothing, and Scotch fancy hosiery.

Perkins, Joseph, & Co., Worcester.— Ladies' and gentlemen's kid and other leather gloves.

Foster & Co., Oxford.— Ecclesiastical and academical robes. (See page 43.)

Foster, Porter, & Co., 47 Wood Street, London.— Gloves, hosiery, bandannas, shirts, dresses, ribbons, trimmings, parasols.


Fowkes Brothers & Co., 41 Cheapside, E.C.— Kid, dogskin, and military gloves; also every description of gloves in textile fabrics.

Granger, Arthur, 308 High Holborn.— Wearing materials of paper manufacture.

Halliday, Thomas W., Dundee.— Gentlemen’s wearing apparel, without seam or artificial joining, in felt.

Harris, Richard, & Sons, Leicester.— Plain and fancy hosiery, children’s socks, gloves, braces, &c.


Hepple, Joseph, Wensley, Newcastle-on-Tyne.— Cutting measurers.

Hudson, J., & Sons, Leicester.— Worsted, lambswool, cashmere, cotton hose and half-hose.

Johnson, William Gordon, Wheeler Gate, Nottingham.— Gloves, hair nets, lace scarfs, hosiery, and under shirts.

Johnson, John, St. Ninian’s, Stirling.— Checked tartan hose.


**Class XXVII. — South-East Angle.**

**Foster & Co., Oxford. — Ecclesiastical and academical robes.**

The lingering and depressed state of the Established Church and of education generally during the last century was abnormally manifest, as well in minor details as in great features. The vestments of the clergy, both as regards shape and material, as a rule, were of the momentous possible character; so that external signs indicated the existence of the necessity of reforms. Those reforms, both in great matters and in small, have been gradually accomplished during the past thirty years, and Oxford has been foremost in the prosecution of them.

In matters of detail, which, though some may deem them unimportant, nevertheless in their degree tend to render the public services of the Church more perfect and complete, many improvements have been effected. In the question of ecclesiastical vestments, it was the privilege of Messrs. Foster & Co. to lead the way so regards reform.

Many years ago, when the most incorrect and unsatisfactory garments were furnished, with no regard to ancient precedent, or modern requirements, they set themselves to discover some equal standard of authority, by which even in matters of this small moment they might be enabled to meet the demand which rose from activity in the Church, and those warmly interested in the education of the people, and in each wonderful and magnificent energy created.

Assisted by the publications of the learned societies which had made this, amongst others, the subject of their investigations, as well as by that practical experience which the last twenty years had given them in the preparation of ecclesiastical and academical robes, they were enabled to accomplish this point with success. Some of their robes and vestments, prepared after ancient models, and manufactured of the best possible materials, were exhibited at the Oxford Archdiocesan Society's meetings, where they met with the general approbation of that influential body. Independent of this, the testimony they have received from those whose practical and theoretical knowledge has enabled them to form an accurate judgement, permits their taking to themselves the credit of having assisted in improving the taste of those who created the demand, whilst they themselves were called upon to render the supply. The various specimens of robes and vestments in the present Exhibition are of themselves sufficient to illustrate what Messrs. Foster & Co. are now enabled to offer. This fact, more valuable than mere words, added to the above consideration, will be sufficient to point out to the public the desirability of applying to those who have thoroughly studied those matters, rather than to others who appear content to lag behind, satisfied either with indifferent imitations or in continuing to distribute only such ill-made and conventional vestments as were a disgrace to the Church in the day of neglect and inactivity, and which cannot be longer tolerated in this present season of improvement and progress.

In the enlarged list of robes &c., materials of the best quality and workmanship of the first class will be found united with changes strictly moderate.

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<tr>
<th><strong>GOWNS.</strong></th>
<th>£ s. d.</th>
<th>£ s. d.</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.A.</td>
<td>Mohair Gown</td>
<td>1 10 0</td>
<td>2 10 0</td>
</tr>
<tr>
<td>M.A.</td>
<td>Silk</td>
<td>3 5 0</td>
<td>3 5 0</td>
</tr>
<tr>
<td>D.D.</td>
<td>Preaching</td>
<td>6 0 0</td>
<td>8 8 0</td>
</tr>
<tr>
<td>D.C.L.</td>
<td>Silk Gown</td>
<td>4 4 0</td>
<td>4 4 0</td>
</tr>
<tr>
<td>B.C.L.</td>
<td>Scarlet Cloth Gown</td>
<td>6 0 0</td>
<td>8 8 0</td>
</tr>
<tr>
<td>D.D.</td>
<td>Scarlet Cloth Habit</td>
<td>10 10 0</td>
<td>12 12 0</td>
</tr>
<tr>
<td>D.D.</td>
<td>Silk Gown</td>
<td>6 0 0</td>
<td>8 8 0</td>
</tr>
<tr>
<td>Master of the College</td>
<td>Silk Dress</td>
<td>3 0 0</td>
<td>3 0 0</td>
</tr>
<tr>
<td>Gown,</td>
<td>5 0 0</td>
<td>7 0 0</td>
<td></td>
</tr>
<tr>
<td>Scholar's</td>
<td>0 10 0</td>
<td>1 1 0</td>
<td></td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th><strong>ACADEMIC CAPS.</strong></th>
<th>£ s. d.</th>
<th>£ s. d.</th>
<th>£ s. d.</th>
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<tbody>
<tr>
<td>Plain</td>
<td>0 8 0</td>
<td>0 8 0</td>
<td></td>
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<tr>
<td>Patent Folding Scoll</td>
<td>0 8 0</td>
<td>0 8 0</td>
<td></td>
</tr>
<tr>
<td>Choristers, from</td>
<td>0 4 6</td>
<td>0 4 6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>HATS.</strong></th>
<th>£ s. d.</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R.A.</td>
<td>Silk Hood</td>
<td>1 0 0</td>
</tr>
<tr>
<td>M.A.</td>
<td>Silk</td>
<td>1 8 0</td>
</tr>
<tr>
<td>B.C.L.</td>
<td>1 1 0</td>
<td>1 1 0</td>
</tr>
<tr>
<td>B.D.</td>
<td>Scarlet Cloth Hood</td>
<td>3 2 0</td>
</tr>
<tr>
<td>D.C.L.</td>
<td>Silk Hood</td>
<td>4 4 0</td>
</tr>
<tr>
<td>Bachelor's Stuff Hood</td>
<td>0 7 6</td>
<td>0 7 6</td>
</tr>
<tr>
<td>Min. Doc. Dress</td>
<td>1 1 0</td>
<td>1 1 0</td>
</tr>
<tr>
<td>Min. Doc. Dress</td>
<td>1 1 0</td>
<td>1 1 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Capes.</strong></th>
<th>£ s. d.</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mohair (English)</td>
<td>1 10 0</td>
<td>2 10 0</td>
</tr>
<tr>
<td>Silk</td>
<td>2 10 0</td>
<td>3 3 0</td>
</tr>
<tr>
<td>Silk</td>
<td>4 4 0</td>
<td>6 6 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>SCARVES.</strong></th>
<th>£ s. d.</th>
<th>£ s. d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black Silk, Plain</td>
<td>0 10 0</td>
<td>1 1 0</td>
</tr>
<tr>
<td>Embroidered in Silk or Gold</td>
<td>1 1 0</td>
<td>2 2 0</td>
</tr>
<tr>
<td>Coloured Silk, Plain</td>
<td>0 10 0</td>
<td>1 1 0</td>
</tr>
<tr>
<td>Embroidered</td>
<td>1 2 0</td>
<td>2 2 0</td>
</tr>
</tbody>
</table>

**A Set of Black, for ordinary parish wear, of sound good quality, and colour warranted.**

**Prices and Illustrated Catalogue free by post on application.**

(43)
Class XXVII.—Articles of Clothing.

Laing, John, Hawick, Scotland.—Indian gauze, gauze, and elastic merinos, and lambswool; hosiery &c.

Lawrence, Frederick Richard, 20 & 21 Southampton Street.—Shirt collars, shirts, and other white goods.

Lawrence, William, 2 St. Paul’s Villas, Hull’s Pond.—Chamois leather under-clothing, and travelling sheets.

Linklater, Robert, 172 & 113 Commercial Street, Lerwick, Shetland Isles.—Shetland knitted shawls, veils, and hose.

Macintosh, Charles, & Co., Cannon Street, London; and Cambridge Street, Manchester. Waterproof and elastic articles of clothing.

Mclnters, Hogg, & Co., 9 & 10 Addle Street, London; 122 Brunswick Street, Glasgow; and Manchester; Manufactury, Londonderry, Ireland.—Shirts and collars.

Marion & Maitland, Mesdames, 238 Oxford Street.—Corsets.

Meyer, S. & M., 71 Cannon Street West; and Bow Lane.—Umbrellas, various.

Meyers, Michael, 9 Great Alie Street, Goodman’s Fields, London.—Umbrellas and parasols.

Middlemass, James, 18 South Bridge, Edinburgh.—Presbyterian pulpit gowns, gentlemen’s clothing, and shirts.

Moss, Henry Knapp, Woodstock, Oxfordshire.—Leather gloves.


Mundella, Henry R. H., & Co., Station Street, Nottingham.—Hosiery of all descriptions manufactured principally by power machines, under special patents.

NEVILL, W., & Co., Langham Factory, Godalming.—Hosiery.

PAYNE, THOMAS, Hinckley, Leicestershire.—Men’s, women’s, and boys’ cotton stockings, men’s and boys’ half hose.

REYNOLDS, G. W., & Co., 12 Cheapside, London; and Birmingham.—Ladies’ and juvenile under-clothing; crinoline skirts, stays, &c.

SALOMONS, A., Old Change, E.C.—Stays, crinolines, and corsets. (See page 46.)

SANGSTER, WILLIAM & JOHN, 140 Regent Street; 94 Fleet Street; 10 Royal Exchange; and 75 Cheapside.—Umbrellas and parasols.

SCOTT, PETER, & Co., Edinburgh.—Improved shirts; seamless coat.


SILVER, S. W., & Co., Cornhill, and Bishopsgate Within.—Shirts, caps, and waterproof garments.

SINCLAIR, ROBERT, & Co., 80 Wood Street, London.—Shirts, collars, and ladies’ underclothing.

SMITH & Co., Original Balbriggan Hosiers, 36 & 37 Lower Abbey Street, Dublin; Factory, Balbriggan.—Hosiery.

STEARS, SAMUEL, 36 Briggate, Leeds.—Parasol.

TAYLOR, BENJAMIN, 67, 68, & 69 Camden Street, Birmingham.—Braces, belts, leggings, webs, girdles, bridles, accoutrements, rifle lock protectors.


TILLIS & HENDERSON, Glasgow.—Shirts and under-clothing.
Class XXVII.—Articles of Clothing.

Salomons, A., Old Change.—Stay and crinolines, and Smith’s & Castle’s patent corsets &c.

[Obtained Honourable Mention at the Universal Exhibition, 1851, and the only English Stay Maker who obtained a Prize Medal at the Paris Universal Exhibition, 1855.]


1. Corset without laces, eyelet holes, elastic, or any mechanism likely to get out of order. The fastenings are attached to the Corset instead of to the busk, to facilitate the removal of the busk when the stays require to be cleaned.

Smith’s Patent Royal Symmetrical Corsets.

2. Corset with front fastening, elastic backs, and side lacing.

Castle’s Patent Ventilating Corsets.

3. Ventilating Corsets for ball-rooms, hot climates, and equestrian exercise.

Ladies’ Skirts.

4. The Cardinun Collapsing Jupon (Patented).
   Collapses into the smallest possible compass on the slightest pressure.

5. The Imperial Symmetrical Corsage Jupon (Patented).
   This Jupon is attached to a bodice, which can be adjusted to any figure, and supports the skirt.

   Cannot be broken, and will fold into the smallest possible space.
Class XXVII.—South-East Angle.

Waddington & Sons, 1 Coleman Street, London.—Umbrellas and parasols.

Ward, Sturt, & Sharp, Wood Street, London; and Belper, Derbyshire.—Silk, cotton, and woolen hosiery, and gloves.

Welch & Sons, 44 Gutter Lane, London.—Straw hats, millinery, and flowers.

Wells, John Scott, Mount Street, Nottingham.—Cotton and merino hose, vests, &c.

White, F. & W. E., Loughborough.—Plain and fancy worsted, woollen, and cotton hosiery.

Whitby Brothers, Yeovil, Somerset.—Gloves and leather manufactured from foreign lamb skins.

[Obtained the Prize Medal in Class XX, 1841.]

Leather, dressed from Italian lambskins, and stained into various colours suitable for gloves.

Gloves, of various sizes and colours, made from similar leather to that exhibited; cut on a uniform plan, which is calculated to leave the leather with that precise degree of elasticity best adapted to easily putting on the gloves. The Children's have an improved fourchette, and certain portions of the sewing are strengthened on a new principle.

The smallest hands are almost invariably the longest in proportion to their width, except in the unformed hands of children. The Exhibitors have adopted the average length for gloves of each degree of width, grouping the sizes as follows:

<table>
<thead>
<tr>
<th>Size</th>
<th>For Girls</th>
<th>For Boys</th>
<th>For Ladies</th>
<th>For Men</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 00</td>
<td>No. 0</td>
<td>No. 1.</td>
<td>No. 2</td>
<td>No. 3</td>
</tr>
<tr>
<td>No. 1</td>
<td>No. 2</td>
<td>No. 3</td>
<td>No. 4</td>
<td>No. 5</td>
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<tr>
<td>4</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>1/2</td>
<td>3/4</td>
<td>1</td>
<td>1 1/2</td>
<td>2</td>
</tr>
</tbody>
</table>

Whitehead, William, & Son, 63 North Bridge, Edinburgh.—Tartan hosiery and vicuna under-clothing.

Wilson, Walter, Allan Crescent, Hawick, N.B.—Hosiery in wool and merino, and under-clothing.

Wilson & Armstrong, Drogheda Street, Balbriggan; and 11 Nassau Street, Dublin. Balbriggan hosiery.

Wilson & Co., 18 Southampton Row, Russell Square.—Baby's clothes protector, patent Stillas bib, &c.

Wilson & Matheson, Glasgow Street, Glasgow.—Umbrellas, Scotch bonnets, cloth caps, overshoes, &c.
Class XXVII.—Articles of Clothing.

Wyatt, John William, & Co., 64 & 65 Bunhill Row, and 154 Old Street, Finsbury.—Crinoline skirts.

Newland, W. B., 24 Gutter Lane, E.C.—Ladies' collars and wrists; gentlemen's shirt collars and wrists.


Blankley, W. & F., 10 Silver Street, Wood Street, E.C.—Belts, braces, and crinolines.

Sub-Class D.—Boots and Shoes.

Aldred, William, Manchester.—Adjustable heels for boots and shoes, with silver and other metal fastenings.

Allen, Charles Enos, High Street, Haverfordwest, South Wales.—Boots and shoes.

Atloff, Jean George, 69 New Bond Street.—New style of boots, showing excellence of workmanship and improvements.

The New Elastic Boot is an elegant, graceful, and perfect-fitting boot. The elastic web is so placed as to allow the free rising of the instep, and produces that arched and camed shape which is always so greatly admired.

The elastic web being ornamental, these boots are in every way adapted for dance, and do not give that gouty appearance to the ankles which so long been complained of in the ordinary side-spring boots.

Ball, William, & Co., New Weston Street, Bermondsey.—Machine and hand-closed boot uppers.


Baulech, Charles, Bristol.—Improved rivet-soled boots; also registered cork clumps, and self-adjusting leather clogs.

Bird, William, 86 Oxford Street.—Ladies' boots of elaborate and highest class design and workmanship.

Bowers, James, 19 Blandford Street, Manchester Square.—Mechanical boot-stretcher, lasts, &c.
All kinds of military and general boots and shoes.

Spurs for service, hunting, or general use.

Shooting boots without front seams.

Flex gaiters for severe and warm climates.

Brown emaillated India boots.

BRISON, Robert, 1 St. Augustine's Parade.—Anatomical lasts, made to the form of the foot.

BROWN, Edward, 67 Princes Street, W.—Boots, blacking, and polishers.

CARTER, Lieut.-Colonel, Monmouth.—The 'Hythe boot.' (See page 50.)

CHAPPELL, James, 388 Strand.—The Pulvinar boot.

The new 'Pulvinar,' or Cushion Boot, gives a soft bed for the sole of the foot in all kinds of walking. To gentlemen who suffer from tender feet especially, this boot will prove to be a luxury hitherto unknown by them: the comfort of it is felt until the boots are quite worn out.

CHARLESWORTH, William, Stamford Street, Belvoir Street, Leicester.—Riveted and sewed boots and shoes.

CHUSTERS, George, 12 Mount Street, Westminster Road.—The ‘accelerating boot,’ to assist walking and prevent splashing.

CLARK, Cyrus & James, Street, near Glastonbury.—Ladies', gentlemen's, and children's boots, shoes, and slippers.

CLASS XXVII.
CLASS XXVII.—Articles of Clothing.

Carter, Lieut.-Colonel, Monmouth.—The 'Hythe boot.'

![Diagram]

1. Shows the natural bend of the foot when walking.
2. Shows the Hythe Boot, showing how it is divided for facilitating the natural bend of the foot.
3. Shows the large opening of the Hythe Boot.
4. Shows how the large opening can be effectively, quickly, and easily closed.
5. Shows how the trouser can be worn for mutiny marches, the fields, and the moon.

For riflemen, the sole of the Hythe Boot, which is double or ‘chamfered’ and very strong, supports the weight of the body comfortably and steadily when at the ‘kneeling position’, though rigid for this purpose, it is pliant for marching.

For sportsmen and all great walkers, the Hythe Boot will be found to possess most important advantages. By the mode of fastening (two straps buckled) it is easily, comfortably, and firmly secured to the foot. While on dry soil or dew the boot off, ample room is with certainty given to the instep, as the wearer adjusts the boot to its size. The sole (all leather), however thick, is as pliant as a thin one.

For the police (town as well as county), the Hythe Boot is particularly well adapted. Sergeant No. 33 of the Monmouthshire Constabulary, who tested a pair of Hythe Boots during a part of the very wet summer of 1860, and over every kind of road, after walking in them 430 miles, stated that he found them to be the easiest and most durable he had ever worn, impervious to wet, and considerably less fatiguing.

Fishermen will find the Hythe Boot (made easy) a convenient covering for waterproof stockings.

Youth should wear the Hythe Boot, as its increased strength does not prevent the symmetrical growth of the foot, or check muscular development.

The sole of the Hythe Boot can be advantageously used with every kind of boot. It is likewise the most effectual repair to worn boots.

The Fastening can be used with single-sole or light boots.

The Hythe Boot can be easily and expeditiously repaired.

The Hythe Boot can be made waterproof. The sole is invariably watertight.

The Hythe Boot does not creak; and if the sole is applied to a creaking boot, the creaking will cease.

Ladies will find the sole of the Hythe Boot impervious to wet; and in walking, by its thickness and pliancy will experience greater comfort and less fatigue. In the country and at the sea-side a thick-soled boot ought to be regarded as indispensable; but on wet ground everywhere the sole of the Hythe Boot is necessary for health and comfort. Gaiters not needed.

The principles upon which the Hythe Boot has been constructed are:

1st. A hinge in the outer sole, to allow the foot to bend when walking. This is obtained simply by dividing the outer sole, where the foot naturally bends, in two places. Many imagines that gravel must inset itself into these divisions; but this is not possible, for the foot, when walking, is placed on the ground flat, so that the divisons are closed, and it is not until the foot is leaving the ground that the foot bends and the divisions open. Practically, the divisions, except from the comfort they afford, are not felt.

2nd. Two straps—worn after the manner of sandals—so placed that, by buckling them, a large opening is effectually closed, the size of the boot at the instep regulated, and the sole made to adhere to the foot. These straps being as flexible as the boot, very easy to fasten and unfasten—so easy that either can be done in the dark—will, no doubt, supersede universally and for ever the boskins and frigles here.

The Hythe Boot, by giving an easy balance to the body, allowing the foot to bend when walking, foaming the instep, causing a firm adherence of the sole, and being modelled after the proper formation of the foot, reduces fatigue, when compared with ordinary thick boots, to one half. The Hythe boot is not dexter in its first cast than other strong boots.

No change of bootmaker is necessary, as licences are granted by the patentee gratuitously.

Manufacturers are requested to apply for further particulars to Lieut.-Colonel Carter, Monmouth.
### Class XXVII.—South-East Angle.

<table>
<thead>
<tr>
<th>No.</th>
<th>Exhibitant</th>
<th>Address</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4978</td>
<td>Clarke, Edward William</td>
<td>12 Southampton Row, Russell Square</td>
<td>Boots for lame and tender feet. Volunteer gaiter boots.</td>
</tr>
<tr>
<td>4979</td>
<td>Creak, James</td>
<td>Wisbeach</td>
<td>Ladies’ and gentlemen’s improved side-spring bluchers and button boots.</td>
</tr>
<tr>
<td>4980</td>
<td>Cremer &amp; Co.</td>
<td>126 New Bond Street, W.</td>
<td>'Cremerian boot,' with elastic spring in waist or arch of foot.</td>
</tr>
<tr>
<td>4981</td>
<td>Crossdale</td>
<td>2 Rotherfield Street, Lower Islington</td>
<td>Ventilating boots and shoes for hot weather and damp feet.</td>
</tr>
<tr>
<td>4982</td>
<td>Davies, John</td>
<td>46 Great Queen Street, Lincoln’s Inn Fields</td>
<td>Sample of gentlemen’s guinea boots.</td>
</tr>
<tr>
<td>4983</td>
<td>Dennant, Frederick</td>
<td>10 Allington Street, and 6 Bedford Place, Vauxhall Road</td>
<td>Machine-closed boot uppers &amp;c.</td>
</tr>
<tr>
<td>4984</td>
<td>Derham Brothers</td>
<td>Bristol and London</td>
<td>Boots and shoes manufactured by machinery.</td>
</tr>
<tr>
<td>4985</td>
<td>Dowie, James</td>
<td>455 Strand</td>
<td>Elasticated leather soled boots.</td>
</tr>
<tr>
<td>4987</td>
<td>East, Samuel</td>
<td>103 Fore Street, Exeter</td>
<td>Boots, shoes, rifle leggings, lasts, and boot trees.</td>
</tr>
<tr>
<td>4988</td>
<td>Evans, Richard</td>
<td>Newtown, Montgomeryshire</td>
<td>Improvement in the manufacture of patent boots. Also specimens of superior workmanship.</td>
</tr>
<tr>
<td>4989</td>
<td>Frampton, Sophia</td>
<td>79 Regent Street, London</td>
<td>Ladies’ and children’s boots and shoes.</td>
</tr>
<tr>
<td>4990</td>
<td>Garner, David</td>
<td>23 Clarence Road, Bristol</td>
<td>Lasts and boot trees; lasts for riveted boots.</td>
</tr>
</tbody>
</table>

**Inserts:**
- Elasticated leather soled boots.
- Improved portable and Balmoral boot trees.

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[Obtained Honourable Mention at the Exhibition of 1851.]

Patterns may be obtained for thirty postage-stamps on application.
Class XXVII.—*Articles of Clothing.*


[4992] Gordon, Edwin, 6a Princes Street, Leicester Square.—Boots, various.

[4993] Grindley, Thomas, 44 St. Martin's Lane.—Easy boots.

[4994] Gullick, Thomas, Pall Mall.—Boots and spurs. (See page 53.)

[4995] Gundry & Sons, 1 Soho Square.—Variety of boots and shoes, showing improvements and inventions.

[4996] Hall, C. G., 89 Regent Street.—Boots and leggings. (See page 54.)

[4997] Sparkes Hall, Joseph, 308 Regent Street.—Boots and shoes for the rich and the poor.

[4998] Hall & Co., Wellington Street, Strand.—Pannus-corium, or leather-cloth boots and shoes.


[5000] Hamilton, John, 4 Diana Place, Euston Road, Fitzroy Square.—Six pairs of ladies' boots.

[5001] Hartley, Joshua, & Sons, 11 King Street, St. James's.—Top boots of English leather.

The exhibitors are Boot and Shoe Makers by special appointment to Her Majesty the Queen, H.R.H. the entirely of their own manufacture.

[5002] Heath, Austin, & Mycock, Browning Street, Stafford.—Ladies' boots and shoes.

[5003] Heckford, William, & Sons, Smithfield.—Boots and shoes for home and colonial trade, sewed and riveted.

[5004] Hook & Knowles, 66 New Bond Street.—Boots for dress, riding, and walking; costume and other shoes; over-shoes; dress and plain brogues.

[5005] Hudson, Alfred, Cranbrook.—Boots and shoes with improved inner sole, for tender feet.

[5006] Hutchings, John Thomas, 5 Inverness Terrace, Charlton, near Woolwich.—Boots and shoes of every description, with composition soles.

[5007] James, A., 2 Trevor Square, Knightsbridge.—Boots and shoes. (42)
GULICK, Thomas, Pall Mall.—Boots, of lac Japan leather, with spurs affixed, illustrating the ‘Eclipse’ box.

Boots-maker to his late royal highness the Prince consort, and to his imperial majesty Napoleon III.

Imperial Present.—A very costly scarf pin, the head of which is of the form of an imperial crown, and consists of a large globe surmounted by a fine brilliant set in its centre, was presented, May 16, 1861, by the Emperor Napoleon to Messrs. Gullick, as a testimonial of appreciation of their Patent Eclipse Spur Box, and their newly invented Lac Japan Leather (unequalled for hunting and riding), as supplied by them to His Imperial Majesty.

1. The Newly Invented Spur Box, by which the spur is elevated from a to b, and is half the distance to c, i.e., the horse's flank.

2. The Old Spur Box, in which the boot heels are unsightly, and the spur inconveniently near the ground.

3. The Patent Impella, invented in 1842, has an improvement in the sole which renders it warm, dry, and comfortable. It is suitable for winter wear, and can be applied to all descriptions of boots.

4. The Carlton, registered April 1856, is a shooting boot: the lacing part not being confined, the foot is allowed freedom, so that the strongest leather can be worn without discomfort.

5. The Cambrian, invented 1843, is a shooting uniform, having the appearance of a Wellington boot.
Class XXVII.—Articles of Clothing.

Hall, C. G., 89 Regent Street.—Boots of a novel adaptation and improved shapes, according with the requirements of nature.

1. The Skeleton of a Lady's Foot, the bones of which are all perfect, showing the arch of the instep, which has been well preserved. (Fig. 1)

2. The Model Lasts for Ladies' Boots, when the foot is not injured by unskilful fitting. (Fig. 2)

3. Skeleton of a Gentleman's Foot. Parts of the tibia and fibula are attached, showing the position of the leg bones. This is a well-formed foot. (Fig. 3)

4. A Model Pair of Lasts. The correct form to make gentlemen's boots, according to the laws of anatomy, allowing freedom of action to all the leading muscles, and not contracting the space for the sole of the foot, where so many important tendons, veins, arteries, and nerves are situated. (Fig. 4)

5. True Ventilating Boots. Ladies' Riding Boots, the upper parts of which are made of crinoline—a light and pretty material. (Fig. 5)

6. Ladies' Elastic Ankle Boots, with crinoline tops, giving freedom to the instep and ankle, and to all the tender organs of the foot. (Fig. 6)

7. Lady's Crinoline Top Lace Riding Boot. (Fig. 7)

8. Ladies' Shoes. (Fig. 8)

9. Gentlemen's Wellington Boots, the legs made of different descriptions of hair that will keep their position, and are light and durable. Truly ventilating boots, especially adapted to all military gentlemen in the colonies. (Fig. 9)

10. Gentlemen's Elastic Ankle Boots and Shoes, the upper parts made of various descriptions of hair, admitting the free circulation of all the delicate vessels of the foot and ankle. (Fig. 10)

11. Top Boots and Riding Boots. (Fig. 11)

12. Gaiters and Leggings. (Fig. 12)

13. Ladies' and Gentlemen's Boots and Shoes of the improved elastic enamelled cloth. (Fig. 13)

14. Boots and Shoes for Children, made partly of hair, being light yet very durable. (Fig. 14)
CLASS XXVII.—South-East Angle.

[ 5008 ]
Jennett, John, 44 Whitecomb Street, Leicester Square.—Boot trees and lasts.

[ 5009 ]
Joseph, Joshua, & Sons, 13 Skinner Street, Snow Hill, London.—Ladies' and children's boots and shoes.

Jennett, John, 44 Whitecomb Street, Leicester Square.—Boot trees and lasts.

Joseph, Joshua, & Sons, 13 Skinner Street, Snow Hill, London.—Ladies' and children's boots and shoes.

Three specimens are exhibited as models of excellence of materials, correct proportions, and moderation in price, combined.

[ 5010 ]
Judge, Charles, 6 Stow Place, East Street, Walworth, London.—Leather buttons, laces, and leggings.

[ 5012 ]
Knight & May, Eagle Factory, Tewkesbury.—Riveted boots, shoes, patented goloshes, and machine-closed uppers.

[By His Majesty's Royal Letters Patent.]

The Kensington Golosh, or solid leather over-shoe for ladies' or gentlemen's wear.

This golosh is made with either a high back or a legging attached, and being of solid leather, is very superior to india-rubber in wear, and is easily repaired. It is put on without the aid of a shoe-lift, and when on forms a protection for the back of the boot from the rubbing of the steel skirts.

Class 1.—Boots with extra light riveted soles for the ball-room, house, and summer wear.

Class 2.—Boots with medium soles for ordinary wear.

Class 3.—Boots with extra stout and clump soles for winter wear.

Class 4.—Machine-closed uppers.

Boxes containing sample dozens of assorted uppers to be obtained at the factory, price £2 3s.

Lanagan, 9 Brownlow Street, Bedford Row.—Illustrations of a principle in boot-making instrument for measuring distorted feet.

[ 5013 ]
Langdale, H., 57 Mount Street, Grosvenor Square.—Boots and shoes, and needlework.

[ 5014 ]
Latham, John, 214 Oxford Street.—Ladies' boots and shoes.

[ 5015 ]
Latham, John, 214 Oxford Street.—Ladies' boots and shoes.

(55)
Class XXVII.—Articles of Clothing.

[ 5016 ]
Lefrince, 261 Regent Street.—Patented chameleon shoes, with transparent changing colour, according to the lady's taste.

[ 5017 ]
Le, William & John, Darwen.—Gentlemen's boots and shoes.

[ 5018 ]
Lowlet, James, 71 Brigsgate, Leeds.—Boots and shoes, various.

[ 5019 ]
Mabane, James & William, 3 Temple Street, Leeds.—Boot tops and dressed leather.

[ 5020 ]
Medwin, James, & Co., 86 Regent Street, and 23 Gracechurch Street.—Boots and shoes; royal resilient boots, perfectly elastic, without India-rubber.

[ 5021 ]
Murray, James Francis, 34 Great Russell Street, Bloomsbury.—Morning slippers.

[ 5022 ]
Neale, George, 4 Albert Place, Queen's Road, Holloway.—Boots for persons lame or with contracted hips, ankles, &c.

[ 5023 ]
Norman, S. W. & E. G., 3 & 4 Oakley Street, S.—Box cork boot, without rand or stitch in sole; can be made any thickness for lameness; also ladies' cork heel boots and shoes.

[Obtained Honorable Mention at the Exhibition of 1841.]

The construction of the heel of these boots is such that it will retain its shape and polish. It also supports the waist of the foot, is lighter and more durable than any other heel, and easier and quicker to manufacturer.

Norman's gaiter boot, requiring no string or fastenings, can be worn inside or outside of the trousers, made to measure, &c.

Cork sole boots made for every description of lameness.

[ 5025 ]
Osgood, Frederick, 66 Princes Street, Lancaster Square.—Manufacturer of boot, breeches, and glove trees, stretchers, &c.

Sample articles are kept in stock, manufactured in the best manner, and with the best materials; and include portable and solid boot and shoe trees.

His newly-invented instep-stretching boot tree; also his new instep- and toe-stretching boot tree. Instep and joint stretchers. Glove and gauntlet trees and stocking boards.

Laces made to the foot on anatomical principles.

Boots, breeches, and gloves sent to be fitted will receive immediate attention. Price lists on application.
Class XXVII.—South-East Angle.

Paley, Roger, Leeds.—Boots and shoes.

Panzetta & Andrew, 141 New Bond Street.—Shooting boots.

Parker, William, & Sons, Wood Street, Northampton.—Boots, shoes, slippers, &c.; also a small boot and shoe machine. [Obtained a Prize Medal at the Exhibition of 1851.]

Patent Plastique Leather Company, Quay, Ipswich.—Boots with sole and heel moulded, perfectly solid, damp-proof.

Peal, Nathaniel, Duke Street, Grosvenor Square, London.—Boots, shoes, and materials, principally of Peal’s waterproof leather. This leather (of which specimens are exhibited) is waterproof throughout its entire substance; possesses great toughness and flexibility; and being exempt from the injurious influence of atmospheric changes, is much more durable than ordinary leather.

Phipps, Barker, & Co., Cadogan House, Sloane Street, S.W.—Boots and shoes.

Pocock brothers, 20 to 23 Southwark Bridge Road, S.E.—Boots and shoes.

Reid, John, 99 Regent Street.—Ladies’ and gentlemen’s boots and shoes, of the best quality.

Robert, Auguste, 26 Change Alley, Cornhill.—Boots.

Roberts, Daniel, 9 New Bond Street.—Hunting and military boots.

Seager, Ipswich.—Boots and shoes.

Somervell brothers, Netherfield, Kendal.—Uppers and leggings. (See pages 58 to 63.)

Stagg, Anthony, 34 Little South Street, Wisbeach.—Men’s and women’s lasts, boot and glove trees.

Stokes, Henry, 27a Coventry Street, Haymarket.—Patent guiler boots.
## GENTLEMEN'S HALF BOOT UPPERS.

### MEMORIAL LIST.

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**French Calf.**

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**Wellington Boot.**

- **Patent Swiss Short Wellingtons**
  - 93 Da. Long da.
  - 104x Balmoral Calf da. da.
  - 104x Balmoral da. da.

**Shooting Boots.**

- **Patent Calf Goloshed, Elastic Sides**
  - 10x Da. do. do.
  - 10x Da. do. do.
  - 10x Da. do. do.
  - 10x Da. do. do.

**Miscellaneous.**

- **Half Boot, Seamless**
  - 8 Da. do. do.

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**FRANCE.**

1. French Calf Oxford Laced
2. Da. Buttoned
3. Da. Seamless, Elastic Sides
4. Da. Seamless, Elastic Sides, Mock Laced
5. Da. Mexican, Laced Front, Balmoral
6. Da. with Mock Buttoned
7. Da. Laced, Balmoral

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**Shoe Uppers.**

- **French Calf.**
  - 68 Da. Laced, Balmoral
  - 69x Da. Seamless, Elastic Sides
  - 80 Da. Seamless, Elastic Sides, Mock Laced

---

**French Calf.**

1. French Calf Oxford Laced
2. Da. Buttoned
3. Da. Seamless, Elastic Sides
4. Da. Seamless, Elastic Sides, Mock Laced
5. Da. Mexican, Laced Front, Balmoral
6. Da. with Mock Buttoned
7. Da. Laced, Balmoral
SOMERTY BROTHERS, Netherfield, Kendal.—First-class upper and leggings—continued.

SHOE UPPERS—continued.

LADIES’ UPPERS—Cloth Laces—continued.

No. 30 Patent Seal Toe Cap, Laced Sides
30x Do., Low Straight Galoshed, Laced Sides

No. 31 Patent Seal Low Wing Vamp, Laced Sides
32 Do., High do. de do.
32x Cordovan do. do. de do.
33 Patent Seal do. Galoshed do. de do.
33x Cordovan do. do. de do.
34 Patent Seal Toe Cap Elastic Sides
35 Do., Low Wing Vamp do. do.
36 Do., do. Galoshed do.

CAMELIA LACE.

English.

No. 46 Patent Calf Toe Cap, Elastic Sides
47 Do., Low Wing Vamp, Elastic Sides
48 Do., High do. de do.
49 Do., do. Galoshed de do.
50 Toe Cap de do. do. do. do.
51 Low Wing Vamp de do.
52 Do., High do. de do.
53 Do., do. Galoshed de do.
55 Patent Seal Toe Cap do. Second Quality
56 Do., Low Wing Vamp de do.
57 Do., High do. de do.
58x Do., do. Galoshed de do.

French.

No. 63 Patent Calf Toe Cap Laced Sides
64 Do., Low Wing Vamp do.
65 Do., High do. de do.
66 Do., do. Galoshed de do.
68x Toe Cap Elastic Sides
69x Do., Low Wing Vamp de do.
71x Do., High do. de do.
72x Do., do. Galoshed de do.

French.

No. 32 French Calf Half Box, Laced 10-13
33 Do., do. do. 1-4
33x Do., do. do. do. Mk. B. 10-13
34x Do., do. do. 1-4
34x Do., do. do. Laced Sides 10-13
34x Do., do. do. Mk. B. 10-13
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-class XXVII.—Articles of Clothing.

SOMERVILLE BROTHERS, Netherfield, Kendal.—First-class uppers and leggings—continued.

LADIES’ UPPERS—continued.

KIR LEGS.

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MISSES AND CHILDREN’S UPPERS.

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</tr>
<tr>
<td>71x</td>
<td>Do. Cordovan</td>
<td>15.00</td>
</tr>
<tr>
<td>71x</td>
<td>Kid Leg, Patent Seal</td>
<td>15.00</td>
</tr>
<tr>
<td>71xx</td>
<td>Do. Cordovan</td>
<td>15.00</td>
</tr>
<tr>
<td>72</td>
<td>Cordovan Half Boot, Laced Front</td>
<td>15.00</td>
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<td>72x</td>
<td>Do.</td>
<td>15.00</td>
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KICKERSKINS LEGGINGS, manufactured in Black Enamelled Leather

- Dark da. da. | 15.00 |
- Black Goleshed da. | 15.00 |
- Russet da. da. | 15.00 |
- Spanish Cordovan | 15.00 |
- Tanned Bolt | 15.00 |
- Leather Calf. Leather lined, either Buckle, Button, or Strap. | 15.00 |

Also Leggings for the Army.

For list of prices apply to SOMERVILLE BROTHERS, Netherfield, Kendal.

For Leather List refer to Catalogue for Class XXVI. page 18.
CLASS XXVII.—South-East Angle.

Somervell Brothers, Netherfield, Kendal. — First-class uppers and leggings—continued.

ELASTIC SHOE UPPER.

BALMORAL SHOE UPPER.

NAPOLEON.

ELASTIC.

PEEL RIDING.

SHOOTING.

DRESS WELLINGTON.

BALMORAL.

JOCKEY.

SEAMLESS SHOOTING.

(61)
CLASS XXVII.—Articles of Clothing.

SOMERTELL BROTHERS, Netherfield, Kendal.—First-class uppers and leggings—continued.

Boy's Regulation.

No. 2_Button.

No. 2_Button.

Boy's Regulation.

No. 3_Button.

Rifle Leggings.

No. 3_Button.

Lady's Legging.

No. 1_Button.

No. 1_Button.

No. 3_Button, G.B.
CLASS XXVII.—South-East Angle.

SOMERVILLE BROTHERS, Netherfield, Kendal—continued.
CLASS XXVII.—Articles of Clothing.

Scaid, Antron, 8 Bow Lane, Cheapside.—Specimens of workmanship, and the process of bootmaking in various stages.

The exhibitor devotes special attention to the formation of the foot, constructing for each foot lasts adapted to its particularization, without any additional charge to the purchaser. He employs no machinery; every article is made by first-class workmen, so as to ensure neatness and durability. The materials used are the best procurable, the boots are at once very and elegant, and the prices are less than those often asked for inferior goods.


Tallemann, Rebecca, & Son, 131 Bishopsgate Without.—Ladies' and children's waterproof boots and shoes of every description.

Todd, Thomas, 24 Colliergate, York.—Fancy boots in silk and leather.

Walker & Kempson, Leicester.—Riveted boots.

Walsh, William, 44 Bolsover Street, Portland Place.—Ladies' and gentlemen's boots.

Winter, Charles, Norwich.—A variety of ladies' boots, for home trade and exportation.

Yapp, Peter S., 200 Sloane Street, London.—Boots and shoes. First-class ladies' boots and shoes. First-class gentlemen's boots.

North British Rubber Company, Castle Mills, Edinburgh.—Rubber boots and shoes.

Sczechmey, N. C., Park Road, Clapham.—Pannonia leather cloth boots and shoes.
Class XXVIII.

Paper, Stationery, Printing, and Bookbinding.

Sub-Class A. — Paper, Card, and Millboard.

[ 5081 ]
Barling, Joseph, Park Mill, East Malling, near Maidstone.—Specimens of paper and millboard made from hop-bine.

[ 5082 ]
Burgess & Ward, Mendip Paper Mills, near Wells, Somerset.—Straw paper, with illustrations of its manufacture and applications.

[ 5084 ]
Greek, Alfred, & Co., Dripsey and Glenville Mill, Cork.—Writing, printing, and brown papers.

[ 5085 ]
Lamb, John, Holborn Paper Mills, Newcastle, Staffordshire.—Pottery tissue and other papers.

[Prime Medal, Great Exhibition, 1851.]
Pottery tissue for printing from copper-plates, &c., and transferring the patterns on china and earthenware; and the material from which it is manufactured.

[ 5087 ]
Routledge, Thomas, Patentee, Eynsham Mills, Oxford.—Paper from esparto or alfa fibre; half stuff from straw.

[ 5088 ]
Saunders, Thomas Harvey, Queenhithe, London, and Dartford, Kent.—Hand and machine-made paper of every description.

[Obtained First-class Medals at the Exhibitions of 1851, New York, 1853; and Paris, 1855.]
Bank-note, account-book, drawing, writing, plan, printing, dessiner, blotting, and other papers.
Machine Mills—Phoenix and Hawley Mills, Dartford, Kent.
Hand or Vat Mills—Dover's and Sundridge Mills.

Class XXVIII.
CLASS XXVIII. — Paper, Stationery, Printing, and Bookbinding.

[5089]

ZOPISSA, NICHOLAS CHARLES, Laboratory, No. 20 Abington Street, S.W., and Pannonia Building Leather Cloth Factory, Park Road, Acre Lane, Clapham. — Arabian zopiss paper boards and paper pipes, to any size and length, impregnated and prepared with Zopiss composition.

The Zopiss paper boards are much stronger than oak or other timber, they are impervious, thoroughly waterproof, not liable to decay, a non-conductor, and can be used with the greatest advantage for ship building on the largest scale. Portable houses, hospitals, barracks, coach panels, railway carriages, tanks, and cisterns (particularly those intended to contain a strong acid solution) covering roofs and floors, homes, &c. &c.

No. 2. The Zopiss paper pipes for water, are non-conducting and consequently particularly applicable for the supply pipes for houses, as the water will not freeze in them. They are not corroded or affected by acids or any other liquids or gases. They are light, and stronger than metal, and not brittle or liable to crack.

No. 3. Un expansible rocket cases and impervious artillery cartridge cases of Zopiss paper.

No. 4. Pannonia leather cloth for boots and shoes, and leggings, carriage heads and aprons, furniture, bookbinding, travelling bags, waterproof mail and cases, &c. &c.

The Pannonia leather cloth has been privately tested for nearly two years, and found to answer much better and durable than leather for boots and shoes. Its properties are that, it is softer to the feel, is not liable to crack or shrink, is impervious to wet, permits the perspiration to pass off, is peculiarly adopted for the army, is quite equal in appearance to, and can be rendered at least 40 or 50 per cent cheaper than leather.

[5090]


[5091]

TURNBULL, J. L. & J., Holywell Mount, Shoreditch. — London, Bristol, and crayon drawing-board, mounting-board, pasteboard, and address card.

[5092]

WOOLLEY & Co., 210 High Holborn. — Photographic, drawing, mounting, card, and paste boards; ivory and message cards.

[5093]


[5094]

TOWLE & JEFFERY, Oxford. — Paper boards, and pipes made of straw.

Sub-Class B. — Stationery.

[5102]

ARNOLD, P. & J., 135 Aldersgate Street. — Writing inks and fluids.

[5104]

BANKS & Co., Greta Pencils and Black-lead Works, Keswick. — Pencils, penholders, leads for pencil-cases, and solid block black-lead. (See page 3.)
Banks & Co., Great Pencil and Black-lead Works, Keswick.—Pencil, penholder, leads, &c.

[Obtained Exhibitor's Medal, a.d. 1851.]

The exhibitors are manufacturers of drawing pencils, from the celebrated Borrowdale lead (obtained only in that locality), and every other description of drawing, office, pocket-book, drapper's, and carpenters' pencils, penholders, &c., and also of the solid black black-lead for stoves and grates. Banks & Co. are the original and only manufacturers of the polished waterproof points or leads, suitable for Perry's, Land's, Mundie's, or any other pencil-case, of any length or gauge. Pencil manufacturers to Her Majesty the late Queen Adelaide, the King of Saxony, and the King of the Belgians. Established a.d. 1838.

London Warehouse, 21 Cannon Street, E.C.


[Obtained a Prize Medal at the Exhibition of 1851 for account books.]

The exhibitor is the patentee and inventor of Barclay's patent indelible bank-cheques and paper for the prevention of fraudulent alterations of the amount, crossing, or cancelling of a bank-cheque. Adopted by the Bank of Ireland and its branches. Barclay's patent indelible paper affords an effectual protection to bankers from a description of fraud of the most dangerous character. Several cases have lately occurred of the fraudulent alteration of bank cheques by chemical means, and in every instance known this fraud has escaped detection. Any vegetable colour or printing can be applied to the production of cheques upon this paper. This invention is also applicable to the prevention of the fading of commonplace writing ink from natural causes. Professors Brande, Stiller, Warrington, and Franklin have stated that this invention affords the most perfect protection hitherto devised against this description of forgery.


"To Mr. R. Barclay, 29 Bucklersbury, E.C., a.d. 1851.

I am unable to point out any method, which would escape detection, of discharging a portion of the writing placed upon this paper; and am of opinion that it throws greater difficulties in the way of fraudulent alterations than any other invention with which I am acquainted.

(Signed) William Thomas Branner, M.D., F.R.S., F.C.S.

Barclay's chemically prepared patent copying paper, prevents the fading of faint copies of letters taken in common copying ink. It also insures a sharper, blacker copy. A specimen is exhibited which shows that the copy is as distinct as ever, after 10 hours soaking in acidulated solution of chlorine.

Articles Exhibited.

Specimens of the removal of an ink cancelling from the signature of a bank cheque, for which the cash was afterwards obtained.

Specimens illustrating the security of the indelible paper.

Specimens of cheques on the patent paper in every variety of printing.

Specimens of relief engraving, including a trade label possessing unusual difficulties to fraudulent imitators.

Exhibited for Messrs. Guinness of Dublin.

Bank, mercantile, and private account books.

[505]
Class XXVIII.—Paper, Stationery, Printing, and Bookbinding.


5107. BAUS, Henry, 59 Hatton Garden, London.—Imitations from dies and seals; models and drawings.


5109. BLACKWOOD & Co., 18 Bread Street Hill.—Copying and writing inks, bankers' safety sealing-wax, indelible marking and stamping ink.

The following are exhibited, viz.:—
A fine black writing ink for steel pens, perfectly pure, jet black, and fluid.
A new manufacture of blue-black writing fluid, made for ledger writing; dries quickly, not apt to smear the book, flowing freely from the pen, and turning to a deep permanent jet black.
A jet black fluid possessing some qualities. Samples of an entirely new manufacture of writing ink, being chemical solutions, without sediment, and perfectly black.
Improved mercantile machine copying ink, very powerful and fluid.
The same, double strength, to copy months after writing with.
Ordinary red ink of an improved quality.
Permanent attraacive blue ink.
A new red ink termed "rubuline," perfectly clear, fine black permanent solvent, very difficult to obliterate from paper; valuable to merchants, bankers, and lawyers for endorsing.
Permanent marking and stamping ink for linen, &c.
Improved black banking ink.
Various descriptions of sealing wax.
Bankers' safety sealing wax, of great strength.
These inks are contained in the patent syphon bottles, which obviates the nuisance of drawing a cork; a is the stopper, with tube divided into two channels, saving freely in the hollow cork, which, with the tube is bored eccentric at c; the air enters at e, causing the ink to flow up the other division of the tube and out at the spout n. When not in use the stopper is turned half round, keeping the contents free from air and dust.


5112. BRENTNALL, 24 Hanbury Street, Tottenham Court Road.—Tracing-papers, cloths, &c.


[Obtained a Medal at the Paris Exhibition, 1855.]
The patented pencil-holders are the invention of the exhibitor.

CLASS XXVIII.—Gallery, North-east Court.


Caldwell Brothers, 15 Waterloo Place, Edinburgh,—Designs of arms, crests, monograms, for stamping on paper, envelopes, &c.

Cayton, Robert, 7 Doegate Hill, and 2 College Street, E.C.—Fancy stationery.

Carlyle, George, 28 Bold Street, Liverpool.—Manifold writer, and carbonic paper.

Carlyle's Manifold Writer is different from any in use. By the old method a style was the only medium by which a copy could be produced, neither the original or facsimile being in ink. This was a serious defect, and rendered the use of manifold writers only very limited. By G. C.'s method every letter can be written with ink and a facsimile is produced at the same time. It is simple in its application, effecting a great saving of time and trouble.

Prices, large letter size, 500 leaves, pagd and index, 10s. 6d.; large note, 7s. 6d.

Clements & Newling, 96 Wood Street, London.—Account-books in general, and special stationery for drapers.

Cochran, Peter, Liverpool.—Improved red (scarlet) ink by new process; also writing-fluid, office and copying inks.

Cohen, B. S., 9 Magdalen Row, Great Portland Street.—Compressed Cumberland lead, artists' and account-book pencils. (See page 0.)

Collyer, Robert Hanham, M.D., F.C.S., 8 Alpha Road, St. John's Wood.—Patent chemical ink pencils.


In case complete, price one penny. This will be found to be an efficient substitute for pen and ink, being hard, of a full black colour, and perfectly indelible.

Corkfield, Joseph, & Son, 7 Farringdon Street, E.C.—Marble papers, head-bands, specimens of book-edges, &c.

Cowen, Alexander, & Sons, 77 Cannon Street West, and Valleyfield Mills, near Edinburgh.

Writing paper, all qualities; printing paper; parchment paper; account books, &c.

Crosse, J., & Co., Birmingham.—Patent illuminated crystal and gold show and other tablets; printed mouldings, boxes, &c.

The exhibitors are the sole licensees, under Mr. Breese's Patent, for producing the genuine Crosse Table Mats.

The gold and colours, as well as print, &c., being printed and permanently fixed and protected on the back of the glass, are not in the least affected by atmospheric changes or the sun's rays, even if placed in the hottest window or room; they are not one third the cost of those done by hand.

They are also, under the same patent, imitators of wood, for frames, boxes, imitation inlaying &c.

Invokes, account and note heads, business cards, circulars, and manufacturers' pattern books, in chalk or ink drawing and engraving, are executed in the highest style by Crosse & Co., with the greatest promptitude.

(2)
Class XXVIII.—Paper, Stationery, Printing, and Bookbinding.

Cohen, B. S., 9 Magdalen Row, Great Ponceot Street.—Improved process of manufacturing artists' and account book pencils.

The illustration shows the workman engaged in filling in pencils with B. S. Cohen's newly invented Continuous Compressed Cumberland Lead. Stips of this material having been prepared of the correct size and degree required, the workman proceeds to fill the cavity of the order with one unbroken length of lead, thus rendering each pencil unvarying in its degree throughout, and obviating the inconvenience arising from the ordinary method of filling by several small pieces in succession, which snap at each joint and incur the further liability of having different degrees mixed in one pencil. This lead is manufactured from the fine-famed Cumberland plantain, which, cleansed from all impurity, rivals the original material in its most valued qualities, being rich in colour, remarkably smooth and tough in texture, and alone possess-

ing the quality of rubbing out readily without leaving a trace. These pencils are adapted to every variety of climate, as the extreme of heat, cold, or damp have not the slightest effect on them. While, from the peculiar tenacity of the lead, they are not liable to break, even at the point. This improved mode of manufacture has secured the entire approval of the most eminent artists of this country, as the accompanying testimonials will show.

These pencils may be obtained of any respectable artists' colourman or stationer in the United Kingdom. Price 3d. each, or 6d. per dozen, thus supplying the want so universally felt, of a really good pencil at a moderate cost. In ordering, please be particular in asking for B. S. Cohen's Compressed Cumberland Lead.

From Henry Walker, Esq., President of the New Society of Painters in Water Colours.

"They are without exception the best pencils I have ever used. Among their many qualities of excellence, that of firmness to break in cutting and in use is the most telling advantage: you very hard pencils are a boon to those who, like myself, draw frequently on wood.

From John Gilmore, Esq., Wilmington, near Dartford.

"They are in all respects better than any I have yet drawn with.

From Robert Foster, Esq., 12 Carlton Hill End, St. John's Wood.

"I find them most excellent, and can only say I wish I had had them a year or two ago.

From Benjamin Foskett, Esq., 52 Carlton Hill End, St. John's Wood.

"The Princesse find them excellent, possessed every advantage a pencil can offer.

From F. W. Taylor, Esq., President of the Old Society of Painters in Water Colours.

"Very good quality and a pencil can possess is combined in those you have sent me.

From James Bridges, Esq., Head Master of Royal Military Academy, Woolwich.

"I have thoroughly tried each variety of such, and find them uniform in quality and strength of colour throughout, also very of use; in short, they appear excellent.

From the Head Master of the Training School for Masters of Schools of Art, Science and Art Department, South Kensington.

"Mr. Backhouse has much pleasure in bearing testimony to the very excellent quality of these pencils, and admits it to his by Mr. Cooper; they are without doubt the best pencils he has ever tried, and merit the patronage of all distinguished and Schools of Art, &c. &c.
CLASS XXVIII.—Gallery, North-east Court.

[5127]

Note papers in packets.
Note papers, envelopes, valentines, perforated and embossed goods, dies, and stamping.
Hand-folded envelopes.
Hand-folded envelopes.
First class valentines.

Dyes for embossing crests, arms, monograms, and addresses.
Specimens of stamping in relief in one or more colours.
Embossed and perforated goods.

[5129]
Edwards, Eliezer, Birmingham.—Ink in bottles for export, glass inkstands, paper-weights, holy water fonts, &c.

[Obtained Honourable Mention at the Exhibition of 1851.]
Glass inkstands of various sizes, shapes, and qualities; some of which are ornamented with gilding and colour. Paper weights, holy water stoup, &c., obtained only as articles adapted for general sale.

[5130]
Elliott, Daniel, York Cottage, Park Road, Old Kent Road.—Marking-ink, linen stretcher, &c., with specimens.

Piccolo writing-cases, fairy cakes, cottage writing-cases, puzzle castles, and conundrum cubes.

Piccolo writing-case in leather, size 6 inches by 3, containing full size paper and envelopes for 50 letters, pens, holder, ink, pencil, knife, scissors, household (filled) blotter, &c.; from 10s. to 21s. A writing-case in shape of a cottage, with contents. A puzzle castle made from paper. A fairy surprise cake in upwards of 100 pieces: price various, according to contents.

[5131]
Fase & Son, Edelwood Terrace, Kensington.—Sealing and chromo-embossing official dies, seals, stamps, &c.

Combined sealing and chromo-embossing official die and press; by which any lady or gentleman can emboss in colours, official, heraldic, or other devices, on books, documents, &c.—the die being easily detached from the press, becomes a seal for wax, &c. Combined office or wire seal, with changeable centres, by which the expense of many seals and the liability to use a wrong one is greatly obviated.

[5132]
Fetherston, John J., 18 Suffolk Street, Dublin.—Sealing and chromo-embossing official dies, seals, stamps, &c.

Register, hotel, or other stamp with movable numbers, by which the articles of an individual or department can be identified.

[5133]
Gill, Miss Jane, 9 High Street, Hastings.—Artificial flowers in tissue paper.

[5134]
Goodall, Charles, & Son, Camden Town, N.W.—Playing cards.

[5135]

[5136]
Graham, T. & R., 10 High Street, Paisley.—Spool tickets.

[5137]
Harrington, Joseph, Lanark Terrace, Briston, S.—Specimen of apparatus containing twelve blades for pointing pencils.

[5138]
Higginson, Mbs., Uxbridge.—Flowers manufactured in paper.
Howard, William, 23 Great Russell Street, Bloomsbury.—Specimens of tracing papers, volumes, and mounting linens.


[Obtained a Prize Medal for sealing wax at the Exhibition of 1851.]

Hyde's patent portable Clamp Copying Apparatus. This is a perfectly novel and simple method of applying great and effective pressure to the ordinary letter-copying book. The means employed differ from any hitherto known.

Innes & Langford, Manchester.—Plain, fancy, and tinfoil papers and pasteboard makers.

Jabez & Sons, 47 St. Paul's Churchyard, London, and Norwich.—Specimens of bookbinding.

Jones, Brothers & Co., 75 Cannon Street West.—Tracing papers, for strength, transparency, and colour, to stand all climates; also drawing paper, plain and mounted.

Jones, George Edward (formerly of 4 Falcon Street, City), 9 Bath Street, Newgate Street, City.—Decorated boxes manufactured of paper and other materials.

Johnson & Rowe, 17 Warwick Square, Paternoster Row, E.C.—Pocket-books, purses, &c. (See page 8.)

Jones & Caiston, 47 Eastcheap, City, London.—Account books, stationery, and printing.

King, Jonathan, 56 Seymour Street, Euston Square, London, N.W.—Fancy floral valentines.

Law & Sons, 37 Monkwell Street, London.—Specimens of bookbinding cloths manufactured by them.
Metallic books in every style of binding, with elastic bands or clasps, ruled or plain.

Metallic books in morocco or velvet, with gilt rims and locks, round corners, and lined with silk; also same size with elastic band or clasp.

Metallic wallets in numerous patterns and styles, in morocco, mottor, or silk.

Metallic letching books in a variety of bindings.

Metallic wallets with registered strap and buckle fastenings in all sizes—see illustration.

Instrument wallets in morocco or mottor with elastic bands, gilt or plain.

Gentlemen’s housewives in morocco with gilt lock, places for instruments, thread, needles, &c., &c.

Patent secret purses in morocco leather, various patterns, with secret pockets for gold—see illustration.

Tourist’s writing-case in morocco, mottor, or roan, in a variety of patterns.

Depeche boxes in every quality and pattern.

Patent secret purses with registered fastenings.

Purses in every kind of leather, pattern, or size, with elastic bands, locks, or registered fastenings.

Card cases registered, in morocco or mottor, with gilt metal or silver rims, plain or engraved.

Purses in morocco or velvet, with ivory leaves or books, gilt metal or silver rims and locks.

Purses in morocco or mottor, with gilt metal or silver perfumed inks, in a variety of artistic designs.

Pocket ledgers in all sizes and styles of bindings.

Meteorial and account books in every size, quality, and style of binding.

Billing books in morocco, mottor, or silk, with or without locks.

Card cases in morocco or mottor, round or square edges gilt or plain.
CLASS XXVIII.—Paper, Stationery, Printing, and Bookbinding.

MARTIN, THOMAS, Newton Abbott, Devon.—Wax impressions of seals engraved by machinery.

MATTHEWS, WILLIAM, 1 Wigmore Street.—Waxed papers for wrapping oily, adhesive, or perfumed substances, soaps, mustard, &c.

Waxed papers used by chemists and others. For covering costumes, phials, &c., wrapping jujubes, scented soaps, violet powder, mustard, lined meal, homes, balls, and other groups, perfumed, or adhesive substances, without any of the objectionable results of using tinfoil, and at half the cost.

Price per box of 50 square feet, white, 3s.; various sizes, 5s. 0d.; per ream, white, 50s., various tints, 75s. 0d.

MEAD & POWELL, 101 Whitechapel, and 73 Cheapside.—Account books and manufactured stationery.

MEK, GEORGE, 2 Crane Court, Fleet Street, E.C.—Embosed and laced papers and envelopes.

MOHAN, FRANCIS, Albion Works, 326 City Road.—Gold pens, pencil-cases, sealing-wax, patent purses, inks, &c.

NICHOLSON, JOHN, 45 Leada Road, Bradford, Yorkshire.—Account books, fancy stationery, and pattern cards.

OBrien & HOULT, 3 St. James's Street, S.W.—Heraldic seal and die engraving, embossing, and designing.

PATERSON BROTHERS, Peel Grove, Old Ford Road.—Mechanical guard books for filing commercial papers in volumes.

PETERS, JAMES, & Co., 37 Red Lion Square, and 3 Cheapside.—Pencils, elastic bands, and inkstands.


REYNOLDS, JOSEPH, & SONS, Vere Street, Lincoln's Inn Fields.—Patent playing-cards, and cards for the blind.

Manufacturers of photograph and mounting boards, drawing and Bristol boards, massage enameled and carte do visite cards; hot-pressers and glazers of paper.

RIDDIFORD, JANE, 14 Cowley Street, Westminster.—Hand-cut rice-paper flowers, representing the seasons; and other specimens.

ROBINSON, J. B., & Son, Brampton, near Chesterfield, and 17 Bowervie Street, London, E.C.—Chemists' and perfumers' cardboard boxes, &c.

Assorted cases. Aromatic medicine boxes.
Dispensing powder boxes. Violet powder cases.
Lamency boxes, various patterns. Marking-bit cases.
Fumigating pastille boxes.
Powder puff boxes with glass tops.
Cardboard pill boxes : assorted sizes, plain and illustrated.
Sealitis and soda powder boxes.
Side pill boxes. Tooth-powder boxes.
Cosmetics cases and emollient ball boxes.
CLASS XXVIII.—Gallery, North-east Court.

[ 5170 ]
Rowe, Samuel W., & Son, 31 Cheapside, E.C.—Account books suitable for public companies and commercial purposes.

[ 5171 ]
Sholl, James, 5a Chapel Street, Spital Square, London.—Patent improved writing-paper, and anti-corrosive writing and copying fluid.

[ 5172 ]

[ 5174 ]
Stead, Charles, & Son, Dalton, near Huddersfield.—Design, or point paper.

This design paper possesses numerous properties not possessed by any other, and is now in general use in the manufacturing districts of Great Britain. Price 26s. per quire, nett. References are permitted to first-class designers who use this paper.

[ 5175 ]
Stodart, Matilda, 31 Cloudesley Terrace, Islington.—Flowers modelled in rice paper, prepared paper, paper and wax. M. Stodart's dahlias and other flowers in rice and prepared paper, have been commended at the flower shows, and highly praised by the press. For sale in groups and sprays at the Centre Transept, Crystal Palace, Sydenham, and at the Floral Hall, Covent Garden.

[ 5176 ]
Straker, Samuel, & Sons, 26 Leadenhall Street, and 80 Bishopsgate Street Within.—Mercantile stationery.

[ 5177 ]

[ 5178 ]
Tanner Brothers, Welsh Back, Bristol.—Account books; specimens of rulings and bookbindings.

[ 5179 ]
Thompson, Henry, Albert Cottage, Weybridge Heath, near Chertsey, Surrey.—Medallion or imitation cameo wafers on envelopes.

[ 5180 ]

[ 5181 ]
Warner, R., 18 Newman Street, W.—Specimens of seal-engraving.

[ 5182 ]
Waterston, George, Edinburg, and 3 Queen's Head Passage, Paternoster Row, London.—Sealing wax and wafers for home and export. (Obtained Prize Medal at the Exhibition of 1851; and at Paris in 1855.)

[ 5183 ]
Webster, Henry, 23 Litchfield Street, Soho, W.C.—Patent portable travelling inkstands, and writing-cases.

Letter Press.—Forms of Post type, containing 6,588 pieces.
Stereotype cast from types, with proof.
Stereotype cast from slugs, with proof. Specimens of bookwork, ancient and modern types. Specimens of typographie printing. Specimen book of the various fonts in use. (100 pp.)

Lithography.—Stones showing the method of printing in colours, with proofs. Specimens of lithographic printing.

Bookwork, Magazines, and Newspapers.—Application has been specially directed to this department; with a view to realize it as complete as possible. The fonts of modern type are numerous, and their beauty and utility cannot be surpassed. They are constantly being replaced from the best Foundries. Estimates for works of any extent, in either modern or ancient faced types, forwarded on application.

The Ancient Faced Series of Type have been for three years in constant use. They are cast from the original matrices, which were cut at the beginning of the last century. To render this series more complete, a great variety of ornamental letters, and head and tail pieces, have been supplied in truly as possible, thus preserving the unity of design. Without which the ancient faced work is lost in half its individuality and beauty. See Specimen Book, pp. 55 in 72.

Wearhouses, Public Companies, Charitable Institutions and Societies, supplied with every requisite in Stationery, Writing Paper, Paper of the finest quality, printed from the best blocks. Envelope of quality, fine Writing, and stamped with the name of the firm on the flap, if required. Account Books of all sizes and patterns, made to order, with patent spring backs, and bound in a superior manner, on the shortest notice. Stationery exported to all parts of the world.

WEDDING, R., & Sons, 9 Cornhill.—Manifold writers.

[ 5184 ]

WETHERFIELD, Rosalie, 1 Henrietta Street, Covent Garden.—Paper flowers.

[ 5185 ]

WILLIAMS, Cooper, & Co., 85, West Smithfield, London.—Paper manufactured by William Joy and Son; tags; tags bleached and in pulp; writing-papers, note-papers, &c.

[ 5186 ]

WILSON, James Leonard, 128 St. John Street.—Cloth for bookbinding.

[ 5187 ]

WILSON, Robert, Keswick, Cumberland.—Black lead pencils, and ever-pointed leads.

[ 5188 ]

WOOD, Joseph Thames, 278 Strand.—Engravings; perforated cards and papers; ornamental stationery.

Leral and fancy papers, cards, collars and cuffs, views of public buildings, and ornamental stationery.

[ 5189 ]
Class XXVIII.—Gallery, North-east Court.

Houghton, W., New Bond Street.—The Queen’s note-paper. [§190]

Ward, M., Belfast.—Ledgers, bookbinding, and illuminating. [§191]

Warner, G. E., Poland Street.—Seals. [§192]

Wyon, J. S.—Impressions from seals. [§193]

Meredith, C., & Son, 4 George Street, Edinburgh.—Specimens of seal-engraving, die-cutting, and cromo lithography as applied to heraldry. [§194]

Sub-Class C.—Plates, Letterpress, and other Modes of Printing.

Adams & Gee, Printers, 23 Middle Street, West Smithfield, E.C.—Printing on metal, as invented by them. [§200]


Austin, Stephen, Hertford, Herts.—Printed books in Oriental and other languages, and bookbinding. [§202]

Bagster, Samuel, & Sons, 15 Paternoster Row.—Polyglot typography; binding; illumination; and gold and other mountings. [§203]

Bank of England, Threadneedle Street.—Specimens of surface printing. [§204]

Bell & Dalby, Fleet Street.—Books. [§205]

Bemrose, William, & Sons, Derby and Matlock Bath.—Bound books; letterpress and lithographic printing. [§206]

Besley, Robert, & Co. (Charles Reed and B. Fox), Fann Street, Aldersgate Street.—Metal types and specimens. [§207]

Bishop, John, 4 North Audley Street, London.—Polychromatic engravings by clockwork for preventing forgery. (13)
CLASS XXVIII.—Paper, Stationery, Printing, and Bookbinding.

BLACK, A. C., Edinburgh.—Books.

Booth, Lionel, 307 Regent Street, W.—Reprint of first edition of Shakespeare. (See page 15.)

The exhibits are wood letter and block cutters, engravers, manufacturers of every description of printing materials, printers, brokers, and agents for printing machines, presses, and the various printing kits, &c., &c.

Bank-notes, printed from plate, embodying every known method for the effectual prevention of forgery, especially prepared against attempts at successful imitation by the two most dangerous processes, photography and transfer. The ornamental work is produced by the most expensive and complex machinery—in combination with first-class hand engraving. The vignettes are executed by the first line engravers in the country, and the whole note possessing a degree of security never before attained.
Bank-notes, printed from surface (as the Bank of England). These notes contain specimens of the highest and most elaborate style of work of which surface printing is capable—possessing a security second only to those printed from plate.


Branston, F. W., The Grove, Southwark.—Patent imperishable advertising tablets.

Brooks, Vincent, 1 Chaucer Street, Charring Cross.—Lithographic printing.

Carson, H. W., & Co., 22 & 23 Chiswell Street.—Types, and printed specimens of types.

Coathune, Capt. H. B., 1 Abington Lane, Kensington.—Printing on metals.

Collingridge, W. H., City Press, Alderagate Street, London.—Specimens of printing, engraving, &c., with materials used.

Collins, William, Glasgow.—Specimens of binding; family Bibles; specimens of printing; New Testament on one sheet.

In Case:
1. Family Bible, with Commentary, with steel engravings from photographs, bound in real morocco, gilt edges, 46s.
2. Family Bible, with Commentary, with steel engravings from photographs, bound in Turkey morocco, flexible superquarto, gilt edges, 46s.
3. Family Bible, with Commentary and Chrome-lithographic illustrations, bound in Turkey morocco, antique with gold edges, 46s. &c.
The above Bibles are exhibited as combining excellence in typography, illustration, and binding with lowness of price.

On Sheet:

Colville, Henry J. M., 52 Queen Street, Camden Town.—Printing in pure silver.

[5210 ]

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[5214 ]

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[5219 ]

[5220 ]

[5221 ]
MR. WILLIAM

SHAKESPEARES

COMEDIES,

HISTORIES, &

TRAGEDIES.

Published according to the True Original Copies.

LONDON

Printed by Isaac Jaggard, and Ed. Blount, 1623; and Re-Printed for Lionel Booth, 307 Regent Street, W., 1862.

* The famed Engraving by Drodhout will be reproduced on the Title-page in the best way to secure identity of appearance with the original that print art can accomplish.

This reprint comprises three sizes: one to range with all good Octavo Editions of Shakespeare, another to range with Knight's Pictorial, and familiar Editions, the third being uniform with the Original Folio. The chief object in the reproduction of this, for all critical purposes, the most important edition of Shakespeare extant, has been, not mere resemblance, but that it shall prove "so rarely and exactly wrought"—page for page, line for line, word for word, letter for letter, ornamentation for ornamentation—as to be, excepting a more convenient size, "one and the self-same thing" with its prototype. That the attempt has been successful, the testimony of the most important Journals of the time has irrefutably proved.
CLASS XXVIII.—Paper, Stationery, Printing, and Bookbinding.

[ $222$ ]

COX, GEORGE, JAMES, 46 Stanhope Street, Hampstead Road, and Polytechnic, London.—Impressions taken from leaves, leaves, lace, &c.
The Phoagliographe Press for printing from nature. A new and exceedingly simple machine for printing from fresh leaves, ferns, grasses, feathers, or lace; manufactured and sold by the inventor, and at the Polytechnic Institution, Regent Street, London.
The apparatus is not only useful to botanists, but affords an interesting employment to hobby; and is of so simple a construction that children may use it as an amusing and instructive toy. From, other, such as the and sheet of carbonized paper, price—small size, 5s. 6d.; large, 8s. 6d.

[ $223$ ]

CROSS, JOSÉPH, & SON, 18 Holborn Hill.—Specimens of engraving, lithography, and printing, and labels cut by machinery.

[ $224$ ]

DAY & SON, 6 Great Street, Lincoln's Inn Fields, London.—Specimens of lithography, chromolithography; plate printing of every description, artistic and commercial; and of illustrated and illuminated works produced as well as published by the exhibitors.

[ $225$ ]

DE LACY, GEORGE, 38 Sekforde Street, Clerkenwell.—Specimens of tools, letters, blocks, &c. for bookbinding.

[ $226$ ]

DICKES, WILLIAM, 5 Old Fish Street, Doctors' Commons, London.—Specimens of engraving and oil-colour printing.

[ $227$ ]

DULAU & CO., 37 Soho Square.—Bound books—various.

[ $228$ ]

ELECTRO PRINTING BLOCK COMPANY (Limited), 6 & 8 Burleigh Street, Strand.—Enlargements and reductions from copper plates, wood blocks, lithographic stones, &c.

[ $229$ ]

EVIE & SPOTTENWOOD, Her Majesty's Printers, 43 Fleet Street.—Bibles, prayer books, &c. in various bindings.

[ $230$ ]

FAITHFULL, MISS, Victoria Press, Great Coram Street.—A specimen of printing by women; dedicated to Her Majesty by special permission.

[ $231$ ]

FALKNER, GEORGE, King Street, Manchester.—Examples of engraving upon and of printing from stone.

[ $232$ ]


[ $233$ ]

FONTANNE, A., 5 Bunhill Row, E.C.—Improved cast brass type.

[ $234$ ]

GARALD, J. H., 3 Russell Court, Bryanstone, W.C.—Fac-simile of ancient manuscript by letterpress process.

[ $235$ ]

GARDNER, THOMAS BILSON, 45 Greek Street, Soho, London.—Improved stencil plates for marking paper, books, &c.

[ $236$ ]

GARCÉ, PAUL, London.—Chromolithography. First portrait executed—1842; also specimens of his new manner—1861.
CLASS XXVIII.—Gallery, North-east Court.

GEORGE, BENJAMIN, Hatton Garden.—Patent ornamental show tablets and frames in one piece, for advertising purposes.

GILMOUR & DEAN, Royal Exchange Place, Glasgow.—General lithography, engraving, die-cutting, embossing, and ornamental printing.

GRANT & Co., Broadway, Ludgate Hill.—Colour printing.

GRIFFITH & FARRAH, Corner of St. Paul's Churchyard.—Works for the instruction and amusement of young persons, and illustrated gift books.

GROOM, WILKINSON, & Co., Queen's Head Passage, Paternoster Row, London.—Lithographs of manufacturers' patterns and show-cards.

GUTTEN & MINUKI, 2 Bartlett's Passage, Fetter Lane.—Brass type, &c.

HANHART, M. & N., 64 Charlotte Street, Fitzroy Square.—Lithography and chromo-lithography.

(Obtained a Prize Medal at the Exhibition, London, 1851; and a Medal of the first class at the Paris Exhibition, 1855.)

The following are the exhibitions' applications of these arts of lithography and chromo-lithography.

— Oil paintings and water-colour drawings accurately imitated.
— Landscapes and architectural drawings executed in tinted and coloured lithography.
— All the works in chromo-lithography executed by M. & N. Hanhart may be had at their establishment.

HAYMAN BROTHERS, 13 Gough Square, Fleet Street.—Samples of ornamental letterpress printing.

HOME, R., & Co., Edinburgh.—Printed music.

HUGHES & KIMBER, Red Lion Passage, Fleet Street.—Copper and steel plates prepared for engraving.

JEWELL, J. H., 104 Great Russell Street, Bloomsbury.—Music engraving and printing.

JOHNSON, J. M., & SON, 3 & 10 Castle Street, Holborn.—Improved show cards and tablets.

WINDOW TABLETS.

The elaborate care with which these tablets are executed, their artistic arrangement and superior lettering, combined with effectiveness of design and colour, have insured their general adoption by the leading manufacturers in every trade throughout the kingdom.

Manufacturers observe with satisfaction that first-class shopkeepers readily exhibit the "Chromo-Printed Show-cards," because they prevent an additional attraction in ornamenting the windows, whilst also serving as trade advertisements. The printed matter cannot in any way be detached from the ornamental portions of the tablets; nor is it possible to apply them to the exhibition of popular engravings, portraits, &c.,—a misappropriation frequently practised when expensive show-cards are issued in frames and glass.

For preservation in transit, each tablet is enclosed in an envelope-bag; and distribution can be effected per "book-package" (which includes printed matter of this nature) at the rate of 1s. for every four ounces.
**CLASS XXVIII.—Paper, Stationery, Printing, and Bookbinding.**


[5251] LAYARS, T., Broad Street Hall, Bristol.—Chromo-lithography.

[5253] LEFFREV, CHARLES, 12 Red Lion Street, Clerkenwell.—Colours; printing on leather.

[5254] LEIGHTON Brothers, Milford House, Strand.—Surface colour printing by machinery.

[5255] LEIGHTON & LEIGHTON, 9 Buckingham Street, Strand, W.C.—Specimens of designing and engraving, and of processes connected with the production of printing surfaces.

[5256] LINTON, WILLIAM JAMES, 85 Hatton Garden, E.C.—New process of engraving for surface printing (books, &c.).


[5259] MACKENZIE, WILLIAM, Glasgow; Paternoster Row, London.—Bible composed by machinery, superbly illustrated by photographs.

The Queen's Bible. A superb edition of the Holy Scriptures, printed in the highest style of the art, from new types cast expressly for this Bible by Milne & Co., Edinburgh, and set up by steam-power type-composing machinery. Illustrated by magnificent photographs by Frith. (See specimen in Case 14.) Bound in morocco antique, in the most superb style, from designs by Leighton, with silver-gilt mountings, &c. Price fifty guineas.

This edition is limited to one hundred and seventy copies. Early orders are therefore necessary. The list of subscribers will be printed in the order received.


[5261] MACDONALD, D, 28 Salisbury Street, Edinburgh.—Stereotype plates; moulding material used for an indefinite period.

[5262] McQUEEN Brothers, 181 Tottenham Court Road.—Plate printing.

[5263] MANSELL, JOSEPH, Manufacturer, Red Lion Square.—Oil-coloured prints, ornamental papers and cards, pierced, embossed, and illuminated.

The following are the various branches of business in which this exhibitor is engaged:

- Designers and manufacturers of all kinds of ornamental papers printed in gold and colours, and embossed on paper for cards, covers, and other subjects. Shoe-boxes of all kinds.
- Publishers and producers of pictures by the oil-printing process. Maker of base and embossed paper and calicoes, perforated and embossed cards and cardsboards. Inventor and patentee of the process of producing dimensioned and pictorial subjects on the surface of papers.

CLASS XXVIII.—Gallery, North-east Court.

MILLER & RICHARD, Edinburgh; Warehouse, Bartlett’s Buildings, Holborn, London.—Newspaper, book, old style, and other printing types. (See pages 22 & 23.)


MOTTRAM, JOHN, 35a Ludgate Hill.—Medallion and engine-turned ruling.

MUNRO, FREDERICK P., 4 Gibson Street, Lambeth, S.—Improved hand stamps for stamping, and sealing letters.

MURRAY, J., Allemarie Street.—Books.

NAPIER, JOHN, 13 East Sciences Street, Edinburgh.—A new patent method of stereotyping.

PAXTONS, FLITCHES, & Co., Bread Street.—Printing and lithographic inks, black and coloured—machine and press.

PARTRIDGE, SAMUEL WILLIAM, 9 Paternoster Row.—Illustrated periodicals, books, and tracts. (See pages 24 & 25.)

PATENT TYPE FOUNDAING COMPANY (Limited), 31 Red Lion Square, London.—Type cast and dressed by machinery, of extreme hardness.

ROWNEY, GEORGE, & Co., 51 and 52 Rathbone Place; 10 and 11 Percy Street, London, W.—Specimens of chrome-lithography applied to the production of fac-simile copies of pictures, drawings, and sketches. (See pages 26 & 27.)

SCHENK, F. R., 50 George Street, Edinburgh.—Lithography.

SCOTT, R. J., 8 Whitefriars Street.—Blocks for wood-engraving.

SEABY, WILLIAM, 2 Crown Court, Threadneedle Street, City.—Letter punches, and relief engraving for bank-notes, &c.

SIDNEY, CHARLES, 5 Stephen Street, Tottenham Court Road.—Specimens of engraved music plates, plans, &c.

SILVERLOCK, HENRY, Doctors’ Commons, London.—Printing, engraving, electrotyping, stereotyping, &c.

SKEFFER, JAMES, 47 Whitecross Street, Cripplegate, E.C.—Glyphography, or surface printing-blocks from copper-plates, engraved or etched the forward way.

(19)

The Psalms of David. Illustrated from designs by John Franklin. With coloured initial letters and ornamental borders. Cloth bound on toned paper, and appropriately housed. Small 4to. Bevelled boards 3½ ls., or in morocco antique, bound by Hayday, 5l. 2s.

Ten copies are printed on vellum for illustration, price 10 guineas each, bound in limus, for which immediate application is requested.

Specimen of Illustrations.

"This is an edition de luxe which is highly creditable to the mechanical and technical perfection of our extant typography."—Saturday Review.

"The manner in which classical accessories and religious treatment are blended in the composition of the subjects is remarkable, and the evident idea of the publication has been most successfully carried out."—Illustrated London News.

"The most handsome gift-book of the season."—Observer.

"One of the most beautiful gift-books of this or any season."—Examiner.

"A very handsome book, suited especially to the eyes and the tastes of the old. The ornamentation, moreover, though abundant, is not overwhelming in quantity, but remains in due subordination to the text."—Gardeners' Chronicle.
CLASS XXVIII.—Gallery, North-east Court.

SAMSON LOW, SON, & CO., 47 Ludgate Hill.—continued.

FAVOURITE ENGLISH POEMS OF THE LAST HUNDRED YEARS—Thomson to Tennyson, unabridged. With 200 illustrations by eminent artists. An entirely new and improved edition, handsomely bound, cloth, 1l. 14s.; morocco extra, 1l. 1s.


THE POETRY OF NATURE. Selected and illustrated with thirty-six engravings by Harrison Weir. Small 4to, handsomely bound in cloth, gift edges, 12s.; morocco, 1l. 1s.

Mrs. Tennyson's May Queen. Illustrated with thirty-five designs by E. V. B. Small 4to, cloth, bevelled boards 7s. 6d.; or in morocco antique, bound by Hayes, 1l. 1s. Crown 8vo. edition, cloth, 5s.; bevelled boards, 5s. 6d.; or in morocco, gift edges, 10s. 6d.


Bloomfield's Farmer's Boy.
Campbell's Pleasure of Hope.
Coleridge's Ancient Mariner.
Elizabethan Poetry.
Goldsmith's Deserted Village.
Goldsmith's Vicar of Wakefield.
Gray's Elegy in a Country Churchyard.
Kenyon's Env. of St. Agnes.
Million's Aladdin.
Tennyson's May Queen.
Wordsworth's Home.
Warton's Pastoral Poems.

"Such works are a glorious beautification for a poet. Such works as these elevate tumescent spirits, who, surrounded by dead and artificial things, as country people are by life and nature, sorely learn to look at nature till taught by those concentrated specimens of her beauty."—Athenæum.

ART PRINTS.—The Old Masters of Italy. By James J. Jarves, Esq. Two volumes, medium 8vo, printed on toned paper, with forty-three engravings on copper (uniform style with Kipling's Work on Painting, edited by Eastlake), price 32s.

NEW BOOKS FOR YOUNG PEOPLE.


"An admirably book, full of mental information, writ up in stories peculiarly adapted to rouse the imagination and eliminate the curiosity of boys and girls. To compare a book with 'Holden's Cousins,' and to say that it surpasses such comparison, is to give it high praise indeed."—Athenæum, Oct. 30.


"This well-written, well-wrought book."—Athenæum.

"This is something better than a play-book; and it would be difficult to find a more comprehensive and intelligible manual about all that relates to the variety and rig of vessels and nautical implements and gear."—Saturday Review.

THE CHILDREN'S PICTURE BOOK OF THE SACRAGENCY OF ANIMALS. With numerous illustrations by Harrison Weir. Super-royal 12mo, cloth, 5s.; coloured, 6s.

"A better reading-book for the young we have not seen for many a day."—Athenæum.

THE CHILDREN'S PICTURE BOOK OF EARTH. With numerous illustrations by Harrison Weir. Plain, 3s.; coloured, 4s.

LITTLE BLUE EYES AND LITTLE BLUE EARS: A Song of the Woods told for Little Ones at Home. With coloured illustrations and borders, by T. B. Macquoid, Esq. Beautifully printed, with coloured illustrations and borders, bevelled boards, 5s.

"The appearance of this little book is positively refreshing. Full of innocent fancy, and altogether child-like."—Queen.

"One of the most beautiful books for children we have ever seen. It is irresistible."—Morning Herald.

DR. WOOSTER'S NEW AND GREATLY ENLARGED DICTIONARY OF THE ENGLISH LANGUAGE. Adapated for literary or college reference, comprising 40,000 words more than Johnson's dictionary, and 200 pages more than the quarto edition of Webster's dictionary. In two volumes, royal 4to, 1,384 pp, price 4s. 6d. The cheapest book ever published.

"The volumes before us show a vast amount of diligence: but with Webster it is diligence in combination with fascifibleness— with Worcestcr in combination with good sense and judgment. Worcestcr's is the sober and sailor book, and may be pronounced the best existing English Lexicon."—Athenæum, July 12, 1861.

"We have devoted a very considerable amount of time and labour to the examination of Worcestcr's Quarto Dictionary of the English Language, and we have risen from the task with feelings of no ordinary satisfaction at the result, and admiration of the care, scholarship, philosophical method, and honest fidelity, of which this noble work bears the impress upon every page. . . . As a complete and faithful dictionary of our language in its present state, satisfying to the full those requirements, the fulfillment of which we have laid down as essential to such a work, we know no work that can bear comparison with it."—Literary Gazette.

"We will now leave of this magnificent monument of patient toil, careful research, judicious selection, and magnanimous self-denial with a hearty wish for its success."—Critic.

( 21 )
To those Artists in Letterpress, whose genius and enterprise have, by pictorial illustration and chasteness of typography, so diffused the love of the Beautiful, that the "People's Edition," equally with the "Drawing-room Scrap Book," has become at once the educator of taste and the medium of its gratification, the series of faces here presented, which have been produced more especially for illustrated works, the density of the metal and the high finish of the type taking the strongest colour, and the lightness of outline affording the fullest relief to the animate woodcut or elaborate ornament, whilst the careful support given to the carvings, secures durability with grace, are

Small Pica, No. 28.

To those Artists in Letterpress, whose genius and enterprise have, by pictorial illustration and chasteness of typography, so diffused the love of the Beautiful, that the "People's Edition," equally with the "Drawing-room Scrap Book," has become at once the educator of taste and the medium of its gratification, the series of faces here presented, which have been produced more especially for illustrated works, the density of the metal and the high finish of the type taking the strongest colour, and the lightness of outline affording the fullest relief to the animate woodcut or elaborate ornament, whilst the careful support given to the carvings, secures durability with grace, are

Long Primer, No. 28.

To those Artists in Letterpress, whose genius and enterprise have, by pictorial illustration and chasteness of typography, so diffused the love of the Beautiful, that the "People's Edition," equally with the "Drawing-room Scrap Book," has become at once the educator of taste and the medium of its gratification, the series of faces here presented, which have been produced more especially for illustrated works, the density of the metal and the high finish of the type taking the strongest colour, and the lightness of outline affording the fullest relief to the animate woodcut or elaborate ornament, whilst the careful support given to the carvings, secures durability with grace, are

Broadsheet, No. 28.

To those Artists in Letterpress, whose genius and enterprise have, by pictorial illustration and chasteness of typography, so diffused the love of the Beautiful, that the "People's Edition," equally with the "Drawing-room Scrap Book," has become at once the educator of taste and the medium of its gratification, the series of faces here presented, which have been produced more especially for illustrated works, the density of the metal and the high finish of the type taking the strongest colour, and the lightness of outline affording the fullest relief to the animate woodcut or elaborate ornament, whilst the careful support given to the carvings, secures durability with grace, are

Minion, No. 28.

To those Artists in Letterpress, whose genius and enterprise have, by pictorial illustration and chasteness of typography, so diffused the love of the Beautiful, that the "People's Edition," equally with the "Drawing-room Scrap Book," has become at once the educator of taste and the medium of its gratification, the series of faces here presented, which have been produced more especially for illustrated works, the density of the metal and the high finish of the type taking the strongest colour, and the lightness of outline affording the fullest relief to the animate woodcut or elaborate ornament, whilst the careful support given to the carvings, secures durability with grace, are

(22)
Great Primer.

**Type of the old style of face is now frequently used—more especially for the finer clasps of**

Small Pica, Old Style.

**Type of the old style of face is now frequently used—more especially for the finer clasps of book work; as, however, the faces which were cut in the early part of the last century are now unpleasing both to the eye of the critic and to the general reader, on account of their inequality of face and consequent irregularity of ranging.**

**Bourgeois, Old Style.**

**Type of the old style of face is now frequently used—more especially for the finer clasps of book work; as, however, the faces which were cut in the early part of the last century are now unpleasing both to the eye of the critic and to the general reader, on account of their inequality of face and consequent irregularity of ranging.**

**Brevior, Old Style.**

**Type of the old style of face is now frequently used—more especially for the finer clasps of book work; as, however, the faces which were cut in the early part of the last century are now unpleasing both to the eye of the critic and to the general reader, on account of their inequality of face and consequent irregularity of ranging.**

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**Old Style Series.**

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**Great Primer.**

**Type of the old style of face is now frequently used—more especially for the finer clasps of**

Small Pica, Old Style.

**Type of the old style of face is now frequently used—more especially for the finer clasps of book work; as, however, the faces which were cut in the early part of the last century are now unpleasing both to the eye of the critic and to the general reader, on account of their inequality of face and consequent irregularity of ranging.**

**Bourgeois, Old Style.**

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**Brevior, Old Style.**

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**Miscellaneous.**

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**Old Style.**

**Type of the old style of face is now frequently used—more especially for the finer clasps of book work; as, however, the faces which were cut in the early part of the last century are now unpleasing both to the eye of the critic and to the general reader, on account of their inequality of face and consequent irregularity of ranging.**

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**Irish Bill of Exchange, Draft, or Order for Payment to the Foreigner, or in Order of any Person otherwise than on Demand.**

---

**Bourgeois (Reduced).**

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**In every age, and in all countries, printing denotes the state of civilization, of which books are the rotten, and the history of the human mind is written in the progress of bibliography. Thus the first printed books of Germany were almost all devoted to theology and scholastic philosophy, and even in France, where printing was intended as an equal task with theology, there also is Rome, where the remains of the ancient learning were preserved and transmitted to the modern world; yet we must admit that the present state of printing, under the guidance of the Bishops of Alexandria and Venice, principally reproduced the master-pieces of classic times. In Prussia, however, under the
CLASS XXVIII.—Paper, Stationery, Printing, and Bookbinding.

Partridge, Samuel William, Publisher, 9 Paternoster Row.—Illustrated periodicals, books, and tracts.

The British Workman, and Friend of the Sons of Toil.

This monthly penny paper, illustrated by first-class artists, is issued by the editor with the earnest desire of promoting the health, wealth, and happiness of the industrial classes.

Yearly parts:—the seven yearly parts, 1s. 6d. each, in illustrated covers.

A parlour edition for the years 1859-60-61, in crimson cloth and gilt edges, 2s. 6d. each year.

Volume 7—760 illustrations; a complete edition of the "British Workman," from 1855 to 1861. Bound in plain cloth, price 10s. 6d. Crimson cloth, gilt edges (a handsome gift-book), price 12s.

Specimens of the above, and also of the "Mother's Picture Alphabet," may be seen at the stand.

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CLASS XXVIII.—Gallery, North-east Court.

PARTRIDGE, SAMUEL WILLIAM—continued.

THE MOTHER'S PICTURE ALPHABET. Imperial Quarto, plate paper, with twenty-seven original designs by Henry Anslow, Dedicated by Her Majesty's Permission to Her Royal Highness the Princess Beatrice.

IN ILLUSTRATED WRAPERS, FIRST . . . . . . . . . 6 d.
FLAP CLOTH, AND RIM . . . . . . . . . . . . . . . 7 d.
CLOTH, EXTRA GILT, AND GILT EDGES . . . . . 10 6.

"This book may be said to typify something of that royal road to learning of which one has sometimes heard, for as regards illustration, type, paper, and binding, nothing illustrative of the Alphabet has, we imagine, been yet produced, which will bear the remotest comparison with it."—Illustrated London News.

"The Twenty-six letters of the Alphabet are illustrated by Anslow in his best style. It is set up in a style worthy of a royal drawer-ooenn. We have never seen a more exquisite book for young children."—Art-Journal.

MONTHLY ILLUSTRATED PUBLICATIONS.
The British Workman, One Penny.
The Band of Hope Review, One Halfpenny.
The Children's Friend, One Penny.
The above are illustrated from drawings by Sir Edwin Landseer, J. Gilbert, Birket Foster, H. Anslow, H. Weir, and L. Fiddell.

SMITH, BENJAMIN & SON, 7 Wine Office Court, Fleet Street.—Printing ink, and various products in its manufacture.


SKEERS & SON, Oxford.—Book of arms of the colleges.


SPRAGUE, ROBERT W. & Co., 5 Ave Maria Lane.—Specimens of lithography, ornamental writing on vellum, and the new lithotype process.

ROOMS FOR PRESENTS.

100 ENGRAVINGS.—Illustrated Songs and Hymns. Cloth 2s., with coloured plates, and gilt, 7s. 6d.
700 ENGRAVINGS.—A Complete Edition of the "British Workman," from 1835 to 1861. Cloth 10s. 6d., gilt, 12s.
700 ENGRAVINGS.—The First Ten Years of the "Band of Hope Review." Cloth, 10s., gilt, 12s.

THE TRAVELING PARTS WITH NUMEROUS ILLUSTRATIONS.—British Workman, Illustrated cover 1s. 6d., cloth, 2s. 6d. Band of Hope Review, Illustrated cover, 1s. cloth, 2s. 6d.

ILLUSTRATED SELLING BOOKS.

Benedictions of the late Prince Consort.

Illustrated Simplicity Books.

"Scrump," the Workhouse Boy.
The Bible, the Book for All.

The Dramatic Death.

The Victim.
The Warning.

ILLUSTRATED TRACTS, &c.
Pamphlets for the Suppression of Intemperance.
Little Tracts for Little Folks.

Illustrated Hand-Bills.

Illustrated Tracts.

Illustrated Four-Page Tracts.

"This book is a pleasant memorial for old Oxford men. Mr. Shaw, elegant and caustic as ever, makes his department shine as gloriously as a herald's talisman."—Oxford Herald.
CHROMO-LITHOGRAPHY

CHROMO-LITHOGRAPHY has recently become one of the most popular arts in this country, from its having been adopted as a means for multiplying copies of oil paintings and water-colour drawings; and so admirably is it adapted for this purpose, that not only is each colour and gradation of light and shade rendered with remarkable accuracy, but even the very texture of the paint and the rough surface of the paper is copied with strict fidelity. Now, although this latter process may seem to the casual observer to be a matter of little moment, it is in reality of the greatest importance to the truthful representation of an artist's work, which, without texture, is apt to appear tame and insipid.

Pertinent to the discovery of chromo-lithography, copper and steel-plate engraving were the usual methods employed to reproduce the pictures of popular artists.

But beautiful as are many of the fine lines and mezzotint engravings, and perfect as they undoubtedly are in light and shade, they must always fail to give an accurate idea of a painter's style, owing to the absence of the colour of the original work. And when it is considered that colour is one of the greatest charms of the English school, and that, in this respect, the British artist is unrivalled, it will be readily admitted that without this new process many fine works, if published, would lose half their interest by being divorced of the quality which appeals most directly to the eye, and produces that sense of pleasant emotion so desirable when contemplating works of art.

<table>
<thead>
<tr>
<th>Title</th>
<th>Artist</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulysses disdaining Polyphemus</td>
<td>after J. W. M. Turner, R.A.</td>
<td>£ 5 s. 6 d.</td>
</tr>
<tr>
<td>Venice, The Doges, Campanile of St. Marco</td>
<td>Dolby</td>
<td>£ 3 3 0</td>
</tr>
<tr>
<td>Daniel Palace, Bridge of Sighs, etc. (Gondolieri painting)</td>
<td>Dolby</td>
<td>£ 3 3 0</td>
</tr>
<tr>
<td>The Ghost of the Vaticans, and church of the Saints, Venice</td>
<td>Dolby</td>
<td>£ 3 3 0</td>
</tr>
<tr>
<td>Austria and Castle of Lahnau</td>
<td>W. Mcdonald</td>
<td>£ 1 1 0</td>
</tr>
<tr>
<td>Abbey Church</td>
<td></td>
<td>£ 1 1 0</td>
</tr>
<tr>
<td>Coloured Parish, Fecunx</td>
<td>W. Daly</td>
<td>£ 1 1 0</td>
</tr>
<tr>
<td>Venice Cathedral, West Front</td>
<td>Dolby</td>
<td>£ 1 1 0</td>
</tr>
<tr>
<td>Secco Cathedral, South Transept</td>
<td>Dolby</td>
<td>£ 1 1 0</td>
</tr>
<tr>
<td>Machiavelli and the Marshals of Florence</td>
<td>Dolby</td>
<td>£ 1 1 0</td>
</tr>
<tr>
<td>Machiavelli, the Murder of Domenico</td>
<td>Dolby</td>
<td>£ 1 1 0</td>
</tr>
</tbody>
</table>
CLASS XXVIII.—Gallery, North-east Court.

Rowse, George, & Co.—continued.

<table>
<thead>
<tr>
<th>Description</th>
<th>After</th>
<th>£</th>
<th>s</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sketch of St. Paul's, from the top of the tower</td>
<td>after G. Johnson</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Sea Fuge, Luccombe Bay, Isle of Wight</td>
<td>T. L. Riddiford</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Engraved</td>
<td>F. Goodall, A.R.A.</td>
<td>0</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Etched</td>
<td>W. Callow</td>
<td>0</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Calotype</td>
<td>Ditto</td>
<td>0</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>The gilt of Speerins</td>
<td>T. R. Yorke</td>
<td>0</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>The Madonna and Child, from the celebrated picture in the</td>
<td>Dutch</td>
<td>0</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>Dulwich Gallery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difference</td>
<td>W. Hunt</td>
<td>0</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Tower of the Church of St. George</td>
<td>D. Roberts, R.A.</td>
<td>0</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Youth and Age</td>
<td>F. Taylor</td>
<td>0</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Forey Castle, Cornwall</td>
<td>S. P. Jordan</td>
<td>0</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Rosedeborough Castle, Yorkshire</td>
<td>C. Badley</td>
<td>0</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>White Gate in the Rhine</td>
<td>C. J. Huntley</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Clipper Camp, Chalgles, Surrey</td>
<td>B. J. Noble</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Chase with Moonlight</td>
<td>Ditto</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>


Standish, Samuel, Illuminating Artist, 6 St. George's Terrace, Kensington.—Illuminated books, and various illuminations.

Stephenson, Blake, & Co., Sheffield.—Specimens of printing types.

Terry, Charles, 183 High Holborn, London.—Artistic colour-printing for commercial purposes.

The samples of coloured labels, book cards, &c., have been selected from the general bulk as supplied to the consumer.

In this particular class of work, not only is great exactness and uniformity required, but the number of colours and printings in each work will very considerably affect the price. The specimens exhibited will be found to comprise COLOURED LABELS, BOOK CARDS, BOOK COVERS, ILLUMINATED ORNAMENTS, LITHOGRAPHY, and GENERAL COLOUR PRINTING.

No. 1. Print Card in seven printings.—Ripsh's perforated almanac.


No. 3. Print Card in seven printings.—Dr. Hugo's medical almanac.

Thumber & Co., 60 Paternoster Row.—Books.

Ullmer, Frederick, Old Bailey.—Improved saw block; improvement in the manufacture of wood type and designs.

Underwood, Thomas, Birmingham.—Chromolithographs.

(27)
CLASS XXVIII.—Paper, Stationery, Printing, and Bookbinding.

[5293]

WALLER, Frederick, 18 Hatton Garden.—Specimens of lithography.

Specimens of the following are exhibited:—Maps, plans, architectural and engineering drawings, portraits, book illustrations, manufacturers’ patterns, show cards, &c. Commercial and artistic printing in colours, tints, gold, &c.

[5294]

WALLIS, Ernő, Inventor and Patentee, 10 Victoria Grove, West Brompton.—Specimens of the new art of antotypography.

In this new art-process, the invention of the exhibition, drawings can be executed on a variety of substances, in such a manner that by the aid of suitable machinery, they can be engraved upon metal plates almost instantaneous, and with the certainty that every touch of the original drawing, both washed effects and lines, will be reproduced. The process by which the drawings are executed is easy and comparatively inexpensive, whilst that of engraving, being purely mechanical, is controlled with ease and certainty. The plates can be printed from at the ordinary copper-plate printing-press; and when the style of execution in the drawing is suitable, may be used for transfer plates for lithographic purposes, and also for both "lith" and "press" transfer to porcelain and earthenware.

[5295]

WATT, William Mayow, Crown Court, Temple Bar.—Oriental and other printing, and embossing for the blind, &c.

[5296]

WENTWORTH, Professor J. O., Oxford.—Volume of fac-similes of Anglo-Saxon manuscripts, with wooden covers carved with Anglo-Saxon designs.

[5297]

WHITE, F. J., 10 Little Queen Street, Lincoln’s Inn Fields.—Masterpiece specimen of plain and ornamental writing engraving, &c.

[5298]

WESTCOTT, Benjamin, 100 Shoe Lane, E.C.—Printers’ ink, letterpress and lithographic, with printed specimens.

[5299]

WYATT, T. Stephen, 22 Gerrard Street, Soho, W.—Specimens of lithographic drawing and printing.

[5300]

CLAY, R., Son, & TAYLOR, 7 Broad Street Hill.—Specimens of printing.

[5301]

BELL & DALDY, Fleet Street.—Books.

[5302]

BRIEN, D. C., 36 High Holborn.—Letter-stamps, as used in the Post-office.

[5303]

BRADBURY & EVANS, Fleet Street.—Books.

[5304]

CHAMBERS, W. & R., Paternoster Row.—Books.

[5305]

CIVIL ENGINEER & ARCHITECTS’ JOURNAL, Warwick Court, Gray’s Inn.—Specimens of architectural lithography.

[5306]

ERY, J., Cosham, Bristol.—Books.

[5307]

HOOG, J., & Sons, London.—Books.
Class XXVIII.—Gallery, North-east Court.

Jones, O., 9 Argyle Place, London.—Books.

McMillan & Co., Henrietta Street, Covent Garden.—Books.

Muggheide, E. J., 16 Southampton Street, Strand.—Specimens of his plate printing, the ink being introduced from underneath by perforations.

Sub-Class D.—Bookbinding.

Bedford, Francis, 9 Gloucester Street, Warwick Square, S.W.—Specimens of ornamental bookbinding.

"Dresses and decorations of the Middle Ages." Bemal | [53108] |

Bone, W., & Son, 76 Fleet Street, London.—Bookbindings.

Chatelin, Antoine, 15 Newman Street, Oxford Street, W.—Bookbinding, old and modern style.

Clark, William, Dunfermline.—Specimens of bookbinding finished with hand-tooling.


Jeffrey, J., Charlotte Street, Portland Place.—Bookbinding, &c., ancient and modern styles—executed solely by the exhibitor.

Leighton, John, F.S.A., 12 Ormond Terrace, Regent's Park.—Specimens of designs principally executed for British publishers, illustrated books, &c.

Leighton, J. & J., 40 Brewer Street, Golden Square, W.—Specimens of bookbinding, &c.

Leighton, Son, & Hodge, 13 Shoe Lane, London.—Bookbinding applicable for publishers.

Nelham, W., 48 Liverpool Street, King's Cross.—Specimens of bookbinding.

Potts, Watson, & Bolton, Garter Court, Barbican.—Designs on leather for upholstery, &c.

Raines, Thomas, 24 Great Ormond Street.—Specimens of bookbinding.

Ramage, John, North-Bridge, Edinburgh.—Palaeography inlaid with leather, hand-worked; various other books hand-worked.
CLASS XXVIII.—Paper, Stationery, Printing, and Bookbinding.

[ §324 ]
Reynolds, William, 6 Eldon Street, Finsbury.—Twenty specimens of leather backs for binding volumes of printed music.

[ §325 ]
Rivière, Robert, 196 Piccadilly.—Specimens of bookbinding.

[ §326 ]
Seton & Mackenzie, 80 George Street, Edinburgh.—Bookbindings.

[ §327 ]
Tonkinson, J., Manufacturer, 16 St. John's Street, Clerkenwell.—Specimens of book-clasping, edging, and mounting in metals.

[ §328 ]
Westleys & Co., 10 Friar Street, Doctors' Commons.—Specimens of bookbinding.

[ §329 ]
Wright, John, Trustees of the late, 14, 15, & 16 Noel Street, Soho, W.C.—Bookbinding.

[ §330 ]
Zaehnsdorf, Joseph, 30 Brydges Street, Covent Garden.—Various samples of bookbinding.
CLASS XXIX.
EDUCATIONAL WORKS AND APPLIANCES.

Sub-Class A.—Books, Maps, Diagrams, and Globes.

French:’ or French and France.’
This book is a condensed, simplified, and progressive
cyclopaedia of the French language. The ‘Athenæum’
and other reviews have spoken of it in most favourable
terms. Sixth edition, price 5s. 6d.

[§362] Allman, T. J., 42 Holborn Hill, London.—Educational works, appliances, and metal corners
for slate.

[§363] Bean, J. W., Bookseller, Leeds.—Series of sixteen copy-books, with engraved heads, in
foolscap and post.
Nos. 1, 2, 3. Initials series. No. 4. Large Hand.
No. 2. Text hand. No. 3. Round hand. No. 7. Small
hand. No. 5. Text and round hands. No. 9. Text and
round hands. No. 10. Three hands. No. 11. Four
German task, &c. No. 16. Introductory small
hand. Published in post and foolscap. Sold in London by
Darwin & Co., Holborn.

[§364] Bell, William, Phil.D., 30 Burton Street, W.C.—Stream of time, or figurative representa-
tion of universal history and chronology.

[§365] Bell & Dally, Fleet Street.—Educational works.

[§366] Burton, Rev. E. L., M.A., Romsey.—Specimen of very large globes of new construction
for educational purposes.

[§367] Burtts, John, 115 Strand, London.—Portable globe, geographical plates, maps, dissected
puzzles, &c.
Bett’s portable globe consists of a framework of steel
wire covered with a flexible material on which a map of
the world is printed, as in an ordinary globe. It is four
feet in circumference, and can be expanded or collapsed
in a few seconds. Price, in a neat box, 12s. 6d.
Bett’s geographical plates have two outline maps per-
nouncedly engraved on each side, price 2s.
Bett’s educational maps of various sizes, engraved on
steel with great distinctness and effect. Also the inter-
regulatory maps, each accompanied by a book of exercises.

[§368] Bevan, Henry, St. Mary’s Street, Shrewsbury, Shropshire.—Bevan’s tablets for facilitating
arithmetical operations.

[§369] Bishop, T. B., Wimbledon, Surrey.—Two chronological charts of European history,
A.D. 1400 to 1800.

(81)
- Class XXIX.—Educational Works and Appliances.

[5370]
BLACK, ADAM & CHARLES, Edinburgh.—Books, almanacs, and maps.
[Obtained the International Jury's Medal in Class XXVI. of the Paris Exhibition, 1855.]

**No. 1. Books of Reference.**
The Encyclopædia Britannica, or Dictionary of Arts, Sciences, and General Literature. Twenty-one volumes quarto, with upwards of 5000 engravings on wood and steel. Elegantly bound in cloth. Price 35l. 4s.; or half-bound, Russian leather, 31l. 10s. Index separately, 6s.
The above diagram shows the dimensions of the work.

**No. 2. Atlases and Maps.**
Black's New Large Twelve Sheet Map of Scotland, on the scale of 4 miles to the inch. Divided according to the accompanying diagram, into 12 sheets. Each sheet measures 18 x 18 inches. The size of the map when complete and mounted for wall will be nearly 6 x 5 feet.

The sheets are sold separately, price 1s. 6d., or 2s. coloured.

**No. 3. Guide-books for Travellers in Great Britain and Ireland.**
Black's Picturesque Guide to England, 10s. 6d.
Black's Picturesque Tourist of Scotland, 8s. 6d.
Black's Picturesque Guide to Ireland, 5s.
Black's Guide to London, 4s. 6d.
Black's Plan of London, 1s.; Map of Edinburgh, 1s.
Also to the following picturesque districts and counties—
The lakes of Westmoreland and Cumberland, 3s.
Wales—North and South, 5s.
The Lakes of Killarney, 1s. 6d.
The south of England—Kent, Surrey, Sussex, Hants, Isle of Wight, Devon, and Cornwall.
Durham, Yorkshire, Worcestershire, etc., etc.

**No. 4. School and College Books.**
History.—Kitto's History of Palestine, 3s. 6d.; Tytler's History of Scotland, 3s.; Tytler's Ancient and Modern History, 3s. each; Scott's History of Scotland, 6s.
Geography.—Black's School Atlas, 10s. 6d.; Black's Beginner's Atlas, 6s. 6d.
Literature.—Class-books of English Poetry, by Scrope-ward, 4s. 6d.; English Prose, by Denison, 4s. 6d.; French Literature, by Masson, 6s. 6d.; Introduction to English Literature, 21d.; Introduction to French Literature, 2s. 6d.
Students' Text-books.—Paleontology, by Professor Owen, 16s.; Geology, by Professor Jukes; Mineralogy, by Professor Nolde, 5s.; Botany, by Professor Balzner, 9s. 6d.; Medicine, by Professor Bennett; Physical Geography and Meteorology, by Sir John Herschel.

**No. 5. Works by Popular Authors.**
Sir Walter Scott, Bart.—Waverley Novels, &c.
Thomas de Quincey.—Confessions of an Opium Eater; Essays, &c.
Hugh Miller.—Old Red Sandstone; Antiquiography, &c.
Scene from "Terrors of the Peak," drawn by W. Mulready, R.A., R.A.

"There were many rates. Gentlemen must choose for themselves."

He asked nothing but his fees. But charity," he muttered, "must be paid for."

The Waverley Novels, by Sir Walter Scott; Revised Editions:


No. 3. The edition of 1857, in 48 volumes, foolscap 8vo., bound in cloth, lettered. Each volume has a frontispiece and vignette. Price of set, 61. 10s.


No. 5. The people's edition, in 5 volumes, royal 8vo., bound in cloth, gilt backs, and illustrated with one hundred page woodcuts, and a portrait of Scott, by Raeburn. Printed in double columns. Each volume contains five novels. Price of set, 21. 2s.

Sir Walter Scott's entire works are contained in ninety-eight volumes, foolscap 8vo., printed in long-primer type. Price of complete set, 141.
Class XXIX.—Educational Works and Appliances.

[ 5371 ]
Blackwood, William, & Sons, 45 George Street, Edinburgh.—The royal atlas of modern geography, and geological maps.

[ 5372 ]

[ 5373 ]
Bouverie, J., Maids Hill, W.—Books and illustrative drawings.

[ 5374 ]
Bower, Benjamin, Chaddes.—Dial-map of the panorama of Alderley Edge, Cheshire—sketches and radii scaled.

[ 5375 ]
British and Foreign Bible Society, 10 Earl Street, Blackfriars.—One hundred and ninety-one versions of the Holy Scriptures, in various languages.

[ 5376 ]
Cassell, Petter, & Galpin, La Belle Sauvage Yard, London.—Valuable educational works for all classes.

[ 5377 ]
Christian Vernacular Education Society for India, 5 Robert Street, Adelphi, London.—Publications in the Indian languages.

[ 5379 ]
Crampton, Thomas, The Butts, Brentford, W.—School books, apparatus, school music, reading frames, satchels, &c.

[ 5380 ]
Cruchley, George Frederick, 81 Fleet Street.—Reduced Ordnance, England, Wales, and other maps, atlases, globes, &c.

[ 5381 ]
Currie, Peter, 32 Castle Street, Holborn, E.C.—Map of Central America; specimens of topography.

[ 5382 ]
Curwen, John, Plaistow, E.—Books and diagrams on the Tonic sol-fa method. (See page 35.)

[ 5383 ]
Darton & Hodge, 58 Holborn Hill, London.—Educational books, maps, prints, and diagrams.

Examples of the plants from which medicines are obtained.

Examples of the most useful spice plants.

Examples of the most useful palms.

Vegetable productions used for food, Part 1.

Ditto ditto, Part 2.

Ditto ditto, Part 3.

Examples of plants used for clothing and cordage.

Vegetable productions used in the manufacture of fermented liquors.

Others to follow, making a series of sixteen, and when completed a book will be published containing a description of each sheet.

Value of a dead horse. Price 1s.
CLASSE XXIX.—Central Tones.

CURwen, John, Plaidentoe, E.—Books and Diagrams on the tonic sol-fa method.

Graham.—The daughter of a clergyman of the Church of England, became interested in the musical teaching methods to sing by means of a "musical ladder" and a simple notation of letters taken from that ladder. This system she employed under the title "Scheme for rendering Psalmody Congregational." At the close of a performance, the teacher taught herself to read simple music by the help of this book, and became convinced himself, by experiment and study, of its educational and scientific merits. On this system is founded, with Min Gleyser's consent, the Tonic Sol-fa Method. He has endeavored to adapt this method to the various wants of the School, the Home, and the Church, by publications; and to propagate it, by lectures and the encouragement of the best teachers. This simplicity, the cheapness, and, above all, the moral purposes of this method, have won for it many devoted and most active friends. A very large number of these friends necessarily remain unknown to the public; for they are the result of the labors of thousands of teachers who are now giving lessons to 7,000 children, and about the same number of adults. The progress of the method has been steady and constant under the sole patronage of its pupils.

The main Principle.—This method teaches the pupil to measure his intervals (not by any fixed sound in the region of absolute pitch, but) from that sound which is fixed on, for the occasion, as the Governing or Key-sound of the tune to be sung, whatever may be the place of that key-sound in absolute pitch. This is the simpler and safer plan, because there is an reversible rule of measurement, the same in all keys, when you start from the Governing tone; but the key upon which you start, and the key when you take it from a fixed sound of absolute pitch. The pitch of the key-tone is fixed from the axis of G, and then the other measures are relative to that. This is also the oldest plan of teaching interval to the human voice. It is generally allowed that four times that can be no true singing without keeping the keynote in mind; but, as General Thumfist has said, "There would be something to overwrought and necessitate the altering of all intervals, to the keynote." This keynote (or more properly key) is always understood in the Tonic Sol-Fa Method of teaching to sing.

The Modulator. This is a pointed board for teaching tunes. Its letters and numbers represent the keynote, and its six attendant notes, placed above it in the same intervals. The side columns represent the "related keys." As the intervals of the Modulator and the syllables which represent them are unchangeable, the mind quickly connects the one with the other, just as the words of a well-known song infallibly constitute themselves with their tune. Thus a system of natural Memory is established.

Thus, the early lessons the teacher Sol-fa is not to be learned while the pupil is listening the while, but the only guide is in the "pattern" the pupil then believes, and his errors are corrected, not by singing with him, but rather by stimulating his attention, and setting him the pattern again.

The Modulator.—Every pupil seems to have a Modulator "printed on his mind's eye," and as he sings his teacher enunciates to see the notes move up and down upon it.

The Letter Notation.—Those letters are the initial letters of the Sol-fa syllables, and they act as pointers to the Mental Modulator. Thus the notation of "So Mi Fa Ti So" is nothing but the teacher's pointing on the Modulator written down. "Time" is measured by inches (or to ready along the page). Those "notes" represent the beats or "pulses" of the measure, and there are different marks for the strong, the weak, the even, the double, and the triple pulse, while the "beat" indicates the "time" of the tune. A horizontal stroke over a syllable means the sound through another pulse, or part of one, and on.

Mental effect of These is a Key.—Great assistance in first learning to dictate the tunes correctly is given by the pupil's being told to observe the effect on the mind which property belongs to each tone of a key. These effects in slow music, and apart from harmony, are precisely described by words.

Accidentals.—Sharps are represented by changing the vowel of a syllable into e; flats by changing the vowel into Re. The Tonic Sol-fa Method into a new key is represented in a truer way. Not the natural, the Tonic or Dominant of the Minor Mode is used.

HARMONY.—The study of Harmony is greatly facilitated, by our Tonic principles, as well as by the elementary and progressive development of chords which this method adopts.

Pupils see the Word and hear the music, they have one learned music itself, in which they can see words and shape and base, as they use music itself, in the music of notation. The Stanford Course of Lessons (price 1s. 6d. Ward and Co., 37, Paternoster Row) is the book which contains the most instructive instructions for the teacher. It contains also a list of the publications. As "Amount of the Tonic Sol-fa Method." (Old pages) is sold by Messrs. Ward & Co., four au for a penny. For information in reference to this method, apply to H. Thompson, Bishopston House, Vauxhall, London, K.

Curwen's "Famous Carols" is a set of a dozen, in aid of charities, costing 6d. each.

Corrections of prokpect—See Ball.
CLASS XXIX.—Educational Works and Appliances.

[ 5384 ]
DAY & SON, 6 Gate Street, Lincoln’s Inn Fields, London.—Coloured diagrams for educational purposes, illustrative of various branches of science; produced under the direction of the Government Department of Science and Art.

[ 5385 ]
DEAN & SON, 11 Ludgate Hill, London.—Maps, and other educational works; and movable children’s books.

[ 5386 ]
EASTON, WILLIAM, Sendaine Schools, Hereford.—Arithmetic for younger scholars; arithmetic and mensuration for older scholars.
These books are drawn up chiefly with a view of facilitating the home lessons of the pupils in arithmetic, and their individual work in school, and to help the collective explanation of principles. Care has been taken to avoid such language and expressions as are suitable only for adults. In Arithmetic for Younger Scholars, the exercises are constructed on a new plan, the invention of the author, in order to render much easier the examination of the work done by the pupils.
Price.—Arithmetic and Mensuration for older scholars (new edition), ninepence; Arithmetic for younger scholars, dispence.

[ 5387 ]
FLETCHER, PETER, Clyde Street, Edinburgh.—Globe for use of the blind. (Attended by blind men.)

[ 5388 ]
FYE, WALLACE, Dorchester.—Text-book, catechism, school-calendar, diagrams of his new natural system of agricultural instruction, &c.

[ 5389 ]
GALL & INGLIS, Edinburgh.—Educational charts and atlases.

Chronological and genealogical chart of Sovereigns of Great Britain to the present time, size 35 by 43 inches, coloured, on rollers, 5s. 6d.
Royal gazette school atlas, 51 maps, coloured, cloth lettered, 6s. 6d.

---

[ 5390 ]
GILBERT, JAMES, 2 Devonshire Grove, Old Kent Road, S.E.—Ince and Gilbert’s Outlines of English, French, and Grecian history, geography, general knowledge, and arithmetic.


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[ 5391 ]
GORDON, JAMES, 51 Hanover Street, Edinburgh.—Educational class books, cards with objects, and books for school libraries.

[ 5392 ]
GOVER, EDWARD, Princes Street, Bedford Row, London.—Historic-geographical atlases, scripture prints, and other educational publications.

[ 5393 ]
GRIFFITH & FARRELL, St. Paul’s Chandosward.—Educational books.

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[ 5394 ]
Class XXXIX.—Central Tower.

[ 5396 ]
Hogg, J., & Sons, 9 St. Bride’s Avenue, Fleet Street.—Educational books.

[ 5397 ]
Hopper, Arthur, B.A., Edgbaston, near Birmingham.—Elementary lessons, and lessons on language for the deaf and dumb.

[ 5398 ]
Jarrold & Sons, 47 St. Paul’s Churchyard, London, and Norwich.—Educational works, books, pens, and pencils.

[ 5399 ]
Jones, Alfred (Corresponding Secretary of the United Association of Great Britain), Shakespeare Terrace, Allison Grove, Stoke Newington, N.—Publications and proceedings of the Association of Great Britain.

[ 5400 ]

[ 5401 ]
Knipe, James A., Moorville, Carlisle.—Geological map of the British Isles; geological map of England and Wales; geological map of Scotland.

[ 5402 ]

[ 5403 ]
Lucas, George, 44 Kennedy Street, Manchester.—Terrestrial and celestial globes, for students, schools, &c.

[ 5404 ]

[ 5405 ]

[ 5406 ]
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A. The red circles show the sun’s yearly course, from east to west, on the line A B, commencing at A, 21st June, 1861, and ending at B, 21st June, 1862.

The blue and white circles show the phases of the earth: 1st, at a, when the sun is on the north tropic; 21st June; 2nd, through b to c, when the sun is on the equator, 23rd September; 3rd, through d to f, when the sun is on the south tropic, 21st December; 4th, through g to i, when the sun is on the equator again, 21st March; 5th, through j to k, when the sun returns to the north tropic, completing the year. Then the sun’s course is a straight line from A to B, ever moving to the east; and the earth’s yearly course is along the curve formed by the red letters, a b c d e f g h i k.

B. The sun’s motion through space is one year, 87,000,000 miles; at the rate of 100,000 miles per hour.

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Class XXIX.—Central Tower.

Green, Benjamin R., 41 Fitzroy Square.—Rustic drawing models, for preparing pupils to sketch from nature.

Series of rustic drawing models, exactly imitating the actual objects; designed to prepare pupils to sketch from nature; illustrating the principles of perspective, the principles of light, and shade, and colour.

First or Elementary Series, 1½d., fitted in box with rustic figure, one guinea. Second or Advanced Series, 3½d., fitted in box with rustic figure, one guinea and a half.

Prices of Models single.

<table>
<thead>
<tr>
<th>Item</th>
<th>1st Series</th>
<th>2nd Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roller</td>
<td>3 s. 6 d.</td>
<td>8 s.</td>
</tr>
<tr>
<td>Stile</td>
<td>3 s. 6 d.</td>
<td>8 s.</td>
</tr>
<tr>
<td>Pump</td>
<td>3 s. 6 d.</td>
<td>10 s.</td>
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<tr>
<td>Cottage-door</td>
<td>4 s. 6 d.</td>
<td>3 s. 9 d.</td>
</tr>
<tr>
<td>Hen-coop</td>
<td>4 s. 10 d.</td>
<td>4 s. 6 d.</td>
</tr>
<tr>
<td>Dove-cot</td>
<td>4 s. 6 d.</td>
<td>3 s. 6 d.</td>
</tr>
</tbody>
</table>

Third Series (in progress), milk timber, 13s. 6d. Summer-homes, 13s. 6d. Figures, 1s. 6d.

Grew, Thomas, Plaistow Park, West Ham, Essex.—Mathematical drawing instruments.

The above prize case of approved instruments, as supplied by him to the Science and Art Department at the South Kensington Museum, can be obtained for ten shillings' worth of stamps, or post-office order to the amount.

A superior set of college instruments, mounted in best German silver, with additional joint to compass, and handsome set of marquise scales, complete, in highly-finished mahogany case, with lock and key, 21. 10s.

A surveyor's full set, consisting of double-pointed compass to hold needles, hair divider, ink and pencil point, box, and two drawing pens, likewise double-jointed ink and pencil bows to hold needles, in German silver with a set of steel spring bows to match, and superior set of green ivory rules, in 13-inch rosewood case, 41. 10s.

Hammer, Geo. M., 44 Harrington Street, London, N.W.—Models of school fittings and educational apparatus. (See page 48.)

Hancock, Charles, Medmenham Lodge, Quadrant Road, Highbury New Park, London, N.—Animals and figures modelled in paper.

Haskins, James F., 14 Victoria Street, E.C.—Class-room desks for pupil-teachers and elementary musical works.

Hay, John Henry, Kensington Oval.—Class register for 55 names; abstract for one year portfolio.

**Fig. 1**

Improved desk and iron standard. The desk folds down to form seat to seat (fig. 1), or to the seat in front (fig. 2). It can also be set flat, for use as a table. Price of desk, per foot, 1s. 6d. Standards 5s. each.

**Fig. 2**

Mistresses’ work and writing table. Price 5l. 10s.

Set of mechanical powers. Price 5l. 5s.

Sets of drawing models, at 10s., 11s. 2s., and 31. 11s. 6d.

Machine for illustrating centrifugal force, 12s.


HOLMES, Charles, London Road, Derby.—An improved school desk and form.

HOME AND COLONIAL TRAINING INSTITUTION, King’s Cross, London.—Models of an infant school, of a school desk, &c.


HUGHES, George A., 47a Edgeware Road.—Embossed books, music, and writing apparatus for the blind.

JACKSON, Elizabeth Sarah, 3 Sheffield Terrace, Kensington.—Floretted motto.

JOHNSTON, W. & A. K., 4 St. Andrew Square, Edinburgh.—Specimens of maps and illustrations of physiology, printed in colours.

JOSEPH, Myers, & Co., 144 Leadenhall Street, E.C.—Educational models and appliances.

LEATHES, Major, Hill M., St. Margaret’s, Herringfield, Suffolk.—Model picture.
London Society for Teaching the Blind to Read, &c., Upper Avenue Road, N.W.—

Basket; brushes; knitting.

[Obtained a Medal at the Exhibition of 1831.]

The Holy Scriptures, as embossed by the pupils, and branches of baskets, knitting, and embossing—the work of the blind pupils.

Similar articles, in great variety are on sale at the institution, which is open daily for the inspection of visitors from 2 to 5 o'clock, p.m., Saturdays excepted.

Macintosh, C. & Co., Cannon Street, London; Cambridge Street, Manchester.—Portable globes and other educational requisites.

Martin, John, Atherstone Road, Nottingham.—Writing machine for the blind; enabling them to read their own writing.

Mill, Jane, 1 Foundling Terrace, W.C.—Kindergarten articles used in the educational employment of children.

Milton, Brinham, Cheltenham.—Conversational tablet. Orthographical tablet for producing all words and short sentences mechanically.

Moon, William, F.R.G.S., Brighton.—Reading in several languages, maps, diagrams, &c., for instructing the blind.

The origin and success of this system of reading for the blind is somewhat remarkable; and being of so universal a character, the following outline will not fail to interest the visitors of the International Exhibition—

In the year 1830 Mr. Moon, the inventor of the system by which the books are printed, lost his sight, and immediately commenced learning to read by a system of embossed reading invented by Mr. Press. This accomplished, he began to seek out and teach others similarly afflicted with himself. Among this number was a poor boy, who for five years endeavoured, but without success, to learn by the plan invented by Mr. Press. During those years Mr. Moon from time to time laid this case before the Thanes of Grace, beseeching the all-wise Disposer of events to put into his mind a plan by which this poor child might be taught to read. At length his prayers were answered, and the Lord put into his mind a plan by which the poor boy was able to read easy sentences in the shortest period of ten days. Means were then required to carry out the plan of printing books for the use of the blind generally. At the end of two years, a gentleman gave Mr. Moon sufficient money to commence the work. The first publication appeared in June, 1817, in the form of a monthly magazine for the blind. This was compiled by Mr. Moon in his leisure hours. No sooner did these books begin to circulate than a demand was made for various portions of the Bible. To print the Scriptures with the small quantity of type Mr. Moon possessed would have been a work of many years, and would have required an immense capital to print even a small edition, on account of the large quantity of paper, &c., used in an embossed book. He then invented a new mode of stereotyping, which is done at a comparatively small expense. By this means, aided by subscriptions from a benevolent public, he has stereotyped the whole of the Bible in English, besides a variety of other books, and portions of Scripture in 30 other languages. At first, the work was carried on in Mr. Moon's private residence; but this was found insufficient to accommodate the creation of the large and more suitable premises in the Queen's Road. The foundation-stone of this building was laid by C. H. Lovett, Esq., on the 4th September, 1856. Missionaries are continually carrying books from this establishment to foreign lands, and blind readers now receive the instruction thus afforded, not only in Europe, but also in India, America, Australia, and China, while the Nago of Africa, and the Arab of Egypt, Palestine, and the desert are not forgotten, but have the word of life in their own vernacular tongue. Twenty-seven societies are established in various parts of our country for teaching the blind at their own homes and lending them books from free libraries, and for several years past Mr. Moon has from time to time visited the Continent, for the purpose of teaching the blind by the spread of this system, and both he and his system have met with a very cordial reception in Holland, Germany, and France.

Further particulars of this interesting work may be had free of cost, on application to Mr. Moon, at his establishment for English and foreign books, maps, &c., for the blind, 101 Queen's Road, Brighton.

Mr. Moon's publications comprise the whole of the Bible in English, and portions in 50 other languages, a good variety of other books in English, such as the Pilgrim's Progress, Biblical Dictionary, English Grammar, Geography, History of England, &c., &c. Also embossed maps, diagrams, maps, pictures of animals, &c., &c., writing-frames, and many other useful things.

Class XXIX.

[5490]
CLASS XXIX.—Educational Works and Appliances.

Moore, G. B., 9 Lansdowne Terrace, Gloucester Road North, N.W.—Crayon drawing fixed by a new method for portfolios.

Muscelwhite, John, Devizes.—Moveable note music board.

National Society for the Education of the Poor, Sanctuary, Westminster.—Educational appliances.

Newman, James, 24 Soho Square, London.—Artists' colours, varnishes, brushes, &c.

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Pearce, T. Blewett, 88 Newman Street.—The octave dissected; keys, &c., in music illustrated by colours.

Pembermon, Robert, F.R.S.L., 32 Eaton Square, London.—Science of education in various works; patent school organ. (See page 51.)

Philanthropic Society's Farm School, Leith Hill.—Model of a school-house.

Pitman, Isaac, Bath.—Phonetic shorthand, and printing alphabets. Uses: shorthand writing, true orthography, and easy reading.
CLASS XXXIX.—Central Tower.

Pemberton, Robert, P.R.S.L., 33 Eaton Square, London.—Science of education in various works; patent school organ.

The Attraction of the Soul from the Child, etc.

This theory develops the false system of all scholastic education throughout the world, and demonstrates that the true basis is entirely centered in the nation, the mother, who imparts to her infant her own language in the course of the first three years; so that if the natural system of oral instruction were continued, and artifically carried on, seven languages would be produced upon the mind in the course of the first twenty-one years, the period of the natural growth of the human body, and consequently the season for the growth of all knowledge.

Specimens of the natural or oral system of teaching, for the use of the nursery and infant schools.

The Lessons of Grammar, 2s. 6d. The same on cards, with box complete 1s. The cards are arranged in small cases for carrying in the pocket, for the use of the mother or nurse at every opportunity, so that the precious time of infancy may be continually occupied; as infant spirits incline to every imprint from the sounds of the voice, its natural teacher.

The Technical Language of Anatomy, with a glossary of terms used in the work. All professional language must be taught in infancy, for they cannot be perfectly acquired in after life, when the season for learning is passed. 3s. 6d. or cards 1s. 10d.

The Infant Oracle, a model of the true method of teaching and developing speech from the cradle, by spelling daily to the infant, and reading poetry, and describing objects, aided by music; and for this purpose the nursery chariable barrel-organ was expressly invented by the author, in order that music may form and grow upon the mind in the same way as the vernacular tongue. Addressed to the Mother, 2s. 6d.

The Happy Colony, with bird's-eye views of the Model Town and Colleges, 7s. 6d. This work develops a perfect system of emigration, to be carried out by distinct notion, and is perfectly arranged for the best utilisation of land, founded upon a new development of the human mind by the practical science of education, which combines the united powers of physical and mental in- struction; and a town is devised expressly for a perfect arrangement for promoting human happiness, via, perfect education, health, recreation, and occupation and national benefits. The form of the town is entirely taken from the prevailing forms of the creation. The linear estate contains fifty acres; upon the borders thereof are placed four colleges equidistant, at the four cardinal points. Conservatories, workshops, swimming-baths, and riding-schools are attached to each college. Geography is to be taught from the maps of the world laid out upon five acres of ground. The school map is laid down in the same manner, with glass balls to represent the different magnitudes of the stars, all named. This method serves two essential purposes at the same time; exercise and instruction; and, indeed, this is the secret of all education—pleasure must unite with all the processes of learning, teaching, and training. In this circle of the maps of the world, etc., are also placed the botanic gardens, schoolm, and groves embodying history and the sciences, and biography; and in the centre of the college grounds is placed the miniature farm, thus uniting all our educational forms and social wants, for perfecting the education of rising generations. The circles of streets round the college grounds are very spacious, and planted with trees. The manufactories are hid in groves of ornamental trees. The wide spaces between the beds of the houses, instead of being mere strips of garden, are laid out in beautiful orchards. The fourth circle is laid out for public gardens, in which are four churches; and the outer circle is the park, three miles in circumference, planted with groves and clumps of all kinds of valuable trees. All the cross streets verge from the park to the center of the town, and beyond the park a public reserve of a belt of ha-ha; or forest land is provided, beyond which are the cultivated farms, which extend on the same principle. It may be presumed that this design for a town or city is the most perfect that has ever been planned.

The Science of Mind Formation, and the means of the reproduction of genius elaborated, involving the remedy for all our social evils. This work was produced in consequence of the state of our social evils, described by the various speakers at the inauguration of the Social Science Society, held at Birmingham, by Lord Beaconsfield and his learned confidantes. A more valuable investigation has never existed, as every nation is awaking the development of the social sciences.

The Model Institution of the School of Genoa. This work describes a royal infant open for foreign languages, for the infants of princes, of the nobility, ambassadors, functionaries of states, and merchants. The present scientific and vast commercial age requires a free intercourse with all nations. In truth, the world requires international education. The science of developing the spoken languages has long been wanting. The absence of this science has been a serious inconvenience to the government of that immense population of her Majesty's possessions in the East; however the written languages may have reached perfection through the medium of alphabetical signs, the spoken languages have been neglected, no attention whatsoever has been paid to the development of speech. The natural growth of the spoken languages is one language every two years. The natural forces of speech to be used in teaching a language are from four to seven thousand words per hour. The vernacular tongues of all nations alone possess the attribute power and force of developing speech and imparting, transmitting, or transmitting the spoken language to infants, children, and youth. A staff of teachers of any nation can impart their own language grammatically, to a large audience of infants, from the age of three to fourteen years. In the course of two years, for better and more correctly than any children of the age of twelve or fourteen years can acquire their own language from studying books, even when brought up in gentile life in the capital of any country. It is the abstract system of the schools which has deceived the world upon the subject of education.

London : Hamilton, &c. 65 Pall Mall ; and by the author, 33 Eaton Square, N.W.

By Her Majesty's royal letters patent, Pemberton's Chromatic Barrel-Organ, for the nursery and infant schools.
Class XXIX.—Educational Works and Appliances.

[5504]
Rahles, Dr. Ferdinand, 13 Albert Street, Camden Road, N.W.—Alphabet and spelling games, adapted for infant-schools and nurseries.

[5505]

This series comprises the following—
One shilling box of water-colours, containing the ten colours and three brushes as selected by the Society of Arts.
One shilling case of drawing pencils, containing six pencils, India-rubber, and four drawing pins.
One shilling box of coloured chalks, &c., containing twelve coloured chalks, two stamps, porte-crayon, and charcoal.
One shilling deal drawing board and stand, forming a wooden desk 15 x 11 inches, with fastened support for holding a copy.
One shilling solid drawing tablet, composed of twenty-four leaves of good drawing paper, 9 x 7½ inches, or sixteen leaves 11 x 9 inches.
One shilling Y square, blade 15 inches long.

[5506]
Reformatory and Refuge Union, 118 Pall Mall.—Apparatus used in reformatory, and models illustrating their operations.

[5507]
Ridley, Rev. Nicholas James, 10 Paternoster Row.—Articles and apparatus (including models) illustrating the book-hawking system.

[5508]
Roberson & Co., Long Acre.—Drawing materials, &c.

[5509]
Rowney, George, & Co., 51 and 52 Rathbone Place; 10 and 11 Percy Street, London, W.—Materials used in the fine arts. (See page 53.)

[5510]
Russell & Hooper, Ashford, Kent.—Improved Rusthall school desks, with iron standard, made of different heights and lengths.

[5511]
Ryffel, T. E., 5 Upper Stanmore Street, Blackfriars.—Calculating cubes—numbers made visible and tangible by 100 cubes, each 10 of a different colour; a multiplication table represented on the same system, without figures.

[5512]
School for the Indigent Blind, St. George's Fields, Southwark.—Books for the blind, and goods manufactured by the blind.

Founded 1798. Supported by public subscriptions. Patron—Her Most Gracious Majesty the Queen.

The average number of pupils is 100; they are admitted for six years by election. The education consists of religious instruction, reading, writing, arithmetic, industrial work, basket work of all kinds, mat making, weaving, knitting, brush making, hat work, &c., &c. Pupils having talent for it, are taught to sing, and to play the organ so as to become useful and capable graduates.—Dr. G. John, Chaplain, Mr. Thomas, Greeter, Secretary.

Embroidered books and other educational appliances, as well as specimens of all their various industrial work, are exhibited.

The Society for Printing Embossed Books for the Blind (affiliated, Elibank-school, St. George's Fields) have published the following books in the Roman letter: Gospels of St. Matthew and St. John, Sunlight in the Gospels, Robinson Crusoe, The Psalms, an English History.
Rowney, George & Co., Manufacturing Artists’ Colourmen, Retail Department, 51 and 52 Rathbone Place; Wholesale and Export Department, 10 and 11 Percy Street, London, W.—Materials used in the fine arts.

Artists’ colours prepared for water-colour painting, ground by their new process, by steam-power. Manufactured in whole, half, and quarter cakes; or moist in tubes, pans, and half pans.

Oil-colours, in compressible tubes, ground extra fine by machinery; colours prepared for missal-painting, and illumination in soluble powder-colour.

PICTORIOUS DRAWING MODELS.—A series of objects, carefully copied from nature, adapted for instruction in sketching.

No. 1. The Windmill (see illustration), price 15s.
No. 2. The Boat-house, price 24s.

Also numerous smaller models of simple subjects, as stiles, gates, palings, sign-posts, &c., &c.

Geometric models for instruction in form, light, and shade drawing.

PERSPECTIVE MODELS.—Shewing the solid object and its appearance on the picture. These models so simplify the principles of perspective, that none can fail to comprehend them at once.

Model No. 1. Vertical, horizontal, and oblique planes, single . 8 0
No. 2. Cube and Pyramid . 10 6
No. 3. Cone, column, and prism . 8 0
No. 4. Bridges, coloured . 12 6
No. 5. Houses and grounds, coloured 15 6

The set complete in a box, 31 15s.

Drawing pencils, artists’ brushes, crayons, prepared canvas, cases, drawing boards, T squares, and every description of material used in the various styles of painting or drawing.

Geo. Rowney and Co.’s portable tent, for sketching tours, picnics, or summer excursions. Size when packed, 4 inches by three inches; 4 feet 2 inches long. Size when set up, 6 feet square; 7 feet high; weight, under 11 pounds, including case. Price 31s. 6d.; American leather cloth case, 6s. 6d. With extra cord for increased strength, 8s., case, 6s.

The advantages of this tent consist in its portability and light weight when packed, and its strength and spaciousness when pitched.

Lithographic and other drawing books for students in various styles of drawing. Figure, landscape, cattle, and mechaical subjects. These specimens are exhibited on the staircase leading to the Tower.
### Class XXIX.—Educational Works and Appliances.

**Science and Art Department of the Committee of Council on Education, South Kensington Museum.**—A set of drawings illustrating the stages of instruction in art afforded by the Schools of Art in connection with the Science and Art Department of the Committee of Council on Education.

The following is a list of the stages of instruction, with the names of the students whose works are exhibited as illustrations.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Stage</th>
<th>NAME OF STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Linear drawing by aid of instruments</td>
<td>1. Linear geometry</td>
<td>Sarah A. Dodge, James Dumbie. Wilmot Playford, Catherine Beinse.</td>
</tr>
</tbody>
</table>
| 3. Studding from the round or solid form | a. Models and objects | The following are the stages of instruction in art, with the names of the students whose works are exhibited as illustrations.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Stage</th>
<th>NAME OF STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Painting (general) from flat examples or copies, or drawings, still life, &amp;c.</td>
<td>a. In monochrome, or in water-colour, or in colour</td>
<td>Robert Fielding, William Reid. John Willshaw.</td>
</tr>
</tbody>
</table>

**Names of Students:**

- Sarah A. Dodge
- James Dumbie
- Wilmot Playford
- Catherine Beinse
- Henry Mayen
- W. J. Griffiths
- Ellen Rose
- H. H. Luck
- F. Hunt
- Margaret Johnson
- Thomas Haughton
- Joseph Platt
- Mary J. Woodcock
- Lewis Hauka
- A. E. Matney
- Sir George Fielder
- A. E. Mulready
- Robert Fielding
- William Reid
- John Willshaw

**Names of Students:**

- T. Clock
- H. R. Pond
- F. B. Brydges
- Letitia J. Cole
- Maria A. Williams
- Harriett Bromfield
- John Brunton
- Helen Wilson
- W. S. Cobbe
- William Clowes
- R. Bate
- A. B. Joy
- James Mars

**Names of Students:**

- R. Johnson
- J. G. Woodward
- Louis A. Crumelow
- George Rhind
- Ellen M. Bryant
- William Calvea
- Harriett E. Harnan
### CLASS XXIX.—Central Tower.

**Science and Art Department—continued.**

The works to which medals have been awarded at the various schools of Art throughout the United Kingdom; are annually brought together to compete for national medals and Queen's prize awarded by the President and two members of the Royal Academy, and the drawings now exhibited are, for the most part, those which have been selected for reward at the national composition of this year, representing the best work that has been done in the Schools of Art during the year.

The school in which the student whose work has been selected for reward receives works of art or publications to the value of £10, and therefore benefits in proportion to the advancement of the student, and it is by means of the presentation of these works of art or publications that the students of a local museum or library may be established.

An annual examination of each school takes place, when the works in the various stages of drawing, painting, modelling, and design are examined in competition with each other, and medals awarded to the best works in each stage; and for every local medal awarded, examples or books to the value of £10, are presented to the school.

At the time the inspector makes his annual visit to the school to award these medals, a public examination in drawing, open to all persons, is held by him, when prizes, consisting of books of instruments, etc., are given to all who reach a certain standard in freehand and modelled drawing, and practical geometry and perspective.

Ninety Schools of Art are now established in various parts of the United Kingdom. The following table shows the name of the locality and the number of students and children of poor schools taught drawing by the agency of each School of Art.

<table>
<thead>
<tr>
<th>Name of Place</th>
<th>Number of Students taught in Art Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aberystwyth</td>
<td>132</td>
</tr>
<tr>
<td>Aberystwyth</td>
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<tr>
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<tr>
<td>Aberystwyth</td>
<td>1000</td>
</tr>
</tbody>
</table>

Total 80 Schools, and including the 10 Branch Schools, 98 Schools. Number of Persons under Art Instruction in Public and other Schools, 70,309; in Central Schools, 15,532; Total, 85,836 persons.
CLASS XXIX.—Educational Works and Appliances.

SCIENCE AND ART DEPARTMENT—continued.

The master of a School of Art is appointed by a local committee responsible for its proper government, on the recommendation of the Science and Art Department. To meet the demand for teachers, a training school is established at South Kensington, to which male and female students are admitted when properly qualified. They receive instruction in competent masters in free-hand, mechanical, and architectural drawing, practical geometry and perspective, painting in oil, tempera, and water-colours, modelling, mosaicing, and costing. Examinations are held twice annually, and certificates of competency to teach granted, in respect of which payments are made by the State on certain conditions.

A School of Art can be formed in any locality where the public demands, and maintains at its own liability suitable premises. When it is necessary that new premises be erected, the department is authorised to make a grant in aid of the cost. The local committee is assisted in purchasing copies, models, and examples of a reduction on the art cost; and also in the purchase of objects of art which can be dispensed with at the Art Museum at South Kensington. A collection of specimens of ornamental art is also made from time to time from the objects in the Art Museum, for the purpose of being exhibited in the local schools.

This travelling collection, to which the local possessors of works of art generally make valuable additions, lasts for the time that the collection is in the locality, is guarded with much interest by the local schools, and is visited annually by a large number of persons. During the past year this collection has been sent to 8 Schools of Art, and has been visited by 22,291 persons.

Books, drawings, and prints are circulated among the Schools of Art from the library at South Kensington, and as far as possible, consistently with the security of the objects, works of art of all kinds deposited in the Art Museum are lent to the Schools of Art.

SOUTH KENSINGTON MUSEUM.

This museum was commenced with the eviction of an iron structure of the cheapest character in 1859. It was built under the superintendence of Sir W. Cubitt, and when completed was passed over by the Commissioners of 1859 to the Science and Art Department. Since that period permanent brick structures, erected under the superintendence of Capt. Fowke, R.E., have been added, which with the new courts now form the greatest part of the museum.

In the PRESENT BUILDING EXISTING THE ROOMS:—
1. The Art Museum.
2. The collection of British Pictures is continued in four rooms of the upper portion of the brick building.
3. The Art Library.
4. The National Gallery, British School.

IN THE IRON BUILDING:
6. The Architectural section of the Art Museum.
7. The Educational Museum.
8. The collections of materials used in architectural construction.
9. The collections of animal products and food.

ADMISSION.

The National Gallery, British School, is open every day and is entered through the Museum.

The Museum is open free on Mondays, Tuesdays, and Wednesdays. The students' days are Wednesdays, Thursdays, and Fridays, when the public are admitted on payment of 6d. each person. The hours on Mondays, Tuesdays, and Wednesdays, are from 10 a.m. to 10 p.m., on Wednesdays, Thursdays, and Fridays, from 10 a.m. till 4, 5, or 6 p.m., according to the season. The entrance is by Cromwell Road, and in the Exhibition Hall, opposite to the East entrance in the Exhibition.

Periods of admission to the Museum, including the Art Library and Educational Retailing-room, are stated at the following rates: weekly, 6d.; monthly, 1s. 6d.; quarterly, 3s.; half-yearly, 6s.; yearly, £1. The public paying the annuities of 6d. on the students' days have the privileges of both the Art and Educational Libraries for the purpose of study.

Yearly tickets are also issued to any school at 12s., which will admit all the pupils of such school to all students' days. They may be obtained at the catalogue sale-stall of the Museum.

ART LIBRARY.

The Library of Works on Art is open during the same hours as the Museum. It is a special library, and contains works on art, original drawings and engravings of ornament, illumination, and photographs.

Copying objects in the Museum is permitted on the students' days, on application to the keepers of the respective divisions.

Application for copies of pictures must be made in writing, addressed to the secretary, and if necessary, specimens of competency must be forwarded.

Application to copy works of living artists must be accompanied by the permission of the artist. Copying is not allowed.

The Museum was opened on the 22nd June, 1857, and in the 20th June, 1862, was visited by 24,106 persons.

The evening attendance was 1,907,707.

Numerous catalogues are published.

THE SCIENCE DIVISION.

The Science Division of the Science and Art Department is constituted to encourage the teaching of science throughout the United Kingdom.

The branches of science thus aided are divided into seven heads or subjects, and each of these into two subdivisions, except the first, which is divided into three subdivisions.

I. Practical Plans and descriptive Geometry, with Mechanical and Machine Drawing and Building Construction, or Naval Architecture.
   A. Architecture.    B. Mechanical Physics.
   C. Experimental Physics.    D. Chemistry.
   E. Geology and Mineralogy.
   F. Animal Physiology and Zoology.
   G. Vegetable Physiology, Economic and Systematic Botany.

Assistance towards instruction in these sciences is afforded in four different ways:—

A. Allowances to teachers on their certificates.
B. Public examinations, in which Queen's medals and prizes are awarded to all successful candidates, which may be bought by a certificated teacher or not, held at all places complying with certain conditions. On the result of these examinations certificate allowances and payment on results are made to the teachers.
C. Payments on prizes to certificated teachers.
D. Grants towards the purchase of apparatus, &c.


In November of each year the department of Science and Art holds an examination at South Kensington in all the above-mentioned subjects. Any one may attempt this examination without payment of fees by sending in his name to the Secretary, Science and Art Department, in September, and may take up any one or more of the subjects or subdivisions at one line.

Certificates of these grants are given for success in these examinations, enabling the holder to payments under certain conditions.

At the first examination for teachers in November, 1839, shortly after the publication of the first Minutes, 57 candidates came up, 40 of whom obtained 63 subordinate certificates. The next year, 1840, 60 candidates came up, 72 were successful, and 121 subordinate certificates taken. This last November, 103
Science and Art Department—continued.

Candidates came up, 97 were successful, and 175 subdivision certificates taken. There are now 166 teachers certificated under this system.

The teacher obtains the certificate payments in the following manner. The classes are examined once a year (see below, Public Examinations), and there is a final examination. At the end of the examination, the teacher is paid a certain amount of money, which amount depends on the number of successful candidates in the class. The amount is fixed at $30 per candidate.

In order to test the efficiency of the instruction, the examination in each subject is held in May simultaneously all over the kingdom, and the examination is made to the satisfaction of the Inspector. It is conducted by the Committee previously mentioned, to whom the examination papers for the pupils in each subject are sent.

The results of these examinations are classified.

1. All those who have passed in each subdivision of a subject. The standard of attainment required being low, and only such as will justify the examiner in reporting that the instruction has been sound, and that the students have benefited by it.

2. From among those who passed, those who attained a degree of proficiency qualifying them for the 1st, 2nd, or 3rd class Queen's prizes.

The six most successful candidates in each subject throughout the United Kingdom, if the degree of proficiency attained is sufficiently high, will be recommended for Queen's awards.

The Queen's medals are of gold, silver, and bronze, in each subject for competition throughout the United Kingdom. At the last examination in May there were just 1000 pupils in the three classes who were passed, and it was so arranged that the teacher of the pupil in each class who passed was paid a certain amount of money. The amount was fixed at $30 per candidate.

The payments to the teacher are made only on the condition that the pupil is classed in the division of the subject. A junior examination is held in May simultaneously all over the kingdom, and the results are reported to the Inspector. The results of these examinations are classified.

4. Examinations held in January and July of each year for Navigation Certificates in the following groups:


On the results of these examinations, augmentation grants of three classes are made. The grade of augmentation grant allowed to the master in each of the three classes of head master, first assistant, and second assistant, depends on the manner in which he has passed his examination, and the certificates he has taken. Pay-roll teachers are allowed at the rate of one to thirty boys in the school, and receive $4 per annum each, and the master 60 per annum. The payments under the second head will be at the rate of $1 per head.

The total payments under these heads can never exceed the amount which the teacher is qualified to earn by the grade of his certificate.

A local committee of not less than five responsible persons must be formed to give the teacher the necessary vouchers.

A room with fire, lighting, etc., must be provided to give instruction in.

Evening Navigation Classes may be established independent of (day) Navigation Schools.

An examination is held once a year at South Kensington, at which any person may present himself by registering his name to be examined for an evening Navigation Certificate, if he is desirous, he may present himself for examination by the Inspector of Navigation Schools when he visits any of the existing schools on his tour of inspection.

The certificate is of three grades, qualifying the holder to earn 300, 150, or 100, according to the grade of the certificate. Further payments are made dependent on the results of instruction only.

The certificate allowance is dependent on the average number of board full sailors—Seamen and Apprentices attending during 300 evenings in the year, and paid at the rate of 10s. per head of the average up to the maximum which the teacher is entitled to earn by the grade of his certificate. The payments on results, which are unlimited, are applied to the number of points taken by the pupil when examined by the Inspector, and are at the rate of 30s., 10s., and 1s., according to the grade of the points.

A responsible Committee of not less than five persons must be formed to give the master the requisite vouchers. A proper room, with fire, lighting, etc., must be provided for giving instruction in. When these conditions are fulfilled, any persons holding the Evening Navigation Class Certificate may obtain the above payments.
Seaton, John Louis, 3 & 4 Frederick Place, Hampstead Road.—Improved desks; forming tables (if required) and seats.

Sectional models of improved desks and forms convertible into seats with books and book boards, adapted for schoolrooms, used occasionally for lectures or public meetings. Price in lengths of six feet and upwards, stained deal 5s. 6d., birch 7s. 3d., per foot run.

Improved desk and form with reversible back, to be used either flat or sloped, when placed back to back, they form dining and tea tables. Price in lengths of six feet and upwards, stained deal 7s., birch 8s. 6d. per foot run. Without the back to seat, 5s. per foot less.

Sharp, George, 16 Westwood Place, Dublin.—Models for teaching elementary drawing.

Sherbatt, Thomas, Jun., 5 Westwoodland Place, Westbourne Grove North, Bayswater, W.—Time globe, or planetary clock: (See page 59.)

Society for Promoting Christian Knowledge, Great Queen Street, Lincoln’s Inn Fields.—Books, maps, prints, &c.

Spencer, William, Beverly.—1500 arithmetical exercises on 277 cards:—practice, fractions, decimals, per centages, and government questions.

Stanley, William F., 3 Great Turnstile, Holborn, London.—Mathematical instruments in aluminium, engine divided scales, &c.

Stephens, Henry, 18 St. Martin’s-le-Grand, London.—Specimens of inks, and of papier-mâché, slate, &c. (See page 59.)

Sunday School Institute, 41 Ladygate Hill, London.—Material for organization and management of Sunday schools.

Wedgwood & Sons, 9 Corshill, London.—Patent manifold writers, and writing machine, for the blind.
SHERBETT, THOMAS, Jun., 5 Westmoreland Place, Westbourne Grove North, Bayswater, W.

—Time globe, or planetary clock.

SHERBETT'S TIME GLOBE, OR PLANETARY CLOCK.

At a period like the present, when the locomotive, the steam-engine, and the electric telegraphs are receiving every improvement and extension that the united mental and mechanical genius of this and other countries can give them, it must be evident that whatever conduces to even a superficial knowledge of the situation and extent of the vast region of this planet—explored and traversed by those aids of commerce and civilization, and peopled by daily arriving crowds of enterprising emigrants—must be a boon to those who, from whatever cause, have not studied matters of that kind.

There are few now among us who have not friends and relations living in remote dependencies and colonies of their native land. To these and, in fact, to all who value an object of the most essentially domestic use, my Time Globe or Keeper must recommend itself: it being a terrestrial globe, revolving on its axis simultaneously with the pointer or hand, together making one revolution before the 24-hour clock-box in that time. Every hour is divided into twelve parts of five minutes each—the quarters and halves being more distinctly marked. The several portions of the day are also hatched and coloured thereon, and the cardinal points given. In a right line with the pointer, a black meridian passes over whatever place on the globe the time may be set for—showing it not only there, but at all other places under the said meridian. On turning a button, which projects through the circular opening of the glass cover, it will cause the white meridian, attached at the north pole of the globe, to move over any place at which the time is required to be known; and the index fixed thereto, as passing before the hour circle on the clock-box, will show the time at that and all other places under each meridian.

We all know how often the eye is turned to the clock; with how much more interest, then, will the glance be directed, and with how much more entertainment and instruction will that glance be regarded, when it rests upon an object such as this, either fixed, levied with the sight, to the wall, or standing on the mantelpiece,—instead of the comparatively meaningless faces that characterize the clocks in general use. It is worthy of remark that the price of this ingenious time-piece does not exceed that of others.

The inventor therefore anticipates, that when the elementary astronomical and geographical advantages possessed by these time-globes are taken into consideration, combined as they are with the usefulness and cheapness of the common clock, they will become the means of stimulating inquiry and encouraging thought; in short, that they may of such things make

"Those think who never thought before,
And those who have thought make them think the more."

STEPHENS, HENRY, 18 St. Martin's-le-Grand, London.—Specimens of inks, and of paper-
maché, slates, &c.

The long and persevering attention which the exhibitor has paid to the various combinations of colouring matters, enable him to prepare writing fluids upon the best principles.

Three fluids consist of—

The original blue-black writing fluid, which is a blue fluid, changing to an intense black colour.

The following letter expresses the pleasure which the cosy flow of the article universally gives—

"10 Finsbury Lane, Chatham, Dec. 20th, 1861.

"The Rev. H. Phillips wishes to express to Mr. Stephens his gratification at having met with his blue black writing fluid. Having for several years endeavoured to obtain a good ink, he considers himself fortunate in having met with this, manufactured by Mr. Stephens."

The patent unchangeable blue writing fluids, remaining a deep blue colour. Two sorts are prepared, a light and a dark blue.

The black inks—

A superior black ink, of common character, but more fluid.

Innumerable black ink, which writes black at once, boxed and registration ink. Practical proofs of its superior durability over inks made with gall have been shown by its use on garden-florins, for flowers and plants.

The copying inks—

A very superior black copying ink, which gives one or more strong copies with the machine, or one copy long after writing.

The blue-black copying ink. This article is very fluid.

A brilliant red, for contrast writing. This is a very beautiful and vivid colour.

Purple, green, violet, crimson, and yellow inks of very fine tint.

Stephens's concentrated and soluble ink powders.—These articles contain the constituent parts of ink in a dry state, yet as readily soluble, that by the addition of water only, an ink fit for use is quickly formed. These powders are manufactured to make a black ink, the blue black, the unchangeable blue, and the brilliant red writing fluids.

Sold in packages to make a quarter-pint, half-pint, a pint, and a quart.

A new material as a substitute for slate.—Stephens's paper-maché tablets, manufactures into the form of slates, pocket-books, drawing and draughts boards, dictionary tablets, and pocket memorandum books.

The advantages of this material are its extreme lightness and portability, strong visible contrast in the writing, pleasing to the eye and touch, rubbing over without the use of sponge or water; for this a cloth or handkerchief merely will suffice.


Prospectus and detailed descriptions can he had on application, or by post.

1 2
CLASS XXIX.—Educational Works and Appliances.

[5523]
Weelake, 58 Warren Street.—Doll houses.

[5525]
Wolf, E. & Son, 23 Church Street, Spitalfields.—Drawing pencils, black-lead, coloured crayons, creta levis, or indelible chalks in cedar, solid ink pencils, &c.

[5526]
Cranbourne, the Viscount, 29 Arlington Street.—Books for the blind.

[5527]
Howard, Colchester.—Plans of school-buildings.

[5528]
Johnson, E. C., Savile Row.—Books for the blind.

[5529]
Williams, A., Windsor.—Model of improved school desk and form.

Sub-Class C.—Toys and Games.

[5538]

[5539]
Baer, John, 306a Oxford Street.—Scientific toys and wood carvings.

[5541]
Burley, George, 28 George Street, Blackfriars Road, Southwark.—Dolls of a novel description.

[5542]
Camp, William, 81 Tottenham Court Road.—Cricket stumps, skittle, lawn, billiard, American, and bowling-green balls.

[5543]
Comer & Son, 27 New Bond Street, and Regent Street.—Toys and games.

[5544]

[5545]
Dark, Robert, Tennis Court, Lord’s Cricket Ground.—Cricket-balls, india-rubber gloves, leg-guards, and gauntlets. (See page 61.)

[5546]
Duke & Son, Penshurst, Kent.—Cricket balls, bats, stumps, leg guards, gloves, &c.

[5547]

[5548]
Gilbert, William, Foot-ball Manufacturer, Rugby.—Foot-balls and foot-ball shoes, representing the game as played at Rugby school.
Class XXIX.—Central Tower.

Dark, Robert, Tennis Court, Lord’s Cricket Ground.—Cricket-balls, India-rubber gloves, leg-guards, and gauntlets.

[Prize Medal for Gloves, Leg-guards, India-rubber Balls, and other Implements used in the Game of Cricket.
—Note Report of the Judges.]

The exhibitor is the inventor and original maker of the tubular India-rubber gloves, improved leg guards, and wicket-keeping gauntlets. These, and also his celebrated cricket balls, are warranted made by the best workmen and of the best materials. They may be purchased from the proprietors of cricket grounds, and at every respectable shop in the kingdom where articles of this kind are sold.

Agencies exist for the sale of R. Dark’s goods, at Calcutta, Madras, Bombay, Quebec, New York, Adelaide, Sydney, Melbourne, &c.

The trade can be supplied direct, by forwarding business-card.

The exhibitor has manufactured some hundreds of dozens of cricket balls, and has exercised constant care in the selection of materials, and a watchful supervision over the workmanship. As these balls are the only ones that have been used by the Marylebone club for many years, and as they are in high favour at Oxford, Cambridge, Eton, Harrow, Winchester, he feels confident that they will give universal satisfaction in the cricket-field.

Secretaries of cricket clubs, merchants, shippers, and other large consumers, can be supplied immediately with Dark’s cricket balls, gloves, leg-guards, &c., on liberal terms, all manufactured ready for inspection, and may be dispatched to any destination on the shortest notice.

India and Colonial orders carefully packed and shipped.

Lists of prices forwarded on application at the Tennis Court, Lord’s Cricket Ground, London, where also may be obtained the M.C.C. laws of cricket.

The exhibitor has the honour to be appointed manufacturer of cricketing implements to His Late Royal Highness the Prince Consort.

The implements and appliances in the nature of gloves, guards, &c., which the present mode of playing the game, and especially the practice of swift overhead bowling, has brought into use, are so various, that there is more room for ingenuity in the manufacture of them than might at first sight appear.

The articles contributed by Robert Dark (196) have great merit. The gauntlets which he exhibits, as designed to guard the wrist from the blow of the ball, are lined with slips of cane, and are thereby lighter than those which are thickly wadded, or lined with India-rubber; whilst they furnish a softer and more effectual defence against the ball.

So also in regard to the gloves, which protect the fingers of the hand that holds the bat, by a tube fixed along the back of each finger. An improvement is apparent in those exhibited by R. Dark, inasmuch as a second and smaller tube is fixed within the first, thereby materially increasing the resistance to a blow from the ball, without sensibly adding to the weight or diminishing the pliancy of the glove.
Hoffman, Heinwick (pupil of Frederick Froebel), 19 Norland Square, Notting-hill.—The Kindergarten illustrated by models and designs.

Jaques, John, & Sons, 102 Hatton Garden, London.—Billiard-balls, chessmen, games, &c.

Jeffries & Malings, Wood Street, Woolwich.—Racket bats, rackets and racket balls, pressos, and patent soled racket shoes.

Johnson, Sydney, 6 Heathpoe Street, Paddington.—A model, or doll's house, made of white wood, carved ivory, and ebony.

Keens, Thomas Edward, Depôt, Messrs. Jefferies, 144 Leadenhall Street.—The cork model maker: a scientific toy.

Kennedy & Co., 1 Westbourne Grove Terrace, Bayswater.—A patent mechanical trotting pony, and spring bassinet.

Lillywhite, John, 5 Seymour Street, Euston Square, N.W.—Articles connected with cricket.

Loyzel, Edward, C.E., 92 Cannon Street, London, E.C.—Loyzel's patent chivalric game of a combination of chance and skill. (See page 65.)

Mathews, Caroline Elkanah, Inventor, Oatlands Park, Surrey.—Gioco di Clio; a miscellaneous game.

Mead & Powell, 29 Cheapside (from London Bridge).—Improved rocking-horses, children's repose perambulators, baby-jumpers, model carts, &c.

Montanari, Augusto, 198 Oxford Street, London.—Model wax dolls, with all modern improvements, and model rag dolls.

Moore, Joseph Lynn, West Street, Dorking, Surrey.—Set of improved cricket stumps.


The patentee claims for his ball a superiority over the leather ball, on the following grounds:—

1. The composite ball is cheaper than the leather ball.
2. It is more durable.
3. It is a true sphere, or circle, in every direction, which no leather ball can be; consequently it flies more accurately, handles better, and is easier to field, and to bowl.
4. It cannot absorb moisture, and therefore never varies in weight.
5. After being immersed in water, it is not as slippery as a leather ball, consequently, when the ground is wet, it is easier to hold, field, and bowl with precision.
6. It is free from the inner substance being soft flimsy material, it is less liable to break the handle, and drives easier off the face of the bat.
7. It never loses its shape. The balls are exact copies of each other, and the exact weight and size prescribed by the laws of cricket.

Many very satisfactory testimonials have been received from various cricket clubs and schools.
The Game of *Tournoy* is played either by two persons on a board of 36 squares, or by four persons (placed as at whist) on a board of 61 squares. Each player has six pieces which are denominated—Queens, Chevalier, Countable, Herald, Page, and Dwarf. The position of each piece is represented in colours upon a round block of porcelain, in the style of the two accompanying engravings, which represent the Page and the Chevalier. The geometric diagram in the centre indicates the power of the piece; to understand which the player must for the moment suppose that instead of playing on the large board, he is playing on the small one, which is figured on the piece; and that the piece itself is placed in the centre square (where there is a star); then the piece can move or take in all the squares in which dots are marked; for example, the Page can move or take one square, front and back, right and left; and the Chevalier can move or take in any direction, at a distance of two squares.

The novel and distinctive feature in the Game of *Tournoy*, being the introduction of Chance to govern the moves of the pieces, each player must draw in turn the name of the piece he is to move; this is done by means of a Roulette, on the circumference of which are six recesses with hinged flaps, on which the names of the six pieces are engraved. By spinning the Roulette the ivory ball will fall into one of the recesses; and the player must exercise his judgment in moving to the best advantage, the piece thus indicated.

An illustrated book containing a minute description of the Game of *Tournoy*, the power of the pieces, their arrangement on the board, the etiquette, the laws of the game, written in both French and English by the inventor, accompanies each game, which can be so readily understood, that even a child will be able to play in ten minutes.

Each piece having a numeric value, and the game being generally played in a given number of points, two dials or point markers are provided as shown above.

The Game of *Tournoy* is made so that it may be used for either two or four players, and each box contains, 1st, a board (which can be expanded at pleasure to 36 or 61 squares); 2nd, 24 pieces in four sets, red, blue, green, and black; 3rd, the roulette, ivory ball and cup; 4th, the dials; 5th, book of rules. The whole is enclosed in a compact box, which, when shut, measures only 8 inches square and 4 inches thick; this box, while the game is being played, lies open on the table, as shown above.

The Game of *Tournoy* will be found interesting by persons of every age; and its varied combinations will never cease to amuse.

The Inventor in introducing this new game has had no idea of rivalling or trying to improve on the noble game of chess; but has merely sought to present the public with a recreation of quite a different order.

The apparatus selected for exhibition are principally remarkable for the importance of their deceptive powers, the elegance and high finish of their manufacture, and the ingenious concealment of their mechanism, so as to render detection next to impossible, even when placed in the hands of the most scrutinising observer. An account will not admit of a detailed account of each of the experiments which may be performed by their aid, the exhibitor subjoins the following description of one of the newest tricks, entitled—"The Wonders of Modern Alchemy; or, the Wand of the Metal Spheres." The trick is performed in the following manner:

You commence by stating that the wand you hold in your hand is endowed with magnetic power to collect from the surrounding atmosphere (in the form of coins of the realm) various metals, which recent discoveries have shown to exist in the gaseous state. As the wand you profess to use for this purpose, and submit for examination, is by far too slender to contain the money, the spectator is either obliged to accept the above proposition explanation, or to attribute to you an unusual amount of skill and dexterity.

You then retire a short distance, and slowly wave your wand in circles, when, in accordance with what you have stated, a glittering substance forms at its extremity the size and shape of a half-crown, which you immediately remove and cast upon the table, to dispel all doubts as to its reality.

The process is repeated again and again, until a pile of sufficient magnitude is obtained to satisfy the spectator.

Having collected the money, you now state that you will further prove the magnetic power of the wand.

Accordingly, desiring some person present to privately mark four of the coins, you at the same time place in the bands of another an elegant jewelled one of velvet and gold. Taking the money from the first person, you openly deposit it in the casket, desiring the hoarder instantly to close the lid. Now placing a tumbler, which you show to be empty, at some distance from the casket, you take up a position midway; slowly waving your wand as before, you command one of the half-crowns to leave the casket and deposit itself on your point; as soon as it appears you remove it, and, opening your hand, launch it invisibly but soundly into the tumbler; the distant sound, your empty hand, the wand’s bare point, and last, not least, the casket, which now contains but three, testifying as to the apparently invisible transmission of the money.

You wave your wand a second time, with similar results. Simultaneously with the sound of the money reaching the glass, the casket is found to have lost another coin. You continue; attract a third piece, leaving in the casket but one, which at a signal wave from your wand, leaves the box and joins the other pieces in the tumbler. The casket of coins is found to be empty, and the half-crowns in the glass—those originally marked by the spectator.

In explanation, I should say that very cleverly concealed mechanism enables you to produce the marvellous effects above described, coming the spectator to attribute to you an amount of skill and dexterity which you not only do not possess, but in the course of nature could never attain. The majority of the public are little aware of the secret mechanism employed by celebrated public performers even in those tricks professed to be played entirely without apparatus.

The exhibitor (Mr. Henry Novea) has made this branch of amusement his peculiar study. The Magical Repository (95 Regent Street), of which he is the proprietor, has been established since 1844. Since his accession to the sole management, he has devoted so much of his time to the perfecting of the article, and the production of novelties, that he may safely state that in no town in Europe can be found so large a stock or so complete a variety; from the simplest tricks for the child just beginning to understand, to the most complicated and scientific for the most ambitious of amateurs, who find them rival (as indeed they can) the far-famed Robert-Houdin in the elegance and completeness of their entertainments.

The establishment (Regent Street) is fitted up exclusively for the sale of those articles, and affords every facility for the thorough instruction of customers in the manipulation of tricks of which they become the possessors.

Catalogues, with lists of prices, forwarded on application at the Repository or the Stand in the Exhibition, Class XXIX. No. 502.

Branch establishment for wholesale and shipping orders, No. 2 Piccadilly Place, Piccadilly, W., opposite the St. James’s Theatre.
Class XXIX. — Central Tower.

Novra, Henry—continued.

MECHANICAL CONJURING TABLE AND APPARATUS.
Class XXIX.—Educational Works and Appliances.

Normand, G. B., 54 Old Compton Street, Soho.—India-rubber balls and balloons.

Page, Edward J., 6 Kennington Row, Kennington Park, S.—Articles required in the game of cricket.

By appointment to the Surrey County Cricket Club.

The exhibitor’s “superior cane handle,” from the peculiarities of its construction, has been found impossible to break; and having stood the test for upwards of five years, is most confidently recommended. It is particularly adapted for warm climates.

He has also a “single cane handle,” which is strongly recommended, and will be found more durable than the wholebone now in use, and which it will probably eventually supersede.

You always keeping a large and well-seasoned stock, he is able to supply “match bats,” which are almost universally used, and are admitted by cricketers to be unsurpassed in the trade. They are strongly recommended for the use of clubs.

The “match balls” manufactured by him, from the care exercised in the selection of the materials, and the skill employed in the workmanship, can be confidently recommended. A sufficient guarantee of their excellence is the fact that no other balls are ever used in the great matches by the Surrey Club.

The best “match stumps” are made of lance-wood (the most durable wood in use), brass ferrules, with ebony tops. E. J. Page has always a large stock of these for sale.

He is the inventor of the “improved double protecting leg-guard,” and “ventilating gauntlets,” and manufactures Albert batting-gloves, and steel spikes (which can be fixed to the ordinary boot or shoe), telegraphs, clubs, and travelling-bags. These goods are used by members of many clubs in the United Kingdom, and are in general use in America, Australia, and India.

In E. J. Page’s manufactory, every article required in the game can be seen in the process of manufacture, and purchasers are invited to inspect the same.

A general price-list will be sent free on application. Post-office orders should be made payable at Kennington Cross.


The exhibitor manufactures all kinds of wax model and composition dolls. He has always on hand a stock of a thousand, dressed and undressed, to select from. He supplies single dolls at the wholesale prices—ranging from 14 to 24.

Pierotti, G. L., 13 Mortimer Street, Oxford Street.—Foreign and English toys.

Pierotti, Henry, 13 Mortimer Street, Oxford Street.—Wax model dolls, with inserted hair; dolls and wax figures.


Prince, Miss Aveling, 29 Norfolk Crescent, Hyde Park.—The English Pinkotheke, a new artistic recreation for 1862.
Class XXIX.—Central Tower.


Rich, William, 14 Great Russell Street, Bloomsbury.—Kites.

Roth, M., Physician, Old Cavendish Street, London.—Gymnastic figures, diagrams, &c. (See pages 68 & 69.)

Spratt, Isaac, 1 Brook Street, Hanover Square, W.—Collection of games and toys.

Van Noorden, P. E., 115 Great Russell Street, Bedford Square, W.C.—Van Noorden's musical games, combining amusement with instruction. These amusing and instructive games are founded upon and illustrate various branches of musical science. Their prices range from eighteenpence to one guinea.

Wilson, George, Castle Street, Shrewsbury.—Chess-tables, nacre and pearl specimen cribbage board, alliance vase, and ebony.

Woodman, William, 13 Three Colt Court, Worship Street.—Morocco backgammon table.


Sub-Class D.—Illustrations of Elementary Science.

Ashmead, G. B., 10 Duke Street, Grosvenor Square.—Selections from a collection of British small birds—nests and eggs.

Bartlett, A. D., & Son, Zoological Gardens, Regent's Park.—Preserved and mounted birds, &c.

Bown, James, 45 Essex Street, Strand.—Marine and fresh water vivaria, and all requisite implements.

Cutler, H. G., 8 Earl Street, Southwark Bridge Road, S.E.—A superior drawing-room aquarium. These superior aquaria are made with brass frames, lined with white metal, to prevent rusting. Fish, plants, etc. Every aquarium made by Mr. Cutler is warranted water-tight. Fish, aquatic insects, and plants, with every other requisite for the aquarium, may be had of the exhibitor.

Damon, Robert, Weymouth.—Sample elementary and other named collections of foreign shells, British shells, and fossils.

Elliott Brothers, 30 Strand, London.—Sectional and other models. (67)
CLASS XXIX.—Educational Works and Appliances.

Bohn, M., Physician, 16a Old Cavendish Street, London.—Gymnastic figures, diagrams, &c.

Dr. Bohn's Collection* of original high-relief models of gymnastic positions and movements for educational, sanitary, and military purposes, as well as for the physical development of the blind, deaf, and dumb.

Figs. 1, 2, 3, 4, 5, 6, 7, 8, are some of the positions in which the elementary movements are done: 9, 10, 11, 12.

* Modelled under Dr. Bohn's superintendence, by Mr. Mugrat, drawn by Mr. Boden, and engraved by Mr. E. Howitt.

elementary, and 13, 14, combined hand-movements; 15, 16, 17, 18, 19, 20, 21, forearm and arm movements; 22, 23, 24, 25, 26, are elementary movements of the trunk with various positions of the arms; 27, 28, combined trunk movements; 29, 30, 31, 32, 33, 34, 35, 36, elementary foot and leg movements, some of them combined with arm movements.
The object of this collection (which is a part of a larger one) is the diffusion of the knowledge of scientific physical education.

Copies of these figures in plaster, terra-cotta, papier-mâché, stearin, and other materials will be distributed at the cost price when wanted for asylums for the blind, deaf-and-dumb, for ragged, national, parish, and training schools, or for any philanthropic institution. Applications to be made to Dr. Roth's Institution, 16a Old Cavendish Street, London, or 21 Gloucester Place, Brighton, where further information can be obtained.
Ornamental groups of foreign birds under glass cases, at prices varying from three guineas to one hundred guineas. Artificial eyes for birds and animals. Entomological apparatus, nets, boxes, pins, setting-boards, and cabinets always on hand. A mahogany case with two locks and keys, containing a complete outfit for an entomologist for £8.

GARDNER, J., Bird Preserver to the Queen of England, 426 Oxford Street, London.—First-class stuffed birds.


Educational and other collections of minerals, fossils, and rocks for students, schools, colleges, &c., and a beautiful series of old red-sandstone fossil slabs from Newland, including specimens of Coccomerus, Pithephyus.

Many of the instruments in this collection were prepared expressly for use in schools, in fulfilment of the conditions laid down in the following document:—


No. 1. Mechanics and Mechanics.—A series of thirty models made of hard stained wood, the pulleys of boy-wood. Most of the models are as constructed as to beutable on the schoolroom black-board, by means of a rail which accompanies them. They include two levers, four kinds of pulleys, centres of gravity pieces, simple and compound wheels-amidst, thin-hammer, saws, drills of wood, inclined planes, wedges, parallel motion, integrative motion, lock and key, four models of constructive mechanics, with blocks, hooks, pins, cords, weights, &c.

No. 2. Hydraulics and Hydrostatics.—Overhead and underfloor water-wheels, Archimedian screw, lift pump, force pump, the engine, hydro's mill, suction flumes, intermittent flumes, capillary tubes and plates, apparatus to show the level of water, hydrostatic paradox, illustrations of specific gravity and laws of floating bodies, Appeated centrifugal pump, Baysed press.

No. 3. Pneumatics.—Air-pump on Tate's plan, which forces water readily in vases, syringes, syphons, glass vessels for various experiments, water hammer, flask to weigh air, Magdeburg hemisphere cups and feather apparatus, barometer experiment, Maritata's apparatus, Hensen's ball and fountain, Leslie's freezing apparatus, filter cup, bottle lamps, hydrostatics, stop-cocks, rectifiers, and other fittings to adapt the air-pump to a series of experiments.

No. 4. Optics,—Set of glass lenses, and corresponding back-focuses, magnifying and multiplying glasses, simple and compound microscopes, prism, camera obscura, apparatus and objects for experiments on polarized light, pair of phantasmagoria lanterns for exhibiting dissolving views, collection of slides for the dissolving views.

No. 5. Heat.—Apparatus for showing expansion of metals by heat, and the contraction of metals by cooling, differences in the conducting power of different metals, unequal expansion of different metals, expansion of water and air by heat, measurement of heat by the thermometer, comparison of iron, wood, and air thermometers, production and condensation of steam, expansion of steam, boiling of water at low temperatures in vases, the pale glass, tension of supports, illustrations of latent heat and of high-pressure steam, reflection and absorption of heat by different surfaces and colours, radiation of heat.

No. 6. Magnetics.—Bar and horseshoe magnets, unmagnetised iron bars, magneto needle, miners' and mariners' compass, magnetic toy, dipping needle, bar of small magnet and electric apparatus after Tate.

No. 7. Electricity.—Plate electrical machine, and series of apparatus for the teach these experiments, including Leyden jars of various kinds, battery of six jars, discharge, dissolving stone, electrophorus, electrometer, gold, phosphorus, wood, head of hair, phi balls, water vessel, swan, agate, whirl or fly, orrery, luminous conduction, gas placed, fain hour, spectum, and other instrument for showing the proportion of frictional conduction, Melloni's thermo-electric pile.

No. 8. Galvanism and electromagnetism.—Sioux's battery, six cells combined, samples of other batteries, Oersted's experiment, apparatus for decomposing water and salts, electric magnets, induction coils, electrical points and holder, apparatus for electro-magnetic rotations, the electric telegraph, telegraph bell, manometer, galvanometer, reversing apparatus magnets-electric machine.

A priced catalogue of the above may be had gratis at 119 Bunhill Row.

HENDON, Eliza Maria, 118a Strand.—Educational, geological, and mineralogical collections; boxes for preserving specimens of natural history.
Class XXIX.—Central Tester.

[ 5600 ]


A collection of typical minerals, rocks, and fossils selected for instruction, and of sizes suitable for the classroom, lecture, or museum.

Costs of rare characteristic fossils.

Collections of specimens and models to illustrate the British Association’s list of typical species in zoology.

Collections of models in glass, wood, wire, &c., to illustrate crystallography, including the Rev. Walter Mitchell’s "Crystallographic Armillary Sphere."

Apparatus, specimens, models, &c., to illustrate the morphological, chemical, optical, thermotic, electrical, magnetic, organoleptic, and crystallogenetic characters of minerals.

Typical skeletons and skulls (according to Highley and Green) of mammals, aves, reptilia, amphibilia, pisces.

Naturalists’ collecting appliances, as dredges, traps, nets, travelling-case, geological hammer, &c.

Microscopes, and collections of apparatus and instruments used in connection with the microscopes.

Lecturers’ demonstrating lantern for optical experiments, &c., with stand, and various sources of light for the same. Portable oxy-hydrogen lantern, with combined gasometer and stand.

"Highley’s Science and Art Photographs for the Magic Lantern."

[ 5601 ]

Holt, Edward, 24 White Rock, Hastings.—Collection of Hastings seaweeds, with their botanical names.

[ 5602 ]

La Touche, Rev. James D., Viscount, Stokesay, Newton, Salop.—An orrery for the use of schools.

An orrery, to exhibit the motions of the earth and moon round the sun. It shows the inclination of the earth’s axis to the plane of its orbit, its diurnal rotation, the motion of the moon round the earth, including the inclination of the plane of its orbit to that of the earth, and therefore the nodes, and their progress through the ecliptic, and the regular recurrence of eclipses every eighteen years. It is of simple and cheap construction, and adapted for the use of schools.

[ 5603 ]

Lawrence, Edward, 10 King Street, Lambeth Walk.—Magic lantern and slides.

[ 5604 ]

Lloyd, William Alford, 19 & 20 Portland Road, W.—A tank containing sea-water, and various living marine animals.

[ 5605 ]

Major, Robert, 2 Sussex Terrace, Old Brompton.—Stuffed birds and animals.

[ 5606 ]

Pinnell, Thomas, 30a Thomas Street, Oxford Street.—Fern frame and aquarium combined.

[ 5607 ]

Rickman & Hobbs, 17 Grove Place, Brixton Road.—Cycena Dulwichiensis, pitharellæ Rickmann, fossils discovered at Peckham and Dulwich, 1860—61.

[ 5608 ]

Rigg, Arthur & James, Chester.—Apparatus for teaching motions and principles of machinery, mechanism, and engineering.

[ 5609 ]

Robertson, Charles, 13 Queen Street, Oxford.—Elementary zoological series for schools.
CLASS XXIX.—Educational Works and Appliances.

SHARP, CAROLINE, 248 Bright Street, Sheffield.—Educational series of microscopic objects.

SHORT, WILLIAM, Naturalist, 50 Praed Street, Paddington, W.—Natural history specimens of birds, hawks on prey, kingfishers and young, &c., stuffed and mounted by exhibitor.

STALLHAM, WILLIAM EDWARD, 111 Strand, W.C.—Chemical cabinets; portable laboratories; cheap educational sets of scientific apparatus.

Cabinets of chemicals and apparatus, and portable laboratories (twenty varieties), adapted for youth, students, schoolmasters, lecturers, agriculturalists, &c.

Hydro-pneumatic apparatus, combining in one a pneumatic trough (with large tray for boiling gas jets), an hydraulic blow-pipe (complete with glass-blowers, lamp, and tubes), and a gasometer for storing gases till required for use (when they can readily be transferred to new ones, in connection with pneumatic trough arrangement).

Chemical educational sets of apparatus for instruction in chemistry, electricity, optics, photography, pneumatic, magnetism, and other branches of natural philosophy.

For prices and further particulars, see illustrated catalogue, which may be had on application as above.

SUTTON, CHARLES, 2 Hampstead Street, Fitzroy Square.—Dissolving view lanterns, and oxyhydrogen lime-light apparatus.

WARD, E. HENRY, Naturalist, 2 Vere Street, London, W.—Specimens of natural history and high art in taxidermy.

Divers specimens of birds and quadrupeds, prepared and stuffed by this firm are exhibited in different cases in the Exhibition building. These illustrate in a remarkable manner the great progress made in the art of taxidermy. The exhibitor buys, sells, and renovates natural specimens and single specimens; and in the invention of the pneumatic and chromatic models of wild and domestic animals' heads.

WILKINSON, CHARLES WILLIAM, 8 Linton Street, Islington, W.—Improved aquarium, combining form case and bulb growing.

Victorian aquarium and form-case, of novel ornamental form, designed to obviate the objection of naturalists to the angular shape, as being often injurious to the fish, and to the foliage, on account of their constant liability to entire destruction by slight accidents. The combination of a form-case, the facility of growing flowering bulbs (in the water), are great additions to its attractions.

WILSON, FREDERICK WILLIAM, 1 Myrtle Terrace, Paston Park, Sydenham, S.E.—Specimens of mounted animals and birds, &c.

WRIGHT, BRYCE, 36 Great Russell Street.—Elementary collections of minerals, fossils, and shells, beryl, and Iceland spar.

Educational collections of minerals, fossils, and shells, with descriptive catalogues, in neat cabinets, from 12 to 10s. Very large and fine collections of minerals, fossils, and shells, from which single specimens may be selected, may be seen at the exhibitor's establishment.
Class XXX.

FURNITURE, PAPER-HANGING, AND DECORATION.

Sub-Class A.—Furniture and Upholstery.

Andrews, William Smith, 6 King’s Row, Walworth.—Flower vases and ornaments of wood and glass.

Asnoott, Charles, 16 Old Bond Street.—Carved walnut tree cabinet, four carved and gilt chairs, and carved and gilt centre table.

Arrowsmith, Arthur John, 80 New Bond Street, London, W.—Solid parqueteries, patented for borders round carpets, for halls, dadoes, panelling, altar floors, &c.

Ashinwall, William, 70 Grosvenor Street, Grosvenor Square.—Furniture.

Asser & Sharwin, 81 Strand, W.C., London.—Bagatelle table, economic adaptation for conversion into billiard table.

Avery, Joseph, 81 Great Portland Street.—Window blinds for the inside or outside of windows. (See page 2.)

Ayckbourn, Frederick, 17 Bond Street, Vauxhall Cross.—Patent incomparable bed, with air-tubes in tick case.

Ayres, William Mountford, 59 St. Anne Street, Liverpool.—Models of furniture and appliances.

CLASS XXX.—Furniture, Paper-Hanging, and Decoration.

AVERY, Joseph, 81 Great Portland Street.—Window blinds for the inside or outside of windows.

The exhibitor's patent spring blind roller cannot be put out of order. He manufactures every description of window blinds.

Baldwin, Charles, inlayer, Amersham, Bucks.—Specimens of ornamental woodwork, for table-tops and house decorations.


Obtained the Extra First Prize of the Architectural Society, South Kensington Museum, 1859.

A jewel casket, carved in box-wood; original design of the Renaissance period. Simple outline. At each corner a puma's head, with wound body, conventionalised, and swags of natural flowers depending from the mouth, over the sides. The ground work is enriched with soft foliage. The principal feature of the top is a bird in the fable of a snake. A portrait or panel frame of natural flowers in lime-tree. A new design.

Beard, John, Stonehouse, near Stroud.—Model of improved sofa bed.

Bedford, Edward, 42 King Street Terrace, Islington, N.—Oval and carved looking-glass, in carved (from Nature) gilt frame. (See page 3.)

Bellerby, William, 10 Bootham, York—Oak reading-stands, with carved panels on burnt wood.
BEDFORD, EDWARD, 42 King Street Terrace, Islington, N.—Oval and carved looking-glass, in carved (from Nature) gilt frame.

The carving by E. Bedford, the gilding and glass by A. Jenkins. London Looking Glass Company, 167, Fleet Street, where all orders should be sent.


BIELEFELD, CHARLES, 21 Wellington Street, Strand.—Papier-maché decorations, patent silicious panels, basso-relievo, and other works of art.

BROS & SON, 31 Conduit Street, Bond Street.—Picture frame for portrait, with armorial bearings.
An ebony cabinet, ornamented with white wood, in the Italian style.
A pair of oak candelabra with bronze lights.
A suite of bed-room furniture, consisting of bedstead,
wardrobe, toilet and wash-hand tables executed in sycamore, and relieved with other native woods; the silk manufactured by Messrs. Houldsworth, of Manchester.

(Class XXX.—Furniture, Paper-Hanging, and Decoration.)

Bird & Hull (late Doveston, Bird, and Hull), 106 King Street, Manchester.—Decorative furniture, and an ebony cabinet.)
Class XXX.—North-East Court.

[ 5671 ]
Boneynam, A. F. G., Bath.—Ebonised furniture, original designs, bas-relief finish, solely introduced and popularised by exhibitor.

[ 5672 ]
Bradley, John, 129 Fore Street, Exeter.—Two slate tables, painted in imitation of the madrepores of Devon, and six slate slabs, painted in imitation of the marbles of Devon.

[ 5673 ]
Bridges, Henry, 406 Oxford Street, London, W., near Soho Square.—Kitchen tables, plain oak furniture, and dairy articles.

[ 5674 ]

[ 5675 ]
Brown, Brothers, 165 Piccadilly.—Patent portable easy chairs and folding bedstead.

[ 5676 ]

[ 5677 ]
Brunswick, M., 26 Newman Street, W.—Marqueterie cabinet, bulb cabinet, marqueterie commode, work table, and card table.

[ 5678 ]
Bayer, William, Southampton.—Specimens of wood carving, spacial in alabaster.
1. The "Moment of Victory," from Alexander Fraser's picture, carved in box-wood, in various degrees of relief, and highly elaborated; size, 6 in. by 6 in.
2. An altar-piece, from Rubens' "Crucifixion," carved in English oak, in bold relief; size, 5 ft. 6 in. by 2 ft. 2 in.
3. Model for a stand for a lamp or compass of a yacht.
5. Yorkshire canary in full song; a life-size portrait is boxwood.
6. King Charles spaniel, in alabaster; from the life.
Class XXX.—Furniture, Paper-Hanging, and Decoration.

[ 5679 ]
Burges, William, 15 Buckingham Street, Strand.—Painted and decorative furniture, designed by W. Burges; decorations by Harland and Fisger.

[ 5680 ]
Burridge, Henry, 15 Great Russell Street, Bloomsbury.—Granite and marble papers, for ornamental and decorative purposes.

[ 5681 ]
Burroughs & Watts, Soho Square, London.—An oak billiard table; Gothic style, time of Henry VIII.

[ 5682 ]
Calecott, William, 58 & 54 Great Russell Street, Bloomsbury.—A carved English oak sideboard, tables, chairs, &c.

[ 5683 ]
Casey, Academy Street, Cork.—Carved wood plate chest.

[ 5684 ]
Chaplin, Richard Parsons, 51 & 52 Frith Street, Soho, W.—Couches, chairs, and every article for the use of invalids.

[ 5685 ]
Chaplin, Richard Parsons, 51 & 52 Frith Street, Soho, W.—Couches, chairs, and every article for the use of invalids.

[ 5686 ]
Spinal and invalid couches.

[ 5687 ]
Spinal and invalid couches.

[ 5688 ]
Spinal and invalid couches.

[ 5689 ]
Spinal and invalid couches.

[ 5690 ]
Cooke, Rev. R. H., Cheltenham.—Lectern for parish church.

[ 5691 ]
Cox & Son, 28 and 29 Southampton Street, Strand.—Church furniture, embroidery, wood and stone carvings, Gothic metal work. (See page 7.)

[ 5692 ]
Crace, John G., 14 Wigmore Street, W.—Decorations and cabinet furniture.

[ 5693 ]
Cremlyn, Jeremiah, Killarney.—Fancy cabinet articles in bog oak, &c.

(6)
Cox & Sons, 28 and 29 Southampton Street, Strand, exhibit in the Medieval Court church furniture, embroidery, wood and stone carvings, Gothic metal work, pulpit, reredos, &c.

EXCELSIOR WAREHOUSES, 28 and 29 Southampton Street, Strand, London.

PAINTED GLASS WORKS, 43 and 44 Maiden Lane, adjoins Southampton Street.

CARVING AND GOTHIC METAL WORKS, Belvedere Road, Lambeth.

The drawings and prices of articles exhibited sent free, or an illustrated catalogue for six stamps.
CLASS XXX.—Furniture, Paper-Hanging, and Decoration.

[5693] Criswick & Dolman, 6 New Compton Street, Soho.—Imitation carved bedstead, book-cases, candelabra.

[5694] Dear, William, 30 and 31 St. George's Place, Hyde-park Corner.—Marqueterie and mosaic tables, draperies, &c.

[5695] Dexheimer, Ch., 27 Connaught Terrace, Edgware Road.—Marqueterie table, burl cabinet, &c.

[5696] Draper, Francis, 26 Old Cavendish Street, and 70 Great Titchfield Street, London.—Gilt picture frames, with spandril and an oval frame.

[5697] Drew, John, 2 Great Warner Street, Clerkenwell.—Portable house furniture for exportation and military use.

[5698] Dyer & Watts, 1 Northampton Street, Islington.—Suite of bedroom furniture, ornamented pine imitation marqueterie and inlays.

The exhibitors are manufacturers of japanned and polished deal furniture, and patentees of the polished pine ornamental furniture.

WARDROBE IN POLISHED PINE.

(8)
The following form only a portion of the subjects exhibited in the Medieval Court, Class XXX., under the superintendence of this Society. The combination of various exhibitors into this Court was only decided on subsequently to the Catalogue going to press:

[5699]

BLENCOE, Miss (Ladies’ Embroidery Society), West Walton, Wisbeach.—Frontals of silk for Peterborough Cathedral and for Clehonger Church, Herefordshire; the latter from a design by Mr. Preedy.

[5701]

BRAYDON, R., 17 Clement’s Inn, W.C.—Model of roof, executed on a scale of half an inch to the foot.

[5702]

NICHOLAS, T., Hercules Buildings, Lambeth.—Effigy and altar tomb; model of the reredos for Waltham Abbey; one figure of same completed in alabaster, and painted: all designed by W. Burges, Esq., F.R.I.B.A.

[5703]

CLAYTON & BELL, 311 Regent Street, W.—Circular incised group, on stone—a replica of one of the medallions for the pavement of Lichfield Cathedral.

[5704]

EARP, T., Kennington Road, Lambeth.—Reredos, and lectern.

[5705]

FORSYTH, J., 8 Edward Street, Hampstead Road, N.W.—Chichester Cathedral: stall ends and ornamental framing; panel from pulpit of Limerick Cathedral; mural tablets; monument.

[5707]

NORTON, J., F.R.I.B.A., 24 Old Bond Street.—Cast of life-size statue of Edward III., at High Cross, Bristol; font, in alabaster and marble; two casts of panels for pulpits; cast of the sculptures of reredos at St. John, Bedminster.
Ecclesiological Society—continued.

Parry, T., Gambier, Higham Court, Gloucester.—Circular panel to illustrate system of painting on damp walls.

Phillip, J. B., Rochampton Place, Youshall Bridge Road.—Effigy of the late Rev. W. H. Mill, D.D.—a fac-simile of the original monument in Ely Cathedral; the architectural portion designed by G. G. Scott, R.A. A chimney-piece.

Redfern, J., 29 Clipstone Street, Fitzroy Square, W.—Cast of bas-relief of the Resurrection, from the Digby Mortuary Chapel, Sherborne. (See page 9.)


Slater, W., F.R.I.B.A., 4 Carlton Chambers, S.W.—Portion of Westrop mural monument for Limerick Cathedral. Only one of the three canopied arches, which form the monument, is exhibited: subject, the Annunciation, by Mr. Redfern.

Street, G. E., F.R.I.B.A., 33 Montague Place, Bedford Square, W.—Iron font cover and standards for lights; executed by Mr. Leavers.

Teulon, S. S., F.R.I.B.A., Croly's Court, S.W.—Reredos in alabaster and marble, with mosaics: subject of the centre space, the Last Supper; sculptor, Mr. Earp.

White, W., F.R.I.B.A., 30a Wimpole Street.—Case of inexpensive altar plate, for colonial use, executed by Messrs. Benham; reredos for Claydon Church, Oxfordshire, with panels on enamelled slate.

Godwin, W., Lugwardine, Hereford.—Encaustic tiles.

Gray & Davison, 370 Euston Road.—An organ.
CLASS XXX.—North-East Court.

[ 5718 ]
Elliott, Henry, 6 Vere Street, Oxford Street, London.—Satin wood wardrobe, and octagon revolving pedestal.

[ 5719 ]
Ellis, Charles, 21 Bedford Street, Covent Garden.—A wainscot sideboard; dinner wagon, to correspond; dining-room chair; dining table; a book-case of walnut and ebony.

[ 5720 ]
 Faulding, Joseph, 338 Euston Road.—Specimens of fret-cutting and curvilinear sawing.

[ 5721 ]
Fiker & Son, T. H., 28, 31, 34 Berners Street, London, W.—Patent dining table, convertible ottomans and chairs; bedroom furniture, chintzes, and wall papers, of same design, from prize competition drawings. (See pages 12, 13.)

[ 5722 ]
Folch, Frederick William, Long Buckby, Northamptonshire.—A jewel-box and dressing-case, on stand, inlaid with 17,000 pieces.

[ 5723 ]
Forster, James, 8 Edward Street, Hampstead Road, London.—Book-case, wood-carvings, stone-sculpture, models, &c., ecclesiastical and monumental. (See page 14.)

[ 5724 ]
Fox, Thomas, 9 Bishopsgate Street Within.—A suite of drawing-room furniture in walnut and holly.

[ 5725 ]
Freyberg, James, Grosvenor Street West, Belgravia.—Furniture of a lady's boudoir.

[ 5726 ]
Gann, Mary C., 32 Dorset Square.—Drawing-room tree-stand; new tile, natural, with colours burnt and unburnt.

Drawing-room tree-stand, movable by the slightest touch, with the heaviest weight upon it. A new design of a mosaic tile, in simple earth colours, burnt and unburnt—red, buff, and blue joined in black. Mounted in walnut wood, with ivory centre.

[ 5727 ]
Gardner, John Henry, Poppin's Court, Fleet Street.—Mahogany dressing-table and wash-stand combined, and a mahogany cheval-glass.

[ 5728 ]
Garwood, Robert Elmy, Chelmsford, Essex.—Mitre-box for mitring German and other mouldings for picture-frames.

( 11 )
FILMER & SOW, T. H., 28, 31, 32, 34 Berners Street, London, W.—Patent dining-table, convertible ottoman and chairs, bedroom furniture, chintz, and wall-papers, of same design, from prize competition drawings of students of the South Kensington School of Art.

See also Class XXII.

Circular extending dining-table, of the finest English polished oak, the framework of Italian design, with scroll supports, ornamented with festoons of fruit, &c. Manufactured on a novel plan, to open to an increased diameter by an extension of the framework, the top being preserved entire, and quarter-circle leaves introduced in several series round the circumference, thus preserving at all times the perfect circle.

The movement of this table combines extreme simplicity with the utmost certainty of action; it is fitted with a screw and cog mechanism (by Hawkin), by the operation of which the whole framework is expanded simultaneously; the leaves being placed, are all fastened by the same means at once, thus enabling one person without assistance, and in a few minutes, to arrange a table sufficiently large to dine thirty or forty people.

Two polished oak drawing-room chairs, of Italian design, with stuffed panelled backs, covered with morocco leather to accord with the table.

An easy chair, to match with the above.

Easy chair, the frame carved in walnut wood; the back arranged with an oscillating spring, combining the comfort of an ordinary lounge with the pleasant motion of a rocking-chair.

Movable convertible ottoman for centre of room, richly carved in the style of Louis XVI, the groundwork finished in white enamel, with unadorned gilded palmet leaf, covered with rich figured silk. This ottoman is made in four separate parts, forming two easy chairs and two settees, which are constructed to fit together, and can be instantaneously formed into a complete and elegant centre seat.

Suite of furniture for a bedroom, of novel forms, consists of a washstand, with closets under, and marble top, made of the figured walnut wood, relieved by carved mouldings, &c., in white woods and ebony.

A winged wardrobe, with circular ends.

A lady's toilet, with numerous drawers and full-length glass attached.

The four following designs are the result of a competition among the students of the Government Schools of Art, for prizes given by this firm. Two are from the Male School, at South Kensington, and two from the Female School, at Queen Square.

Competition patterns from the Government School of Art, South Kensington. Conventional treatment of flowers in their natural colours. Six printings.
Class XXX.—North-East Court.

Filmer & Son—continued.

No. 3. FESMAK.
Block-printed chintz furniture and wall paper.
Designed by H. H. Lock.
Obtained First Prize in competition.

No. 2. PASSION-FLORER.
Block-printed chintz furniture and wall paper.
Designed by J. Randall.
Obtained Second Prize in competition.

Competition patterns from Female School of Art, Queen Square. Natural treatment of flowers in their proper colours. Seventeen printings.

No. 4. CONVOLVULUS.
Designed by Miss Charlotte James.
Obtained First Prize in competition.
We have carried out all four permeated designs in various methods of block-printing, both with wood and copper blocks, suited to the different fabrics of cotton, cotton velvets, and worsted; for curtains; and also on a silk ground, a novel application for furniture purposes, the effect of which is remarkably soft and rich, and much more economical than an ordinary woven coloured silk.

No. 5. BLACKBERRY.
Designed by Miss Mary Julyan.
Obtained Second Prize in competition.

Each pattern has also been reproduced on paper for walls, in order that, where it is desirable to have the whole decoration of a room as a unit—a taste that is now much cultivated—the same designs may be repeated in the hangings both of the walls and windows.
2. New woodwork for Chichester Cathedral, executed from the designs of Mr. William Slater, architect. Various parts of the new stalls for Chichester Cathedral. In the ends are carved representations of various plants, herbs, &c., mentioned in Scripture. The carved upright panels and most of the disc in the fronts are designed upon the same principle; but some of the latter are made purely conventional, so as to contrast with the natural foliage.
4. Adoration of the Magi, designed for a reredos panel.
5. Four panels, being the working models of sculpture on Lichfield Cathedral font, the gift of the Hon. Mrs. Howard, Mr. William Slater, architect.
6. Series of four panels, executed in oak, for the pulpit in Witley Church. The gift of the Earl of Dudley, Mr. S. W. Dankis, architect.
7. Group in plaster (to be executed in marble) of the Departure of Hagar and Ishmael.
<table>
<thead>
<tr>
<th>Class XXX.—North-East Court.</th>
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<tbody>
<tr>
<td>George, Clement, &amp; Son, 16 Berners Street.—Oak sideboard, in the Italian style, and chairs.</td>
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<tr>
<td>Gillow &amp; Co., 176 Oxford Street.—A walnut sideboard, Renaissance style; an inlaid cabinet, Italian style; richly carved chairs.</td>
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<tr>
<td>Gow, John, 13 Anglsey Street, King's Cross.—Moulds for casting composition and papier mâché ornaments from.</td>
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<tr>
<td>Griffiths, John, 88A Rutland Terrace, Rathbone Street, Liverpool.—Miniature frame, carved in box-wood.</td>
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<tr>
<td>Harding, Maddox, &amp; Bird, 70 Fore Street, Finsbury.—Louis XVI. bedstead, in white and gold, silk hangings.</td>
</tr>
<tr>
<td>Harland &amp; Fisher, 33 Southampton Street, Strand.—Specimens of ecclesiastical and domestic decorative art.</td>
</tr>
<tr>
<td>Harrold, C. &amp; G., Hinckley.—Figured oak table; ditto top and panels.</td>
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<tr>
<td>Hatchwell, H. &amp; S. B., Newton Abbott, Devonshire, 4 Langham Street, Langham Place, London.—Patent revolving church stool, one side being stuffed for kneeling on, and the opposite side for placing the feet on, or foot stool.</td>
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<tr>
<td>Hawkins, S., 54 Bishopsgate Street.—Model of dining-table.</td>
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<tr>
<td>Heal &amp; Son, 189 Tottenham Court Road, London.—Bedsteads, wardrobe, dressing table and glass. (See pages 16, 17, 18.)</td>
</tr>
<tr>
<td>Hermann, Frederick, 54 Devonshire Street, Portland Place.—Library cabinet in bulk.</td>
</tr>
<tr>
<td>Herrings, Son, &amp; Clarke, 109 Fleet Street, E.C.—Carved sideboard, easy chair, and dining-room chairs on sale.</td>
</tr>
</tbody>
</table>
Class XXX.—Furniture, Paper-Hanging, and Decoration.

Heal & Son, 196 Tottenham Court Road, London, W.—Bedroom furniture, wardrobe, dressing table and glass.

BEDSTEAD.

Bedstead in the style of Louis Seize, of mahogany, with enamelled white surface, carved and gilded. The furniture and eider-down quilt are of cerise-colour silk. The curtains are lined with white silk. The head-cloth is of white silk, embroidered in cerise colour, and the valance is trimmed with white silk.

(10)
Class XXX.—North-East View.

Heal & Son—continued.

Wardrobe in the style of Louis Seize, to correspond with the bedstead on the previous page, of mahogany, with enamelled white surface, carved and gilt.

Heal & Son's Illustrated Catalogue of Bedsteads and Bedroom Furniture, and Priced List of Bedding, sent free by post on application to the factory, 196, Tottenham Court Road, London, W.
Toilet table with glass, in the style of Louis Seize (to correspond with bedstead and wardrobe on pages 16 and 17), of mahogany, with enameled white surface, carved and gilded, and china ornaments on the pedestals.

The best talent available has been engaged in the decorative part of the work, the object being to produce articles of domestic furniture which should combine elegance of design and the highest class of art manufacture with a simplicity of style and effect which should render them suitable for a gentleman's or gentleman's mansion.

Heal & Son's Illustrated Catalogue of Bedsteads and Bedroom Furniture, and Priced List of Bedding, sent free by post on application to the factory, 196, Tottenham Court Road, London, W.
The subject engraved on this page is a piece of furniture from the set of library fittings exhibited by Howard and Sons. The style is Pompeian. The surface decoration is carved in the wood below its general surface, thus preserving it from the effects of friction. The more prominent ornaments are gilt bronzes of English manufacture.

The workmanship is of the highest class. It may be tested by the drawers within the pedestal being turned in any way; when they will be found to fit with the nicest accuracy.

(10)
Hindley & Sons, Charles, 134 Oxford Street. — Cabinet and other furniture, silk hangings, &c.
HINDLEY & SONS, CHARLES—continued.

[ 5745 ]
HOLLAND, HENRY, Parade, and Front Road, Tunbridge Wells.—Mosaics in natural coloured woods.

[ 5746 ]
HOLLAND, WILLIAM, Stained Glass and Decorative Works, St. John’s, Warwick.—Decorations for the interior of rooms; and patent sash.

[ 5747 ]
HOLLAND & SONS, 23 Mount Street, Grosvenor Square.—Furniture, inlaid table, gilt cabinet, &c.
Class XXX.—Furniture, Paper-Hanging, and Decoration.

Jackson & Graham, Oxford Street, London.—Oak sideboard, cabinet, pianoforte, chimney-piece; other articles and decorations.
CLASS XXX.—North-East Court.

JACKSON & GRAHAM—continued.

A BUSTO or Eikonaios, 16 ft. long, and 12 ft. 6 in. high, of polished oak of rare beauty, enriched by carvings in lowest English oak. The door of the pedestal are niched, with figures of boys-gathering grapes, and reading, and the finest of them ornamented with the top plant sprouting from shields. The frames of the centre division has a richly curved shield, with barley-sprigging from shield. The angles of the pedestals are casted to form a background for richly carved chimneypieces with kenops' heads, which appear to support the slab. Above the slab, and over the pedestal, are pilasters, enriched with carved panels, the one representing a vase cup enriched by the vine, and the other a tankard surrounded by the hop plant. Upon these fruit are placed two caryatids, the one with attributes of the field and forest, the other of the ocean and river. These figures support the cornice and pediment, which has a boldly curved shield in the centre, with Mottoes of fruit hanging gracefully from it, and partly resting upon the caryatids. The caryatids are flanked by richly carved pilasters, the one representing a stag, surrounded by the head of a retriever, and the other various denizens of sea and stream surrounded by the head of an otter. The centre and side panels of the upper part are filled with silvered glass.

A VENETIAN-WINDOW Wardrobe, 9 ft. long, in three divisions. The pilasters, cornice, and end panels neither with lining, and ornamental corners of Amboyna, purple-wood, and holly. The centre door has a panel of silvered glass, and on each side are pilasters, richly filled with various woods, the caps and bases finely carved, which support the cornice and pediments; the latter has a shield in the centre, from which springing rich festoons of flowers in marqueterie work. The corners of the pilasts and cornice are rounded, and a hollow worked upon the angles of the vaneboard to receive columns linked and carved on sides with the plasters, to complete the support of the cornice. The doors on each side of the centre have small oval arceaux, surrounded by rich floral marqueterie work.

DECORATION FOR THE SIDE OR END OF A PIANO ROOM, in the style of Louis XVI, painted and enriched with mouldings, and relief ornament, gilt. The centre panel filled with silvered plate glass, and the side panels with rich crimson silk, of these the ordinary width, designed and manufactured expressly for exhibition.

A CHIFFONIER OF ALAMBIN BIRK, the plasters and finials enriched with base-reliefs of horses, chained and richly gilt.

A PIANO (the interior by Messrs. Ernst), the case of fine Amboyna wood, richly inlaid in various ornamental devices, masked trophies, and flowers in marqueterie work: the top, above the fall, of very finely perforated purple wood, in which are framed three highly finished paintings, on paravent, that in the centre representing group of children playing upon musical instruments, upon the left of which is a medallion, with a boy playing the pandean pipes, and on the right another medallion, with a boy playing cymbales.

A SMALL BROWN—BROWN CHAIR, very finely carved and richly gilt, in the style of Louis XVI.

An EXHIBITION CHAIR, inlaid with ivory.

An ENGLISH BOOK-CASE, with engraved lines and ornaments or pilasters, panels, and framing, carved shields in centre of panels, carved shield and scroll on pediment, and carved astragals.

A LADY'S TENTH TABLE, with carved glass in centre, and pediments with draws on each side, of fine satin wood, inlaid with tulip wood.

[ 5748 ]

HOWARD & SONS, 26 Beresford Street.—Book-case fittings, library table, and seats (style, Pompeian). (See page 19.)

[ 5749 ]

HUMBLE, G. & J., Kilos.—Antique arm chair, suitable for an entrance hall.

[ 5750 ]

INGLEDREW, CHARLES, 17 Market Row, Oxford Market.—Dining-room and library chairs.

[ 5751 ]

JACKSON & GRAHAM, Oxford Street, London.—Oak sideboard, cabinet, pianoforts, chimney piece; other articles and decorations. (For Illustration, see page 22.)

[ 5752 ]

JACKSON, GEORGE, & SONS, 40 Bathhouse Place, Oxford Street.—Ornamental furniture, in caryatid-pie and papier-maché. (See page 24.)

[ 5753 ]

JEFFERSON, Joseph HARDY, 46 College Green, Bristol.—Richly gilt picture and miniature frames.

[ 5754 ]

JENNER & KNOWLES, 33 St. James's Street, & 66 Jervois Street.—Fancy cabinets, dressing cases, and work table.

[ 5755 ]

JOHNSTON, Mrs., Ashley, Newmarket.—Oval frames in leather, &c.

[ 5756 ]

JOHNSTONE & JAEKES, 67 New Bond Street.—Cabinet of various woods, ormolu mountings, and glass over.
Class XXX.—Furniture, Paper-Hanging, and Decoration.

Jackson, George, & Sons, 49 Rathbone Place, Oxford Street.—Ornamental furniture, in carton-pierre and papier-mâché. Various specimens of furniture for gilding, including candlestands, tables, table legs, jardinières, garnitures, &c.

Portion of a panel in Louis XVI style. Ornamental panel, executed in carton-pierre. Ornamental room cornices, executed in carton-pierre.


Jones & Willis, Temple Row, Birmingham.—Church furniture and decoration.

Jourdy, Amedee, 18 Maddox Street.—A drawing-room cabinet, with jardinières; a newly-invented music chair; an easy chair covered in morocco; an easy chair in canvas, &c.

Kendall, Thomas Henry, Chapel Street, Warwick.—Articles of furniture, and specimens of wood-carving.
CLASS XXX.—North-East Court.

[5762]

Kirk & Parry, Sleaford.—Ancestor stone font, with English oak cover, designed and executed by Kirk & Parry, Sleaford.

[5763]

Knight, Thomas, George Street, Bath.—Library table, with cabinet, containing desk and stationery; ebony chair.

![Library Table](image)

A library table of oak and ebony, surmounted by a cabinet occupying its whole length, containing drawers on either side, and a desk in the centre, which, when shut, forms an ornamental panel with malachite, lapis lazuli, cornelian, and serpentine; and when open, displays an arrangement of the materials necessary for correspondence.

A drawing-room chair in ebony, covered with silk; style of Louis XV.

[5764]

Lake & Son, Old Kent Road.—English oak bedstead-foot, iron bedstead, and bedstead-pillar, for secret and secure fastening.

[5765]

Lamb, James, 29 John Dalton Street, Manchester.—Sideboard in English oak.

A sideboard in English polished oak, walnut, ebony, and gold. In the upper part are two life-size figures of Vintage and Harvest; between them an oval frame containing a mirror, but designed to receive a painting (if required), trophies of fruit, corn, &c., are introduced. The lower part is supported by figures of boys on pedestals; the central panels are arranged to form one connected canvas of game, fish, &c. Groups of fruit and vegetables fill the curved end panels. Designed by W. J. Estall; modelled by Hugues Protat.

Dining-room chairs in embossed and gilt morocco leather.

A marqueterie, Louis Seize, cabinet of Thurgau and other woods. A card table.
CLASS XXX.—Furniture, Paper-Hanging, and Decoration.

[ 5766 ]
Launsbach, L., 9 Upper Berkeley Street West, Hyde Park.—Marqueterie cabinet, with plate glass back, and buhl cigar cabinet tables.

[ 5767 ]
Lawford, 89 Newman Street.—Reclining arm-chairs, table bedsteads, &c.; concentration unequalled, thirty inches long, three inches diameter.
Self-acting flap dining table. Chair, stuffed seat and back, the frame in one piece, to fold into the small compass of 10 inches long by 3 inches in diameter.
Reclining arm-chair bed, to concentrate into the small space of 30 inches long by three inches diameter, in one piece. Full-size when expanded. Bed, to answer the purpose of table, 8 feet long by 41 inches wide. To pack in a roll 30 inches long by 30 inches in diameter.

[ 5769 ]
Lecand, Samuel, 246 Tottenham Court Road.—Carved and gilt console frame and table, with glass; also a pair of carved and gilt Italian tripod stands.

[ 5770 ]
Lenzberg & Walton, 492 New Oxford Street, London.—Manufacturers of cornice poles, cornices, window blinds, all novelties. (See page 27.)

[ 5771 ]
Levien, J. M., 10 Davies Street, Grosvenor Square.—Cabinets, tables, and sideboard.

Obituated Prize Medals at the Exhibitions of 1851 and 1855, and a Testimonial from the Society of Arts.

Ebony cabinet, in the Pompeian style.
Cabinet in the Renaissance style, inlaid with marqueterie, and plate glass back.
Circular wood mosaic table.
Small cabinet table, with plaques of Sevres china, and ornamented with ormolu.
Sideboard of New Zealand wood, richly carved, is exhibited in the Colonial Department.

[ 5772 ]
Litchfield & Radclyffe, 30 Hanway Street, Oxford Street.—Marqueterie furniture. (See page 26.)

[ 5773 ]
Loth, John Thomas, Carlisle.—The Victoria casket, a pencil case, urn stands, mosaic marble chess table, &c.

[ 5774 ]
Lovegrove, J. L., Isleworth.—Decorative church writing.

[ 5775 ]
Lowson, George, Broughley-Perry, near Dunbar.—Inlaid chess table.

[ 5776 ]
M'Callum & Hodson, Summer Row, near the Town Hall, Birmingham.—Papier mache and Japan goods.

[ 5777 ]
McDonald, David, Melroses, Roxburghshire.—Oak burr; carved Davenport desk. (26)
No. 1. Cornice of English oak, carved, embracing coat of arms of the late Prince Consort, "the illustrious promoter of art," with the national emblems, the rose, thistle, and shamrock, amidst oak branches and leaves.

No. 2. Self-acting twisted cornice pole, made of rosewood.

No. 3. Composition cornice, gilded.

No. 4. Hollow metallic cornice pole, covered with maple, the curtains drawn without rings. A similar hollow wood cornice pole, made from English chestnut.

No. 5. Cornice pole, made from specimens of English woods.

No. 6. Bay window cornice pole, of English oak and English walnut.

No. 7. Circular cornice pole, made of pine.

No. 8. Circular cornice pole, ornamented and gilded, without rings. A similar brass cornice pole, highly finished.

No. 9. Venetian blind, fitted with the Window Blind Regulator.

No. 10. An outside blind, marked 12, and a roller blind, 13, fitted with the Window Blind Regulator.
Class XXX.—Furniture, Paper-Hanging, and Decoration.

Litchfield & Radclyffe, 30 Hanover Street, Oxford Street, and 19 Green Street, Leicester Square.—Marqueterie furniture.

I.
A fine old engraved Venetian looking-glass, adapted as a cheval glass by a stand of richly carved ebony, inlaid with ivory, introducing the cipher and crest, and manufactured to the order, and property of, the Right Hon. Earl of Craven.

II.
A carved ebony writing or centre table, six feet long, inlaid with ivory, fitted with drawers, and centre of top covered with velvet.

III.
A carved ebony writing table, four feet six inches long, inlaid with ivory, fitted with drawers, and centre covered with velvet.

IV.
A carved ebony writing table, four feet three inches long, inlaid with ivory, fitted with drawers, and centre covered with velvet.

V.
A carved ebony and ivory upright cabinet on stand, inclosed by doors, inlaid with cornelians, marble in columns, plinths, &c., the inside lined with silvered glass, and decorated with groups, and fine specimens of Sevres, Dresden, Berlin, Vienna, &c., from the large collections of most of the European porcelains at Messrs. Litchfield & Radclyffe’s establishments.
McFarlane, Walter, Saucen Foundry, Glasgow.—Oak book-case, with bronze mountings.

Book-case—part of a library suite in solid oak. This piece of furniture is designed with a lofty projecting base, above which it is divided into five compartments by recessed baffles, enriched with a band of holly and berry. Over each division shields of varied designs support semi-circular panneld tables in line with and breaking upon the cornice. These are to be surmounted with bronzed busts of celebrated men; the tablets contain the names, whilst the date of birth and death are inscribed on the shields below; the two centre shields bear family monograms. All the letters are of bronze, and in design characteristic of the different periods in which they lived. A carved pediment crowns the centre compartment, the tympanum of which is occupied by the exhibitor’s crest in bronze. A bust of the Queen is to be placed on the pediment; and above the cornice is a light bronze rosette. The doors are filled in with glass, and have crack handles of an elaborate spiral form, with serpents entwined. The hinges have projecting bars of slender design, all in bronze. The details have been studied with due regard to the nature of the materials, the object aimed at being to combine truth, fitness, and beauty with a certain degree of conspicuousness and individuality.

The wood work by Robert Wish and Son, Glasgow. The bronzed crest and letters by Ellington, Birmingham. The other bronzed work is of Glasgow manufacture.


Carved oak sideboard, gilt in parts, surmounted with looking-glasses, in carved and gilt frames, with bold Assyrian and triple branches on either side for gas lights; or these can be adapted for oil lamps.

Marke, George, 21 Baker Street, Portman Square, London.—Bed-room furniture in deal, inlaid and French polished.

A wash-tube, chest of drawers, wash-hand, and dressing table, in polished deal, with inlaid marqueterie enrichments; a patented invention for ornamenting common woods, and one-half the cost of anything you attempted.

Margetts & Estes, 127 High Street, Oxford.—Chimney glass, carved walnut-wood frame. Style Louis XIV.

Massey, Thomas, City Walk, Chester.—Circular table, curiously inlaid with 1,000 specimens of foreign hard woods.

Morris, Marshall, Faulkner, and Co., 8 Red Lion Square.—Decorated furniture, tapestries, &c.

North, Benjamin, West Wycombe, Bucks.—Specimens of fancy chairs.

Norotti, Charles, 388 and 389 Oxford Street.—Looking-glasses, gilt furniture, and decorations. (See page 30.)

Nutchet, James D.M., 5 West Street, Soho.—Reading-table, supported on columns cantilevered by turning-lathe.

Ogden, Henry, Morestreet.—Sideboard in oak, Renaissance style; and drawing-room settle and chairs in walnut-wood.

Pedestal sideboard, in the Renaissance style, 32 feet wide, and 13 feet high, constructed of native and English oak, by Henry Ogden, of Manchester, as a specimen of design and workmanship by the hands and artists regularly employed in his establishment.
An enriched gilt cabinet, with panels containing cameo drawings.

A looking-glass over dito, in three compartments, with best French plate glass, containing cameo drawings, fitted with side branches for gas; the whole finished in pure gold.

A panel decoration, in peach colour and white and gold, with medallion painting after Watteau.

A gilt window cornice, with medallion painting, and rich draperies of violet velvet and muslin.

A richly designed and gilt flower basket.
Class XXX.—North-East Court.

[5790]
Page, Harcourt Master, 28 Coventry Street.—Gilt console-table and glass, girandole, cheval screen, &c. (For Illustration, see page 32.)

No. 1. Console-table.
No. 2. Console-glass.
No. 3. Girandole.
No. 4. Set of shelves for china.
No. 5. Combination dressing glas.

[5791]
Palmer, Henry, 7 St. Michael’s Place, Bath.—Drawing tables.

[5792]
Parker, John, Woodstock, Oxon.—Buckhorn hall furniture. The above articles may be purchased in suits, or separately.

[5794]
Pasley, John, 19 Red Lion Square, Holborn.—Louis XVI. console-table and glass.

[5795]
Paterson, T., 15 Rupert Street, Haymarket.—Carpings and cabinets.

[5796]
Perry, W., 5 North Audley Street.—Specimens of wood carving.

[5797]
Phillips, Thaddeus, 10 Park Street, Bristol.—Looking-glass.

[5798]
Poole & MacGillivray, 24 & 25 Princes Street, Cavendish Square.—Jewel-stand and two chairs.

[5800]
Richardson, Thomas, 9 Swift’s Row, Carlisle.—Devonport desk of old oak, taken from Carlisle Cathedral.

[5801]
Rivett, William & Samuel, 50 Crown Street, Finsbury Square.—A mahogany sideboard, with plate-glass back.

[5802]
Rogers, George Alfred, 21 Soho Square.—Wood carvings, brackets, frames, toilette glasses, &c.

[5803]
Rogers, William Gibbs, 21b Soho Square, W.—Wood carvings.

(31)
Page, Harcourt Master, 23 Coventry Street.—Gilt console-table and glass, girandole, cheval screen, &c.
Class XXX.—North-East Court.

[5804] Rorke, J., 75 Oakley Street, Westminster Road, Lambeth.—Projecting letters for shop fronts.


[5806] Rowley, Charles, Bond Street, Great Ancoats Street, Manchester.—Patterns of picture-frames, and imitation ormulu frames.

[5807] Sanders, William Cooke, 50 Queen Anne Street, London.—Leather carving.

[5808] Sandeman, R., Edinburgh.—Mirror tables, in walnut and Quebec ash.

[5809] Savilefield, John, 38 Newman Street, Oxford Street.—Imitation ormulu metal miniature frames.


[5813] Scott, James & Thomas, 10 George Street, Edinburgh.—Cabinet in the style of Louis XVI.


Maker to Her Majesty and the Late Prince Consort.

Canopies fitted to Carriages as above, from 3s. 6d. to 5s. 10d. each. These prices include fixing within ten miles of London. Garden canopies as above, from 10s. to £10. These prices include fixing within ten miles of London. The canopies are made of any material and to any size required. They expand with great facility, and occupy but small space when folded. Their simple and ready mode of action, utility in protecting from sun or rain, and ornamental effect, together with the moderate prices, cannot fail to recommend them.
CLASS XXX.—Furniture, Paper-Hanging, and Decoration.


A case of shadows for drawings and prints, suitable for a library, with doors to serve also as a portfolio rest—of oak inlaid with various woods; the panels painted by Messrs. Merth, Marshall, & Co., illustrating the fine arts as follows:—architectures, by King Bent and his Queen, considering the design of their home; Sculptures, by the same, carving figures upon the home; Paintings, by the same, decorating its walls; Maps, by the same, detailing to celebrate its completion; and in this upper panel are representations of ornamental carvings, metal work, embroidery, weaving, stained glass, and mosaic work.

A chandelier, manufactured by Messrs. Gray & Davison, with one cluster and four stars; three in a scroll-box, and two copies of guitars in an oak case, with illuminated pipes.

An arm-chair of walnut, with panels painted with the story of Pyramus and Thisbe.

A díttó, with perforated panels, fitted with cameo-work.

An oak dining-room chair, with inlaid ornament.

Also, other specimens of furniture designed to combine character with economy, so as to be suitable for houses, parsonages, &c., of the mediæval style.

[§816] Sedley, Angelo, Regent Street.—Furniture, novel and various.


[§818] Silver, S. W., & Co., 4 Bishopsgate Without.—Portable furniture; camp, cabin, and household.

[§819] Skidmore Art Manufacturing Company, Coventry.—Furniture in mediæval style.

[§820] Smee, William, & Sons, 5, Finsbury Pavement, London.—Examples of modern household furniture and bedding, of improved construction. (See pages 35, 36, 37, 38.)

[§821] Southgate, John, 76 Watling Street, London.—Improved camp, barrack, and military equipage, and cabin furniture.

[§822] Spiers & Son, 102 & 103 High Street, 45 & 46 Corn Market Street, Oxford.—Ornamental furniture for the writing table, boudoir, toilet, &c. (See pages 39, 40.)

[§823] Stanton, Thomas, 22 Davies Street, Berkeley Square.—Carved walnut and marqueterie door chandelier, sideboard, and cut-glass candleabra in silver and rock crystal.

[§824] Stather, John, Hull.—Manufactured photographic oak paper-hangings, washable; granite columns, imitated with machine painted paper.

SOURCES OF PHOTOGRAPHIC OAK PAPER-HANGINGS.—Granite Colours, imitated with Machine-Painted Paper.—In design, these papers are true to Nature, which is their great recommendation, and which has secured for the oak especially an extraordinarily large sale in this and other countries. In colour they are fast and permanent, without the expense of varnishing; in price they are within the reach of all, and may be had of almost every respectable dealer in the United Kingdom.
A SIDEBOARD of Light Oak, banded with and relived by mouldings and carvings of dark oak, the back of silvered plate glass, in a richly moulded frame, mounted with ornamental carvings. Size—8 ft. 4 in. long, 9 ft. 6 in. high.
SMEE, WILLIAM, & SONS—continued.

The SMEE SPRING Mattress, Tucker's Patent, or Somnier Tucker, is equally luxurious with, but firmer and affording more support than, the best description of French and German spring mattresses. It has, moreover, considerable advantages over all others in its simplicity—Every part of it is exposed to view, and it is of so simple construction that its application cannot be misunderstood.

In cleanliness—By merely lifting off the upper mattress, each part of it may be easily brushed and washed, or, if necessary, washed. It affords no harbour for vermin, nor is there any canvas, hair, or other material in which moth can collect.

In portability—When folded, it forms a package, as shown below, 6 ft. 6 in. long, and only 8 in. square. It has no screws or fastenings, so that any one may fit it, or unfit it, in a few moments.

The Prices are as under:

<table>
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<th>Size, No.</th>
<th>for Bedstead</th>
<th>3ft. 6in. wide</th>
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<td>0</td>
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(36)
Smeek, William, & Sons—continued.

A Toilet Table, of fine Italian Walnut-wood, supported by carved ornamental columns, upon a shaped plinth; the toilet glass suspended between carved columns.
Size—4 ft. 6 in. long, 5 ft. 9 in. high.

A Ladies' Wardrobe, of richly-figured Birch-wood, banded and relieved with tulip-wood, and mounted with finely-carved ornamental work; made in three compartments; the centre one fitted with drawers and tray shelves, the wings for hanging dresses; the panel of the centre door of silvered plate glass.
Size—8 ft. long, 6 ft. 4 in. high.

A Toilet Table, of Birch-wood, relieved with tulip-wood, supported by pedestals of drawers, inclosed by panelled doors; the toilet glass in a carved ornamental frame, suspended between two rows of jewel trays, and inclosed by doors.
Size—5 ft. long, 6 ft. high.
A Chiffonier, of fine Italian Walnut-wood, relieved with tulip-wood; the lower part inclosed by four doors, having panels of fret-work of elaborate design; the back of plate-glass; the mouldings and ornaments throughout richly carved.

Size—6 ft. 4 in. long, 10 ft. high.
CLASS XXX.—North-East Court.

STEEVENS, JOHN, 64 East Street, Taunton.—Carved mahogany sideboard, representing hunting, dead game, fish, fruit, &c.

The Taunton Sheraton, designed and manufactured by Mr. John Steevens, is an elegant piece of furniture, ten feet long and twelve feet high, representing, in artistically carved panels, hunting the otter; the wild duck; turkeys; vintage; harvest; fish; and dead game. Arranged in different brackets are goats' heads, &c. In the centre of the back is a frame containing plate glass, around which ivy is entwined; and above the frame is an ornamental cymation, with a shield and fruits of fruit surrounding the head of Bacchus. The frame under the top is fitted with drawers, richly carved with medallions, and supported by four figures, the heads of which are encircled with different devices of wheat, barley, hops, grapes, &c. The pedestals are conveniently fitted up with trays for plate, and receptacles for wine, &c., calculated for convenience as well as ornament.

STEEVENS & SON, 103 & 105 High Street, Oxford.—Ornamental furniture for the writing-table, boudoir, toilet, &c.

[Obtained Honourable Mention at the Great Exhibition of 1851, and at the Paris Exhibition of 1855; and the Prize Medal at New York, 1855.]

Dispatch box in carved polished oak. The mouldings and gilt ornaments adapted from the new Museum of the University of Oxford.

Set of writing table furniture in English polished oak, with richly gilt medieval mounts, comprising cashes for paper and envelopes, blotting-board, pen-tray, blotting-book, blot, dip, letter-weight, candlesticks, taper-stick, cashes for letters, date indicator, paper-weight, match-box, stamp-box, and paper-knife, all en suite.

Stationery case of Coromandel wood, with richly gilt Elizabethan mounts.

Tanks of Worcester honeycomb porcelains, on an ornamental stand of entwined serpents.

Set of writing table furniture, in richly gilt enameled, inlaid with porcelain medallions enamelled by the painters of the Queen's new dessert service, and in the same style, comprising seventeen articles, en suite.

Lady's dressing-case in dressed shagreen, with gilt mounts. The interior lined with polished shagreen and Guessa silk velvet, containing diamond-entwined fittings, with silver mounts, gilt and enamelled in the Moresque style, with gold initial pieces; cutlery and other instruments in silver gilt, to correspond; brushes in polished shagreen handles; mirror in gilt and enamelled frame, on a new plan; and drawer fitted for jewellery, with secret drawers for gold, notes, &c.

Tanks in enameled, of Etruscan form and ornament, inlaid with a porcelain plaque, enamelled in the L.figure style.

Silver-gilt model of an Oxford enameled wedding-box, on marble stand, serving as a pen-tray, and suitable for a registra present.

Orange-case, similar to some made for H.R.H. the Prince of Wales, others in velvet, shagreen, &c.
SPIERS & SON, 102 & 103 High Street, 45 & 46 Corn Market Street, Oxford—continued.

"Oxford Cyclopean" Washstands, combining the largest capacity with the smallest requirement of space.

One in polished white wood, with an eighteen and a half-inch basin, ever holding four quarts, sponge basin, soap box, and brush tray, of best white glazed ware, price 4½s.

One ditto, ditto, larger size, with a twenty-one inch basin, ever holding six quarts, &c., with ware in coloured bands and line, or printed flowing blue pattern, price 5½s.

Other qualities in superior white wash, mahogany, walnut, &c., with ware of various patterns, some with plug basin and slop jar.

One with rails for towels.

One artistically carved in Elizabethan style in walnut wood, white and gold ware, price £20.

SPEERS AND SON'S "OXFORD CYCLOPEANS."

One in polished white wood, with an eighteen and a half-inch basin, ewer holding four quarts, sponge basin, soap box, and brush tray, of best white glazed ware, price 40s.

One ditto, ditto, larger size, with a twenty-one inch basin, ewer holding six quarts, &c., with ware in coloured band and line, or printed flowing blue pattern, price 55s.


Strong, William, 197 New Bond Street.—Glass frame, richly carved in walnut; a clock-case for mantelshelf.

Styer, Alfred, 63 Pimlico Street.—New castor for furniture, with specimens on what-not.

The superiority of these castors over those now used consists in the wheels being so placed that the weight of the article they have to support is very nearly central, thereby preventing all strain or leverage upon the join; and the friction (except the floor friction) being upon a small section of the centre piece or horn, allows the wheels to rotate with perfect truth and freedom, and within a space little in excess of their diameter.

These castors have been tested, and found to perfectly realise the long-desired requisites of a castor—viz., easy and true action, simple and durable construction, and elegant appearance. They are manufactured either with a case to inclose the wheels, or without, and with sockets, plates, or screws, to suit all descriptions of furniture, musical instruments, &c.

To be had of the patentee, and of cabinet ironmongers throughout the United Kingdom.
CLASS XXX.—North-East Court.

[ 5832 ]
TAYLOR, HENRY JOSHUA, Dining Hill, Dewsbury.—Drawing-room table, painted in imitation of inlaid woods.

[ 5833 ]
TAYLOR & SONS, 167 Great Dover Street, S.E.—Expanding dining tables and seats for ships' use.

These patent dining tables, when closed, are no larger than the ordinary tables, but possess the following great advantages:—
1. They are fixed in the centre of the cabin, instead of the side, and have seats attached to them, with revolving backs.
2. These tables will extend fore and aft into a single range of tables the whole length of cabin, and, by the patented improvement, will also extend sideways into two distinct ranges of tables, of equal length, and always with the seats attached, thus giving a double amount of accommodation of the ordinary tables when in use, and a larger clear cabin space when closed.
3. The tables, with the seats attached, are secured to the cabin deck in sliding frames. By this means the seats always move with the tables. Any extent of table accommodation can be quickly and safely obtained, and being self-limiting, under any change of position they cannot get adrift.

The patent tables and seats are made suitable for every class of ship, steamer, or yacht.

[ 5834 ]
TAYLOR, JOHN, & SON, 109 Princess Street, Edinburgh.—Sideboard, cabinet, and sarcophagus, in walnut wood.

[ 5835 ]
THOMAS, JOHN, 32 Alpha Road.—Marble figure; portion of drawing-room.

[ 5836 ]
THURSTON & CO., Catherine Street, Strand, London.—Billiard-table carved in oak, by J. O'Shea, from designs by J. M. Allen, Esq. Model of patent combination billiard-table. (See pages 42 and 43.)

[ 5837 ]
TOLNEX, J., John Street, Tottenham Court Road.—Inlaid wood table.

[ 5838 ]
TOMLINSON, W., Hulme, Manchester.—Specimens of medical shop fittings, furniture, and decorations. New dentists' operating chairs.

[ 5839 ]
TOMS & LUSCOMBE, 163 New Bond Street, W.—Bath cabinets and tables.

[ 5840 ]
TRAPNELL, C. & W., 2 St. James's, Burton, Bristol.—Sideboard in Riga oak, 10ft. high. Ebonised candleabra, 11ft. high. Cabinet in walnut-wood.

[ 5841 ]
TROLLOPE, GEORGE, & SONS, 15 Parliament Street.—Carved chimney-piece, decorations, and cabinet furniture.

[ 5842 ]
TUCKER, JOHN, 2 and 3 North Street, Finsbury.—Fancy writing-table, with escritoire and cylinder front, in mahogany.
CLASS XXX.—Furniture, Paper-Hanging, and Decoration.

THURSTON & Co., Catherine Street, Strand.—Billiard table.
No. 1. An oak billiard table, style of the fifteenth century; the panels of the sides and ends carved in low relief, illustrating the history of the Wars of the Roses—supported on eight legs, each composed of four clustered columns, with richly foliated caps, having a central crocketed shaft, with carved spurs on square moulded base.


Marking board and cue rack on sides. (See page 42.)

No. 2. Model of patent combination billiard table, easily convertible into a dining or supper table, the cushions being hinged, and made to turn down.

Also a complete end of a billiard table, made of fine pollard oak.

TIERSBURY, R. J., Ederinstowe, Ollerton, Notts.—Carvings from Nature, in lime-wood: dead game, flowers, foliage, &c.

TUELLY, Richard, 381 Summer Lane, and 1 & 2 Hospital Street, Birmingham.—Japanned and papier-maché articles.
Class XXX.—Furniture, Paper-Hanging, and Decoration.

[5845]
Tutill, George, 83 City Road, London.—Patent india-rubber preparation for banners, flags, &c., to prevent cracking, &c. (See page 45.)

[5846]
Tweedie, Thomas Hall, 44 Greengrass, Newcastle-on-Tyne.—Sideboard, illustrated from Shakespeare; ditto, illustrated from "Robinson Crusoe." (See page 45.)

[5847]
Vokin, John & William, 14 & 10 Great Portland Street.—Portfolio frames; ormolu frames; imitation ormolu frames; frames for pictures and drawings.

[5848]
Walker, John, 3 Kensington Place, Silver Street, Notting Hill.—Carving in lime-tree—Spring.

[5849]


5. The Wagtail and Fly. For sale.
6. Group of Fruit, &c. For sale.

[5850]
Ward, John, Manufacturer, Leicesters Square.—Self-propelling and patent recumbent chairs for the use of invalids.

[5851]
Webb, John, 22, Cork Street, W.—An inlaid table top.

[5852]
Weithinger, Samson, 154 New Bond Street, W.—Cabinets, etagères; Louis XVI. console table-surface, steel in silver, mounts in style of Gouthière, and ormolu. (See page 46.)

[5853]
Westrup, Charles, 83 Old Bond Road, E.C.—Six fancy willow seat, walnut, and sycamore occasional chairs. (See page 47.)

[5854]
White, J., Streatham.—Gilt fire screen.

[5855]
Whitteco, R. & Co., 9, George Street, Edinburgh.—Pollard oak sideboard.

[5856]
Wilkie, John, 1 Addington Place, Lambeth.—Figure of our Lord, in carved canopied niche, in oak.

(44)
The exhibitor is the sole manufacturer of the patent india-rubber Silk flags, banners, &c., for the use of the Army, Navy, and Volunteers, Ecclesiastical and Friendly Societies. These banners are remarkably soft and pliable. George Tutill makes to order sashes, aprons, medals, regalia, &c.
CLASS XXX—Furniture, Paper-Hanging, and Decoration.

Wertheimer, Samson, 154 New Bond Street, W.—Cabinets, etagères, console table, and ormolu.
Westrup, Charles, 83 Old Street Road, E.C.—Six fancy willow seat, walnut, and sycamore occasional chairs.

1. Walnut wood fancy occasional chair, with willow seat, carved back, and rails in correspond; centre of top inlaid with basketwork, centre of say, a shield for crest or initials, ornamented with gold and colours.

2. Walnut ditto ditto ditto, carved back, rails, and feet.

3. Walnut ditto ditto ditto, carved back, rails, and feet, ornamented with gold and green colour.

4. White sycamore fancy occasional chair, with willow seat, carved, with Prince Albert's portrait let in top, ornamented with gold and blue colour.

5. Sycamore ditto ditto ditto, turned feet and rails.

6. Sycamore ditto ditto ditto, turned feet and rails, with carving.

Wilkinson, C., & Son, 8 Old Bond Street.—Various specimens of carved and decorative furniture. (For Illustration, see page 48.)

1. A drawing-room cabinet, with large glass and frame above, of fine walnut wood, with all the ornaments either in relief or inlaid, of white holly, transparent glass in doors below, and the top a fine specimen of Jaune Fleuri marble; the carvings emblematic of the Four Seasons.

2. A dressing-table, a specimen of Savannah pitch pine, with moldings and ornaments in relief of purple wood, with porcelain tile top, made in one piece, and decorated border as suite, with the chamber ware.

3. A lady's toilet table, and plate as suite with the above.

4. A walnut drawing-room chair.

5. A gilt occasional ditto, Louis XVI.

6. A library chair, stuffed back and seat, in morocco.

7. An oak sideboard, with ornaments of Pott's patent electro bronzes.

Wilson, J. W., & Co., 18 Wigmore Street, W.—A patent brass Arabian bedstead; a walnut drawing-room bagatelle and chess table; a spring stuffed couch; an easy chair.

Winsfield, William, 22 Upper Charlton Street, Fitzroy Square.—Flowers carved in walnut.

Woolverton, Charles, South Quay, Great Yarmouth.—Improved window blind for drawing-rooms, offices, &c.

Wright, William, 27 South Street, St. George's, Birmingham.—A pearl table and chimney glasses, with pearl frames, &c.

Wright & Mansfield, 3 Great Portland Street, W.—Piano, and decorative furniture.
Class XXX.—Furniture, Paper Hanging, and Decoration.

Wilkinson, C., & Sons, 8 Old Bond Street.—Various specimens of carved and decorative furniture.
Class XXX.—North-East Court.

[§863] Foxley, G., Welwyn, Herts.—Carved wood spoons, forks, &c.

[§864] Halstead & Son, Chichester.—Grille, for choir of Chichester Cathedral.

[§865] Hope, Beresford.—Model of a monument to the Viscountess Beresford.

[§866] Owen, J., Sheffield.—Iron bedstead, with patent mattress.

[§867] Richardson, —, Stamford.—Carved chairs.

Sub-Class B.—Paper Hanging and General Decoration.


[§879] Buchan & Son, Southampton.—Renaissance decorations, illustrating the story of "Undine."

[§880] Carlisle and Clegg, 81 Queen Street, Cheapside, and 31 Essex Street, Islington.—Decorative paper hangings.


[§882] Cotterell Brothers, Bristol and Bath.—Specimens of panel decorations and paper hangings.

[§883] Coulston, Isaac Love, 7 Robert Street, Hampstead Road, N.W.—Allegorical arabesque decoration, in the style of Louis XVI.

[§884] Dow, Robert, Painter, 59 George Street, Perth.—Imitations of the finer woods, and imitations of mouldings.

(49)
Class XXX.—Furniture, Paper-Hanging, and Decoration.

Earle, James Howard, 28 Hoareland Street, Fitzroy Square.—Drawing-room decoration.

Girardet, F., 4 Charles Street, Manchester Square.—Specimens of graining and marbling for house decorations.

Goddard, William Edward, Hell, Yorkshire.—Pyrography, or carving upon charred wood, as adapted to ornamental furniture, &c.

Grant, W. H., 81 King Street, Camden Town.—Imitations of woods and marbles.

Green & King, Decorators, 23 Baker Street, W.—Painted washable wall decorations of moderate cost.

Griffin, J., 7 Nauslin Street, East India Road, Poplar.—Imitation of woods. Specimens of wall decorations of moderate cost.—This material consists of paper prepared in a peculiar manner, and finished in oil paint. It is exceedingly durable, and can be washed; a single coat of paint will at any time render it as good as new. When carried out in one colour, it is particularly suited for a background to paintings, &c., as it then combines the most delicate neutral colouring, with great richness of texture.

Griffith, J., 7 Nauslin Street, East India Road, Poplar.—Imitation of woods.

Haswell, D. O., 49 Greek Street, Soho.—Specimens of writing for signs and tablets.

Hawthorne, James, 98 St. John Street, Clerkenwell.—Wood coloured by ink.

Hayward & Son, 88 Newgate Street, London.—Church and domestic decorations.


Horne, Robert, 41 Gracechurch Street.—Block-printed paper hangings.

Hummerston Brothers, Leeds, Yorkshire.—Painted imitations of woods and marbles.

Hunt, Charles, 40 Spring Street, Paddington.—Imitations of woods and marbles; an inlaid table top.
Hurwitz, Benjamin, 9 Southampton Street, Strand, W.C.—Specimens of interior decorations, furniture, &c.


Jones & Co., Arlington Street, New North Road, Islington.—Paper hangings.

Kessett, John, 18 Southampton Street, Strand.—Imitations of wood and marble.

Kershaw, Thomas, House Painter, 38 Baker Street, Portman Square.—Painted house decorations for walls and wood work.

Lairson, George, 1 Henry Place, Clapham.—Specimens of wall decorations; pilasters painted on satin.

Lamamy, Auguste, 3 Percy Street, Bedford Square.—Tableaux in marqueterie and wood mosaic.

Lea, Charles James, High Street, Lutterworth.—Decoration for wall of a church in Lancashire.

McLachlan, James, 35 St. James's Street, Piccadilly, S.W., and Clapham, S.—Artistic drawing and dining-room decorations, and imitations of woods and marbles.

Maslin, W., & Co., 32 Foley Street, W.—Imitations of British and foreign marbles and serpentines on paper.

Morant, Boyd, & Morant, 91 New Bond Street, London.—Decoration and articles of furniture.

Naylor, William, No. 4a James Street, Oxford Street.—Patterns of staining deal to imitate all kinds of woods; flooring of rooms, panelling, and other decorative purposes; patterns of enamel painting, &c.

Owen, A. I., 249 Oxford Street, London.—Interior decorations and furniture, &c.
Class XXX.—Furniture, Paper-Hanging, and Decoration.

Pears, Joseph Salter, 8 Barnsbury Street, Islington.—White and coloured enamel cloths, as applied to walls or cabinet, &c.

Pitman, William, 210 Eaton Road, Eaton Square, London.—Medieval paintings and designs.

Purdie, Bonnar, & Camprae, 77 George Street, Edinburgh.—Decoration for a drawing-room in French style.

Purdie, Cowtan, & Co. (late Duglass), 314 Oxford Street.—Dining-room decorative imitation woods, and paintings in water-glass; boudoir decoration and curtains.

1. Ceiling painted in mosaic. In the centre an arm and in the surrounding panels medallions and emblems emblematic of the Seasons, &c.

2. Decoration for a dining-room, showing on one side of the room the panelling and framework, painted in imitation of marbles, ebony, walnut, and tulip woods. The three pictures, copied from the originals in Hampton Court, are painted—on the centre panel over the chimney in oil, the two in the side panels in fresco, in the water-glass or stereo-chromic method. Style, Renaissance.

3. Cabinet in carved wood, finished in emerald, white and gold, with figures of Plenty in centre, and arabesques in surrounding panels. Style, Louis XVI.

4. Plaster in match cabinet.

5. Embroidered window-curtains; same in same style.

6. Highly carved etre-dore in maple wood, tacked with purple and tulip woods.

Read, William, 153 Marylebone Road.—Imitations of woods and marbles.

Rodgers, John & Joseph, Sheffield.—Painted wall and wood-work decorations.

Schischar, Edward, Leighton, Yorkshire.—"Marmography," produced by chemical means on glass, and other transparent articles, for decorative purposes.

Scott, Cuthbertson & Co., Whitechapel, Cleebery.—Specimen of block-printed paper-hangings.—For Illustrations, see pages 54, 55.

Specimen of Italian decoration. This is an entirely new process with block-printing; the design being considerably "raised" and printed in dead gold, the emblems in bright gold, producing an effect perfectly unique. This decoration can be printed on a white or any delicate tinted ground suitable for drawing-rooms, saloons, &c.

The accompanying plate represents this design.

Sibthorpe, H., & Son, Dublin.—Specimens of internal decorations, in three styles.

Simpson, W. B., & Sons, 456 West Strand.—Painted wall decoration.

Smith, Charles, 43 Upper Baker Street.—Basso-relievo decorations, with imitations of inlaid marbles, &c.; all in paint.
CLASS XXX.—North-East Court.

[5924]
SMITH, GEORGE THOMAS, 1 Wenlock Road, City Road, London.—Ornamental wood-work, printed by agency of lament.

[5925]
SOUTHALL, CHARLES, & Co., 157 Kingdom Road.—Grained woods and marble on paper.

[5927]
STENDY, CHARLES, London Parquetry Works, Grove Lane, Camberwell, S.—Parquetry floors, patent veneered wall panellings and ceilings.

[5928]
STEPHENS, HENRY, 18 St. Martin's-le-Grand, London.—Specimens of wood, stained, as a substitute for paint.

SUBSTITUTE FOR PAINT.—Stephens' stains for wood imitate oak, mahogany, rosewood, walnut, and ebonied. These preparations exhibit to great advantage the beautiful variations of the natural grain, so that the cheapest descriptions of wood, when stained, sized, and varnished, far surpass paint in beauty of appearance; while the facility of the process, its great economy, and the absence of every disagreeable and unwholesome smell, always gain the approbation of those who use them. The durability of these stains, when used for interior decoration, is at least three times as much as that of paint, suffering but little even after an interval of fifteen years.

Mr. Stephens is kindly permitted to publish the following extract from a letter, addressed by the Rev. R. H. Chilham, of Chilhampton, near South Molton:—"The effect produced by the staining fluid and varnish has given such entire satisfaction that the parishioners have requested us to procure five times the quantity now paid for, in order to finish the church."

For the roof timbers in churches, and for boarded ceilings, boiled oil may be used as a varnish with very good effect, and will considerably diminish the expense. The more carefully wood is selected and prepared, the more beautiful is the appearance; but in cases where very little care has been taken in the selection of the wood, it nevertheless surpasses cheap painting. The stains drying almost immediately, the work can be sized and varnished shortly after; one process has not to wait for the other, as in painting; so that the whole interior of a house which would take six weeks to paint may be (if stained) finished in one week.

In the furnishing up of churches, chapels, halls, &c., where economy of expenditure is important, they are of great advantage, and are largely used.

The interior woodwork of the Exhibition of 1851 was stained by Mr. Stephens with his stains.

The liquid stains are sold at 8s. per gallon, and sold also in powder, 8s. per lb. (which makes one gallon of liquid stain).

These dry powders will be found most convenient articles for use. One pound makes one gallon of liquid stain of the deepest tint, which will cover more than 100 square feet. One gallon of liquid colour is thus condensed into one pound, a most material saving in the cost and conveniences of covering.

Prospectuses and small pieces of stained deal (as specimens) will be sent free by post, on application.

[5929]
TAYLOR, JOHN, 5 Compton Street.—Imitations of woods and marbles.

[5930]
TURNER & OWEN, Elizabeth Street, Pimlico.—Paper-hangings, with frieze and pilaster, representing the Four Seasons (block-printed).

Paper-hangings entirely block-printed; a frieze running at the top, representing Spring, Summer, Autumn, and Winter, supported by pilasters, at the base of which is the Globe, with Products of the Seasons represented by the rose, the grape, the wheat, and the ivy, etched with bronze. On the side-panels, specimens of various styles of paper-hangings are exhibited.

[5931]
WARRE, STANNARD, 4 Binton Street, Berkeley Square.—Furniture decorations and paper hangings.
CLASS XXX.—Furniture, Paper-Hanging, and Decoration.

Class XXX.—North-East Court.

Scott, Cuthberson, & Co.—continued.
White & Parley, 49 and 50 Great Marylebone Street, London.—Architectural decorations in relief; decorative furniture for gilding.

The illustration below shows the application of White & Parley's new cement to the formation of curved and ornamental surfaces of buildings, by which are produced large curved ornamental forms of every description.

It is especially adapted for ornamental coves, gallery fronts, domes, ceilings (flat, pendent, or domed), and for all large complicated and elaborate curved ornamental surfaces. The ribs, bays, and relief ornament of ceilings, domes, &c., are produced complete, and form, without plastering, a perfect covering, which is fixed at once to the rafters or other construction of the roof. The material is perfectly dry and durable.

It has been successfully applied in numerous private mansions, and in the following public buildings—Wright's Bank, Britannia Theatre, and in the Oxford, Winton's, Midland, and Wilson's Music Halls.

White and Parley further exhibit a ceiling in their new cement, a cabinet and frame console-table and frame, toilet glasses, girandoles, candelabrum, &c. (See opposite page.)

Louis XVI, drawing-room door and architrave.
CLASS XXX.—North-East Court.

WHITE & PARLEY—continued.

DRAWING-ROOM DOOR AND ARMOIRE.

( 57 )
Class XXX.—Furniture, Paper-Hanging, and Decoration.

Williams, Cooper, & Co., Manufacturers, 85 West Smithfield, London.—Wall decorations, in Italian and other styles.

Wilsheer & Rambeth, Great Western Road, Paddington.—Varnishes, colours, and wood stains. Extra pale body varnish, for whites, &c., 28s. per gallon.
Pole body " 20s., 24s., 28s. "
" carmine " 18s., 16s., 15s. "
Super Japan " 18s. "
Pale Copal " 12s., 16s. "
Oak stain, 9s. per gallon.
Walnut stain, 5s. "
Mahogany and walnut stain, 8s. "
Church varnish, 12s., 10s. "
Pole oak varnish, 12s., 10s. "

Greek decorations: Louis XVI. 50. Gothic papers, designed by Mr. Robinson. Paper hangings, designed by pupils of the Female School of Art, Queen Square.

Woollams, John, & Co., 69 Marylebone Lane, London.—Paper hangings and decorations by block-printing; machine paper hangings.

Asprey, C., 166 New Bond Street.—A Davenport.

Burns & Lambert, Great Portland Street.—Mediaeval paper-hangings.

Owen, J., Sheffield.—Springs and attachments for mattress frames, bedsteads, sofas, &c.

Gushlow, G., 34 Newman Street, Oxford Street.—Plaster casts and composition imitation of bronzes, &c.

Taylor, J., 5 Compton Street, Brunswick Square, W.C.—Specimens of graining.
Class XXXI.

Iron and General Hardware.

Sub-Class A.—Iron Manufacturers.

[ 5969 ]

Adams, William S., & Son, 57 Haymarket, 14 Norris Street, and 54 Whitechapel Street, Pall Mall East, S.W.—Improved cooking apparatus for large kitchens.

The exhibitors are manufacturers of first-class kitchen fittings and cooking apparatus, and hold the appointment of ironmongers to the Queen, and also to the principal London clubs.

They exhibit the following:

1. The London Roasting Range, of new construction, with cast-iron chimney-piece; the back and sides composed of fire bricks: one-half of the fire may be used without the other; the bars are so constructed as to admit of being removed at any time without displacing the brickwork, and allowance is made for their expansion. This range gives out great heat with a small consumption of fuel, being very narrow from back to front.

2. An Improved Swee' Jack, with double motion outside movement, constructed to rest both horizontally and vertically; with a newly invented lever apparatus for throwing the several movements in and out of gear.

3. A Hot Plate and Broiling Range, for stewing and grilling, having a large pastry oven at end, with improved sliding doors running upon gun-metal wheels. It has also a large hot closet under the oven, the whole being heated by one moderate fire at the broiling stone.

4. A Steam Bain-Marie, and set of copper stewpans, soup-pots, &c. heated by steam, for keeping gravies, soups, sauces, &c. hot, without the slightest risk of their being burnt or spilt.

5. A Glass-fronted stewing, with newly invented burners, which produce a blue flame; the gas being mixed with common air gives out great heat without smoke, and will not soil the cooking utensils placed over it.

An improved charcoal stove, formed of Stourbridge fire clay, in line of iron, as hitherto used, is placed behind the gas stove.

6. A Large Hot Closet, highly finished, with double-panelled door; the shelves made are made of wrought-iron, lap-welded by a new process, and will not crack, a fault to which the cast-iron shelves are always liable. They may be heated either by steam or hot water.

The stove apparatus is suitable for a first-class kitchen, and is exhibited as a specimen of improved construction and superior workmanship.

[ 5970 ]

Adcock, Richard Casswell, 4 Halkin Street West.—Bolt for room or closet door, indicating engaged or disengaged.

Class XXXII. (1)
Addis, William, 6, 7, and 15 Leicester Street, Leicester Square.—Cundy's patent brick oven kitchen range; cottage’s cooking stove; pedestal stove.

Cundy's Patent Pneumatic Warm-air Ventilating Stove, for warming churches, halls, stations, and public buildings.

For this invention Mr. Cundy received the Society of Arts medal, and also a medal at the International Exhibition of 1851.

This is the only patented stove the inside of which is entirely constructed of fire-clay tiles.

Cundy's Patent Brick Oven Winding-cheek Open Fire and Semi-close Range.

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 ft. range</td>
<td>from £13 to £16</td>
<td></td>
</tr>
<tr>
<td>A larger class of range from £24 to £30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ditto, open fire, from £11 to £24</td>
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</tbody>
</table>

Cundy's Patent Economic Cottager’s Cooking Stove.

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 in.</td>
<td></td>
<td>£3 3</td>
</tr>
<tr>
<td>30 in.</td>
<td></td>
<td>£4</td>
</tr>
</tbody>
</table>

These goods are manufactured and sold by William Addis, wholesale ironmonger and stove-grate manufacturer.

The ranges can be seen in operation every day at the exhibitor's ware rooms. A prospectus will be forwarded on application to the above address.
Allen, Thomas, Clifton, and Hotwells, Bristol.—Patent metallic tubular bedsteads for general use, military and portable.

The advantages of the patent bedstead are:

Its strength, being formed entirely of tubes and malleable iron.

Its durability and simplicity in construction. It can be put up and taken down in five minutes, without the use of tools of any kind.

It is guaranteed insect-proof.

Pattresses can be dispensed with; the working being equal to any spring mattress.

The prices vary from 30s. to £5.0

Testimonials:

"Dear Sir,—I have seen several of your patent tubular bedsteads, and have now had two years' experience of them, and I have much pleasure in adding my testimony to their general excellence, both as regards construction, material, and design. I have tried many other iron bedsteads, but I greatly prefer yours, being quite free from the common defect of working loose in the joints. The bedsteads I get from you are of various patterns, there are of what you term your 'hospital patterns,' and this is from the moderate price, great strength, and very neat appearance for general purposes, in my opinion, the best bedstead out. I have also one of your camp bedsteads, to the excellence of which military men can better speak than I can, but I feel it particularly useful to have in the house, as it is so very easily and quickly moved from one room to another, as occasion may require. With the season which I think you well deserve for having brought out such a really good, useful article.

I am, dear sir, yours faithfully,

"Mr. Thomas Allen."

"Hotwells Road Iron Works, Bristol."

From Major Bush, 100th Regiment.

"I have now tried your patent portable iron bedsteads in use for three years, whilst serving in the West Indies, Mediterranean, and Aldershot. I have great pleasure in stating that in my own opinion (and that of several military officers who have seen it), your bedstead for surpasses anything of the kind in present use, owing to the facility with which it is put together and small space it occupies when taken to pieces, also its strength, comfort, and neat appearance.

"I have the honor to be your most obedient servant,

"H. S. Bush, Major, 100th Regiment."

From W. Bruce Gingell, Esq., Architect, Bristol General Hospital.

"Bristol, October 25, 1856.

"Dear Sir,—I beg to inform you that your patent tubular bedsteads were this day selected by the committee and faculty, as the best and most perfect submitted to them. I have no hesitation in stating that they must supersede the ordinary iron bedsteads, either for public institutions or for private houses.

"I am, dear sir, yours truly,

"Mr. T. Allen."

"W. Bruce Gingell."

2"
AVREY, W. & T., Digbeth, Birmingham.—Scales and weighing machines.

BACKHOUSE, William N., 46, Westgate Street, Ipswich.—The improved kitchen range; an economical ditto for cottages.

BAILY, William, & Sons, 71 Greenchurch Street, E.C.—Ornamental iron work, gates, staircases-work, stoves, &c.

BAMBER, W. C., 12 Little College Street, S.W.—Mortise balance night bolt, and an improved night-latch.

BARLOW, JAMES, 14 King William Street, City.—Patent cask tilt, no sediment disturbed; improved roasting-jack screen, &c.

BARNARD, BISHOP, & BARNARDS, Norwich.—Pack entrance gates in ornamental wrought-iron, designed by THOMAS JECOLL.

BARTLETT, R., & Son, Beach Street, Barking.—Chimney-sweeping and drain machinery.

BARTLETT, J., & Son, Welch Back, Bristol.—Railway and road weighbridges and weighing machines for general purposes. (See page 5.)

BARTON, James, 370 Oxford Street.—Patent stable fittings and enamelled mangers; harness-room fittings.

**STABLE FITTINGS.**

These superior-class stable fittings are patented by the principal nobility, and adopted by many of the first architects and builders of the United Kingdom.

The above arrangement consists of these stalls and two loose boxes, fitted with improved ventilating divisions, patent enamelled fittings, and all the latest improvements. A stable, newly erected, with full-sized stalls and loose-boxes, may be seen at the manufactory, where an extensive assortment of stable fittings upon the most modern and improved principles, together with a large collection of harness-room fittings, for single and double harness, saddles, bridle and gentleman's riding saddles, baskets, &c, are also on view.

The exhibitor's new Exhibition Catalogue, containing numerous illustrations of the improved method of fitting up stables, will be forwarded on receipt of four postage stamps.
BARLETT, J., & Son, Welsh Back, Bristol.—Railway and road weighbridges and weighing machines for general purposes.

<table>
<thead>
<tr>
<th>Description</th>
<th>Capacity</th>
<th>Price</th>
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<tbody>
<tr>
<td>Lever Weighing Machine to weigh from 1 lb. to 1 ton</td>
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<td>29 10 0</td>
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<tr>
<td>Lever Weighing Machine with back iron, to weigh from 1 lb. to 4 cwt.</td>
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<td>33 10 0</td>
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<tr>
<td>Lever Weighing Machine to weigh from 1 lb. to 12 cwt.</td>
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<td>65 5 0</td>
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<tr>
<td>Lever Weighing Machine with dial indicator, to weigh 1 cwt.</td>
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<td>20 0 0</td>
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<tr>
<td>Lever Weighing Machine with dial indicator, to weigh 1 cwt.</td>
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<td>Weighing Machine for equal weights</td>
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<td>23 10 0</td>
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<tr>
<td>Weighing Machine fitted with chains and improved indicator</td>
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</table>
Class XXXI.—Iron and General Hardware.

Benham & Sons, 19, 20, 21, Wigmore Street, W.—Ornamental metal work; stoves, fenders, kitchen fittings; patent cooking apparatus.

Obtained Prize Medal in Class 22, in 1851; Bronze Medal in Paris, 1855.

1. Benham’s Patent Cooking Apparatus for large establishments, schools, hospitals, workhouses, barracks, and ships.

It consists of a large brick roasting oven, in which also bread or pastry may be baked; a hot-water boiler, which also supplies steam for steaming vegetables, puddings, &c.; a second boiler for the supply of hot baths; two or more meat or soup boilers, a hot-plate and broiling stove, an iron pastry oven, and a hot closet for plates; the whole heated by one fire, burning about 200 lbs. of coal per day.

The special advantages of this apparatus are—Remarkable economy of fuel; simplicity of management and perfect control; great external coolness.

It admits of various modifications of form, size, and arrangements, to suit the requirements of public or private establishments, and the various positions of fireplaces.


and thus; but the following examples, amongst others, may be referred to in proof of its efficiency—

New Royal Marine Infirmary, Woolwich.
Royal Medical Benevolent College, Epsom.
West London Union Workhouse, West Street, Smithfield, London.
Warham Union Workhouse, Dorset.
Leominster Union Workhouse, Herefordshire.
Peninsular & Oriental Steam Navigation Co.’s Steamers “Mooltan.”
Peninsular & Oriental Steam Navigation Co.’s Steamer “Ripon.” (2)

It has also been adopted by the War Department at the following barracks in consequence of the favourable report of the “Barrack and Hospital Improvement Commissioners;”—

Royal Artillery Barracks, Woolwich. (2)
Waterloo Barracks, Tower of London.
Permanant Barracks, Aldershot.
Edinburgh Castle Barracks.
Gibraltar Barracks. (2)

2. Range, with Oven, for married soldiers’ quarters.

3. Range, with Boiler, for officers’ servants’ rooms.

These two ranges are fitted with hollow fire-lump backs, and louvered ventilators for the admission of warm air to the rooms. They are adopted by the War Department in all the new barrack buildings.
No. 4. First-class Kitchen, fitted with cooking apparatus.

Improved Smoke Jack, with double movements, double-spits, and universal joints. The apparatus is kept in motion solely by the upward current of air in the chimney, without springs or weights.

Stewing Stoves and Stockpot Stove, heated by charcoal or gas, and therefore requiring no flue.

Bain-Marie Pan, for keeping sauces, soups, gravies, &c., always hot and ready for use without the slightest risk of burning or spoiling.

Cook's Sink, with water for cooking purposes, &c. laid on.

Hot-Plate and Broiling Stove, with moveable gridiron, to which can be also added the oven on the top, as shown in the drawing, all heated by one fire.

Hot Closet, heated by steam or hot water, for keeping silver and china hot; also for receiving the different courses of a dinner after being dished up.

Steam Table for dishing up.
Ovens with separate furnaces underneath.

Steam Kettles, of copper or black tin, for boiling meat, vegetables, puddings, &c.

Dinner Lift for conveying the dinner to the floor above. In large establishments, coals, &c. are carried up to the top of the building in this manner, which effects a great saving of labour.

Ovens, with a separate furnace underneath.

Steam Kettles, for boiling meat, puddings, vegetables, &c.

No. 5. Kitchen fitted with cooking apparatus.

5. The above engraving represents a very complete and efficient Cooking Apparatus, which Benham & Sons can confidently recommend for London or country houses, although on a much smaller scale than that which is represented in the preceding engraving.

Benham & Sons’ Improved London-pattern Kitchen Range, with oven and boiler; all heated by one fire. The oven can be thoroughly depended upon for baking properly, and the boilers can be arranged to supply hot water for a bath, or for nursery and bedroom use (in addition to the kitchen), as well as to heat a hot closet and steam kettles, as represented in the engraving.

Improved Broil Jack, with single movements, dangle-spit, and universal joint.

Hot-Plate and Broiling Stove, with iron front and top, notable grilliron, &c.

Stewing Stoves, heated by charcoal or gas.

Hot Closets, heated by steam, for keeping silver and china hot and ready for use; also for receiving the different courses of a dinner after being dished up, and until taken to the dining room, without any possibility of their being scorched or dried up.

Ovens, with a separate furnace underneath.

Steam Kettles, for boiling meat, puddings, vegetables, &c.
CLASS XXXL—South East Court.

Benham & Sons, continued.

6, 7. Two Polished Steel Drawing-room Stoves, with ormolu and porcelain enrichments.
In the adjoining court are exhibited four specimens of Mr. John Billing's Patent Double-draught Open Fire Stoves (for curing smokes, &c.) of which Benham & Sons are the sole manufacturers.

8. The Dog Stove represented above, and which is adapted either for coals or wood, is exhibited in the South East Transept in the Metropolitan Trophy for Class XXXI.

9. There are exhibited with it other specimens of medieval metal work, in the style of the 12th and 13th centuries, designed and manufactured by Benham & Sons; amongst the rest—
A chancel screen of hammered iron-work.
A pair of rood-screen gates in hammered iron and brass.
A brass eagle lectern or reading desk.
A standard chancel light.
Various wall and bracket lights.
Communion plate in latten and electro-plate, &c.
A small collection of church plate manufactured by Benham & Sons from the designs of W. White, Esq., is exhibited in the Ecclesiological Court in Class 30.
Class XXXI—Iron and General Hardware.

[5984]
Bayliss, Simpson, & Jones, 43 Fish Street Hill, Victoria Works, Wolverhampton.—Chain cables, railway fastenings, iron hurdles, fencing, &c.

[5985]
Baynes, Henry, 1 Johnson Street, Old Greet Lane, E.—Double and single lifting jacks; set of iron blocks; and single winch.

[5986]
Besham & Sons, 19, 20, 21 Wigmore Street, W.—Ornamental metal work; stoves, fenders, kitchen fittings; patent cooking apparatus. (See pages 6 to 9.)

[5987]
Bennett, William, Sir Thomas's Buildings and Soke Rooms, St. George's Place, Lime Street, Liverpool.—Kitchen cooking ranges for coal and gas; smokeless stoves; improved stoves and grates.

Dr. Arnott's Smokeless Register Grate, black finished, with patented improvements. These grates will contain fuel for a whole day's consumption, are easily regulated, and well adapted for house and office purposes, and specially suited for chimneys with bad draughts.

Price of the one exhibited . . . . . £11 0

Dr. Arnott's Smokeless Register Grates, best bright finished, with patented improvements, as above.

Price of the one exhibited . . . . . £12 0

Bennett's Smoke-cure and Warm-air Grate.

These grates give an equal temperature throughout a room, perfect control over combustion, are very economical in use, and are manufactured to suit all classes of property.

Price of the one exhibited . . . . . £13 0

Bennett's Patent Smokeless Stove, on Dr. Arnott's principles.

Price of the one exhibited . . . . . £25 0

Bennett's Liverpool Kitchen Range, with modern improvements.

This range can be made in all sizes, and adapted to suit either large or small establishments. The burners are constructed so as to host baths, supply wash-houses, and for other domestic use.

Price of the one exhibited . . . . . £16 0

King's Liverpool Gas-cooking Range, made for cooking for from ten to five hundred persons. These apparatus are most cleanly and economical in use, and perform all cooking operations in a superior manner.

Price of the one exhibited . . . . . £10 10

[5988]
Berry, George, 19 Rutland Street, N.—Locks with crypted guards, not tamable by instrument or true key.

[5989]
Billing, John, Westminster.—Patented stove for more effectual combustion, and its regulation, and reducing smoke annoyances.

[5990]
Billingham, James, Ashton, near Wigan.—Wrought-Iron hinges.

[5991]
Bicker, Brothers, Millwall, Poplar.—Round and flat wire ropes, conductors, fencing, strand each line.

(10)
Russel, William, Union Street, Walsall.—Rim and mortise locks, upon improved equi-action principles.

Blackett, Frank W., 31, West Smithfield, London.—The inaccessible lock.

A lock for the protection of a safe or strong room should possess two conditions of security:

1. It must be so constructed that it cannot be charged with gunpowder so as to be blown off the door; it must also defy all attempts by picking either by keys or other instruments.

2. It must be so placed that it cannot be reached by boring or cutting holes through the door of the safe so as to be taken out.

A perfect lock should defy the skill of the scientific thief to pick it, and the violence of the burglar to destroy it. The so-called "unpickable" locks (not yet picked in all that can be said of the lock, so that we cannot establish their security and challenge attack, are placed on the door in front of the safe, where they affix the expert thief every chance of tumbling and trying them with success. The best locks thus violate the first condition of security in spite of the ingenuity of their construction.

The second condition is still farther from being complied with. Thick iron doors with steel plates or pegs over the lock, or even doors made altogether of cast-iron, cannot afford us sufficient security. These can be cut or bored through, the lock removed or destroyed, and the safe door opened.

Within the last two or three years a patent safe with inch doors had 9 in. holes put through it in one short summer's night. The exhibitor has drilled through a case-hardened door 5 in., thickest with portable tools, laying bare the lock and opening the door without noise in the short space of forty minutes.

It is not the construction as much as the position of locks that is faulty. Making clever locks and strong doors and then putting the locks in the most convenient place for attack, is like carefully corkscrewing and labelling a bottle "poison," and then leaving it within reach of everybody.

This patent proposes no addition in the principle or construction of locks, but places them in such a position as to increase the security of all, even the best.

A slight examination will show that by this patent a lock secures the two conditions of security requisite in a safe. It is placed at the back of the safe, where it can neither be blown off nor cut out, and where the lock-picker has no chance to exert his skill. The lock, of any construction, is placed at the back of the safe, its bolt being driven to a lever or levers in the lower casting of the safe. This lever has teeth at its front end, which when the bolt is shot by the key, rock upwards and fit into corresponding recesses along the whole width of necessary of the door of the safe, fastening it much in the same way as in an ordinary safe. Unlocking of course removes these teeth from the door.

The length of handle necessary for a key to reach the back of a safe would be very objectionable, but this has been removed. The only real or effectual part of a key is that which acts upon the works of the lock. The handle in this patent remains always in the lock and adds to its security. It is a fixture in the keyholes and can only be drawn out far enough to attach the true key to it. The lock is not only more difficult to pick from its distance from the keyholes, but all access to it is absolutely cut off as the sole entrance to it is permanently occupied by the handle of the key.

This handle might be dispensed with by complicated machinery for conveying the key to the lock, but it is preferred to exhibit the safe in its simplest construction.

The advantages offered by this patent are the following:

The lock being absolutely out of reach places every conceivable difficulty in the way of the lock-picker or burglar. The handle of the key being left at all times in the keyhole to prevent access to the lock, it may be made so strong as to turn with ease a lock so heavy, that if a picker attempted it, it would refuse to answer any trying or give any hint as to the principle of its construction.

The lock cannot be got at by boring or cutting. The only points of attack are the levers. The position of these cannot be ascertained, and those at the bottom of the safe, as well as the lock itself, are absolutely beyond attack, as the safe, either from its weight or from being fastened to the wall or floor from the inside, is immovable. Gunpowder if it could be introduced might blow off the casting of the lock and expose its force on the inside of the safe, but the levers would still hold the front of the door.

It does not interfere with the fire-proof principle of any safe, or the mechanical principle of its lock fastening.

The lock is secure from the action of the atmosphere. A simple and inexpensive lock might be used, which, two feet out of the reach of the picker, would be safer than the best in its present usual position.

All these advantages may be gained with a key so small as to be at all times, day and night, in the custody of the owner, with far less trouble and inconvenience than these new in me.

It is to be observed that all these advantages are not in exchange but absolutely in addition to those offered by the very best safe-historic constructed.

Bolton, Thomas, & Sons, Birmingham, and Oakamoor, Staffordshire.—Rolled metals, brass and copper wire and tubes, and calico rollers.
Class XXXI.—Iron and General Hardware.

[5996]
Boobyer, Joseph Hurst, 14 Stanhope Street, Newcastle Street, Strand.—Locks, furniture, bolts and hinges for buildings.

[5997]
Braisher & Gripper, 11 Commiss Street West, and Vatkin Safe Works, Ship Yard, Bankside, Southwark.—Fireproof safes, doors, deed boxes, and other fireproof articles. (See page 18)

[5998]
Bramah & Co., 124 Piccadilly.—Patent locks, iron safes, cash, jewel, and despatch boxes, with the lock applied.

[5999]
Brierley & Geebing, Birmingham.—Bedsteads.

[6000]
Brown, J., & Co., Glasgow.—Gill air warmers, hot air stoves, &c.

[6001]
Brown, Brothers, Lyon Regis, and 43 Crusahaan Street, Leicester Square, London.—Patent cooking ranges for mansions, villas, and cottages. (See page 16)

[6002]
Brown & Green, George Street, Luton; London Warehouse, 81 Bishopsgate Street Within.—Improved patent kitchen range for economising fuel, and cure of smoky chimneys. (See pages 14 and 15)

[6003]
Brown, Lenox, & Co., Millwall, Poplar.—Screw bench with parallel vice with adjusting jaw.

M. BROWN'S PATENT PARALLEL VICE, with adjusting jaws fitted to vice bench, complete.

The advantages of this vice are—it will take in larger work than other vices, will adapt itself to taper work, and is quicker in action, being wound out or in by the wheel, and the lever used to give the nip or let it go.


[12]
Bracher & Griffee, 11 Cannon Street West, and Vulcan Safe Works, Skin Yard, Bermondsey, Southwark.—Fireproof safes, doors, deed boxes, and other fireproof articles.

Obtained a Prize Medal at the Exhibition of 1851.

The exhibitors are inventors, patentees, and manufacturers of wrought-iron fire and thief-proof safes, chests, doors, and strong rooms; patentees of the double-security detector locks for banks, treasure rooms, &c.; and makers of cash boxes, deed boxes, &c.

They have supplied the new Houses of Parliament, Her Majesty's honourable Board of Ordnance, the National Debt Office, &c.

(18)
This range has been tested by order of the Government.
The following is a copy of the official report:

"Report of a trial of a cooking apparatus, manufactured
by Messrs. Brown & Green.

"The apparatus is of the nature of a kitchener, with
an open fire for roasting; it consists of 2 boilers and 6
ovens, with hot-water cistern. Two of the boilers,
holding 8 gallons, are for steam; and the third, holding
10 gallons, is for hot water. The cistern is 8 ft. square;
the range 18 ft. long. The trial, the particulars of which
are appended, was exceedingly satisfactory:

The fire was lighted with 1 Ib. of wood......... at 12 49
Ovens Nos. 1, 2, 3, and 4 attained 279 deg. F. at 1 33
Ovens Nos. 5 and 6 attained 298 deg. F. at 1 49
The steam boilers boiled in 38 min............... 8
The hot-water cistern (22 gallons) boiled in
79 min.............. at 2 0
One pint of water boiled on hot plate over fire in 7 min.
One dito dito dito... at 1 29
One dito dito dito dito No. 1 oven in 11 min.
One dito dito dito dito No. 2 oven in 15 min.
One dito dito dito dito No. 2 oven in 38 min.

Total 8 lbs.

The steam boilers will steam potatoes for 1000 men.
The consumption of coal ("Island," of inferior quality)
was
For the first hour .............. 54 lbs.
For the second hour ....... 50 lbs.
For the third hour ........... (00) lbs.

"February 18th, 1862.
"G. Warington,
"Instructor of Cookery to the Argylls."

Note.—The above report shows a consumption of only
three-fifths of aounce of coal per head. The whole
of the apparatus remained in full action at the end of the
third hour. The patentee is compelled to exhibit this
range within the two end rows, not having a sufficient
accommodation of space for its entire length.
Brown & Green, continued.

This range is constructed on a new principle (patented January, 1862), which prevents the great waste of heat, and the emission of fuel, which is unavoidable in all ranges from which an abundant supply of hot water or steam is required.

The method in each range has uniformly been to place the hearth or fire in the side of the room, and the boilers at the back. The heating of the boilers has always been accomplished by a fire formed under them, and carried at once into the chimney; and as the hot draught from a fire will inevitably take the shortest course, the effect of the above arrangement has been to cause a great and wasteful rush of heat under the boilers, directly into the chimney, instead of its being carried round the ovens. The boilers and ovens could not, therefore, be worked simultaneously without a very much larger fire than is useful in a range constructed upon the new principle. Moreover, the old plan, with all its wasteful expenditure of fuel, fails to heat the boilers efficiently, whilst it so restricts their capacity and power that the supply of hot water and steam for baths, lavatories, hot closets, steamers, &c. is far too limited for the requirements of hotels and other large establishments.

By the new patent arrangement all these disadvantages are removed.

At the side of the fire is a boiler which projects forward under the hot plate to the front of the range, and forms the side of the fire-place; and beyond this boiler is placed one or more spacious ovens.

The heat from the top of the fire is carried over the top of the side boiler, the hot plate, and is then passed completely round the ovens before it obtains an outlet into the chimney. From the bottom of the fire another distinct current of heat passes through an arch flue under the same boiler and is carried up on the other side, between it and the first oven, and, uniting with the draught from the top of the fire, it also passed entirely round the ovens before it can escape.

Where an apparatus of larger dimensions is required, the same arrangement is repeated on the opposite side of the fire; whilst at the back is placed another large boiler, the lower part of which projects forward into the middle of the fire, the under surface forming a half arch which corresponds with the arch flue under the side boilers, thus affording efficient means of heating it without any escape of hot air.

The position and shape of the boilers and direction of the flues, form peculiar and most important features in this invention. The boilers being surrounded by the full heat of the fire, become the most powerful, either for steaming, circulating hot water, or any other purpose that can be deduced in a kitchen range; and as the whole of that heat is under entire control and may afterwards be carried round any or all of the ovens before passing into the chimney, the desired temperature is obtained in each.

This patent principle is applicable to ranges of every size, and its power is demonstrated by the large one on view at the International Exhibition, which was made eighteen feet in length, having six ovens and three boilers, all worked by a fire only fourteen inches wide, those ovens most distant from the fire being not merely hot closets, but effective ovens; a result never before obtained with any quantity of fuel. The patents are compelled to exhibit it in its two end ovens—not having sufficient allotment of space for its entire length.

This range, in its full original size, has been put into practical operation, and every part of it has been found to work most efficiently. It has been fully tested on behalf of the Government by Mr. Warriner, Inspector of Cookery and Cooking Apparatus for the Army, whose report is annexed.

Brown & Green's patent ranges are a certain cure for smoky chimneys, and possess the following special advantages—

1. The means of roasting most perfectly in front of the fire at the same time that the oven or ovens, boilers and hot plates are kept in full action—the movable iron plate which encloses the upper half of the fire front, coming into immediate contact with the fuel, becomes red hot; thus that portion of the joint exposed to it is equally well roasted with the part acted upon by the oven fire below, whilst the use of the roasting plate secures a full heat over the top of the range and in the ovens. For these reasons it possesses decided advantages over the ordinary door, to open which, for the purpose of roasting, seriously lessens the temperature of the ovens and hot plates.

2. The roasting plate above mentioned is performed with a row of small holes, through which a current of oxygen is directed over the fire, uniting the combustion of a portion of the smoke, and diminishing the expenditure of fuel and the frequency of clearing the flues. This plate can also be easily removed and a set of bars slipped in its place, by which means the fire is made entirely open in front when desired.

3. The ventilating arrangement in the upper part, which is simple, never requiring attention, removes that close heat and the smell of cooking which is complained of in other kindred.

4. The facility with which fresh fuel can be put on the fire—the sliding top of this range being more easy to manage than any other top-plate, whilst it avoids needless lifting of covers on the part of the servants and the risk of breakage.

5. Whilst an average width of fire-front is retained for the convenience of roasting, the depth of the fire from the basin to the back is very much less than usual, so that a furnace heat and consequent self-destruction of the range and much waste of fuel are avoided.

In the above important respects, Brown & Green's kitchen ranges differ from and surpass all others; in many other details also they are more convenient and complete. They are well adapted for private families, and the ovens are well ventilated, and perfect either as roasters, or for the baking of bread and pastry. The larger sizes, fitted with steaming and bath apparatus, hot closets, and other appliances, form the most complete appointment for clubs, hotels, public institutions, and other large establishments.

These ranges are made from $3 to $4 ft. in width. Prospects, prices, references, and designs may be had on application.
CLASS XXXI.—Iron and General Hardware.

Brown Brothers, Lyme Regis, and 43 Cranbourne Street, Leicester Square, London.—

Patent cooking ranges for mansions, villas, and cottages.

Brown Brothers’ Universal Kitcheners.

The above-named kitcheners have justly obtained a world-wide celebrity for their ingenuity, safety, durability, elegance, and economy of fuel, time, and labour. Since receiving the prize medal at the Great Exhibition of 1851, and other certificates of merit from scientific and agricultural societies, many striking additions and improvements have been made, and these kitcheners, adapted to the use of the mansion or the cottage, are now so perfectly arranged that by a single small fire every culinary operation can be effectually carried on at the same time, and while roasting, baking, broiling, steaming, frying, and boiling are being efficiently performed, hot water may be obtained in abundance for baths, heating conservatories, shops and offices of any description, and by an ingenious application linen may be aired without danger from smoke, fire, or dust. These kitcheners are so constructed that they can be fixed without difficulty, cannot be damaged by carelessness or neglect, and prove an infallible cure for smoky chimneys.

The automaton roaster supplied with the various sizes is an invention unique in itself, and by the application of a simple principle becomes the nearest approach to perpetual motion, and is used without the trouble and inconvenience of every other kind of roasting apparatus.

Beyon, Thomas, Soley Street, Wolverhampton.—A bedstead in the Elizabethan style, with improved sacking, registered.
Class XXXI.—South East Court.

BUST, GEORGE, 70 St. Mary’s Wynd, Edinburgh.—Lightning conductors, and metallic cords.

Wire Strands for flying and signal cords.

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<tr>
<th>Gauge of Strand</th>
<th>per cwt.</th>
<th>Length of Strand.</th>
<th>per cwt.</th>
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<td>0.</td>
<td>£1 6 0</td>
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<td>2.</td>
<td>£1 6 0</td>
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Copper Wire-rope Lightning Conductors, 5 in. diam., and upwards, from 8d. per foot; with fittings, complete, from 1s. 6d. per foot.

Copper and Galvanized Iron Cords for such lines, greenhouses, turret clocks, &c.; galvanized cords from 6s. and copper cords from 10s. per 100 ft.

These cords, when put up with proper weights and pulleys, are cheaper and more durable than any other material.

Galvanized Metallic Cords for clothes lines, from 4s. 6d. per 100 ft. and upwards.

Gilt and Silver-Plated Picture Cords from 3s. per 100 ft.

Steel Wire Cords for Chinoiserie from 2s. per 100 ft.

Price lists and samples will be forwarded on application.

BULLOCK, THOMAS, & SONS, Cleveland Street, Birmingham.—Ivory, bone, wood, and horn buttons of every description.

BURREFIELD, T., & SONS, 8 West Smithfield.—Chaff-cutting machines; oat-bruising, and weighing machines.

BUNNEY & BELLAMY, Millwall, Poplar, E.—Iron tanks and cisterns; navy, house, and farm patent ventilators.

BUTLER, J., & SONS, 4 Elm Street, Gray’s Inn Lane, W.C.—Brass, copper, and iron wire wire.

CARPENTER & TILLESLEY, Somerford Works, Willenhall.—Patent rim, hall door, dead mortise, and stock locks; curry combs, horse scrapers, &c.

CARRINGTON, JAMES, 4 Queen’s Mews, Queen’s Gate, Kensington.—Model of a horse stall, and new system of hitting horses. (See page 19.)

CARRON COMPANY, Warehouses, 16 Upper Thames Street, London; 30 Red Cross Street, Liverpool; and 123 Buchanan Street, Glasgow; Works, Falkirk, N.B.—Sugar pan, bright range, stoves, &c. (See page 19.)

CAYLEY, W. F., 10 Raven Row, Stepney, London.—Models of scales and beam, complete, used for weighing of bullion.

CHAMBERS, WILLIAM, Overseal Street, Birmingham.—Metallic bedstead, pillars and rails.

CHATWOOD & DAW, Row Street, Bolton.—Patent locks, gunpowder escapement, bankers’ safes for valuables and parchment documents.

CHILTON JUNIOIR COMPANY, The, Wolverhampton.—Burden’s patent machine-made improved horse shoes.

CHASE & SON, 57 St. Paul’s Churchyard.—Patent detector locks, &c. (See pages 20 and 21.)

Class XXXI. (17)
CARRINGTON, JAMES, 4 Queen's Mews, Queen's Gate, Kensington.—Improved horse stall, and new system of bitting horses.

The stall or box is removable without damaging either the stall, the box itself, or the building in which it is placed, the fittings not being a fixture. The horse cannot in any way injure himself. The fittings are also a preventive to the horse obtaining the habit of crib-biting. By the improved system of drainage introduced, the stable is kept perfectly free from any ill effects of ammonia. These fittings also include a new system of bitting horses, whereby the horse makes his own mouth, and by so doing makes his own temper.
Class XXXI.—South East Court.

Carron Company, Carron Warehouses, 15 Upper Thames Street, London; 30 Red Cross Street, Liverpool; and 122 Buchanan Street, Glasgow; Works, Carron, N.B.—Sugar pan, bright range, stores, &c.

Fig. 1. Parlour Register Stove.

Fig. 2. Kitchen Range.

1. A Parlour Register Stove, with fire-brick back, and cast-iron ornamental chimney-piece (fig. 1).
2. Various Parlour, and other Register Stoves.
3. Kitchen Range, with bright fittings (fig. 2).
4. Large 350-gallon Sugar Pan, best cast-iron.
5. Sand Boilers, 50 gallons. FB. Pot, 60 gallons.
6. Cabinet Stove, with Ash Pan.
7. Umbrella Stand, and Garden Chairs.
8. Balcony Panels, different patterns.

10. Sections of Carron Company’s Pot Iron, showing fractures.
11. Box Bushes for colonial and other waggon axles.
12. Ornamental Door-lodgers, Scapards, &c.
13. Sad Irons, various.
14. Scovellers, including cast-iron boot jacks, match and candle brackets, &c.

Fig. 1. shows register stove with fire-brick back, ornamental cast-iron chimney piece, and ash pan complete.
Class XXXI.—Iron and General Hardware.

Chubb & Son, 57 St. Paul's Churchyard.—Patent detector locks, fire-proof and thief-proof safes, strong-room doors.

Obtained a Prize Medal with "special approbation" at Great Exhibition in 1851, and First-Class Medal at Paris Exhibition in 1855.

Chubb’s Patent Detector Locks of various sizes, and for all purposes to which locks can be applied. An illustrated price list may be obtained gratis and post-free.

Wheel Lock for doors of strong rooms and safes, throwing any requisite number of bolts all round the door, the whole being secured by four gunpowder-proof locks, each with distinct key.

Suite of Twelve Mortise Locks for room doors, each having its own key opening that lock only, and with the following sub-master keys, viz.: One key to open Nos. 1 and 2 only, one key to open Nos. 1 to 3, one key to open Nos. 1 to 4, and so on up to one opening Nos. 1 to 12. Also a master key to open all, and to double-lock and thereby shut out any and all of the other keys.

Door Lock in walnut-wood stock or casing, the ornamental front, as above engraved, being wrought from a single plate of steel, hardened and burnished.

Larger Door Lock, the case being of polished steel covered with an elaborate modern design in open work, and the key wrought in corresponding style.

Chubb’s Bank Lock for special security of iron safes and doors.

Bank of England Lock, manufactured by Chubb & Son.

It will be observed that no locks of inferior quality are made by Chubb & Son. The whole of their locks sold to the public at large are exactly the same in security and excellence of workmanship as those supplied to Her Majesty, the Government offices, and other public establishments. The prices are from 10s. each upwards.
CHUBB & SON, continued.

CHUBB'S PATENT WROUGHT-IRON FIRE-PROOF STEEL-PLATED SAFES AND STRONG ROOM DOORS, WITH GUNPOWDER-PROOF LOCKS.

1. JEWEL SAFE (see engraving) with ornamental door and sides. The design on the door is executed in a mixture of dead and burnished steel, inlaid gilt scrolls in the corners, and ormolu mountings. The interior fitted up in ornamental work, for the reception of jewellery. The door secured by Chubb's patent wheel lock throwing bolts all round.

2. Another JEWEL SAFE with folding doors of dead steel, with inlaid gilt scrolls and ormolu moldings.

3. Very large BANKER'S SAFE, weighing about four tons, the interior fitted with drawers, cupboards, and partitions for books. The outer folding doors made of wrought-iron plates and hardened steel, combined in the most effective manner into a solid mass or plate. The doors secured by two gunpowder-proof wheel locks, throwing thirty-one bolts all round, and the main key-holes covered with case-hardened iron scutcheons locks opened by a small gold key set in a finger ring.

4. Another BANKER'S SAFE having the above-named system of combined iron and hard steel applied throughout its entire casing.

5. Specimens of Chubb's safes and chests of various dimensions, full particulars of which will be found in their complete illustrated price list, which will be forwarded gratis and post-free.

6. Wrought-iron fireproof doors and frames of various dimensions, for strong rooms.
Class XXXI.—Iron and General Hardware.

Clark, T. & C., & Co., Wolverhampton.—Enamelled and tinned cast-iron hollow ware, and general casting.

Fig. A. Cast-iron Saucepan lined either with enamel or tin.

Fig. B. Fast Joint Cast-iron Hinge.
Fig. C. Loose Joint ditto.
Fig. D. Loose Pin ditto.

Fig. E. Enamelled Cast-iron Wash-hand-Bowl, with plug hole.

Fig. F. Wrought-iron Pulley Block, with cast-iron or brass sheaves.

Fig. G. Carron’s Patent Triangular Cast-iron Wall or Lath Nail.

Fig. H. American Charcoal Box Iron.
Coalbrookdale Company, The, Coalbrookdale, Shropshire.—Plain and ornamental ironwork.

Collins & Green, 7 & 8 Albion Place, Blackfriars.—Sculpture and marble work, marble chimney-pieces, and stoves.

Cooley & Fowke, Castle Street, Wolverhampton.—General hardware and saddlery.

Cornell, John, Lansdowne Iron Works, Cheltenham.—Improved wrought-iron tanks, cisterns, and cattle troughs, coated inside.

Collins & Co., 2 Winstey Street, London.—Stable fittings, tomb millings, and ornamental iron work. (See pages 24 to 26.)

Cooper, Edwin, Vittoria Street, Birmingham.—Metallic stationery, copying, and embossing presses; dies, detector locks, &c.

Cox, Samuel, Walsall.—Every description of saddlers' ironmongery and harness mountings.

Cox, Samuel, Walsall.—Every description of saddlers' ironmongery and harness mountings.

Crickley, Henry, Sheffield Place, Birmingham.—Patent enamelled stove grates, mantelpieces, hall stoves, hat stands, and fenders.

Davies, Edward, Galvanized Iron Works, Snow Hill, Wolverhampton.—Galvanized corrugated iron roofing sheets; scoops, buckets, patent pumps, water spouts, and models, &c.

Day & Millward, Birmingham.—Patent platform and registered weighing machines, scales, scale beams, steelyards, &c. (See page 27.)

Dyke, Edward, 1 Arthur Street East, London Bridge, E.C.—Patent duplex range, patent steel ovens, patent steel boiler, patent roasting apparatus. (See page 28.)

Dykes, Abel, Smith, 27 Brashouse Passage, Birmingham.—Wrought-iron shoe heels and toe tips of every description.

Dykes, G. H., & Co., Campbell Street, Dudley.—Flat and round chains for mining and other purposes.

Dixon, Adam, Birmingham.—Knife and fork cleaners, twine or string boxes, and boot or shoe warmers.
COTTEM & Co. 2 Winsley Street, London.—Conservatory, stable fittings, verandah staircases, tomb railings, and ornamental iron work.

Model of Stable Fittings, in two stalls and one loose box, to a scale of one-quarter the full size, showing the wainscot partitions and doom, wrought-iron ventilating division railing and ramps, with iron half posts, surface gutter with movable safety covers, sanitary traps, improved registered manger and water trough of enamelled iron, patent guide and halter strap with registered noiseless shackle combined, ventilating safety manger guard, enamelled head-stall plates, &c.

STABLE FITTINGS.

The improvements in these fittings are numerous, such as increased capacity, a better formation, no projections, the patent halter guide and noiseless swing manger shackle, patent portable seed box for saving the hay seeds for agricultural purposes, &c. Drop cover for water trough, registered loose box ventilating guard to prevent the horse getting his head under the fittings, gutter to prevent the horse getting the wallings of his shoes fixed, and numerous other additions.

WROUGHT-IRON VENTILATING BRACKETS, for hanging saddles and harness upon.

The improvements in these are their being made in sets and of the shape of the harness, which retains its natural form when suspended and preserves the leather from cracking; the openings between the bars allowing a free admission of air to dry the under parts of the saddle, collar, or harness pads.

SAMPLES OF WROUGHT-IRON CEILING HOOKS, for cleaning harness upon.
Cottam & Co., continued.

**Class XXXI.**—*South East Court.*

**Samples of Improved Back and Pillar Chains.**

Wrought-iron Brush Drainers for drying the cleaning brushes, &c., after use.

**An Iron Fork Rack,** to hang the stable fork upon when not in use.

**Samples of Sliding Head-stall Plates for the horses of Horses.**

**A portion of a Verandah.**

A portion of a Verandah or covered Way; having cast-iron columns for the support of the roof, which may be covered either with zinc, copper, or glass; the spaces between the columns are filled in with ornamental spandrels, and a perforated glass above.

*(See)*
A Pair of Gates of Italian character, of wrought and cast iron, suitable for the entrance to a park, public building, and many other purposes.
DAY & MILLWARD, Birmingham.—Prize metal patent and platform weighing machines, of all descriptions, also manufacturers of scales, scale beams, steelyards, &c.

Sole patentees of the prize medal patent weighing machines, adapted for railway stations, 118, Suffolk Street, Geo Street, Birmingham.

These machines may be graduated to the English or foreign standard.

Dobson, Elizabeth & William, 24 Fieldgate Street, Whitechapel.—Specimens of branding irons.

Docker & Onions, Thorp Street, Birmingham.—Smiths’ bellows, portable forges, &c.

Dollar, Thomas Aitken, 56 New Bond Street.—Improved methods of horse-shoeing.

Dowler, George, Great Charles Street, Birmingham.—Wax vestas and boxes; hearth brushes, inkstands, bells, corkscrews, toasting-forks, candle-shades, &c.

Dowling, Edward, 2 Little Queen Street, Holborn.—Scales, weights, and mills, and weigh-bridges of every description.

Duley & Sons, Northampton.—Kitchen ranges and patent brushes for axles.

Dyke & Co, 15 Aston Place, Holloway Road, N.—Improved ice closet and chests.

These goods are made of any shape or size, and of the best materials. They afford a perfect safeguard against heat or dust.
The Patent Revolving Roasting Apparatus is intended to supersede the objectionable smoke and bottle jack, made in various sizes.

The Patent Steel Ovens, lined with fire clay, are made for Government for roasting for 50, 100, and 250 men.

The Patent Steel Boilers are lined with very peculiar fire clay; and with only 10 lbs. of coals they have boiled 20 gallons of water for breakfast, 20 gallons of soup for dinner, and 20 gallons of water for tea, thereby providing for 100 men. Testimonials sent.

The Patent Duplex Range is not surpassed by any range yet invented, in effectiveness and economy, having two fires which can be regulated to any size. One or both can be used, the boiler coming in the centre. A range of 6 ft. 6 in. long, with 21 in. opening admitting the boiler front, will, with the patent revolving roasting apparatus in front, roast with ease 12 joints.


CLASS XXXI.—South East Court.

[ 6044 ]

EASTHOPE, William, Wyle Cop, Shrewsbury.—Cooking apparatus, with open boiler for bath.

[ 6045 ]

EDERSTEN & WILLIAMS, Newhall Works, George Street, Birmingham.—Iron wire, pearl buttons, patent toilet and entomological solid-headed pins.

Edelsten & Williams (late D. F. Taylor & Co.) are manufacturers of iron wire, pearl buttons, patent toilet and entomological solid-headed pins, by special appointment to Her Majesty the Queen.

[ 6046 ]

EDGE & SON, Coalport, Ironbridge, Shropshire.—Elastic chains, cables, wire ropes.

[ 6047 ]

EDWARDS, Eliezer, Birmingham.—Glass finger plates, lock furniture, drawer handles, bell pulls, &c., with metal mountings.

Obtained Honourable Mention at the Exhibition of 1851.

Finger plates, lock handles, key-hole plates, bell pulls, &c., en suite, in various styles and colours.

Drawer handles with screws completely formed entirely of glass.

Drawer handles, cupboard-turns, &c., with the iron shank firmly embedded in the glass while in a molten state.

Any of these articles can be adapted to the special requirements of foreign markets.

[ 6048 ]

EDWARDS, Frederick & Son, 49 Great Marlborough Street, London, W.—Porcelain-tile grates, fire-brick grates. (See page 30.)

[ 6049 ]

EDWARDS, William, 84 Wellington Road, Edgbaston, Birmingham.—Crinoline fire-protectors.

[ 6051 ]

ELLIOTT, John, 67 Division Street, Sheffield.—Quadrant weighing machines, adapted to English and French weights.

[ 6052 ]

ELLIOTT'S PATENT SHEATHING AND METAL COMPANY, Newhall, Birmingham.—Rolled metals, wire, bolts, spikes, nails, &c.

[ 6054 ]

ELLIS, G. H., Grantham, Lincolnshire.—Boot, knife, and fork cleaners; self-acting game, rat, and mouse traps; &c.

[ 6056 ]

EVANS, Jeremiah, Son, & Co., 33 and 34 King William Street, London Bridge, E.C.—Stoves, and cooking apparatus. (See page 32.)

[ 6057 ]

EYLAND, Moser, & Sons, Walsall.—Spectacles and eye-glasses of every description, buckles for braces, belts, &c.
EDWARDS, FREDERICK, & SON, 49 Great Marlborough Street, London, W.—Porcelain-tile grates, fire-brick grates, improved kitcheners.

DRAWING-ROOM DOG GRATE, No. 7.

All the grates exhibited are of Edwards & Son's own manufacture and design. Most of these are ornamented with porcelain tiles and slabs, which have been made to Edwards & Son's designs by Mr. W. E. Copeland and Son's, Minton & Co.

1. A LIBRARY NO. 11 GRADE, with ormolu mouldings and handsome porcelain slabs.
2. A GOTHIC DRAWING-ROOM GRADE in polished steel, with ormolu mouldings and porcelain slabs.
3. A LIBRARY GRADE, with polished steel front and electro-bronzed Gothic mouldings; the porcelain slabs of Grotesque design.
4. A BIBLIOTHEQUE GRADE AND FENDER in polished steel, with ornate mouldings and richly decorated porcelain slabs.
5. A CHEST OF DRAWERS GRADE, with richly chased ormolu mouldings and porcelain slabs of Italian design.
6. A LIBRARY NO. 11 GRADE in polished iron, and richly ornamented with ornate mouldings and electro-bronzed panels and ornaments. The design on the large panels is symmetrical of lust. The chased figures in the lower part are intended to represent the subjection of fire to the intelligence of man. Two cherubs are shown above, meadling in fiddles and enjoying the genial warmth of a vase of burning fuel. The centre of the top of the stove represents the sun. Around are figures and flowers representing the four seasons.

A BRICKLY-DECORATED DRAWING-ROOM DOG GRADE, with fender and fire-iron; the dogs and fender in ornaments, electro-gilt, and chased by gold chased; the sides of the grate in polished steel, with porcelain tiles in white and gold, and electro-gilt ormolu mouldings.

8, 12. FIRE-LUMP in one piece, made in three sizes, the fire box of wrought-iron. These grates give a large amount of heat with a small consumption of coal, and are of very moderate price.

11. A PERIODICAL HALL STOVE in polished iron, with ornate mouldings and porcelain panels.
12. A GOTHIC DOG GRADE, with porcelain panels at sides, and a porcelain tile hearth with fender.
14, 15. DRAWING-ROOM GRADES, with ornate mouldings and decorated porcelain slabs.

16. FIRE-LUMP GRADE, No. 8.
EDWARDS, WILLIAM, 24 Wellington Road, Edgbaston, Birmingham.—Patent improved firescreens or guards.

These guards are ornamental in appearance, simple in construction, and will fold or spread out with as much ease as a lady's fan. Are made in any metal, adapted for grates of all shapes and sizes, do not interfere with the cheerful appearance of the fire or the diffusion of heat in the room, do not require to be removed from the grate when the fire is wanted or needs replenishing with fuel. By simply turning the handle in front, the guard can be folded leaf over leaf into the space of one, and so give free access to the fire.

Licensed manufacturers—
William Burgess, Holloway Head, Birmingham.
Henry Cribbey, Coventry Road, Birmingham.

Samuel Robotham, Bradford St, Birmingham (in wire).
William Soutter, New Market Street, Birmingham.
Drawings with prices will be forwarded on application.
1. Improved Evans' Kitchens, with hot-plate top, with loose plates, large wrought-iron oven on one side; and roaster on the other, fitted with shelves, best scroll spring brackets and hinges; a boiling stove at one end, two coppered bell hot riveted wrought-iron boilers at back, one for steaming purposes if required, the other a sealed or pressure boiler for furnishing a constant supply of hot water all over a house for a bath, for wide hand basins, or for the use of home-maid on the various bandings, as may be found convenient, the back and sides lined with metal casings or plates with regulating dampers, doors for cleaning the flues, and a wrought-iron rack or shelf the entire length of the apparatus for warming plates, keeping dinner hot, &c.; each boiler is furnished with a patent gum-metal draw-off cock for hot water, which may, if preferred, be fixed in the scullery, with pipes leading from the boiler or boilers. This apparatus is adapted for the use of large families. The width of the one shown is 7 ft. 6 in. but for large establishments, as hotels, public institutions, &c. they are made up to 15 and 20 ft. in length.

2. Cooking Apparatus of the same description as No. 1, but without the boiling stove and with one boiler; the width is 5 ft. 6 in.

3. Cooking Apparatus of same description, but fitted with one oven or roaster, and one wrought-iron boiler at the side; the width of the one shown is 5 ft. 6 in. but they are made of main construction from 3 ft. to 6 ft.


5. Dead Sprung Arch-Fronted Register Stove, with wrought steel twisted moulding and lift-off ornate ornaments, fire-brick back, &c.


7. Elegant Burnished Steel Drawing-room Register Stove, with highly chased enriched cable or mouth moulding, and centre and pendant ornaments; also steel cable moulding to linear four, bold bright bars with ornate feet, bassiter bar, cut steel ellipse, &c.


9. Small Dining-room Register Stove, with applied arch front, with ornate headed mouldings round panels, of classic design.


13. Circular Berlin Black Fender to match stove No. 5, with polished steel cable bar.

14. Rich Ormolu and Polished Steel Fender, with scroll rails to match stove No. 7.

15. Handsome Ormolu and Steel Fender to match stove No. 8.


17. Berlin Black Fender, with steel cable, &c.

18. Electric-Ironed Face Safe Fitting Fender.

19. A variety assortment of Steel Fire Furniture and Fittings to match the stove and furnitures exhibited, with heads of ornate, brass, cut steel, &c.; and with suitable plain, ornate cut, diamond cut, twilled, &c.; and illuminating the perfection of polish of which steel is susceptible.

20. Steel Chamfered Guard of improved construction.

21. Jasper Marble Mantel-piece, very rich in colour with arched opening; fitted to stove No. 6.


23. Styx Marble Mantel-piece, with moulded shelf, bold columns at sides, &c.; adapted to stove No. 8.

24. Pair of Steel Porcelain Brass Fire Box.
Feetham, Miller, & Sayer, 9 Clifford Street, London.—Ornamental iron and brass work, stoves, grates, and fenders, &c.

Class XXXI. — South East Court.

GROUP OF STOVES, FIRE DOORS, WROUGHT-IRON GATES, &c.
CLASS XXXI.—Iron and General Hardware.

[ 6059 ]
FIELD, WILLIAM, & SON, 224 Oxford Street.—Patent and other horse shoes as used in England.

[ 6060 ]
FIELDMouser, GEORGE, & Co., 2 Poulteney Street, Wolverhampton.—Steel coffee and other mills.

The great superiority and cheapness of the exhibitor's best quality steel mills arise from the fact of their having introduced machinery in their production, by which means they are enabled to make each part to a standard size, so that it may be replaced till case of loss or breaking) without the expense of carting of the whole mill. The teeth of the grinding parts are made to one uniform angle and shape, which they have proved from considerable experience to be the best to ensure their grinding easily and quickly.

[ 6061 ]
FINCH, JOHN, Priory Street Works, Dudley.—Fenders, fire-irons, hat and umbrella stands, garden seats, and bedstead castings.

[ 6062 ]
FINLAY, JOHN, Glasgow.—Patent grates, exhibiting the most perfect central oven combination, with powerful radiation.

[ 6063 ]
FIRMAN & SONS, 153 Strand, London, and 2 Dawson Street, Dublin.—Military ornaments.

[ 6064 ]
FITZGYRAM, LIEUTENANT-COLONEL, 156 Husines, Dublin.—Improved horse shoes.

[ 6065 ]
FLAVEL, SIDNEY, & Co., Eagle Foundry, Leamington.—Improved kitchener.

[ 6066 ]
FRANCIS, EDWARD, Camden Place, Dublin.—Specimens of horse shoes for diseased and healthy feet, shoe hoofs, &c.

Has obtained Medals and Honorary Certificate of the Royal Dublin Society.

This exhibitor holds the appointment of farrier to Her Majesty, the Lord Lieutenant, the officers of the staff, the metropolitan police, &c.

[ 6067 ]
FREERSON, JOHN, 10 and 11 Clement Street, Birmingham.—Patent hooks and eyes for ladies' garments.

[ 6068 ]
FULLER, WILLIAM, 60 Jeromys Street, London.—Improved patent freezer for making cream and water ices.

[ 6069 ]
GALE, SAMUEL, 220 Oxford Street, W.—An arrangement of bell-wires to prevent friction or enlargement; a register for chimney; a curious lock made by an amateur locksmith 70 years ago.

The improved register exhibited is cheap, and can be applied to any stove. It effectually prevents the smoke from other chimneys entering a room where there is no fire.

[ 6070 ]
GEOEDES, JOHN, 4 Cateaton Street, Manchester.—Ornamental wire plant-stands, model rosery, and verandah.
GENERAL IRON FOUNDRY COMPANY, Upper Thames Street, London.—Stoves, mantels, bronzes, &c., cooking apparatus, coal cases, castings.

Table Range or Cooking Apparatus for centre of kitchen, contains two large and powerful wrought-iron ovens and two wrought-iron roasters, with wrought-iron caps above supplying very extensive steam and hot water apparatus, and a hot plate containing about 10 ft. of cooking surface. The smoke would be conducted away by means of underground flues to any available shaft.

This range is of extraordinary power, with one fire and an exceedingly small consumption of fuel, an immense amount of cooking in every possible variety can be conducted; it is estimated that dinner could be supplied for 3,000 persons in one day from this single apparatus, while it is equally adaptable for cooking a dinner for a dozen persons.

Close-Fire Cooking Range, 6 ft., with hot plate, two wrought-iron roasters converted into ovens, and wrought-iron circulating boiler capable of holding 200 gallons of water.

This range is adapted for a large private family or small hotel; but it is equally adapted for unlimited extension; it is thoroughly effective as well as economical in the working.

Coal-Canteen for hot-water heating, of cast-iron brazed, with white marble top, roll of pipes enclosed.

Lamb Black Marble Mantel-piece, with sculptural features in fine bronze (Potts's patent).

Stove for dito, ventilating and smoke consuming (Taylor's patent).

Fender and Fire Irons for dito.

Cased Stone Mantel-piece, of seashell-calculated character, with fine panel (the Sermon on the Mount) and other enrichments in bronze (Potts's patent).

GIBBON'S, JAMES, St. John's Lock Manufactory, Wolverhampton.—Ornamental locks, keys, and hinges, general ironmongery.

GIBBONS & WHITE, 345 Oxford Street.—Wrought-iron weather-tight casements; Gibbons's patent lock furniture.

GIBSON, THOMAS, Cape Works, Birmingham.—Specimens of springs, axletrees, and carriage iron work, patent and otherwise.

GILLETTE, WILLIAM, 18 Back Street, Bristol.—Two improved bottling machines.

GINGELL, WILLIAM JAMES, Bristol.—Model of a uniform corn-meter.

GLAAS, ELLIOTT, & CO., 10 Cannon Street, London; Manufactory, Cardiff.—Iron and steel wire ropes.

GODDAARD, Nottingham.—New patent economical cooking apparatus either for a close or open fire.

GOLLOP, EMILY, Charles Street, City Road, London.—Redmund & Gollop's patent floor springs, rising and not rising hinges, gate hinges, &c.

GRAY, A., & SON, 9 & 11 Weaven Street, Birmingham.—Fire-irons, &c.
CLASS XXXI.—Iron and General Hardware.

GRAY, JAMES, & SON, 85 George Street, Edinburgh.—Stove with ormolu pillars.

GREEN, JOSEPH, 134 Irving Street, Birmingham.—Builders’ iron work, and other articles suitable for domestic purposes.

GREENING & CO., Manchester.—Wire park fencing, manufactured of unusual strength and height by patent machinery.

GREENING, N., & SONS, Warrington, Lancashire.—Wire cloth woven by steam power, of extraordinary width and strength.

GRIFFITHS & BROWETT, Birmingham, and 8 Broad Street Buildings, London.—Wrought-iron tinned, japanned, and enamelled wares; tin-plate wares. (See page 37.)

GRIGG, ABRAHAM, 8 Shepherd Street, Spitalfields.—Models of flower stands, summer houses, pheasantry, and ornamental fences in wire.

GUY, S., 3 Hanover of Venison Yard, Brook Street, New Bond Street.—Specimens of horseshoeing.

HAGUE, THOMAS, Bridge Street, Sheffield.—Fire irons, with ormolu bronze, and steel heads.
GROUP OF WROUGHT-IRON TINNED AND JAPANNED WARES.

They exhibit:

A set of papier-mâché trays, ornamented in the morocco style.
A set of papier-mâché trays, ornamented in the Indian style.
Patent raised hot-water dishes and covers, soup and vegetable dishes, and soup tureens.
Papier-mâché folios ornamented by a patent process.

Tea and coffee pots, sugar basins, and cream jugs.

Patent tea and coffee pots, sugar basins, and cream jugs.

Paris patent enamelled ware, plain and printed.

A variety of curious and novel specimens of wrought-iron work raised from flat sheets of metal, without seam or brazing.

GRIFFITHS & BROWET, Birmingham, and 8 Broad Street Buildings, London.—Wrought-iron tinned, japanned, and enamelled wares; tin-plate wares.

Obtained Prize Medals at the International Exhibitions of 1851 and 1855.

GRIFFITHS & BROWET are general iron and tin-plate workers, japanners, manufacturers of tinned and enamelled wrought-iron hollow ware; Loyes's patent hydrostatic urns, Voss's patent hydropult, and Keevil's patent cheese-making apparatus.

HALL, JAMES, Heatherston Works, Walsall.—Spring hooks, curb chains, pole chains, South American bits, &c.

HALL, ROBERT, 4 Laurie Street, Leith, Scotland.—Malleable iron branding stamps.

Impressions of ditto on wood.
CLASS XXXI.—Iron and General Hardware.


[6093] Hammond, Turner, & Sons, Birmingham.—Buttons, military ornaments, and fancy dress fasteners.


Obtained a Prize Medal at the Exhibition of 1851.

Fountain, 6 ft. dia. 13 ft. 9 in. high.
Ditto 3 ft. 6 in. dia. 8 ft. 6 in. high.
Ditto 3 ft. 6 in. dia. 8 ft. 6 in. high.

Vase and Pedestal 2 ft. 6 in. dia. 8 ft. 6 in. high.
Lamp Pillar, with drinking fountain, 13 ft. high.

[6095] Harley, George, 43 Warwick Street, Wolverhampton.—Patent lock and night latches.


[6097] Hawkins, John, & Co., 38 Lisle Street, Leicester Square, and 16 Station Street, Walsall.—Bits, stirrups, spurs, &c.

[6098] Hayward, Brothers, 117 Union Street, Southwark.—Patent kitchen ranges, ventilators, coal-hole plates, lock furniture. (See page 40.)

[6099] Heaton, Ralph, & Sons, The Mint, Birmingham.—Coins complete, and the same in progress of manufacture.

Coins complete, and the same in progress of manufacture, made by Messrs. Heaton for the English, French, Indian, Italian, and other governments.

Heaton & Sons furnish estimates for complete coinages, and execute them either in England or abroad.

[6100] Henne, Isaac, Ric Street Works, Birmingham.—Taper-pointed wood screws in iron and brass; also coach screws.

[6101] Hewens, Richard, 120 Warwick Street, Leamington Prior.—Improved Leamington kitchener, with Hewens’s patent regulator.


[6103] Hill & Smith, Brierley Hill, Staffordshire.—Specimens of forged iron work, railway and cart axletrees, &c.
The First Patent Lock possesses the following advantages:

1. A very small key.—In locking, the bolt is shot by simply turning the knob. In unlocking, the key, which may be very small and light, is inserted and turned round once, raising the levers with a very gentle touch to the proper position, and is then taken out, and the bolt is withdrawn by turning the knob back again.

2. It cannot be picked, because the only time when the key-hole is open, is when the stump of the bolt is at a distance from the levers, and any instrument inserted through the key-hole holds the bolt fast and prevents it from being forced back against the levers in order to feel for the gratings. If the instrument be removed, the bolt can then be forced back, but the same action completely closes the key-hole.

3. It cannot be deranged, the levers being completely under control: if they are thrown down, the key raises them; if forced up too high they can be depressed by means of the handle.

4. Excludes air and damp.—When the lock is open the key-hole is closed. When locked, the key-hole may also be closed by bringing the bolt back a short distance; this excludes air and damp.

The peculiarity of Hamilton & Co.'s Second Patent Lock, which cannot be picked, consists in the tumblers being secured on a movable axis fixed on the tail of a bell crank lever, which when pressure is applied falls into a notch in the bolt, and on the pressure being continued the tumblers recede further and leave a space between them and the stump of the bolt, so that the tumblers are always free.

They manufacture also lever and other locks, safes, deed and cash boxes, &c.
1. "The Union" Kitchen Range, with open fire.

In this range the whole of the hob above the oven is a boiling surface or hot plate, and it embraces all the advantages of an enclosed cooking apparatus without its offensive smell, imperfect ventilation, &c.

The oven may be kept "slow" or raised at pleasure for baking bread, &c.; or to a quick and scorching heat for roasting meat. When baking pastry the heat can be passed to the top of the oven to raise the crust, and then equally distributed; the quantity as well as the direction of the heat being entirely under control.

The boiler is adapted for heating a large supply of water to any part of the house, for baths, &c. A second boiler can be added for steaming, if required.

2. Improved Coal-hole Plates and Pavement Lights, for safety, light, ventilation, and prevention of accident.

3. Sheringham's Ventilators, for the admission of fresh air through the external walls by day and night.

4. Arnott's Valves, for the extraction of vitiated air through the chimney breast.

5. Circular Iron Staircases on an improved principle, which renders them very strong and firm.

Price lists of the above, and estimates for hot-water work, will be forwarded on application.
CLASS XXXI.—South East Court.

[ 6104 ]

CHAPMAN, THOMAS, late HILLIARD & CHAPMAN, 50 Buchanan Street, Glasgow.—Patent knife cleaners, knife sharpeners, and lockfast table knives.

Obtained Prize Medal at the Exhibition of 1851.

Patent Furbiators (improved knife cleaners), six different sizes, with pillar stand, box stand, and bracket for holding the same.

Patent Acuminators (improved knife sharpeners), various patterns and sizes.

Patent Lock-fast Table Knives, various patterns, with section of handle showing the principle.

Portable Fork Cleaner.
The exhibitors are inventors, patentees, and manufacturers of bank, protector, and other locks, and the lock-making steam machinery.

Hobbs's locks have been awarded the following testimonials in their various competitions:—The Prize Medal of the Great Exhibition of London, 1851; the First-Class Medal of the Imperial Exposition of Paris, 1855; the Gold Medal of the Imperial National Mechanics' Institute of Vienna. In addition to these, are two gold and three silver medals from various Associations for the Promotion of Mechanical Science in the United States of America.

The locks exhibited on the stand to the right hand of the visitor, consist of the changeable-key bank lock and the protector locks.

HOBBS & CO.'S PATENT PARAUTOPTIC, OR BANK LOCK.

This lock, of which an illustration is subjoined, is deemed unapproachable as a security of the repositories of treasure, and impregnable against every practicable method of picking, fraud, or violence. The "bits" or steps on the "web" of the key, that act on the levers inside the lock, are separate, instead of being, as in other keys, cut on the solid metal. These moveable bits are fastened by a small screw on the end of the shank of the key, when it has the appearance of any other lever-lock key. There are besides, spare "bits" to change, when desirable. The lock has three sets of levers, and is so constructed that, whatever arrangement the bits on the key may have when acting on the lock, the latter immediately adapts itself to the same arrangement, and will lock and unlock with perfect facility; but it cannot be unlocked by any formation of the "bits" except that which locked it. Let it be supposed that the lock works with a "1-2-3-4" key, in proper numerical order, so 1, 2, 3, &c. up to 12. The bits are bit by them, and will open by them; but if a bit is changed in its place, the lock will remain locked, because, by the alteration, the key has become also changed in its action, to which change the levers will not answer. To re-lock in another form—Suppose that, instead of the bits being arranged as 1, 2, 3, &c., the order is reversed, and they are screwed on as 12, 11, 10, &c., down to 1. By the self-changing principle of the lock, it assumes the new form of the key, and will work with it as readily and securely as it did before. The same result can be obtained by any and every permutation of the number of "bits" of which the key is composed, until millions, and thousands of millions of changes are worked, every change virtually converting the lock into a fresh lock by this simple transposition of the key. Hence its name of "Parautoptic," or changeable.

The illustration represents a view of the lock, the key, and the spare "bits." To give an idea of the number of times this lock can be transposed, it may be mentioned, that a key of only six bits can be altered 720 times; and if two sets of bits are used, the transpositions extend to many thousands. The price of locks for bullion safe, and the doors of strong rooms, &c., of which the above is an illustration, is £30; and for cash and dispatch boxes, and similar purposes, 4/10.

The keys can be made sufficiently small, if desired, either for the waistcoat-pocket or the travelling-case, it is claimed for both locks and keys that they illustrate the highest degree of scientific and mechanical skill in the locksmith's art.
HOBBS & CO., continued.

**HOBBS & CO.'S PATENT PROTECTOR SOLID KEY AND INDEX LOCKS.**

The patent protector locks are exhibited as possessing absolute security against picking by any method at present known. The key is what is called "solid," that is, that the "bits" or "steps" are cut on the solid metal of the "weld," and, therefore, not changeable. They are specially adapted for places where the most ample security against lock-picking is required.

The "protectors" of this lock consist of a peculiar arrangement of certain parts behind the bolt and levers, unreachable by any lock-picking instrument whatever. When any tampering is attempted on the lock, by pressure on the bolt through the key-hole, to discover the opening position of each lever, the bolt protector comes into action, preventing the pressure affecting the levers in any way, thus holding them clear, and thereby frustrating the calculations of the thief. This principle was first introduced in locks at the memorable Exhibition of 1851, and forms the foundation of a new security. The key and bolt fraud-protector is a moveable nuzzle, now first introduced. These two protectors combined are offered to the public, as the two essentials of security—protection against picking, and protection against fraud. Specimens are shown illustrating the action of the protectors. There is also a model showing the arrangement of the bolts and locks so fixed on a strong-room door. The protector locks are sold, retail, at prices varying from 10s. to 40s.

**HOBBS & CO.'S PATENT LOCK INDICATOR.**

This is a method of locking the doors of iron safes, strong rooms, customs stores, bonded vaults, prison cells, corridors, &c., by means of the handle, without a key, and showing to what extent the bolt has been shot. It may consist of the upper half of a dial, upon which are the words, "Open," "Shut," "Locked." When the door stands merely closed by, the index finger rests on "Open." This finger is fixed to the handle that works the lock, and therefore, whichever way the handle moves, the finger must move with it. Turn the handle, and fasten the door by the first movement of the bolt, the finger will point to "Shut." A second motion of the handle, and the bolt shoots out beyond its reach, the finger, at the same moment, resting on "Locked." The lock can only be opened by the key, because, at the second turn, the handle loses its control of the bolt. The action of the bolt returning into the lock, or unlocking, takes index finger back to "Open," re-setting it again. The advantages of this index in dock yards, shipbuilders' stores, dock warehouses, prisons, &c. where certain officers are limited to departments of the premises by day or night, must be of the highest importance. The superior officer would be safe, by its use, to see in an instant what condition the bolts of the locks were in.

In the centre of the stand is a first-class strong-room door. It is made of the best iron-plated back and front, the interior being lined with slab of hardened steel. In this door the bolts are of the usual arrangement—they are thrown by the knob, an examination of which will show the great security attained by Hobbs & Co.'s patented method for security. It will be seen to consist of triple security against violence of all kinds, while the lock is peculiarly constructed and is powder-proof, holding less than twenty grains of gunpowder, which is totally insufficient to blow it off.
Horns & Co., continued.

Horns & Co.'s Machine-made Locks.

This group of locks is in the stand on the left of the spectator. They are constructed in all sizes and varieties, suitable for every purpose for which locks are used. In consequence of their manufacture by steam-machinery, in a manner previously unknown in the trade, they exhibit the first important step of progress in this country in the economy of lock-producing. By means of the different machines used in the making, a faultless accuracy is arrived at, which, by hand, would be quite impossible.

An annexed are illustrations of cutters and dies by which such accuracy is obtained.

These locks possess a strong recommendatory quality to the owners and occupiers of house property, in their comparative cheapness to hand-made locks, being made of superior materials, combined with the nicety of the finish of the working parts, effected by the machinery, and their universal adaptability. References can be given to most of the Government offices, as to their durability and security; and also to nearly all the metropolises and most of the country banks, as well as to architects, engineers, and builders of the highest standing. They are made from two to five levers, and the retail prices range from 2/6 upwards. For cottages, mansions, warehouses, &c., these locks will be found most desirable. They are very extensively used by builders, for doors, chests, cupboards, &c.; and by cabinet makers for side-boards, wardrobes, desks, drawers, dressing-cases, and all kinds of cabinet work.

The woodcut shows a mortise lock, adapted for room doors, price 6s. The security consists in a series of levers being raised to unequal positions by the bits of the key before the bolt can pass.

Both the protectors and the machine-made lever locks can be fitted in line for master-keys to pass a given number of locks, that otherwise open with a different key each. The convenience afforded by a master-key in premises divided among subordinates is very great. All the locks of Messrs. Hobbs & Co. can be obtained from every respectable ironmonger in Great Britain and Ireland. Merchants and shippers are also supplied, at wholesale prices, for exportation.

**Door Locks.**

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 in. 1 bolt mortise, 2 levers</td>
<td>key each</td>
<td>5d</td>
</tr>
<tr>
<td>7 in. 2 bolt ditto 4 ditto ditto</td>
<td>9d</td>
<td></td>
</tr>
<tr>
<td>6 in. 1 bolt rim</td>
<td>ditto</td>
<td>4d</td>
</tr>
<tr>
<td>6 in. 2 bolts ditto 2 ditto ditto</td>
<td>5d</td>
<td></td>
</tr>
<tr>
<td>7 in. 2 bolts ditto 4 ditto ditto</td>
<td>10d</td>
<td></td>
</tr>
</tbody>
</table>

**Cabinet Locks.**

<table>
<thead>
<tr>
<th>Size</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2½ in. till</td>
<td>4 levers</td>
<td>2s</td>
</tr>
<tr>
<td>3 in. till</td>
<td>4 ditto ditto</td>
<td>2s</td>
</tr>
<tr>
<td>3 in. cupboard, 4 levers</td>
<td>1 key each</td>
<td>2s</td>
</tr>
<tr>
<td>4 in. ditto</td>
<td>2 levers</td>
<td>1½d</td>
</tr>
<tr>
<td>2½ in. box</td>
<td>2 levers, 1 key each</td>
<td>2d</td>
</tr>
</tbody>
</table>

Horns & Co.'s Patent Lock Furniture.

This lock furniture is so planned that the most unskilful workman cannot fail to fit it properly. It is self-adjusting; the handle will not bind at whatever angle the lock may be mortized. It is very moderate in price, will endure hard and lengthened wear, and acts without friction.

Manufactury, Arlington Street, Brixton Fields, N.
HooD, Samuel, & Sox, 68 Upper Thames Street, London.—Stable fittings.

**Set of Stable Fittings,** consisting of improved hay rack with patent spring stop, cancelled manger, cancelled water cistern with removable cover, and endless tying apparatus with the halter and head piece.

**Set of Loose-box Fittings**, consisting of hay rack, manger, and water cistern with improvements as above.

HooD, William, 12 Upper Thames Street, E.C.—Drinking and garden fountains, lamp-Posts, lamp-posts, and specimen castings.

Hoole, Henry E., Green Lane Works, Sheffield.—Grates, fenders, fire irons.

Hopkins, J. H., & Sons, Grenville Street, Birmingham.—Block tin, stamped, tinned iron, and japanned articles. *(See page 47.)*

HuLse & Haines, 1chnield Street West, Birmingham.—Brass and iron bedsteads.

Huist, C. H., Royal Road, Kennington Park, S.—Patent wrench and mallet to save all taps from damage, and infallible transparent cement to repair china, glass, &c.

The top wrench and mallet is an ingenious contrivance for preventing damage to wire and other taps. Price 2s. complete. Lever top wrench alone, 1s. The cement will effectually repair broken glass or china. It is transparent, and will bear washing in hot water. Price 1s. and 2s. per box. Post-free for 14 or 20 stamps.

Iles, Charles, Ped Works, Birmingham.—Hooks and eyes, thimbles, pins, needles, hair pins, &c.

Obtained a Prize Medal at the Exhibition of 1851.

Specimens of hooks and eyes, thimbles, patent enamelled thimbles, solid-headed pins, hair pins, and fancy boxes, and articles for containing and connected with the above manufactures.

Ilffe, & Playle Brothers, Birmingham and London.—Buttons, medals, and military ornaments.

*(Prize Medal awarded at the Exhibition, 1851.)*

The Patent Linen Button is made from one piece of metal, which so firmly shape the line covering, that, unlike all other linen buttons, it is impossible by mangling or washing to separate them. This button is also made with two centre cylindrical holes, forming between them a bar for the thread to ride on.

The Patent Brass Button, so constructed that the front shell overlapping the bar of the back, presents only a flat surface, instead of an edge, as in other brass buttons.

Ingrao, George Wells, 1 Lombard Street, Birmingham.—Powder flasks, shot pouches; crimping and adapting machines.

Ishay, Thomas, & Co., Dover.—Improved close-fire ranges for large kitchens. *(See page 48.)*
CLASS XXXI.—Iron and General Hardware.

[ 6116 ]
JAMES FOUNDRY COMPANY, THE, Walsall.—Iron and brass, and builders' ironmongery.

[ 6117 ]
JAMES & SONS, King's Norton, and Bradford Street, Birmingham.—Patent self-boring wood-screws.

[ 6118 ]
JAMES, J., & SONS, Victoria Works, Bidditch.—Needles and fish-hooks.

[ 6119 ]
JEAKES, C., & Co., 5 Great Russell Street, Bloomsbury, London.—Kitchen range and fittings; grates, brass and iron work. (See page 48.)

[ 6120 ]
JEAVOSS, I. & D., Petit Street Works, Wolverhampton.—Wrought-iron hollow-ware, &c.

[ 6121 ]
JEFFREY & JAFFRAY, 2 Allen's Court, 387 Oxford Street, London.—Wire work.

[ 6122 ]
JENKINS, HILL, & JENKINS, Milton Works, Birmingham.—Wire iron, iron and steel wires, &c.

[ 6124 ]
JONES & BOWE, Worcester.—Patent range, comprising fire, 4 ovens, 2 closets, boilers, and steam closet. (See page 49.)

[ 6126 ]
KEEFE, GEORGE, 55 Great Russell Street, Bloomsbury.—Ice machines; freezing powder and apparatus for hot climates. (See page 50.)

[ 6127 ]
KENNARD, R. W., & Co., 67 Upper Thames Street, and Falkirk, N.B.—Ornamental castings in iron. (See page 51.)

[ 6128 ]
KENECK, ARTHUR, & SONS, West Brunswick.—Patent cast-iron tinned and enamelled hollow ware, &c.

[ 6129 ]
KENT, GEORGE, 199 High Holborn, and Strand, London.—Knife-cleaning machines, and other inventions for promoting domestic economy. (See pages 52 and 53.)

[ 6130 ]
KINGTON & TROWBRIDGE, 116 Alderney Street.—Platform and every description of weighing machines, scales, &c. (See page 54.)
PORTABLE HOT-WATER BATH.


Black tin hot-water version dish and cover, 24 in. onon pattern.

Black tin dish covers, monk pattern, complete set, viz. 9, 10, 11, 12, 14, 15, 18, 20, 22 in. Black tin hot-water foot dish, with cover, 18 in. fluted pattern.

Black tin hot-water dish for juggled haus, huch, orsteam, fluted pattern.

Block tin soup tureen, plain oval.

Ditto vegetable or side dishes, oval, with or without hot-water pan.

Block tin vegetable or side dishes, oblong.

Ditto deep plate for hot water, with fluted cover.

Ditto hot-water plates, cheap.

Ditto ditto with earthenware plate.

Ditto plate covers only.

VANSON DISH AND COVER.

Black tin tea and coffee set, cheap, with stamped tinned iron tea and coffee cups and saucers.

Ditto tea and coffee set, middle quality.

Ditto ditto best quality, plain.

Ditto ditto embossed.

Block tin and plate-glass lantern for Peloe's candle, brass balls and very strong.

Block tin and cylinder glass lantern for Price's candle, brass balls and very strong.

Block tin orange lustre, with patent rolling jack, complete.

Stand of stamped and tinned iron bowls, 9 to 30 in. dia.

Ditto ditto polishing pans, 3 to 20 in.

Ditto ditto milk pans 15 to 24 in.

Ditto ditto baking dishes, 9 to 15 in.

Ditto ditto bowls, 41 to 114 in.

Set of japanned iron tea trays, 16, 24, 30 in.

Japanned tin iron toilet set for bath-room use, consisting of foot bath, hot-water jug, and waste-water pan.

Japanned tin iron spongine bath, stamped from one sheet of iron without seam or joint.

Japanned tin iron toilet set for bedroom use, consisting of wash-hand basins and ewers, vase, sponge tray, soap boxes, and brush trays.

Japanned tin iron strong wash boxes, 10, 12, 16 in.

Ditto iron coal vases, with brass mountings.

Ditto tin railway lamps, including buffer head, porters', guard's, and engine lamps.

Japanned tin teapot, containing the most useful articles in a small compass.

Bound of brass furniture for baths, lamps, &c.

(47)
Ismay, Thomas, & Co., Dover.—Improved close-fire ranges for large kitchens.

Ismay & Co. are engineers, smiths, and iron merchants, and manufacturers of large ranges, steam closets and counters, drying closets, laundry steam apparatus, kitchen steam apparatus, dinner and coal lifts for hotels, mansions, or public buildings.


The following articles are exhibited by C. Jeakes & Co.:
1. Kitchen Range, stove, jack, hot plate, with oven, hot closet, and charcoal store.
2. Patent Smokeless Grate, will burn from 24 to 36 hours without replenishing, consuming under 1 lb. of fuel per hour, and may be seen in action at 51 Great Russell Street, Bloomsbury.
3. Grate (or circular headed), for drawing room, Italian in character, with painted tiles, and ornamental mountings.
4. Grate, French in design, bright engravings in panels, with ornamental mountings, and richly ornamented back.
5. Large Grate, Renaissance in character, with handsome brass dogs, rich back, and diaper coverings, with monogram of International Exhibition, 1862.
7. Small Medieval Dog Grate, with diaper back, and English badge in circle of back.
8. Dogs for grates, designed and modelled especially for the Exhibition of 1862.
9. Gothic Grate, with tiles and metal mountings.
10. Architectural Trusses of Fruit, one as a specimen of casting, the other finished for decorative purposes.
11. Chimney.
12. Lamp and Pillar, adapted for stone pedestal.
13. Gothic Hinges, for ecclesiastical purposes.
14. Sconces of Brass, for door furniture, for domestic purposes. Designed by T. H. Wyatt, Esq.
15. Brass Feet (sections of).
Jones & Rowe, Worcester.—Patent Worcestershire range, comprising 2 large meat roasters, 2 pastry ovens, 2 large hot closets, 1 grilling stove, 2 boilers, one for steam and one for circulating hot water to any part of the house, treated by one fire, and capable of cooking sufficient for 200 persons.

"A more economical arrangement for fuel, in the accomplishment of a great deal by small means, or a more compact contrivance for cooking at once all the courses necessary for a dinner, was probably never seen."—Worcester Herald.

"A valuable peculiarity of Messrs. Jones & Rowe's range, is the placing of the oven and oven or the two ovens, one above the other, instead of side by side, the heat being made to pass, by means of flues, between the entire surface of the range. The roasting oven is constantly ventilated with fresh air, and whilst the top of the range is an iron platform, enclosing the fire, a joint can be cooked at the open front in the old way."—Daily Telegraph, May 31, 1862.

One side of the range is occupied by a straight-iron boiler, holding fourteen gallons; on the opposite side are two ovens, one above the other; the one for roasting meat, and the other for pastry, or for baking bread. The whole top of the range is a flat iron platform, which may be covered with vessels for boiling, stewing, &c. In front of the fire a large roasting joint may be cooked.

The advantages of the patent are, that by one moderate fire hot air is generated, which, by means of flues, is made to pass beneath the entire surface of the range, whereby the ovens, boiler, and platform are sufficiently heated for all purposes of cooking; and one of the ovens, or meat roaster, is constantly ventilated with fresh air, which prevents the unpleasant flavour sometimes imparted to baked meats. The boiler is constantly kept boiling from the same fire; and a boiler might be introduced at the back of the fire, for supplying hot water to a bath or cistern, to any part of the house.

This range having now become familiarly known, is universally admitted to be the best yet introduced for economy, durability, cleanliness, and convenience. No kitchen range made can surpass it.

J. & R. have received most valuable testimonials to the excellence of the above ranges. Ranges delivered carriage free; books of illustrations, with prices and testimonials, will be forwarded on application, and estimates and plans given for fitting up large kitchens with J. & R.'s patent ranges, and supplying hot water to baths, steam kettles, or to any part of the house, to any proposed arrangement.

J. & R. wish it to be understood there is no other range made, price and size compared, that will cook for so many persons as the above.
Class XXXI.—Iron and General Hardware.

Keith, George, 55 Great Russell Street, Bloomsbury.—Ice machines; freezing powder and apparatus for hot climates.

Keith's Improved Ling's Patent Ice Safe.
This invention shows the application of ice for the perfect preservation of meat, poultry, fish, and all other edibles, without destroying the original flavour or coming in contact with the ice, fitted with arrangements for icing wines, spring water, &c., at a very small daily consumption of ice. Especially adapted for the use of clubs, hotels, butchers, publicans, and large establishments.
Size 6 ft. high, 5 ft. wide, 2 ft. 8 in. deep. Price £80.

Knight Merry, & Co., 131 Bradford Street, Birmingham.—General tin-plate articles. (See page 55.)

Lambert, Brothers, Walsall, Staffordshire.—Wrought-iron welded tubes; iron and brass fittings; chandeliers; metallic tubular bedsteads. (See pages 56 to 58.)

Lane, Henry, Wednesfield, near Wolverhampton.—Every description of wild beast, game, and vermin traps.

Leadsheer, John, & Co., 125 Aldergate Street.—Wrought-iron fire and thief proof safes.

Leighton, John, 40 Brewer Street, Golden Square.—Reserve stores to prevent smoke formation; Maltese chimney caps.

Lewis, William, 6 New Westgate Buildings, Bath.—A gas cooking stove, and a confectioner’s turklet warmer.

Lines, W. D., & Palmer, W., 1 Marlborough Road, St. John's Wood.—Horse shoes suited for all purposes.

Linley, Thomas, & Sons, Stanley Street, Sheffield.—Patent double-blast bellows; patent portable forges; portable vice benches, &c.
Casement Ornamental Entrance Gates and Railings, manufactured by Messrs. Kennard, at the Falkirk Iron Works, N.B. for the Alhambra Palace, lately purchased by His Excellency Don José de Balbastre from Her Majesty the Queen of Spain. Also exhibitions of cast-iron verandahs, with vases and other ornamental castings, as well as drawings of various bridges erected by them in Spain, India, and Italy, and also of the celebrated viaduct at Cremlin, Monmouthshire.

Castings of every description, in lead or sand, to order or model, for engineers, builders, and machinists, gates and water works. Shovels, rakes, sugar pans, teapots, or bells to any pattern or make.
Class XXXI.—Iron and General Hardware.

Kent, Goodie, 199 High Holborn, and Strand, London.—Knife-cleaning machines, and other inventions promoting domestic economy.

Kent’s Patent Rotary Knife-cleaning Machine. A prize medal was awarded to this invention at the Great Exhibition of 1851; since that period a second patent has been granted to G. Kent for certain improvements, which have greatly enhanced its value, not only in general efficiency and durability, but also as a substitute of table cutlery. The unparalleled success and high reputation enjoyed by this machine throughout the world, has burst upon some inscrupulous person to put forth spurious imitations, but as a second patent protects the construction of the most essential parts of Kent’s machine, it remains unapproached in its efficiency and durability. Made in eight sizes, from 3 to 14 inches, to clean from 3 to 9 knives at a time.

Kent’s Washing Apparatus. A very simple, economical and effective mode of cleansing linen, requiring comparatively no hand rubbing, and depending with boiling alkaline.

Price from £3 10.

Kent’s Folding Cutters Decker is intended to separate clothes packs and lines, and consists of an upright standard from 10 to 13 ft. high, supporting five ribs or arms. These arms, which expand and fold like an umbrella, contain clothes lines, ranging from 120 to 150 ft. of hinging space. It revolves with the wind, and may be raised or lowered as desired.

Price from £4 5.

Kent’s Double-action Box Mangle. In general appearance this mangle resembles the old kind of box mangle, but has some very important advantages, viz., the backward and forward motions are obtained by turning the handle always in one direction. It is much lighter than any other mangle on this principle; more easy and rapid in working, and is perfect in general manufacture.

Price from £9 0.

Kent’s Self-feeding Box Iron. This box is intended for all the purposes to which the old box and flat iron are applied. It may be placed at pleasure in three minutes, without any labor, and will remain hot at a nominal cost for any length of time.

Price from 5s. 6d. (22)

Kent’s Patent Rotary Cylinder Sifter. Extensively used also for mixing and sifting guano and other artificial manures.

The object of this invention is to render a disagreeable duty as little objectionable as possible. Its operation is most certain and effectual; the screened cylinders being thrown into the upper part of the machine, a few turns of the handle separates the ashes from the cinders in the most perfect manner, without the least dust or dirt escaping from the sifter; the refuse falls into a movable box, and the cinders are actually deposited in the coals-ash without the possibility of losing by mixing with the ashes.

In houses limited for room, and especially those without yards or gardens attached, and in situations where cinders become the repositories of ashes and refuse, the machine becomes invaluable. The accumulation of rubbish under such circumstances is both disagreeable and unhealthy, and its removal to the dust-cart a source of considerable annoyance. The patent sifter affords, however, happily removes these objections; it is a compact dust-bin in itself, and to remove the refuse is only necessary to take away the box part of the machine which contains it: there is no dust thereby occasioned, nor can any efficiency possibly arise.

Prices and dimensions:

| No.  | 2 ft. 7 in. long, 1 ft. 3 in. wide, 3 ft. 3 in. high | £3 3
| No. 2 | 2 ft. 10 in. long, 1 ft. 5 in. wide, 3 ft. 6 in. high | £4 4
| No. 3 | 3 ft. 3 in. long, 1 ft. 7 in. wide, 3 ft. 9 in. high | £5 5
| No. 4 | 3 ft. long, 2 ft. 4 in. wide, 3 ft. 7 in. high | £7 7

No. 4 consists of the upper portion or sifter only, expressly made for the use of large establishments, and is intended to stand on an ordinary dust-bin; it has, therefore, no side-box or sides, the cinders falling on one side, and the dust on the other side of the bin.

Kent’s Patent Cylinder Sifter. George Kent, wholesale agent to the patentee.

Consists of a neat japanned iron case or box, 12 in. long, having receive for the dust, and a patent spiral self-adjusting brush. The dust, lint, and even hair, pins, needles, &c., are taken up directly into the box and thus retained as the sweeper moves along, instead of being accumulated between the entire surface, and forced into the grains of the carpet, as it usually occurs. It will sweep cleaner than brooms, with less injury to carpets, and without raising any lint or dust.

Price 15s.
Kent's Patent Tempering Strainer.
The smallest size is about 15 in. by 8 in. and 12 in. deep, the upper part has a serrulated border of white metal very finely perforated, and a bush; with a lever handle working in centre, and made to traverse to and fro over this metal bushes, and by continuing this for a few minutes the whole of the ingredients for making soups, sauces, purées, gravies, jams, &c., are reduced to a fine pulp or liquid, and at the same time strained into a white porcelain vessel which contains the lower part of the apparatus, thus superseding the tedious, troublesome, dirty, and expensive process with the hair sieve and tammy cloth, while the whole of the virtues of the ingredients employed are completely extracted, and brought to a perfect consistency at a much less cost and in one-twelfth the time usually occupied by those very expensive means.

Price for families, 27s. 6d.; for hotels, 57s. 6d.

Kent's Patent Potato Masher.
With this simple contrivance from 1 to 6 lbs. of potatoes can, by a few turns of the handle, be mashed finely and perfectly than by any other means, and in less time than this brief description can be read. It is also adapted for grating bread with equal perfection and rapidity, as well as most other materials for culinary preparations generally.

Price..................7s. 6d.

For mincing any kind or quantity of raw or cooked meat, and making sausages at one operation. Price from 21s.

Beater (Monroe's patent), George Kent sole manufacturer.
This is on a somewhat similar principle to Griffith's which described above. By its small quantities of eggs, all sorts of egg mixtures, and batter, may in a few minutes be wrought up to a degree of lightness very superior to anything that can be produced by the ordinary hand whisk.

Price..................5s.

George Kent sole manufacturer.
This machine has two metal frames with a number of wire projections therein which are made to rotate rapidly by suitable gearing in opposite directions around one centre. These frames work in a round vessel and are put in motion by a crank handle, and thus produce a greater amount of agitation than can be produced by the means hitherto employed. It was originally designed for cooks' and confectioners' purposes in beating up eggs and butter, which it does to the highest perfection in a very few minutes; it is however adapted and extensively used for a variety of other purposes as an agitator and mixer. These machines are made in various sizes, according to the purposes for which they are required, at prices varying from 11s. to 65s.

Cutter (Griffith's patent). This is on the same principle as the whisk, and will bring better quicker than any other churns exist.

Price from..................27s. 6d.

Apple Parex, Corer, and Slicer, for simultaneously peeling, coring, and slicing apples.
By a simple adjustment it may be made to pure potatoes with great economy.

Price..................5s. 6d.

Water Filters (Duchell's patent), in various plain and ornamental designs, for houses, ships, agricultural, and other purposes. G. Kent sole manufacturer.
These filters are on a entirely new principle, and possess the advantage of purifying as well as brightening the water. They also obviate the great difficulty experienced with all other filters, of clogging when becoming foul or dirty, the filtering medium being contained in an earthen cylinder, which any servant may remove, purify, and replace in its original position in a few minutes. They are capable of yielding according to size from one to ten gallons per minute.

Price from..................8s. 6d.

Corbitt's Filters on the principle described above, capable of filtering and purifying from 1 to 10 gallons per minute. Price from..................25s.

Water Tors (Duchell's patent), George Kent sole manufacturer.
With this instrument any person without a knowledge of chemistry may detect the presence of any deleterious matter or impurities in water, and whatever it is found to contain the effect may be neutralized by the adoption of Duchell's patent filters.

Price with book of instructions..................10s. 6d.

Water Softening Apparatus (Duchell's patent), G. Kent sole manufacturer, may be applied to any churning. It is self-feeding and renders the hardest water in its course from the service pipe perfectly soft.

Price..................£2 2
CLASS XXXI.—Iron and General Hardware.

KINGTON & TROUGHTON, 116 Aldersgate Street, Corner of Long Lane, London, E.C.—
Platform and every description of weighing machines, scales, &c.

By appointment to Her Majesty’s Honourable Board of War.

Gilt Beams, of the best quality, 11. 5d. per lb. from 20 lb. upwards, if fitted with boards and ropes or chains.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 cwt</td>
<td>£10 0 0</td>
</tr>
<tr>
<td>10 cwt</td>
<td>£7 0 0</td>
</tr>
<tr>
<td>5 cwt</td>
<td>£4 10 0</td>
</tr>
</tbody>
</table>

Second quality—Red Painted Beams, at 1s. per lb. from 25 lb. and upwards.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 lb.</td>
<td>5 6</td>
</tr>
<tr>
<td>2 lb.</td>
<td>8 6</td>
</tr>
<tr>
<td>4 lb.</td>
<td>0 15</td>
</tr>
<tr>
<td>7 lb.</td>
<td>1 0</td>
</tr>
<tr>
<td>14 lb.</td>
<td>2 10</td>
</tr>
<tr>
<td>Above 14 lb.</td>
<td>0 1 6</td>
</tr>
</tbody>
</table>

Solid Brass Bell Weights, stamped.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 lb.</td>
<td>£9 5 0</td>
</tr>
<tr>
<td>7 lb.</td>
<td>0 5</td>
</tr>
<tr>
<td>14 lb.</td>
<td>0 6</td>
</tr>
<tr>
<td>28 lb.</td>
<td>0 10</td>
</tr>
<tr>
<td>56 lb.</td>
<td>0 15</td>
</tr>
</tbody>
</table>

Iron Weights, japanned and gilt, in sets, stamped.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 lb.</td>
<td>4 10 0</td>
</tr>
<tr>
<td>3 lb.</td>
<td>1 13</td>
</tr>
<tr>
<td>6 lb.</td>
<td>0 18</td>
</tr>
<tr>
<td>12 lb.</td>
<td>1 5</td>
</tr>
</tbody>
</table>

Copper Scales Machines.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 lb.</td>
<td>£9 0 0</td>
</tr>
<tr>
<td>2 lb.</td>
<td>0 13</td>
</tr>
<tr>
<td>4 lb.</td>
<td>0 18</td>
</tr>
<tr>
<td>8 lb.</td>
<td>0 30</td>
</tr>
</tbody>
</table>

Flour or Potato Machines.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ft. high to weigh in sacks, 3 cwt.</td>
<td>£2 10 0</td>
</tr>
<tr>
<td>2 ft. 10 in. high, ditto 3 cwt.</td>
<td>2 0 0</td>
</tr>
<tr>
<td>2 ft. high ditto 2 cwt.</td>
<td>1 5 0</td>
</tr>
</tbody>
</table>

Portable Machine, mounted on wheels.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 cwt</td>
<td>22 by 20 in.</td>
</tr>
<tr>
<td>6 cwt</td>
<td>22 by 22 in.</td>
</tr>
<tr>
<td>10 cwt</td>
<td>26 by 26 in.</td>
</tr>
<tr>
<td>15 cwt</td>
<td>30 by 30 in.</td>
</tr>
<tr>
<td>20 cwt</td>
<td>30 by 34 in.</td>
</tr>
<tr>
<td>25 cwt</td>
<td>38 by 38 in.</td>
</tr>
<tr>
<td>30 cwt</td>
<td>38 by 40 in.</td>
</tr>
</tbody>
</table>

Machine Level with the Floor, for warehouses.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 cwt</td>
<td>38 by 36 in.</td>
</tr>
<tr>
<td>26 cwt</td>
<td>38 by 34 in.</td>
</tr>
<tr>
<td>40 cwt</td>
<td>38 by 40 in.</td>
</tr>
</tbody>
</table>

Double Weighting Machines, for corn, &c. to weigh off a man’s back or herring.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best quality</td>
<td>£4 8 0</td>
</tr>
<tr>
<td>Second quality</td>
<td>3 10 0</td>
</tr>
</tbody>
</table>

Machines for seeds, hops, &c.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>To weigh 2 cwt.</td>
<td>£2 10 0</td>
</tr>
<tr>
<td>To weigh 4 cwt.</td>
<td>3 10 0</td>
</tr>
</tbody>
</table>

This is one of the best and most useful machines made, and strongly recommended.

Iron Frame Machines, for grocers, tailor chandlers, &c.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>To weigh 2 cwt.</td>
<td>£3 3 0</td>
</tr>
</tbody>
</table>

Shop Scales to weigh coal,

Complete with weights. £13 5 0

Weighing Machines for family use, with oblong tin scales.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 lb.</td>
<td>£2 0 0</td>
</tr>
<tr>
<td>14 lb.</td>
<td>0 10</td>
</tr>
<tr>
<td>28 lb.</td>
<td>0 16</td>
</tr>
<tr>
<td>4 lb.</td>
<td>0 16</td>
</tr>
</tbody>
</table>

Registered Family Weighing Machines, with weights complete.

<table>
<thead>
<tr>
<th>No.</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>£8 10 0</td>
</tr>
<tr>
<td>2</td>
<td>1 0 0</td>
</tr>
<tr>
<td>3</td>
<td>1 0 0</td>
</tr>
</tbody>
</table>

Flour Scales.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 peck</td>
<td>£3 10 0</td>
</tr>
<tr>
<td>2 peck</td>
<td>0 12 0</td>
</tr>
<tr>
<td>3 peck</td>
<td>0 16 6</td>
</tr>
<tr>
<td>4 peck</td>
<td>1 2 0</td>
</tr>
<tr>
<td>6 peck</td>
<td>2 0 0</td>
</tr>
</tbody>
</table>

Dough Scales, in. 6d. per pair.

<table>
<thead>
<tr>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>A list of every description of scales, weights, and weighing machines will be forwarded on the receipt of directed envelope to 116 Aldersgate Street, Corner of Long Lane, London, E.C.</td>
<td></td>
</tr>
</tbody>
</table>
Knight, Merry, & Co., 131 Bradford Street, Birmingham.—General tin-plate articles.

The Unique Coffee and Tea Urns are strongly recommended to the public as possessing advantages over anything of the kind ever introduced.

The mechanical construction is so arranged that it is impossible for them to get out of order, and the various parts being movable ensure perfect cleanliness, and consequently purity of the article infused.

The water being equally distributed over the tea or coffee, obtains perfect saturation and abstraction, requiring a smaller quantity than any other apparatus, and making the same better and in less time.

The price brings them within the means of every one.

The Unique Tea and Coffee Urns.
CLASS XXXI.—Iron and General Hardware.

LAMBERT, BROTHERS, Wednes., Staffordshire.—Wrought-iron welded tubes; stocks, taps, and dies; iron and brass fittings; steam coils; sluice valves; chandeliers; metallic tubular bedsteads.

**WROUGHT-IRON STEAM COILS.**

**SLUICE VALVE.**

**GLAND STUFFING-BOX COCK.**
LAMBERT, BROTHERS, continued.

Two-light Hydraulic Pendant, £1 15s.

Double Swivel, with Cock Joint.

Elbow Lantern Cock.

Screw-Down Stop Cock.

Class XXXI.

Two-light Hydraulic Pendant, £2 2s.
Three-light ditto . . . . £3 0s.
( 57 )

Lamp Column, with Spiral Tubes.
CLASS XXXI.—Iron and General Hardware.

LAMBERT, BROTHERS, continued.

No. 130.

No. 270.

No. 290.

No. 132.

No. 146.

PATENT EXPANDING BRACKET.

( 58 )
Lloyd, Martin, Charles Henry Street, Birmingham.—Malleable nails.

Lloyd, Thomas, & Sons, 15 Old Street Road, Shoreditch, London.—Steel mills.

Improved prize hand flour mills and dressing machines, to grind and dress at the same time, by hand.

Improved prize hand flour mills and dressing machines, to grind and dress at the same time, by hand.

Improved corn grinding mills, for grinding barley, peas, or oats, into fine meal, by hand. 12. 2s. 0d.

Improved barley mills, for grinding any kind of grain into fine meal, for horse or steam power. 101. 12s. 0d.

Improved corn crushers, for crushing oats and splitting beans for pigs, 42. 2s. 0d.

Improved corn crushers, for horse or steam power, 85. 12s. 0d.

Drug mill, for grinding seeds for horse or cattle medicine, 12. 12s. 0d.

Handsome bronzed 4 pillar frame coffee mill in double bearing, with brass hopper, and 2 fly wheels. 12. 20s.

Improvements on patent coffee and dressing and cleansing machines. 24. 10s.

Improved patent tea mills, 26. 10s. 0d.

Improved patent sugar choppers, 1½. 2s. 6d.

Improved patent sausage machines, 1½. 1s. 11½. 0d.

Improved small and pewter scissors, for cutting meat for pies. 1s.

Improved small and pewter scissors, for cutting French beans, vegetables, &c. 1s.

Improved knife and board for cutting bread for large establishments, schools, asylums, &c. Price 1½.

Improved small and pewter scissors, for cutting and dressing, and general purposes. Price 4½.

Improved small and pewter scissors, for cutting and dressing, and general purposes. Price 4½.

Improved small and pewter scissors, for cutting and dressing, and general purposes. Price 4½.

Improved small and pewter scissors, for cutting and dressing, and general purposes. Price 4½.

Improved small and pewter scissors, for cutting and dressing, and general purposes. Price 4½.
LONGDEN & Co., Phoenix Foundry, Sheffield.—Cooking apparatus; mediaeval fire-place; hot-air stove; stair balusters, railings, &c.

DINING-ROOM FIRE-PLACE, being an adaptation of Early Pointed art to modern requirements, consisting of register grate of cast-iron electro-bronzed with copper, with brass ornaments and glass mirrors, ash-pan and fender of electro-bronzed cast-iron and steel, fire-irons of steel with electro-bronzed handles, and mantel-piece of Devonshire and serpentine marbles, designed by Messrs. Walton & Robson, architects, London and Durham.

FRENCH RENAISSANCE HOT-AIR STOVE.

ORNAMENTAL PEDESTAL for enclosing hot-water pipes.

GOTHIC BED-ROOM GRATE with fire-lump sides and back, designed by Messrs. Walton & Robson.

A selection of STAIR BALUSTERS, TOMB RAILINGS, and BALCONY RAILINGS in various styles.

OPEN-FIRE COOKING RANGE, with a raised cast-iron oven for baking or roasting, a wrought-iron lower oven for light baking, hot-covered for boiling over the lower oven, plate-warming over the upper oven, welded and galvanized wrought-iron boiler for circulation of hot water for a bath; open roasting fire, with sliding spit, racks, and polished kitchen fender.

MARTINAIT, F. E., & Co., Cleveland Street, Birmingham.—Wrought iron and brass hinges.
CLASS XXXI.—South East Court.

[ 6150 ]

Mathews, William, 9 Mount Street, Berkeley Square.—Horse shoes, and shoeing hammer.

[ 6151 ]


[ 6152 ]

May, Alfred, 259 High Holbourn.—Gas roasting and baking oven, ranges, stewing stoves, linen drying closet, &c.

The exhibitor manufactures hydraulic rams, pumps, gas works, gas fittings, warming by hot water and hot air, cooking apparatus of every description. He also undertakes bell-hanging, and the erection and fitting of baths, improved closets for drying linen, hot and cold water for lavatories, dressing rooms, &c.

Mr. May has been extensively employed under Sir Joseph Paxton and other eminent engineers and architects in first-class gentlemen’s mansions and public institutions in England, France, Germany, and Switzerland; and from his long practical experience of upwards of 30 years, is enabled to prepare plans and estimates suitable for public or private institutions. He will guarantee the efficiency of all works intrusted to him for execution. A large stock of apparatus is always kept on hand.

[ 6153 ]


[ 6154 ]

Mills, Joseph, 40 Great Russell Street, W.C.—Register stove with patent door; range with shifting bars and improved dampers.

[ 6155 ]

Moreton, John, & Co., Wolverhampton and London.—Foreign and colonial hardware. (See pages 62 to 64.)

[ 6156 ]


Morewood & Co. manufacture the following, of which specimens are exhibited:

Patent galvanized sheet iron, and galvanized iron, plain or corrugated, curved, and in tiles, of all gauges.

Black or patent corrugated iron, galvanized or black.

Gutters, pipe, &c., all of which are kept in stock.

Galvanized water and gas tubing, stamped and notched.

gutters, wire, wire netting, nails, rivets, garden chains, pails, &c.

Estimates given for roofs, and every description of galvanized buildings, at the offices and warehouse.

Morewood’s patent continuous galvanized iron roofing is cheaper than felt. Full particulars may be learnt on application.

( 61 )
CLASS XXXI.—Iron and General Hardware.

Moreton, John, & Co. (into Moreton & Langley), Wolverhampton, and 22 Back Lane, Canning Street, City, London, E.C.—Foreign and colonial hardware.
MORETON, JOHN, & Co., continued.
CLASS XXXI—Iron and General Hardware.

MORRIS, JOHN, & Co., continued.
Class XXXI.—South East Court.


Morton, Joseph, & Son, Bellfield Works, Sheffield.—Stove grates, fenders, and fire-irons.

Muskervale Brothers, High Street, Belfast.—Patent slow-combustion stoves; grates, patent iron fittings for stables, cowhouses, and piggeries. (See page 66.)

Nash, Richard, Ludgate Hill Passage, Birmingham.—Presses, dies, &c.

Nash, Swan, 253 Oxford Street.—Ranges, patent stoves and fuel.

Joyce's Patent Stove, manufactured by the exhibitor, is the only one that works without a flue. Price from 12/0 upwards. The prepared fuel for use with it, 2/3 per bushel.

The exhibitor's stock comprises: modern lamps in great variety; a choice and elegant assortment of stove grates, fenders, and fire irons; an assortment of kitchen ranges and hot plates, with all the newest improvements, unsurpassed for looseness of price and excellence of quality; cutlery, electro-plated goods, gas chandeliers, and every description of furnishing ironmongery of the best quality, at the lowest prices.

Nashi & Hull, 202 Holborn, W.C.—Crystal glass, wood, and brass letters; stencil-plates.

Samples of the following are exhibited:

Wood Letters, gilt and painted, for facias, fronts of houses, public buildings, &c.
Decorated Glass Letters, for affixing on shop and office windows, chases, doors, tables, &c.
Brass Letters in various patterns for the same purposes.

Nettlefold & Chamberlain, Broad Street, Birmingham.—Improvements in wood and metal screws, locks, and general iron work, introduced since 1851.

Nettleton, Joshua, 4 Sloane Square, Chelsea.—Open-fire ventilating stove and pan.

Nevv, John, & Co., Union Works, Horneley Fields, Wolverhampton.—Cut nails, shoe bills, heel and toe tips, washers, &c.

Class XXXI. (65)

MUSGRAVE'S PATENT SLOW-COMBUSTION STOVE, exhibited Class XXXI. No. 6159 in Catalogue, is the nearest approach to heating by hot water, and a certain and economical means of procuring a gradual and steady heat.

The power of burning day and night throughout the winter, at a uniform temperature, has caused this stove to be extensively used for entrance halls, schools, libraries, etc.

It can be fixed in churches with either upright or underground flue, and is so simple that an inexperienced person can manage it.

The interior of the stove is furnished with hot-air chambers, which draw the fresh air from outside the building, and thus secure perfect ventilation.

There is no oppressive smell, nor does it form those explosive gases so much complained of in other stoves.

MUSGRAVE'S PATENT STABLE FITTINGS AND HAMLENS LOSING BOXES, exhibited Class XXXII. No. 4159 in Catalogue, with tumbling manger and water pot, falling grid to prevent waste of hay, improved ventilator, sliding "barrier" to confine each horse to his stall in the event of breaking loose, and many other improvements deserving of inspection.

MUSGRAVE'S PATENT IRON STALLS for cattle and Iron Piggeries and Dog Kennels, exhibited Class IX. No. 2156 in Catalogue.

MUSGRAVE Brothers received, last season, for the foregoing inventions, the silver medals of the Royal Agricultural Societies of England and of Ireland, and the first prize at every competition where they have been exhibited.
NEWTON, THOMAS, WALSHALL, and 84 Long Acre, London.—Steel bits, stirrups, spurs, chains, saddle harness, and carriage ironmongery.

NICHOLAS, RICHARD, 32 Water Street, Birmingham.—Improved roasting-jack with key attached.

NICHOLSON, WILLIAM NEWZAM, Trent Iron Works, Newark.—Cocking range, cottage stoves and fittings, and decorative iron work.

NOCK & PRICE, 9 Union Passage, Birmingham.—Improved gas cooking range. (See page 68.)

Ottley, Thomas, 59 Spencer Street, Birmingham.—Gold, silver, and bronze medals.

Owen, William (late Sandford & Owen), Phoenix Works, Rotherham.—Bradley’s patent kitchener; improved registered stable fittings.

Palmer, John, & Sons, Beech Lanes, near Birmingham.—Screw railway wrenches, screw and fixed spanners, hammer, &c.

Patent Enamel Company, 288 Bradford Street, Birmingham.—Glass enamelled hollow ware and patent tablets for street names, &c. (See page 70.)

Perry, Thomas, & Son, Bilston.—Metallic bedsteads, fire-proof and thief-resisting safes.
GAS COOKING RANGE.

IMPROVED GAS COOKING AND HEATING STOVES.

Meat cooked by gas takes less time than by ordinary fire, browns beautifully, and requires no attention. It is more nutritious, full of gravy, tender, and of superior flavour. Pastry can be baked by the same means in a superior manner, at a saving of 40 per cent. in cost and labour.

The exhibitors manufacture every description of gas cooking and heating stoves. Drawings and price lists will be sent on application.

Obtained a Prize Medal at the Paris Exhibition, 1855.

These machines are intended for mincing and mixing various substances—meat or vegetables for soups, &c.; fruit for mincemeat; and for pastry; and for mincing poted or forced meats, &c. Also for preparing a great variety of dishes.

For sausages, they mince, mix, and force into the skins at the same time, and are admirably adapted for rebusing meats for soups, according to the mode recommended by Professor Leding, in his work on "The Chemistry of Food."

Their economy and efficiency are so great, and they are so well adapted for the kitchen, that they only require to be known to secure their general adoption.

"Among other objects in the show worthy of special notice, we may mention the very ingenious mincing machine, exhibited by Nye & Co. It is extremely clever, and for the mechanical skill which it displays, is culpable by nothing in the whole show."—Times, July 14, 1856.

"This is a little thing every husband ought to carry home to his wife, who, we are satisfied, will turn it to the best account, and save the price."—Mark Lane Express, August 15, 1854.

Price £1 10s. 42½ lb. 3½ lb. and £7 10s.

Small Mince for the dinner table, to assist digestion, less of teeth, &c. Price . . . . . . . £1 10s. This machine is very neatly set up, and may be screwed on the dining table without even injuring the cloth. It is intended for mincing food for persons who cannot masticate properly. It is made here, and must, &c. It is rapidly mined. To invisible, and to those who in order to preserve health are obliged to have their food thoroughly masticated, this machine is invaluable.

"12, Norfolk Street, Westminster Green, London.

"I have had one of your mincing machines for the dinner table in use for some time, and find it everything that could be wished. We have had occasion containing several knives blades in one handle, but your invention is vastly superior. I recommend it to all my friends who suffer from indigestion.

"Messrs. S. Nye & Co."

By Her Majesty's Royal Letters Patent.

NYE'S PATENT IMPROVED MILLS for coffee, pepper, spices, &c.

These mills are most conveniently arranged for domestic use, being provided with a ramp, by which they are fixed to the table or any other convenient place in an instant, and as quickly removed. By a nice and safe arrangement the grinding surfaces cannot possibly touch each other, being provided with a repelling screw, by means of which they are set to grind line or coarse, as desired. They grind very rapidly, and are the most convenient mills ever offered to the public. Families using these mills avoid adulteration, and secure a genuine article.

Patent: No. 1, 8s.; No. 2, 10s.; No. 3, 11s.; No. 4, 20s.

TESTIMONIALS.

"GENTLEMEN,—It affords me great pleasure to add my testimony to the merits of your truly useful mincing machine, which I have now had in constant use for the last twelve months. Its performance surpasses all my expectations of it, and its great utility is only exceeded by its simplicity.

"I have already recommended the machine to many of my friends, and it will afford me much pleasure to satisfy any person as to its great efficacy, and you have my full permission to refer any one to me for that purpose.

"CHARLES GUTIERREZ,

"Chief Clerk to the Honourable Society of the Middle Temple."

"69, Mercer Street, Westminster Road."

"GENTLEMEN,—I have had your mincing machine for the last sixteen months, doing all the mincing-making for my business as a pork butcher, and am glad to say I cannot praise it too highly; it is a great saving of time, and has given me the greatest satisfaction.

"I am, gentlemen, yours, &c.

"To Messrs. Nye & Co.""

"J. WILSON

"Agricultural Department,

"Baker Street, Kentish Town."

"Sir,—In reply to your inquiry respecting the character of your machine for mincing and sausage making, I beg to say that in all the quantities I have sold, I have had no complaint of any kind, but in every instance in which I have made the inquiry they find they have given the greatest satisfaction; the simplicity of construction, superior workmanship, and, above all, the material of which they are composed, render them particularly clean and wholesome, and not liable to disarrangement.

"I am yours respectfully,

"To Messrs. Nye & Co.

"M. MEGORNE, Manager."

"11, Great Meadow, Barnes, Nov. 13, 1854.

"GENTLEMEN,—In reply to your note of the 11th inst. I have great pleasure in saying that after two months' trial of your excellent patent mincing machine, I can heartily recommend it, fully approving, as it does, all the purposes you describe in your prospectus; and I feel assured, were it more generally known, for families it would be without use. Wishing you all the success the invention merits,

"I am, gentlemen, your obedient servant,

"To Messrs. Nye & Co.

"L. WEDGEWOOD

"Refundment Department, Western Area,

"Messrs. F. E. Morehead & Co., Cheltenham, Exhibition Building, South Kensington, May 24, 1852.

"GENTLEMEN,—So far as our experience extends as to the utility of your Patent Mining Machines, of which we have two in use, we have no hesitation in stating that we find them to answer the purpose in every respect.

"We are, gentlemen, yours obediently,

"To Messrs. S. Nye & Co."
1. **Grate Front**, in Limousine enamelled iron.


3. **Panels and Friezes**, in Limousine enamelled iron, for exterior decorations of buildings.

4. **Ornamental Panel** of Limousine enamelled iron, for altars.

5. **Paneling of Limousine enamelled iron**, for state cabinets, etc.

6. **Indestructible tablets** for shop signs, door numbers, street name plates, etc.

7. **Specimens of Table Ware**, made of wrought-iron enamelled and painted in imitation of earthenware.

8. **Utensils** for culinary and domestic use.

9. **Cast-Iron Tubs**, for conveying gas or water, rendered incorrodible by enamel.

The whole of these specimens are made of wrought-iron rendered incorrodible by the process of enamelling, by which they are covered with a hard, vitreous surface, into which the colours are fused or burnt at a high temperature, so as to be perfectly unalterable by exposure to the atmosphere or weather for any length of time.
Peyton & Peyton, Beresford Works, Birmingham; London Warehouse, 49 Long Acre, W.C.; City Office, 46 Moorgate Street, E.C.—Metallic bedsteads; hat and umbrella stands of wrought and cast iron combined.

**Class XXXI.—South East Court.**

1. Child's Cot, japanned.
2. Patent Solid Iron French Bedstead, japanned and relieved, with improved dovetail joints to tighten the bed bottom; size, 5 ft. by 8 ft. 6 in.
3. Patent Iron Half-tester Bedstead, japanned and relieved, improved dovetail joints to tighten the bed bottom; the pillars of parallel tube and ornamental castings; size, 8 ft. 6 in. by 6 ft. 4 in.
4. Patent Iron Half-tester Bedstead, richly japanned and relieved with gold, improved dovetail joints (the same as in No. 3), the pillars composed of taper tube and massive ornamental castings; size, 6 ft. 4 in.
5. Patent Iron Half-tester Bedstead, the same as No. 4, but japanned to imitate walnut wood.

**Iron Bedsteads, Brass Mounted.**

6. Patent Iron French Bedstead, japanned, the pillars of parallel tube, mounted with brass, the head and foot rails with brass ornaments to correspond, improved dovetail joints (the same as in No. 3), size, 3 ft. 6 in. by 6 ft. 6 in.
7. Patent Iron Half-tester Bedstead, japanned, improved dovetail joints (the same as in No. 5), the pillars of taper tube, mounted with brass, the head and foot rails with brass ornaments to correspond; size, 3 ft. 6 in. by 6 ft. 4 in.
8. Patent Iron Tester Bedstead, japanned, the pillars of parallel tube, mounted with brass, the head and foot rails with brass ornaments to correspond, improved dovetail joints (the same as in No. 3), size, 3 ft. 6 in. by 6 ft. 4 in.
9. Patent Brass Tester Bedstead, the pillars composed of patent taper tube, and with the rails and corners of elaborate cast work, wrought and burnished; new patent slatting bottom; size, 5 ft. by 6 ft. 6 in.
10. Patent Brass Four-post Bedstead, with canopy and corona, the pillars of parallel tube, improved dovetail joints (the same as in No. 3); size, 4 ft. 6 in. by 6 ft. 6 in.
11. Patent Brass Four-post Bedstead, with canopy and corona, pillars of patent taper tube, with richly wrought ornaments, the head and foot rails and corona to match; size, 5 ft. by 6 ft. 6 in.
12. Brass Bedsteads on Camp Bedstead; width, 2 ft. 10 in.
13. Improved Hat Stand, of wrought and cast iron combined.

(71)
CLASS XXXI.—Iron and General Hardware.

[ 6178 ]

PHILLIPS, Thomas, 55 Skinner Street, Snow Hill, London.—Gas bath, gas cooking apparatus, stoves, &c.

[ 6179 ]

FIRE, William, 5 Jermyn Street, London.—Ornamental stove grates and fenders for drawing rooms, &c.; pyro-pneumatic stove grate for churches, &c.; fire-lump grates for cottages.

[ 6180 ]

FROST & CO., London, and St. Paul’s Square, Birmingham.—Buttons, ornaments, medals, shirt studs, above links, clasps, solitaires, &c.

[ 6181 ]

FLINN, J. T., & Co., Wolverhampton.—Locks and general ironmongery.

[ 6182 ]

FURTH, Thomas, 44 South Molton Street.—Burned castings, and wrought-iron work.

[ 6183 ]

FOURNAR, William, Blackfriars Road, London.—Patent curvilinear beam weighing machine; imperial machine, spirometer balance, and safety wheel skid, &c.

The following are exhibited:—

1. IMPERIAL WEIGHING MACHINE TRANSVERSE CONCENTRIC LINES, showing action, for weighing 100 or any selected weight where portability or space is required.

2. COMPENSATED CURVILINEAR BEAM WEIGHING MACHINE.

3. DITTO ditto ditto VAN ditto

4. COMPENSATED CURVILINEAR BEAM RETAIL COAL MACHINE.

5. DITTO ditto ditto (part inverted).

6. STRONGER BALANCE in connection with Dr. Hutchison’s spirometer.

7. Patent safety curvilinear WHEEL SKIDS.

[ 6184 ]

FRERICS, Thomas, Hunsley Fields, Wolverhampton.—Double-action detector locks; gunpowder fire-proof safes.

The exhibitors are the patentees and manufacturers of the gunpowder-proof double-action detector locks, and gunpowder, fire, and thief proof safes.

( 72 )
Class XXXI.—South East Court.

[ 6186 ]
Price, George, Cleveland Works, Wolverhampton.—Wrought-iron fire-resisting safes, chests, and doors; cabinet, rim, and mortise locks. (See pages 74 to 77.)

[ 6187 ]
Pullinger, Colin, Selsey, Sussex.—Traps for mice, rats, &c.; each one caught resetting the trap.

[ 6188 ]
Radcliffe, Thomas, Leamington.—Kitchen ranges; smokeless feeding screw for ditto.

[ 6189 ]
Radclyffe, Thomas, Leamington.—Kitchen ranges; smokeless feeding screw for ditto.

[ 6190 ]
Rawlins, Edward, 27 Whittall Street, Aston, Birmingham; Works, Thimble Mill Lane, Aston.—Stampings and pressings of iron and steel for a variety of purposes.

[ 6191 ]
Redmayne & Co., Wheathill Foundry, Rotherham.—Stove grates, fenders, hat and umbrella stands, and fountains.

[ 6192 ]
Reynolds, John, Crown and Phoenix Works, Birmingham.—Nails, tacks, brads, bills, washers, brackets, hooks &c.

Obtained a Prize Medal at the Exhibition of 1851.

These Works have been established nearly half a century, for the manufacture of every description of make and material, in copper, brass, zinc, and iron; also cornice fasteners and brackets, pressed hinges, patent cut nails, tacks, beads, and shoe bills, of best washers, &c.

[ 6193 ]
Reynolds, John, 57 New Compton Street, W.C.—Wire work, useful and ornamental, and patent metallic netting.

[ 6194 ]
Rhodes, William, Westgate, Bradford.—Indestructible fireproof safe.

[ 6195 ]
Riddell, Joseph Harley, 155 Cheapside, London.—Patent slow-combustion boiler for heating by the circulation of hot water.
CLASS XXXI.—Iron and General Hardware.


No. 1. Merchants' or Bankers' Book and Cash Safe, with 3-in. fire-proof composition chambers, and fitted with 30 compartments for books, bound by 22 moveable partitions; 4 drawers for day use for coins, notes, and bills of exchange, with 3 distinct safes at the bottom, made of 1-in. boiler plates with case-hardened drill-proof doors, for the additional safety of cash and securities at night. All the doors are fitted with George Price's double patent "implus ultra" unpickable and gunpowder-proof lock, each lock different, with a master key to pass all. Size, outside measures, (exclusive of plinth and cornice) 9 ft. 6 in. high, by 6 ft. wide, by 2 ft. 6 in. deep. £300 0

No. 2. Single-door Precious Stone or Cash Safe, made of 1-in. solid boiler plates, with 1-in. solid door. The whole body and door case-hardened. With 2 drawers. Size, 33 by 25 by 25 in. £40 0

No. 3. Single-door Safe with 2 drawers and case-hardened drill-proof door. The lock chamber of this is uncranked to shew the construction of the locks. Size, 20 by 20 by 20 in. Quality, 204 C. £14 2 0
Price, George, continued.

No. 1. Watchmakers' and Jewellers' Safe. Not fire-proof. Made of 1-in. boiler plates, with case-hardened steel proof door, and fitted with one shelf. Size, 48 by 30 by 26 in. £39 7 6

This safe represents the strength and quality of the patentee's foreign bankers' bullion rooms.

No. 4. Single-door Book or Cash Safe, with 2 drawers. Size, 33 by 23 by 21 in. Quality, 201 £18 0

No. 5. Single-door Book or Cash Safe, with 2 drawers. Size, 33 by 23 by 21 in. Quality, 202 £22 0

No. 6. Double-door Book or Cash Safe, with 2 drawers. Size, 30 by 30 by 21 in. Quality, 202 £22 0

No. 7. Merchants' Counting-House Safe, with 3-in. fire-proof composition chambers, and fitted with 3 drawers, cupboards, and compartments for books and papers. The partitions are movable. The locks on the drawers and cupboards are all different, with a master key to pass. Size, 66 by 52 by 30 in. Quality, 202 D £80 0

No. 8. Bankers' Safe, with 3-in. fire-proof composition chambers, and fitted with 3 drawers and an inner door, secured by a mortise spring lock. The outer door is rendered drill-proof by being case-hardened, and is latched on inside centres. Size, 48 by 30 by 30 in. Quality, 206 D £26 0

The left-hand cut shows the style of the safe when the door is closed, and also represents the Burnley safe, No. 2.
### Class XXXI — Iron and General Hardware

**Price, George, continued.**

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Size</th>
<th>Quality</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Single-door Safe, with one drawer half across and upright partition</td>
<td>24 by 18 by 18 in.</td>
<td>201</td>
<td>£9 0</td>
</tr>
<tr>
<td>10</td>
<td>Fire-proof Deed Chest</td>
<td>24 by 18 by 18 in.</td>
<td>120</td>
<td>£5 0</td>
</tr>
<tr>
<td>11</td>
<td>Double Cash and Book Safe, each compartment being in itself distinct and equally secure</td>
<td>63 by 48 by 30 in.</td>
<td>204 D, with case-hardened doors</td>
<td>£10 0</td>
</tr>
<tr>
<td>12</td>
<td>Double-door Book or Cash Safe, with 2 drawers, and 2 moveable partitions</td>
<td>33 by 33 by 25 in.</td>
<td>202 B</td>
<td>£24 0</td>
</tr>
<tr>
<td>13</td>
<td>Double Cash and Book Safe, of a similar construction to No. 11</td>
<td>36 by 36 by 25 in.</td>
<td>202 C</td>
<td>£32 10</td>
</tr>
</tbody>
</table>
Price, George, continued.


No. 15. Single-door Safe with 2 drawers. Size, 21 by 22 by 24 in. Quality, 290 C. £414. 9d.

No. 16. Single-door Safe with 2 drawers. Size, 21 by 22 by 24 in. Quality, the People's Safe. £47. 9d.

No. 17. Double-door Safe with 2 drawers. Size, 30 by 30 by 24 in. Quality, 290 B. £620. 0d.

No. 18. Fire-proof Door and Frame. Size, 6 ft. by 2 ft. 6 in. Quality, 290 C. £20. 0d.


No. 20. Fire-proof Door and Frame. Size, 6 ft. 6 in. by 3 ft. Quality, 290 B. £235. 0d.

No. 21. Fire-proof Door and Frame. Size, 6 ft. 6 in. by 3 ft. Quality, 290 B, with sunk panels. £40. 0d.

Nos. 33 to 48. Price's Double Patent "Ne plus ultra" Unpickable and Gunpowder-proof Lock, with small hardened pin keys, - shows the open space in which the key works, being the only cavity into which gunpowder can be forced through the keyhole. The white part represents the layers or tumblers.

No. 35 and 36. The same, after being tested by repeated explosions of gunpowder.

Price's patent "ne plus ultra" lock is made for all purposes and of every size.

Nos. 45 and upwars, represent specimens of the following kinds:

Till of drawers, 1 to 4 in. from 9s.
Cut cupboard, 1 to 4 in. from 9s.
Box, chest, and sleeping desk: mortise camp desk; pocketed or overhead; back plate exposed; travelling desk: and mortise box, 1 to 4 in. from 10s.
Cash box with fixed mead, 21 to 4 in. from 10s. 6d.
Pad, 1 to 5 in. from 10s.
Silver pad, 4 in. 36s.
Portfolio and writing case, 10s.
Trunk and portmanteau, 3 to 4 in. from 14s.
Book edge or ledger lock, from 16s.
Letter bag, 12s.
Round swivel head lock, for locking up the keyholes of other locks, 20s.
Flush night latch, 3 to 6 in. from 14s. 6d.
Drum back night latch, 4 to 6 in. from 10s.
Mortise night latch, from 4 to 12 in. from 20s.
Rim dead to lock on one side only, 4 to 12in. from 16s.
Rim dead to lock on both sides, 4 to 12 in. from 16s.
Spring lock for front doors, 6 to 19 in. from 25s.
Mortise 1 bolt desk, 3 to 7 in. from 25s.
Mortise 2-bolt, 5 in. 36s.; 6 in. 36s.; 7 in. 36s.
Mortise 2-bolt, 6 in. 37s.; 7 in. 40s.
Mortise hall-door lock, 5 in. 36s.; 6 in. 36s.; 7 in. 36s.

The above prices include two hardened keys to each lock.

Ornamental key handles, 10 specimens.

Price's patent door spindle.

Large specimen lock (24 in. dead) to show the principle of construction.

Japanned cash and deed boxes.
CLASS XXXI.—Iron and General Hardware.

RITCHIE, James, 22 South B. of Canongate, Edinburgh.—Improved composite metallic cord for counter weights, cords of gaseliers, hanging pictures, and sash line.

RITCHIE, Watson, & Co., Eliza Foundry, Glasgow.—Kitcheners, cubooses, grates, mantelpieces, grill air warmers, plumbers’ goods. (See page 78.)

ROBERTS, William, Lion Foundry, Northampton.—Register stoves, kitchen ranges, ornamental cast-iron tables, chairs, &c.

ROBERTSON & CARR, Chantry Works, Sheffield.—Register grates, hot air stoves, fenders and fire irons. (See page 80.)

ROWLEY, Charles, & Co., 23 Newhall Street, Birmingham; 49 Aldersanbury, London; and 1 High Street, Manchester.—Buttons, ornaments, bill files, and fancy goods. (See page 81.)

ROWLEY, S. A., 63 Clement Street, Birmingham.—Pearl buttons and studs.

RYFFEL, I. E., 5, Upper Stamford Street, Blackfriars.—Hygeian stove, the most effective, economical, healthy, cleanly and safe stove ever invented.

ST. PANCRA'S IRON WORK COMPANY, The, Old St. Pancras Road, London, N.W.—Interior of stable, and ornamental gates.

SCOTT, J. W., Solihurst Works, Worcester.—Patent solid leather buttons; patent valve leather gun wads; patent leather washers, &c. (See page 82.)

SHEWIN, Joseph, Tobermole Walk, Finsbury.—Economic kitchen ranges for baking, boiling, steaming, roasting, and improved supply.

SMITH, Frederick, & Co., Holfine.—Bar-iron, and wire in various stages to finest sizes.

SMITH, Thomas, 27 St. John's Square, Wolverhampton, and 18 St. Mary Axe, London.—Hardware and cutlery.
Class XXXI.—South East Court.


Ritchie, Watson, & Co. are ironfounders and sole manufacturers of the patent Etun kitcheneres, open fire kitchen ranges, stove grates, gill air warmers, hot air and gas stoves, hot-water apparatus, rain-water goods, patent mangles, patent stable fittings, &c.

1. An Ornamental Iron Chimney Piece (cast in one piece), with a circular opening and arched slab. The slab surmounted by an ornamental stand for clock, bust, or vase. The chimney piece is fitted with an ornamental register stove grate, with fire-clay linings, radiating surfaces and two fires, suitable for the side of a church. This stove is also made with one fire. The same pattern may be had with four different sizes of gills. Style, Gothic.

2. An Ornamental Gill Air Warmer, with radiating surfaces and two fires, suitable for the side of a church. This stove is also made with one fire. Style, Italian.

3. An Ornamental Gill Air Warmer, suitable for the aisle of a church. This stove is also made with one fire. The same pattern may be had with four different sizes of gills. Style, Renaissance.


5. An Ornamental Railings.

6. An Etun Kitchener, with two roasters, a wrought-iron welded boiler, iron chimney piece, plate rack, &c. These kitcheneres are made any size, from 3 ft. to 30 ft. and with any desirable number of roasters, brick or iron ovens, boilers, steam closets, close or open fire, &c. the manufacturers having had fully 60 years' experience in this department of manufacture.

7. A Small Portable Farm Boiler, with fire-clay linings, made in five sizes.

8. An Economic Cooking Stove, on the American principle.—Uncle Sam by name.—made in three different sizes, and with or without boilers, hot-water apparatus, &c.

A Pillar Grate in the Tudor style, adapted for a baronial mansion. The body, bars, and dogs are cast-iron. The balls and jewelled ornamentation are malleable iron, being susceptible of a high polish, contrasting with the deep black of the body of grate.

Size, extreme width, 4 ft. 1 in.; minimum depth, 2 ft. 3 in. but can be made in other sizes.

1 80
CLASS XXXI.—South East Court.

Rowley, Charles, & Co., 23 Newhall Street, Birmingham; 49 Aldermanbury, London; and 1 High Street, Manchester.—Buttons, ornaments, pins, bill files, and fancy goods.

Charles Rowley & Co. are general button manufacturers, stampers, piercers, tool makers, and patentees of the safety pins, so admirably adapted for children's under-clothing, ladies' shoes, &c. Stay, and other catches, military ornaments, belt, garnet and other claps; and the sole manufacturers of the Albert self-adjusting brace slide, protected by patent and registration.

This adjuster for gentlemen's braces, will be found the most simple, efficient, and经济 adapter ever offered to the public.

C. R. & Co. are also patentees and sole manufacturers of the universal mercantile and domestic bill file, which being made of stout or fine wire, admits of being adapted for a variety of useful purposes; the point in every instance being held and protected, the articles filed will be secured, and yet present every facility for removal or examination, and are also adapted for suspending prints, drawings, and other like articles. These useful appendages to the office, retail shop, or private house, may be made for suspension, or fitted with a stand as here illustrated. To be had retail at all respectable stationers, ironmongers, and dealers in small wares. They are, likewise, general manufacturers of brass and other buckles, naval, military, crest, and other buttons, brass and iron ship thimbles, weavers' nails, and a variety of other such-like small articles.
CLASS XXXI.—Iron and General Hardware.

SCOTT, J. W., Stollery Works, Worcester.—Patent solid leather buttons; patent valve leather gun wads; patent leather washers, &c.

The exhibit is patented under the following:

The Patent Solid Leather Buttons are manufactured with leather shanks, also metal, cork, gut, &c., and in designs suitable for boots, gutters, upholstery, dresses, and vests; they are finished in bronzes and enamelled colours, and inhibit work.

The Registered Star-Shank Patent Leather Button is a ready and efficacious method of attaching buttons to boots for ornamental purposes, without sewing, instantaneous in application, and appear riveted on.

The Patent Hinged-Levered Button and Fastener, used on boots, allsorts, dressing, &c., is the best and most fastener extant for knickerbocker rife gutter buttons.

Solid Leather Nuts and Buttons for pianoforte and organ purposes.

Patent Cut Leather Washers in any substance of calf or buff leather, cut to sixteenths diameter, from 1 in. centres to 2 in. (or larger in order).

PATENT CUT LEATHER LACES, with flats heads.

Scott's New Patent Expanding Valve, and compressed leather coarse compound gun wads.

These patent wads are a scientific novelty of very peculiar construction. The compound which secures the effects heretofore set forth, consists of a concave cup compressed in solid but leather at certain angles, and also of a resilient valve made of leather. This inner cup or valve exactly fits the wad just described, and is riveted or firmly attached thereto at the centre only, leaving the side free, but somewhat larger, so that it shall rest in the barrel rather in excess of the bore.

Whilst the wad is being rammed down upon the powder, the valve sufficiently collapses to allow it to pass easily down the barrel; but on its discharge, the reverse action takes place—the projecting edge of the expanding valve becomes pressed against the circumference of the barrel—effectually rendering it perfectly air-tight, and thus secures to the explosion gases the retention and resistance necessary for perfect combustion, and development of their propelling power. Power is in proportion to the resistance.

Special agent in London, Mr. T. Seaber, colonial merchant, 21 and 22 Falcon Square, E.C.

[6214]


[6215]

SMITH & WELLWOOD, Columbian Stone Works, Bonnybridge, Glasgow.—Kitchen cooking portable stoves, ranges, heating stoves, portable farmers' boilers. (See page 83.)

[6216]

SPOKES, JOSEPH, North Street Mews, Fitzroy Square.—Wood meat-screens and refrigerators.

[6217]

STANDING, THOMAS, Preston, Lancashire.—Galvanized wire netting, fencing staples, patent size, colour, and liquid agitator. (See page 83.)

[6218]

STANLEY, WILLIAM, 38 Park Street, Walsall.—Bits, spurs, stirrups, bridles, reins, bombillices, hasso rings, cruppers, and cavesons.

[6219]

STANLEY, JOHN M., & Co., Midland Works, Sheffield.—Gill air warmers, kitchen ranges, cooking apparatus, and stove grates. (82)
STANDING, Thomas, Preston, Lancashire.—Galvanized wire netting, fencing staples, patent size, colour, and liquid agitator.

No. 1. Family or Kitchen Stove, with hot-water attachment. All sizes and styles of these portable stove ranges cooking stoves are made, ranging in price from £3 3s. upwards.

STANDING'S PATENT SEAM AND PLANET MOTION AGITATOR and models of columns for mixing liquids, size, volume, starch, &c., for cotton-manufacturing, colloid-printing, dyeing, and brewing purposes.

This apparatus is now in use in numerous large and well-known establishments, and is acknowledged to be the most efficient and complete invention for preparing size, colours, liquids, &c., yet extant; whilst the thorough agitating motion is not equalled by anything in the United Kingdom.

These machines can be made to any given size. Estimates on application. Reference to a large number of English firms using them.

The sun and planet motion consists of dashers, revolving round a fixed wheel, and at the same time turning upon their own axes in different directions. By this arrangement, the greatest possible agitation is produced, and from the very bottom to the top of the vessel the whole of the liquid is agitated to a complete form.

FOR COLOURS AND STARCH.

A strong copper pan, with wrought-iron steam-jacket, fitted up with three dashers, revolving upon their own axes as well as round the vessel at the same time. Steam is introduced into the cavity between the iron jacket and copper pan, by which the liquid in the pan is kept boiling continually whilst the agitation is going on. These pans can be made in any size, but the sizes usually made are 100, 150, and 200 gallons.

FOR SIZE-PREPARING.

A strong cylinder, fitted up with several sets of agitators, all turned from one axis shaft. These are made in sizes adapted for mixing at one time 10, 15, 20, or 30 sacks of flour, with the necessary quantity of water. In the cylinder the flour and water is agitated so as to form a fine liquid; an improved pump is attached by which the liquid is raised to a copper boiling pan with iron steam-jacket. In this pan the liquid is boiled and agitated at the same time, from which it is conveyed by a pump adapted for the purpose, to the dressing or string frames.

FOR BREWING.

The patent apparatus is fitted up to large vats. The pendulum motion causes every particle of the compound to be dispersed, the whole being equally agitated from top to bottom.

STANDING'S MACHINE-MADE GALVANIZED WIRE NETTING AND FENCING, for protecting young plantations, shrubberies, pleasure grounds, parks, gardens, wheat, barley, and grass crops, against hares and rabbits; for sheep-fencings, and for flower, fruit, and vine-training, &c.

BLACK AND GALVANIZED STRAIGHT WIRE FENCING.

Galvanized Wire Strand Fencing.

Black and Galvanized Self-Rotting Staples, made by machinery, for railways, telegraph companies, &c., for fixing fencing wire and strand fencing. Made all sizes suitable for any purpose.

SMITH & WELLSTON, Columbus Stove Works, Bonnybridge, Glasgow.—Kitchen cooking portable stoves, ranges, heating stoves, portable farmers' boilers.

No. 2. Portable Laiden or Farmers' Boiler, made in 5 sizes, holding from 35 to 60 gallons, can be conveniently used in any position, and they are made to run on wheels or not as may be desirable. Prices from £2 15s. upwards.

The exhibitors are manufacturers of American stoves and ranges.

CLASS XXXI.—South East Court.

PORTABLE LAINTRY or Farmers' Boiler, made in 5 sizes, holding from 35 to 60 gallons, can be conveniently used in any position, and they are made to run on wheels or not as may be desirable. Prices from £2 15s. upwards.

The exhibitors are manufacturers of American stoves and ranges.
CLASS XXXI.—Iron and General Hardware.

[ 6220 ]

Stark, John C., 13 Strand, and Swan Street, Torquay.—Grates and kitchen ranges.

The exhibitor is a wholesale ironmonger, and manufacturer of marble chimney pieces, stoves, kitchen ranges, and all kinds of iron work. He executes marble chimney pieces to any design, and to architects' own drawings. Specimens of Devonshire marbles can be had on application; also see Class 1. Eastern Annex.

[ 6221 ]

Steel & Garland, Wharncliffe Works, Sheffield.—Stoves, grates, and fenders.

[ 6222 ]


[ 6223 ]

Stuart & Smith, Rosec Place, Sheffield.—Stoves, grates, fenders, fire irons, and castings.

[ 6224 ]


[ 6225 ]


[ 6226 ]

Tann, John, 30 Wallbrook, E.C.—Patent reliance and other locks, fire-proof safes, iron doors, cash and deed boxes.

Manufacturers to Her Majesty's Government. Established 1766.

The inventor during his professional prac-
tice as an architect has had his attention par-
ticularly directed to some of the drawbacks to the Englishman's enjoyment of his fires.

These may be enumerated under the four following heads:—
1. Smoke, whether of its extent, or sent (which is fluid), contaminates the at.

mosphere, distresses and destroys buildings, and an incalculable amount of annoyance arises from smoke and smoky chimneys. Me-
chanical contrivances to effect the combin-
tion of smoke will be ineffective when left, as they must often be, to the care of ordinary domestic ser-
vants.

2. The annual loss in London alone of the 75 per cent. of heat by acknowledged facts, which escapes up the chimney without ad-
ing to the warmest of the apartment. The calculation of the heat does not affect any coolness in his dis-
comfort.

3. The air necessary to support combustion makes its way to the fire from door or win-
dow, chink or crevice, and visits his back with burning draughts in proportion to the warmth he receives in front.

4. A frequent cause of smoky chimneys is that the chimney be-
comes filled with the air from the apart-
ment, which, rushing in above the fire, lowers the temperature, and renders the fire incapable of acting as a sufficiently powerful ventilating shaft, and often prevents even conveying away the smoke at all.

Its combustion of fuel is so perfect that what remains
in the ash-drawer after the day's consumption, if proper
attention has been paid, might be taken away in the
palm of the hand.
The occupation of the sweep will be nearly dispensed
with.

The peculiar fea-
tures in these grates, which have been in-
vented to cure the above evils, are—
1. When the regist-
tor is closed, the
smoke, having receiv-
ed from the fire and
become mixed with atmospheric air, dis-
ced, and passes
through the lowest part of the fire, where
theth, or seat, in the smoke is con-
sumed as fuel.

2. The heat which would have rushed up the chimney, estimate-
ted at 75 per cent.
passes down and a-
round the hollow fire
lumps of which the
grate is formed, and
the external air with
which these com-
ments enter the apart-
ment in a large body,
moderately warmed,
not heated.

3. The apartment is supplied with mode-
rately warmed, instead of cold air, from door
or window, and thus thorough ventilation is effected.

4. The cold air cannot rush up the chimney: the fire is, therefore, rendered a powerful extracting shaft for ventilation, and a highly refined, and consequently ef-
fectual, passage for the products of combustion, thus obviating another fruitful source of smoke chimneys.

Should the warmth be too great, the regis-
tor can be opened, and the action of any ordi-
nary grate will take place.

In addition to these advantages, the
fire is always under perfect control, and
may at all times be
brought to any degree of
brightness.

These grates are manufactured in designs suitable for
every class of building, at prices ranging from
$3 to $50 grosses.

Further information may be obtained by applying at the Offices, 53 Parliament Street, where also all orders are received.
TAYLOR, WILLIAM, 11 Sheepcote Street, Birmingham.—Improved shutter bars, door springs, bell springs, and kneelimg frame.

THOMAS, W. H., 6 Stowm Street.—Fire screen for dining-room; door porters.


TONKS, SAMUEL, Great Hampton Street, Birmingham.—Galvanized iron and japanned goods.

TOVEY, EDWARD & CHARLES, Wolverhampton.—Ironmongery and general hardware, for home, foreign, and colonial markets.

TOVEY, W. H., 6 Sloane Street.—Fire screen for dining-room; door porters.


TONKS, SAMUEL, Great Hampton Street, Birmingham.—Galvanized iron and japanned goods.

TOVEY, EDWARD & CHARLES, Wolverhampton.—Ironmongery and general hardware, for home, foreign, and colonial markets.

Messrs. Toovey are exporters of hardwares, including locks, bolts, and all other fittings used in buildings and furniture; brass foundry of every kind, wrought and cast iron goods, edge and other tools for the use of carpenters and others, cutlery of every variety, steel toys, japanned and tin wares, including tea-trays, &c, iron coffee and other mills, and kitchen utensils of every description.

Catalogues of all articles of ironmongery manufactured at Wolverhampton suitable for continental, foreign, or colonial markets, will be forwarded upon application.


TUNES, W., 13 Rose Terrace, Fulham Road, Brompton.—Machinery and articles for domestic use.

TYLER & PAGE, 5 Queen Street, Cheapside, London.—Metallic bedsteads, window blinds, and perforated metals.

VINCENT, ROBERT, St. George’s Place, Camberwell.—Improved smoke-resisting stove door.

WALKER & CLARK, 6 Gardington Street, N.W.—Wire cloths and wire work for manufacturing and ornamental purposes.

WALKER, THOMAS, & Son, Oxford Street, Birmingham.—Stoves for warming buildings.

WARDEN, JOSEPH, & Sons, Railway Iron Works, Edgbaston Street, Birmingham.—Railway screw bolts, nuts, and railway appliances.
Watkins, William, & Co., High Street, Stourbridge.—Spades, shovels, anvils, and vices.

Watkins & Kelly, London Works, Birmingham.—Bolts, nuts, couplings, tie rods, &c.

Webster & Horsfall, Birmingham.—Patent steel music rope, and other wires.


Weyham Lake Ice Company, The, 140 Strand.—Refrigerators, ice-cream machines, freezing powders, patent soda-water machines.


Wills Brothers, Metropolitan Drinking Fountain Depot, 12 Euston Road.—Art drinking fountains in bronzed iron.

Winchester, Graveley, & Sager, 40 to 42 Upper East Smithfield.—Patent sea water distilling and cooking apparatus.
Whaley, Burrows, & Fenton, Queen's Ferry Wire and Wire Rope Works, near Flint.—
Burrows' patent conical winding drums; patent horizontal incline drums; wire, rope, and
telegraph cables.

Specimens of Patent Wire Rope, for collieries, mines, inclined planes, ship's standing rigging; copper ropes for lightning conductors, wire cables for submarine and other telegraphs, wire strands for fencing, railway signal lines.

Wire Rope applied to winding purposes by means of Burrows' Patent Compensating Winding Drum.

The drum admits of the ropes and cages being balanced at all points in the pit; therefore, when the pit is of such a depth that the weight of one rope is equal to the weight of coals to be lifted at one time, an engine of half the usual power, or steam at half the usual pressure, will suffice, or a greater load of coals may be raised.

When starting the load from the bottom, it is raised without the violent concussion which is experienced with the usual form of drum.

It has been found in practice that it is scarcely possible to overwind with this drum.

The ropes last much longer on this drum.

Wire Ropes in connection with Burrows' and Dougan's "Clutch Drum," and Stubbs and Fenton's "Tell-Tale."

The use of the clutch pulley facilitates the substitution of wire ropes in place of chains for working inclines, &c. Half a turn round the pulley is sufficient for holding, as all slip is prevented by the grippers, and wear and tear consequently reduced to a minimum.

By means of these pulleys and ropes, power may be easily transmitted to almost any distance, and in any direction with the greatest facility.

The use of the "tell-tale" diminishes the strain upon and consequently the wear and tear of the ropes. The weight of the load is registered and rendered evident at a glance. It is simple, cheap, and strong.
CLASS XXXI.—South East Court.

[ 6257 ]

Winfield, Robert Walter, & Son, Birmingham, and 141 Fleet Street, London.—Tubes, bedsteads, gas fittings, brass foundry, &c. (See pages 90 to 93.)

[ 6258 ]

Winter, Henry, 3 Parnaby Road, Hackney.—Patent lifting and weighing machine, greatly economising labour and expense.

[ 6259 ]

Withers, George, & Sons, Park Works, West Bromwich.—Patent fire-proof and thief-resistant safes and money chests.

[ 6260 ]

Wood, Brothers, Stoneridge.—Chain cables, anchors, anvils, vices, &c.

[ 6261 ]

Woodin, Dennis, 2 Upper Park Place, Dorset Square.—Horse shoes which prevent slipping on stones or ice.

WOODIN’S PATENT HORSE SHOES. For preventing horses slipping on stone pavements or ice or other surfaces, have now stood the test of years, and are pronounced by competent judges to be the best ever offered to the public. They give a strong firm hold, and a level track, prevent cutting or "clacking," are one-third lighter than the common shoe, and at the same time equally durable, and are put on at the same price.

WOODIN’S ELASTIC PERMANENT PARING prevents and cures contraction, corns, sandcracks, thimbles, and concussion of the joints. It gives an equal bearing to all parts of the foot, and keeps them always moist and cool. Price 6s. 12d. and £1 16s. per case.

WOODIN’S GLOBULAR STIMULATING ABSORBING OINTMENT, surpasses the late for the cure of sprains, ring-bones, cuts, splints, and enlargements of the joints, &c. It reduces them in a surprisingly short time without leaving any blemish, and frequently without interfering with work. It is sold only by the exhibitor.

Prices, from 5s. upwards, according to size of pot. Proper directions for its application are forwarded with every pot.

[ 6262 ]

Wright, George, & Co., Burton Weir, Sheffield.—Stoves, grates, fenders, kitchener’s, umbrella stands, chairs, tables, &c.

[ 6263 ]

Wright, Peter, Constitution Hill Works, Dowlag.—Patent vices and anvils of various descriptions, cramps, &c.

[ 6264 ]

Wright & North, Moseuai and Cleveland Iron and Steel Works, Wolverhampton.—Specimens of iron and steel, and Stockee's patent combined metal bars.

The following are exhibited:—

<table>
<thead>
<tr>
<th>Description</th>
<th>6s. 12d.</th>
<th>£1 16s.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiler plate</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
<tr>
<td>Sheet iron</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
<tr>
<td>Galvanized iron</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
<tr>
<td>Corrugated iron</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
<tr>
<td>Hoop iron</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
<tr>
<td>Bar iron</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
<tr>
<td>Spring steel</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
<tr>
<td>Boiler rivets, stamped</td>
<td>6s. 12d.</td>
<td>£1 16s.</td>
</tr>
</tbody>
</table>

Specimens of iron and steel, and Stockee’s patent combined metal bars.
CLASS XXXI.—Iron and General Hardware.

WYNDHAM, Robert Walter, & Son, Birmingham, and 141 Fleet Street, London.—Gas fittings, bedsteads, brass foundry, tubes, &c.
CLASS XXXI.—South East Court.

Winfield, Robert Walter, & Son, continued.

BRASS ARABIAN AND FRENCH BEDSTEADS, SWINGING COT, CHAIR AND TABLE, ETC.

(91)
CLASS XXXI.—Iron and General Hardware.

Winfield, Robert Walter, & Son, continued.

CORNER PODE, CEILING ROSES, METAL FRAME LOOKING GLASS, TUBES.
DRAWING-ROOM CHANDELIER FOR GAS, in silver bronze and relief, outline formed from ornamental paralleled angular tubes, Hunt's patent.

DRAWING-ROOM CHANDELIER FOR GAS, in bright gold, fitted with an internal sliding apparatus, Hunt's patent.

CHANDELIERS FOR GAS, in brass frame-work, formed of angular tubes, filled in with rich ornamental panels, and fitted with an internal sliding apparatus, Hunt's patent.

CHANDELIERS FOR GAS. (See illustrations.)

GAS STANDS, in bright gold and bronze, for chandeliers and chimney pieces, also fitted with flexible tube, as portable lights for tables, &c.

SMOKE-ABSORBING GAS SHADES, Hunt's patent.

GAS BURNERS of various kinds.

IMPROVED PATENT BRASS FOUR-POST BEDSTEAD, with massive pillars, mountings, "hop foliage" cornice, and head and foot rails to correspond; circular dovetail joints, china bowl castors. (No. 3961.)

IMPROVED PATENT BRASS FOUR-POST BEDSTEAD, with pavilion base, tapered pillars, made of the patent enamelled metal, mountings and ornament in an attractive style. (No. 3055.)

IMPROVED PATENT BRASS TENT BEDSTEAD, with ornamental mountings and head and foot rails. (No. 3572.)

HALF-TETER, or ARABIAN BEDSTEAD, of brass, with pillars of patent tubing, wrought mountings, and elaborate cast ornaments on the head and foot rails. (No. 3064.) See illustration.

HALF-TETER, or ARABIAN BEDSTEAD, with plain pillars, the vase and mountings in imitation of precious metals and stones. (No. 3063.)

Others, with the head portions of brass, with mountings of ruby (No. 3765) and opal (No. 3769).

FRENCH BEDSTEADS, in brass, one with paralleled head and foot rails, and parallel twisted pillar (No. 3779); another with ornamental head and foot rails (blackberry and poppy), and mountings on plain pillars, (No. 3775); a third with ornamental head and foot rails (birds and oakleaf), the vase and mountings to the pillars in imitation of precious metal and precious stones (No. 3776). See illustration.

BRASS BEDSTEAD, for travellers or military officers. (No. 3052.)

SWIVELLING CUPS, with ornamental stands (No. 3499). See illustration.

CHILDREN'S CHAIRS, several examples, some with patent brass pillars.

CENTER TABLE, with marble top (No. 3718). See illustration.

ELEGANT DRAWING-ROOM CHAIR, in brass, richly chased, with white satin seat. (No. 3015.) See illustration.

REGISTERED FREE GUARD, OR DRESS PROTECTORS, in brass. (No. 3725—26.)

REGISTERED FREE GUARD, OR DRESS PROTECTORS, in iron. (No. 3713—18.)

IRON BEDSTEAD, of various shapes, patented in the ordinary manner, and likewise by the patent processes of ornamenting—viz., the pattern produced in various colours at one operation, and the combination of gold and colours.

FOLDING CHAIR BEDSTEAD, with patent double-action head piece, forming when necessary a bed rest for an invalid. (No. 3731.)

PORTABLE CHAIR, for overland or sea journeys. (No. 3014.)

N.B.—Short side rails are inserted in some instances to allow of the exhibition of a greater number of patterns, the bedheads being in all cases made of the ordinary length. The stability of these bedsteads is guaranteed, the continuous tube pillar, patented 22nd December, 1831, is used in combination with circular dovetail joints; while china bowl casters are generally applied to best bedsteads, many of the designs are registered under the copyright Act, 5 & 6 Vic. cap. 100.

LARGE OVAL GLASS, brass frame, composite ornamental, with figure and candle branches, &c. (See illustration.)

Stamped window cornices, cornice poles of various kinds, stamped brass foundry, ceiling roses enamelled white and other colours, mantel-piece banner arms, screen poles, balsamstafes, drapers' brackets and shop-window fittings, ash bars, name plates, bed rings, stair rods, and weights of every ornamental character.

Examples of the following articles, for the use of brass founders, engineers, &c. Brass tubes for locomotives (tubed joints), brass and copper tubes, plain and ornamental, including twisted, riveted, fluted, and others, indicated by a patent process. (See illustration.) Iron tubes coated with brass, parallel, twisted, riveted, or taper; tin and zinc tube, brass wire for pin makers and wire workers; copper wire for electric telegraph cables, plain, or coated with brass or tin. African rods in copper or brass, brass and copper piston rods, shunt brass of all sizes and gauges, spotter solder, common stair rods, beddings, and clips, &c.
YATES, HAYWOOD, & DRABBLE, Rotherham and London.—Stoves, fenders, and other ornamental furniture in cast-iron.

Register stoves, warm air stoves, fenders, cooking ranges, fire-irons, tables, hat and umbrella stands, gates, fencing, balusters, and various other similar goods in cast-iron, steel, and ormolu, shown as specimens of the ordinary manufactures of the house.
Class XXXI.—South East Court.

Yates, Haywood, & Deamble, continued.

Statuary Marble Chimney Piece and Steel Grate, with ormulu enrichments.

Warm Air Stove, bright, with electro-bronzed ornaments, selected from a very copious stock of designs fit for general use.

Circular Warm Air Stove, electro-bronzed.
York, Samuel, & Co., Wolverhampton.—Hardware goods made at Wolverhampton, suitable for every foreign market.
SMOKELESS GRATE.

This patent smokeless grate consists of an ornamental trough being fixed at the lower portion of the grate, in which is placed a right and left handed screw connected with a ratchet at the side, which together with the screw is moved by the poker.

When the fire requires feeding, the coals are deposited in the trough, and by the revolution of the screw the burning fuel is raised up and the fresh coal conveyed into the cavity underneath. By this simple means the whole of the gases given off are burned, a great saving effected, and greater heat obtained combined with cleanliness.

This patent is also applied for kitcheners, furnaces, &c.

VESTA LAMP.—BIN-OXIDISED.

W. Young’s Vesta gas burner consists of two or more deflectors being placed in the interior of the flame in such a manner that the column of air on its passage through the burner is taken up by the said deflectors and directed in separate currents upon the flame, consequently a more perfect combustion is obtained, and a great saving effected.

The above inventions may be seen in operation at W. Young’s warehouse as per above address.
Class XXXI.—Iron and General Hardware.

[ 6267 ]
York, Samuel, & Co., Wolverhampton.—Hardware goods suitable for every foreign market. (See page 96.)

[ 6268 ]
Young, William, 33 and 34 Queen Street, Cheapside.—Spirit and oil lamps, gas-burners, and smokeless grates and furnaces. (See page 97.)

[ 6269 ]
Aubin, C., Wolverhampton.—Nettlefold's guardian locks, and fancy keys.

[ 6270 ]
Cotterill, E., St. Paul's Square, Birmingham.—Copying presses and dies.

[ 6272 ]
Moore, J., Birmingham.—Medals.

Reidtidge, J., & Co., have been removed to Class XXX.

Sub-Class B.—Manufactures in Brass and Copper.

[ 6277 ]
Alder, Henry, Grange Works, Edinburgh.—Gas meters.

[ 6278 ]
Aldred, William, 28 Pall Mall, Manchester.—Non-corrosive ordinary and economical gas burners made from silver and other sheet metals.

[ 6282 ]
Benhams & Froud, 40, 41, & 42 Chandos Street, Charing Cross.—Copper, zinc, and brass manufactures. (See page 99.)

[ 6282 ]
Biddle, Elizabeth Emily, Victoria Street, Birmingham.—Book clasps; gilt rims and ornaments for books and cabinets.

[ 6283 ]
Bischoff, Brown, & Co., Langham Works, George Street, Great Portland Street, London.—Hydraulic gas meter, with floating measuring chamber. (See page 102.)
Benhams & Fergus, 40, 41, & 42 Chandos Street, Charing Cross, London, W.C.—Copper, brass, and zinc manufactures.

COPPER BATHS.
Tinned copper bath, enamelled in imitation of marble, inside and out, designed for fitting without wood casing. A 5 ft. 6 in. enamelled copper oblong bath, for fitting in wood casing, with set of cocks, lever handles, engraved brass plates, &c.
A full size polished zinc bath. Copper shower heads.

BRASS BRACKETS.
Tinned copper jelly and cake moulds, shown in various stages of the manufacture. Copper and brass coal scoops. Brass and copper mullers for publicans' use. Copper saddle boiler.

ALTAR RAILS.
Copper and zinc casement frames, plain and ornamental. Bound copper glass-case frames. Copper and zinc lanterns. Copper architectural enrichments, for the exterior of houses or public buildings. Specimens of zinc covering for roofs. Ditos of copper dits, recommended on account of lightness and durability. Copper lightning conductors, solid, tubular, and rope, with platinum tips. Copper and zinc guttering, rain-water pipes, clisters, &c.
Ornamental copper clock hands. Set of three tinned copper oblong steamers, for meat, fish, and vegetables. Tinned copper stewpans, stockpots, saucepans, &c.

WEATHER VANES.
Copper, zinc, and iron weather-vanes of various styles. The two shown above are of wrought copper, from designs by Mr. S. J. Nicholl, architect. Copper and zinc casement frames, plain and ornamental. Bound copper glass-case frames. Copper and zinc lanterns. Copper architectural enrichments, for the exterior of houses or public buildings. Specimens of zinc covering for roofs. Ditos of copper dits, recommended on account of lightness and durability. Copper lightning conductors, solid, tubular, and rope, with platinum tips. Copper and zinc guttering, rain-water pipes, clisters, &c.
Ornamental copper clock hands. Set of three tinned copper oblong steamers, for meat, fish, and vegetables. Tinned copper stewpans, stockpots, saucepans, &c.

TOMB RAILS.
Copper, zinc, and iron weather-vanes of various styles. The two shown above are of wrought copper, from designs by Mr. S. J. Nicholl, architect. Copper and zinc casement frames, plain and ornamental. Bound copper glass-case frames. Copper and zinc lanterns. Copper architectural enrichments, for the exterior of houses or public buildings. Specimens of zinc covering for roofs. Ditos of copper dits, recommended on account of lightness and durability. Copper lightning conductors, solid, tubular, and rope, with platinum tips. Copper and zinc guttering, rain-water pipes, clisters, &c.
Ornamental copper clock hands. Set of three tinned copper oblong steamers, for meat, fish, and vegetables. Tinned copper stewpans, stockpots, saucepans, &c.

OCTAGON CHIMNEY HEAD.
The new patent octagon chimney head. Chimney pipes of various descriptions.
Class XXXI.—Iron and General Hardware.

ELAWS & SOSS, 9, 10, 11, and 12 Bartholomew Street, Birmingham.—Chandelier, gas-fitting, lamp, standard weight, and measure manufacturers; bells and brass foundry articles.
CLASS XXXI.—South East Court.

Bleeu & Sons, continued. (In Birmingham Court.)

Established A.D. 1732. Prize Medal awarded at Exhibition, 1851.

A set of imperial standard measures, from a bushel down to 1 gill.
A set of imperial standard bell-shape brass weights, from 56 lbs. down to 1 oz.
A set of imperial standard spherical-shape brass weights, from 56 lbs. down to 1 oz.
A set of imperial standard decimal Troy weights, from 500 oz. down to 1/32 oz.
A set of central weights, 50 lbs. down to 1 oz.
A set of Troy cup weights, each 250 oz. 128 oz. 64 oz. 32 oz. 16 oz. 8 oz. 4 oz. 2 oz. and 1 oz. down to 1/32 oz.
A set of Spanish covered cup weights, each 8 lb. 4 lb. 2 lb. 1 lb. and 1/2 lb. down to 1/32 oz.; making 16 lb. 8 lb. 4 lb. 2 lb. and 1 lb. in the whole.
A set of flat brass weights, each 7 lb. 4 lb. 2 lb. 1 lb. down to 1 oz.
A set of bevilled-edge weights, each 4, 3, 1 lb. down to 1 oz.

**Metal Chandeliers.**

| No. | Description | Weight
|-----|-------------|--------
| 455 | 3 light     | 43 5 0 |
| 456 | 3           | 43 5 0 |
| 476 | 3           | 43 5 0 |
| 480 | 3           | 7 0 0 |
| 465 | 5           | 8 8 0 |
| 890 | 3, plain, Queen's drops | 4 15 0 |
| 890 | 3, cut, ditto | 5 0 0 |
| 801 | 3, plain, ditto | 4 10 0 |
| 801 | 3, cut, ditto | 4 15 0 |
| 802 | 3, cut, ditto | 5 10 0 |
| 805 | 3, cut, Queen's drops | 5 10 0 |
| 804 | 3, plain, ditto | 4 4 0 |
| 804 | 3, cut, ditto | 4 10 0 |
| 805 | 3, cut, ditto | 8 8 0 |
| 920 | 5, cut, Albert drops | 9 9 0 |
| 850 | 3, plain, Queen's drops | 9 9 0 |
| 860 | 3, cut, ditto | 20 0 0 |
| 990 | 3, plain, ditto | 11 11 0 |

The chandeliers are hung in the Court in the South-Eastern Transept, opposite Naylor, Vickers & Co.'s stock trophy.

Pattern books and price lists supplied on application.

(191)
Class XXXI.—Iron and General Hardware.


_**Class's New Patent Hydraulic Gas Meter.**_

The drum floats by means of a central air vessel, and thus renders the measuring capacity independent of any reduction of the water level by means of evaporation. The meter registers correctly under all variations of pressure, or increase and diminution of the number of lights.

[Bright, Richard (Successor to Argand & Co.), 37 Bruton Street.—Argand and indicator lamps and wicks.]

The **Patent Indicator Lamp** has the following improvements:—The position of a small bead shows when the plunger requires winding up. In filling the lamp, a bubbling shows when there is sufficient oil. A patent stiffened wick can be momentarily applied without a stick. The flame is regulated by raising or lowering the chimney without removing the globe. A double extinguisher renders it unnecessary to blow out the flame as requisite in moderator lamps.

[Cartwright, Sambidge, & Knight, Lombard Street, Birmingham, and Castle Street, Holborn, London.—Chandeliers, brackets, gas fittings, &c.]

The exhibitors manufacture every description of gas fittings, gaseliers, &c. In the specimens exhibited, they have endeavored to combine beauty of design with economy of cost, by producing such articles as come within the reach of the many rather than elements productions, which from their costliness could only be obtained by the few.

[Chambers & Co, 216 Bradford Street, Birmingham.—Railway, ship, and carriage lamps, coach furniture, &c.]

[Cowan, W. & B., Buccleugh Street Works, Edinburgh.—Wet and dry gas meters.]

[Croll, Ray, & Co., Kingsland Road, N.E.—Croll's patent improved dry gas meter, and gas apparatus. (See page 103.)]

[Dalf, Richard, & Son, 195 Upper Thames Street.—Copper boilers, copper baths, copper kitchen furniture. (102)
CROLL, RAIT, & Co., Kingsland Road, N.E.—Croll's patent improved dry gas meter, and gas apparatus.

**Dry Gas Meter.**

Extract from "Rutter on Gas-lighting."

"The dry meter I shall here endeavour to describe has been in use about fifteen years. During that period neither capital nor skill have been spared by its inventor and patentee, Mr. A. A. Croll, in his efforts to make it what it has now become—an accurate measure, and a durable machine. This meter is not liable to be affected by sudden or extreme variations of temperature. It may be fixed in almost any part of the consumer's premises, either above or below the level of the entrance to the fittings, and it requires no adjustment to insure correctness."

The following articles are exhibited:

1. Improved dry gas meter for 100 lights, made with glass front, sides, &c. to show the working.
2. Model of dry gas meter.
3. Parts of dry gas meter.
4. Model of a testing gas holder.
5. 20-light consumer's governor in glass, to show its action.
6. Public lamp meter in cast-iron case.
CLASS XXXI.—Iron and General Hardware.

[691]

Defries, J., & Sons, Works, London and Birmingham; Show Rooms, 147 Houndsditch.—Brass chandeliers, bronzes, hall lanterns, brackets, &c.

J. Defries & Sons, manufacturers of crystal, bronzed, and ormolu chandeliers; improved crystal star and sun lights.

Works: London and Birmingham. Principal depot and show rooms, 147 Houndsditch, City.

Estimates and designs for lighting theatres, public buildings, &c. can be had by applying at the above address.
CLASS XXXI.—South East Court.

Dickie, Charles, Dundee.—Specimens of wire work; working models of improvements in bell hanging.

1. Ornamental Wire Aviary for birds, an ornamental wire table, frame of mahogany, embellished with carved figures, and four views in glass, representing the seasons, introduced in panels. The table has vases for four flower pots, and two hanging baskets, and is ornamented with bronzed figures and ornaments. Size of aviary 9 ft. 8 in. by 2 ft. 6 in. high. Height of table 2 ft. 8 in. represented in accompanying illustration. Designed and manufactured by C. Dickie.

2. Ornamental Wire Garden Chair, strong, light, and elegant, and when inverted by a simple and easy movement, becomes a flight of four steps, very suitable for a conservatory. Price 24s. 3d. 2

3. Ornamental Wire Garden Chair, for garden walk, Gothic design. 2

4. Ornamental Wire Bench, for garden walk, Gothic design. 2

5. Hanging Flower Basket with legs. 2

6. Wire Flower Trellis. 2

7. Ornamental Panel, Wire Fencing. 2

Bell-hanging.

8. Index Dial Bell, by which one bell only is required for any number of apartements.

9. Mantle Bell Pully, by which one pull only is made to ring any number of bells.

10. Ornamental Design Bell Lifter, constructed upon an entirely new principle, so as to ring three different bells.

11. New designs in Door Bell Pully.

Drury, Francis, 10 Duke Street, Grosvenor Square, W.—The Campanil and musical inventions applicable to clocks.


Edge, Thomas, Great Peter Street, Westminster.—One each wet and dry gas-meter in glass cases.

Evered, Richard, & Son, Bartholomew Street, Birmingham, and Drury Lane, London.—General brass foundry articles.

Felz, J., & Co., St. James Square, Wolverhampton.—Brass chandeliers, gas fittings, &c.

Forrest, George, & Son, Nevill's Court, New Street Square.—Candelabrum and 32-light gas chandelier.

Gardner, Henry & John, 453 Strand, Cheering Cross, & 5 Duncannon Street, and 63 Strand.—Lamps, chandeliers, candelabra, gas fittings and apparatus. (See page 104.)

Glover, George, & Co., Bloemdelg Works, Pinoleo.—Dry gas meters, pneumometers, and photometers. (See page 108.)

CLASS XXXI. (105)
GARDNER, HENRY & JOHN, 453 Strand, Charing Cross, 4 & 5 Duncannon Street, and 63 Strand,
—Lamps, chandeliers, candelabra, gas fittings, and apparatus.
Obtained a Prize Medal at the Exhibition of 1851.

The exhibitors, whose business has been established for more than a century, hold a warrant of appointment as lamp manufacturers to the Queen. They manufacture and supply the following goods, of which specimens are exhibited—Lamps for India, of an improved construction, with paraffin protection, table lamps, chandeliers, candelabra, wall brackets, hall lanterns, and passage lamps, arranged for both oil, gas, and candles, to suit any style of decoration, from the richest to the most moderate.

A considerable saving offered by using Gardner's improved gas regulator. Fittings, and gas apparatus of every description.
GLOVER, Thomas, Suffolk Street, Clerkenwell Green, E.C.—Dry gas meters, and gas holders.

GRAY, BAILEY, & BARTLEY, Berkley Street, Birmingham.—Gasoliers, tea trays, coal vases, &c.

GREENWAY, William, Princep Street, Birmingham.—Locks, bolts, latches, door springs, fastenings, weavers' mails, patent wrought-iron hinges, &c.

The exhibitor is a manufacturer of—
Mortise, rim, drawback, dead, and pad locks.
Drawer, cup-board, chest, box, side-board, and every description of cabinet locks.
Copper, brass, and gum-metal locks, suitable for iron and wood ships, or powder magazines.
Iron safe and prison door locks.
Winkle's patent secure safety locks.
Eastman's patent bolt and door fastener.
Greenway's patent barred bolts.
Greenway's patent casement stays.
Greenway's patent closed-door hinges.
Greenway's patent door springs.
Cartland's ditto ditto.
Dilkes & Co.'s ditto ditto.
Greenway's Gothic and other new pattern door latches.
Greenway's improved shutter bars and window fastenings.
Greenway's patent wrought-iron hinges.
Espagnolette and casement fastenings.
Copper, brass, and steel weavers' mails.
Lingoes and umbrella furniture.
Wrought, pressed, and cast-iron metal work, and general cast-brass work.

GUEST & CHRISTIES, Rotherham, and 37 Southampton Street, Strand, London.—Water-works articles. (See page 109.)

HARDMAN, JOHN, & Co., 106 Great Charles Street, Birmingham; 13 King William Street, Strand, London, W.C.; 1 Upper Camden Street, Dublin.—Medieval metal manufacturers. (See page 110.)

HARLOW, WILLIAM, & SON, 14 Portland Street, Soho, W.—Specimens of manufacture—
Chandeliers, tripods, brackets, &c.

A 5-Light Chandelier for gas, in brass, lacquered, designed and modelled by Mr. W. G. Rogers.
A 6-Light Chandelier for gas. First ornament.
A Lantern for gas. First panels and ornament.

HART & SON, Wyck Street and Cockspur Street.—Ecclesiastical and domestic metal work (See pages 112 to 117.)
Glover, George, & Co. — Renfrew Works, Renfrew Road, Paisley; Offices, 22 Parliament Street, Westminster, and 15, Market Street, Manchester.—Dry gas meters, pneumometers, and

The construction of a good and durable dry gas meter involves a multiplicity of chemical and mechanical considerations, to each of which its due weight must be assigned.

Auble, ironclad, elastic, tubular body, very complex in its chemical constitution, susceptible of change in condition and volume from slight variations in temperature and pressure, has to be accurately measured; and the result of that measurement must be correctly recorded.

The instrument must be self-adjusting, and must not change its position, determinately or at intervals, requiring no adjustment or interposition of any sort.

All its parts which come in contact with gas must be made of non-corrosive metal; while the materials, form, and combinations of its different parts must be so adapted to each other, that, when put together as a whole, it shall work easily, steadily, and correctly.

These conditions are strictly observed in the manufacturer of Messrs. George Glover & Co.'s patent dry gas meter, the same high standard of accuracy being adopted in the construction as in that of the standard gas holders.

Since the "Scales of Gas Act," a much closer degree of accuracy in meters than that attained by those generally used hitherto is indispensable. The admitted range of error in wet meters of from 20 to 40 per cent. can no longer be tolerated.

The patent dry gas meter obviates all the objections to the wet meter.

1. It measures accurately, and does not vary in its registration.

2. It does not come jumping or suddenly extinction of the lights, the former a common source of annoyance, the latter not free from danger; especially in large assemblies and supply lines, where signal lights are used.

3. The dry gas meter does not require to be opened that water may be put into it; thus escape of gas from the plug being carefully left open, always apparent, and consequently producing explosion, is avoided.

4. It cannot be tampered with without showing distinct evidence of having been so; and it is less free from the many temptations and facilities to fraud which are characteristic of the wet meter.

5. The dry meter does not allow the gas to pass without being registered, a source of much possible loss to gas companies than in commonly supposed, and caused by the water level falling to a point at which the gas passes unregistered.

6. The frequent supply of water now rendered necessary by the small range of error allowed by the Act, the stringent condition required to prevent fraud, and to ensure that when the gas is passing unabated, needs three times the number of inspectors required where dry meters are used: whilst, in testing meters, the expense of inspectors and instruments is three times larger with the wet than the dry meter, which thus effects a great saving to Gas Companies and local authorities.

7. It does not require to be placed in the basement or lower part of the house, but may be put anywhere. The subject of wet meters to prevent jumping of the lights by giving all the slips a gradual ascent from the meter, and to admit of the water trickling back into it, besides being inexpensive, is expensive and detrimental to house property.

8. The dry meter works with less pressure than the wet. Not only is a saving of gas thus effected, but in large cities where, during the winter season, dense fog occurs, and the low pressure in the mains during the day is not adequate to move the wet meter so as to supply enough gas for the burners, and only small smoky flames can be obtained from them, with the dry meter there is sufficiency of light. Thus interruptions in business, occasioning considerable loss to the owners of large warehouses, mills, and factories, are averted.

9. The action of the dry meter cannot, like that of the wet, be arrested by frost, causing the total extinction of the lights. This makes the dry meter especially advantageous on railway lines, precluding as it does the necessity of keeping up large fires near the meter during a severe and protracted cold.

10. Made of anti-corrosive metal, and not subject to the corrosive power of the chemical constituents of cold gas and water, the patent dry gas meter is a much more durable instrument than the wet.

The dry gas meter has been brought to its present condition of excellence by successive stages. The essential improvements were invented by Mr. William Richards, and patented by Messrs. Glover & Richards in 1844, consisting in the introduction of the dials and the direct action of the dials. The theoretical accuracy of the principles which the invention of Mr. Richards has involved and results have fully established. The patentee, however, failed to reduce to practice and register a good and durable dry gas meter, and they abandoned its manufacture.

Mr. Croll having secured the patent, Mr. Thomas Glover, in 1844, commenced the manufacture of the meter in Croll & Glover's patent dry gas meter, and ultimately he manufactured it as his own. To him belongs the merit of having imported to Mr. Richards' invention a real and practical value by the production of a correct and durable instrument. Some 200,000 of his meters have been manufactured: the model was exhibited them at the Exhibitions of London, Paris, and New York; they are now in extensive use all over the world, and instigated by other meter makers.

Improvements in Messrs. Croll, Glovers & Co.'s meter.—It has a large and distinct dial, which shows at a glance the number of cubic feet of gas passed, the number of the company's capacity per hour and per month, and the number of identity, all of which the "Scales of Gas Act" requires, the maker's name, and the date of its manufacture. These points of information are inscribed on an enamelled dial in characters easily read and indelible; and they are necessary for reference, especially when disputes arise between consumer and company, as to which the marks of identity and capacity are essential. These ought not to be exposed to fire, fogs, fush of this metallic substance, which become tarnished and illegible, accidentally fall off, and can easily be transposed for the purposes of fraud.

A slot is introduced in a pin which connects the valve and valve rod. This facilitates the adjustment of the two acts of valves necessary to the ordinary use of a gas, without which steady current cannot be obtained. The attempt to adjust the position of the valve rod, by giving a curvature to the valve arm is very objectionable. The valve arm should be so adjusted that the pin, when a finger and thumb adjustment, its protruded inscription in gas rendering it still further. The result is that the rod becomes more or less curved during the action of the meter as transmitting gas in the direction of its length, as a thrust or as a pull alternately.

A hole is introduced in the shaft of the meter, and a shoulder or rest is placed on the tangent pin, the flat surface of which rests on the inside of the cover.

The pin is secured in its place by a screw from below, the flattened head of which lies flush at any desired point of the slot. This arrangement keeps the pin in a perfectly vertical position, and admits of the meter being registered with ease and precision.

Messrs. George Glover & Co. have made a modification of their meter, adapting it to the photometer, which shows its extreme accuracy in measuring the minute quantities of gas. All the wheel-work, the spindle, and the worm are removed. The dial is placed on the top of the meter, a pointer is fixed in connection with the crank red, and the measurement of the gas is taken directly from the revolution of the crank. This pointer passes around a disc 6 inches in diameter, the scale of which is so directed that the part of any particular reading is to be indicated with precision each second. This is the most accurate test to which the extreme accuracy of a meter can be subjected. (In Class X, No. 2294, and Class XXXI. No. 6096, International Exhibition, it is seen at work.)
The following is a list of the manufacturers of Guest & Chrimes:

- Bateman & Moore's & Chrimes' patent hydrants or fire cocks, improved sluice cocks and gas valves.
- Chrimes' patent high-pressure single and double bore valve and screw-down cocks.
- Pilkrow's patent water-waste preventer; patent absolute water-waste preventer.
- Siemens' patent balance water meter.
- Bell & Chrimes' patent service box valve; improved self-acting and pull water-closet.
- Eskholme's patent pneumatic regulator and valve closet.
- Lowe's patent efficient traps, Beggs' improved.
- Fire-extinguishing apparatus.

Galvanized iron tubes and fittings.
Gas chandeliers, brackets, and fittings; glass chandeliers and brackets.
Cosdeny & Goldsmith's patent wet gas meter.

All the above articles may be seen on application to Thomas Beggs, 37 Southampton Street, Strand, London; or to the exhibitors.

They also execute plumbers' and gas fitters' brass-work of every description.


Drawings, descriptions, prices, and testimonials, will be forwarded per post on application to Mr. Becca, 37 Southampton Street, Strand, or to the works, Rotherham.
CLASS XXXI.—Iron and General Hardware.

Hardman, John, & Co., 166 Great Charles Street, Birmingham; 13 King William Street, Strand, London, W.C.; 1 Upper Camden Street, Dublin.—Mediaeval metal manufactures.
CLASS XXXI.—South East Court.

[6309]
Hickling & Cox, Birmingham.—Copper and iron boat nails, rivets, and washers; cut copper and zinc tacks, screws, &c.

[6310]
Hickman, John, 33 William Street North, Birmingham.—Brass cocks.

[6311]
Hill, Joseph, 18 Broad Street, Birmingham.—Chandeliers, gas fittings, stampings for metallic bedsteads, &c. (See page 118.)

[6312]
Hind, James, 118 King's-road, Westminster, London.—Engraved and inlaid metals in doorplates and monumental brasses.

[6313]
Hinks, James, & Son, Crystal Lamp Works, Birmingham.—Lamps for burning hydrocarbon oils.

[6315]
Horsey & Baker, Worcester Street, Southwark.—Tea urns, coal-scoops, washing and brewing coppers, copper cooking utensils, patent wine and beer taps with steel protectors, white-metal taps with patent brace, preserving them from injury and breakage.

COPPER BRAZING PAN.

RAIN-MAKER PAN, WITH STEW-PANS, &c.

HOSEBY, BAKER, & HURST'S PATENT
SELF-ACTING WHITE-METAL AND ELECTRO-PLATED WINE AND BEER TAPS, WITH IRON PROTECTOR, EXTRA LOCK, BOTTLING TUBE, AND PERFECT SYPHON.

IMPROVED ROYAL SCOOP AND SHOVEL.

Hoseby, Baker, & Hurst's Patent Self-Acting White-metal and Electro-Plated Wine and Beer Taps, with iron protector, extra lock, bottling tube, and perfect syphon.

The exhibitors keep a large and well-assorted stock of tea urns, copper coal scoops, bath tubs, and other articles for domestic use of improved shapes and constructions.

They are patented as a tap, fitted with a steel protector, and having a double lock, for wine, beer, cider, &c.

[6316]
HART & SON, Wyoh Street and Cockspur Street.—Ecclesiastical and domestic metal work.
iron, brass, silver.

Manufacturers of every description of silver, brass, and
wrought iron metal work in the medieval style, both for
ecclesiastical and domestic use, comprising chalices,
patens, monstrances, plas, ciborium, flagons, taber-
nacles, breviaries, crucifixes, and branches, sanctus bells,
thuribles, crueters: altars, processional, sacristy, and
pecoral crosses; altar, gospel, and elevation candlesticks; flower vases, portable communion services, altar basins and boxes, font covers, altar and font rails and standards, chancel chairs in oak and metal, lecterns and book racks, metal screen work, and every description of ecclesiastical furniture.

Engravers of monumental brasses and heraldic devices.
Hart & Son have devoted special attention to domestic metal work; their stock includes chandeliers, gas, oil, and candle pendants; candlesticks in brass, electro-silver, and gilt; gas, oil, and candle standards for halls, corridors, stairs, etc. paste burners, hall bells, inkstands, in all metals, watch stands, clock cases, curl tongs, salvers, hall lanterns, billiard lights, cabinet hinges and fittings, door hinges, knobs, and plates, bell pulls and levers, cornice poles, cascades, and brackets; tea and coffee services in silver and electro-plated.
Hot-air stoves, register and dog grates, fenders and fire-irons, wrought gates and grilles, gable and spire terminals and vases, boundary and tomb railing, mortuary crosses, cut-door lamps, brackets and posts, 

Specimens may be seen in the South Court, and at the West Side of London Metal Workers' Trophy.
CLASS XXXI—Iron and General Hardware.

HART & SON, continued.

Manufacturers of Pitt's patent self-adjusting, and Clark's patent spindle door furniture, in china, glass, brass, and wood; and finger plates, bell pulls, shutter knobs, &c., en suite. Manufacturers of espagnollette and double-action bolts, weather bars, stays, and fastenings, suitable for every description of casements.

A large assortment of general ironmongery, suitable for the colonies.
Manufacturers of Arnett's and Sheringham's ventilators, sliding and revolving ventilators of every description, ornamental air bricks, improved floor centres for swing doors and buffer springs; wrought-iron casements suitable for cottages, levered, mortise, sash, and till locks, latches, &c. and every description of general ironmongery.
HILL, JOSEPH, 19 Broad Street, Birmingham.—Stampings, chandeliers, gas fittings, metallic bedsteads, &c.

ORNAMENTAL STAMPINGS for lamps, chandeliers, and general gas-fittings.

Husks and Vases for metallic bedsteads.

Ceiling Roses in various styles and sizes, finished in white and gold and other colours.
Class XXXI.—South East Court.


A GASELIER IN THE RENAISSANCE STYLE.

Gaseliers, Hall Lanterns, &c. in glass, ormolu, and bronze.

D. Hulett & Co. manufacture improved gas meters, station and experimental meters, gaufrures, pressure registers, gauges, &c.

D. Hulett's improved service cleanser, for clearing out services, gas fittings, &c.

The above engraving is a representation of a gaselier in the Renaissance style, designed and modelled by the exhibitors.

Inventors and patentees of the mercurial gas regulator, sole manufacturers of Church & Mann's improved photometer, the registered convex silvered glass reflecting light, Arnott's improved ventilators, Carter's valves, high pressure cocks, and all kinds of gas and steam fittings, and every description of gas apparatus.

Prospectuses may be obtained on application at the Manufactory, 55 & 56 High Holborn.
CLASS XXXI.—Iron and General Hardware.

[ 6319 ]

Johnston, Brothers, 190 High Holborn, London.—A standard gaselier for a cathedral, designed by Mr. G. Trufitt.

[ 6320 ]

Lambert, Thomas & Son, Short Street, New Cut, Lambeth.—High-pressure valve cocks, &c. (See page 121.)

[ 6321 ]

Leake, A., 4 Litchfield Street, W.C.—Various designs of copper vanes, weathercocks, and of cake and jelly moulds.

[ 6322 ]

Leon, S., 34 St. Paul's Street, N.—Knife handles, castor-bowls, taps, gas burners, ornamental wares, of adamas, resisting wear, acids, and heat, and of great durability.

[ 6323 ]

Lovel, Edward, C. E. 92 Gosvenor Street, London, E.C.—Loysel's hydrostatic percolator, keyless locks. (See pages 122 and 123.)

[ 6324 ]

Mackey, Charles, Great Hampton Row, Birmingham.—Brass knobs, vases, furniture ornaments, &c., for various purposes.

[ 6325 ]

Marshall, James Pratt, Birmingham.—Lamps and various goods in brass for the fitting-up of ships.

[ 6326 ]

Matthews, E., 377 Oxford Street.—Engraving in metal for ecclesiastical decoration and other purposes.

[ 6327 ]

Messager & Sons, Broad Street, Birmingham.—Chandeliers, candelabrum, and general gas fittings, &c. (See pages 120* and 120**.)

[ 6328 ]


[ 6329 ]

Nayler, James, Redanar Street, Hanover, Manchester.—Lamps for pillars, brackets, and for suspending from ceilings.

[ 6330 ]

North, F. P., 6 Exeter Row, Birmingham.—Ornamental metallic panelling.

[ 6331 ]

Nunn, William, 179 St. George Street, E.—Signal lanterns and lenses. (See pages 124 and 125.)

[ 6332 ]

Oerton, Francis B., Walsall.—Carriage lamps, axles, springs, handles, and fittings of all kinds.
Brass and iron bedsteads, and ornamental work in brass and or-molu;

Railway signal, carriage roof, and other lamps, and carriage furniture; and Admiralty, regulation, and other lamps for steam vessels.

This firm was undoubtedly the first in Birmingham to produce works of artistic skill, for which, during a long series of years, they have maintained a high reputation. Many of the most extensive artistic works in

Class XXXI.
I

Class XXXI.—Iron and General Hardware.

Messengers & Sons, continued.

metal which can be found in this country have been produced in their manufactory. In Birmingham, they can point to the beautifully designed brackets projecting from the walls in the interior of the Town Hall, and to the fountain in the Market Hall, which has been pronounced to be a combination of artistic skill unequalled in Europe. Since the erection of this work it has received the commendation of the first writers of the day, not excepting Charles Dickens, who, in his "Household Words," asserts that it is equal to the works of Cellini. Some years ago Messengers & Sons also executed the magnificent staircase, and other artistic works in metal, for the Duke of Northumberland, at Northumberland House in London.

The father of the present proprietor commenced the present works nearly forty-five years since, when art producers were so scarce that the required workmen could with difficulty be obtained.

The model-room at this establishment is now of such magnitude that the metal alone weighs more than fifty tons. It includes works of art by the celebrated Sir Francis Chantrey and other first-rate artists.

Chandeliers, lamps, candelabra, and all articles for gas or oil, the most costly as well as those of the cheapest description, may be obtained of this firm, who, in consequence of the number of their models, have the power of producing works at a moderate cost quite out of the reach of younger establishments, who of course must model and design all articles required for the embellishment of public buildings.

Metallic bedsteads have been supplied by this firm to the Pope, the Emperor of Russia, and the Emperor of Brazil.

Very extensive experiments have been made as to the best mode of producing light for signal and other lamps for railways, having regard to effect and economy; and there are very few railways in Europe which have not lamps of Messengers' manufacture.
LAMBERT, THOMAS, & SON, Short Street, New Cut, Lambeth.—High-pressure valve cocks; and plumbers', gas fitters', ironmongers', and engineers' furnishings; Carter's patent safety gas valves.

Society of Arts Medal, 1847; Prize Medal, 1851; Bronze Medal, Amsterdam, 1854.

LAMBERT'S EQUILIBRIUM BALL VALVE.

This ball valve is equally adapted for high or low pressure. It runs full bore until the cistern is within two inches of being filled, an important advantage, especially where the supply is intermittent; and it is cheaper than the common ball cock.

COMMON BIB COCK, CRUTCH KEY.

VALVE CLOSET WITH LAMBERT'S PATENT REGULATING VALVE COCK, WHICH DELIVERS A GIVEN QUANTITY AT EACH ACTION.

CARTER'S SAFETY GAS VALVES.

These valve cocks are made to suit every description of fittings, never leak, and never set fast, give great facility for regulating the flow of gas, and are exceedingly durable.

Illustrated catalogues post-free.

(191)

Obtained the Medal at the Paris Exhibition, 1855.

Loysel's Patent Hydrostatic Percolator, an apparatus for making infusions, or liquid extracts, of vegetable fluids substances, such as coffee, tea, dye woods, medicinal herbs, roots, or berries, malt and hops, beet root, &c. is used exclusively at all the refreshment buffets of the International Exhibition, 1851; and was used at all the buffets of the Paris Exhibition, 1855.

Loysel's percolator is the only perfect system for making tea and coffee, either for families or hotels, refreshment rooms, schools, ships, &c. It is used already by upwards of 120,000 families, and at most large establishments in the United Kingdom, such as the buffets of the International Exhibition, the House of Commons, the Chats (Reform, Conservative, Gresham, &c.), South Kensington Museum, London Tavern, St. James's Hall, Cremorne, Great Western Royal Hotel, Breach's New Palace Hotel, Queen's (Ball and Mouth) Hotel, &c.

Loysel's percolator is manufactured in tin, copper, bronze, briannin, electro-plate, and silver, by seven of the largest and best manufacturers in the United Kingdom, including Messrs. Elkington & Co. It is sold as low as 5s. by all respectable ironmongers, silversmiths, &c.

Directions for making coffee and tea—Warm the percolator with hot water; place the ground coffee or triturated tea on the bottom filter inside the urn; place the movable filter over it. Screw the inverted lid or funnel on the centre pipe, as shown here above, pour into the reservoir so formed the boiling water necessary for the quantity of infusion required. This water will instantaneously go down the centre pipe and percolate upwards through the substance under the powerful action of hydrostatic pressure, and thereby extract at once all the useful and aromatic parts. Then unscrew the lid or funnel, pour back direct into the urn the first cup drawn from the tap; cover the urn, and the infusion will at once percolate downwards through the substance and fill the cup with tea or coffee, all of uniform strength, unspilt and unsoiled brightness.

London depot, retail and wholesale: City, 92 Cannon Street, E.C.; and West End, 205 Regent Street, W.
Properly speaking, the "keyless lock" may be said to be composed of two parts, the hind or outer part, which is the lock and contains the bolt, and the fore part, which is, if it may be so termed, a scientific fluid key, which is formed of concentric cylinders, each of which is divided at the middle into two parts, and traversed by a spindle, which is to act on the bolt for shutting and opening the lock.

The outer edges or faces of the concentric cylinders are impressed with alphabets of 24 or less letters, and it is only when a pre-determined combination is brought into coincidence, that the spindle can be brought in a position to work the bolt.

It should be observed that, owing to the division of the cylinders into two parts, the owner of a lock can instantly change the combination on which it opens, without pulling the lock to pieces. These changes in the combination may be made from the outside.

There being no key-hole, no instrument whatever can be introduced to try to pick the lock or impose it, and as to introducing gasporedes, it is an utter impossibility; and even if the fore part of the lock, or rather, scientific key, could be broken by extreme violence, the result would be merely to take away all chances of ever opening the lock, as the lock itself and the hind or inner part of the key, would remain as an imperishable block.

All the parts of the lock being hardened, it is drill proof.

In short, the lock defies violence as well as skill, as there is no possibility whatever of opening it by bowing or feeling, or by any pressure either gentle or rough, as besides the impossibility of bringing the pins opposite the holes, a screening plate has been introduced between the holes and the pins, which renders even trying an utter impossibility. Therefore, the only means of opening this lock is by finding out the combination on which it opens.

Now, a lock with 5 cylinders, of 24 letters each, gives

7,962,624 combinations; ditto 6 cylinders, of 24 letters each, gives 691,193,796 combinations; ditto 7 cylinders, of 24 letters each, gives 4,586,471,424 combinations; and it is calculated that working mindlessly 10 hours a day, it would take about 5000 years for ringing all the changes this last lock is susceptible of.

Keyless Padlock.

Padlocks are also constructed on this principle, which cannot be forced open by pressure, and in which the combination is altered at pleasure without pulling the padlock to pieces, as in the ordinary letter padlocks. The lock will also be adapted to most purposes for which locks in general are used.

As to the cost, it will be, if anything, less than locks of any other system or corresponding quality, as every part is made by machinery, which generally combines precision with cheapness.

The keyless lock, originally the invention of Viscount de Kerouac, who has worked at it for 20 years, has been improved and patented in England, by E. Loyd, C.E. Assoc. Inst. C.E.

London.—Deeds for Loyd's patent keyless locks: City, 92 Cannon Street, E.C.; West End, 300 Regent Street, W.
NUNN, WILLIAM, 179 St. George Street, E.—Patent signal lanterns, lenses, and reflectors.

By Royal Letters Patent.

The above are fitted with powerful reflecting lenses, tested, approved, and adopted in the Royal Navy, also constructed so that a new lens can be replaced in three minutes by any person on board when the old lens is broken.

These lanterns are fitted with patent dioptric lenses, also constructed for the refitting of a new lens in the place of one broken in three minutes, and can be made to burn oil or stearine candles, as may be required.
Railway lamps and reflectors, ship and railway lenses in ruby, green, and white.

In forwarding orders for lamps, &c., the tonnage of vessels in which they are to be used should be given.

Some of these lamps and lenses are exhibited in Class XII.

Oliver, George & Jos., 286 Wapping, E.—Dioptic ships' signal lamps and buoys.

Phillp, Charles J., 20 Caroline Street, and 29 Mary Street, Birmingham.—Gaseliers, brackets, and gas fixtures generally.

Pontifex, Henry, & Sons, 55 Shoe Lane, Holborn, London.—Brewing and distilling apparatus.

Pontifex, R., & Son, 14 Upper St. Martin's Lane, London.—Copper, brass, and steel plates.

Prosper, W., & H. J. Scarnby, 24 Dorset Place, and 29 Cockspur Street.—Improved lamps for lime lights.

Pyke, J. S., & Sons, Dorrington Street, London.—Bronzed tea and coffee urns, and swing kettles.

Reid, John, Edinburgh.—Patent gas-saturator for preventing evaporation of water from gas meters.

Rennie & Adcock, Easy Row Works, Birmingham.—Chandeliers, candelabra, bronzes, mirrors, and works of art.

Richards, W., Crawford Passage, Clerkenwell.—Gas meters.

1. An ordinary gas holder, converted into a gas measure.
2. Gas holder, so constructed, by Mr. Clegg, supposed to have suggested the present meter.
3. An ordinary gas meter wheel, revolving in its case.
4. A wet gas meter as constructed by exhibitor, and patented by him in 1858.
5. A transverse section of a wet gas meter as constructed by exhibitor.
6. Section of a gas meter wheel as constructed by exhibitor.

Sarson, Thomas Freereek, Leicester.—Lamp upon a new construction, that can be repaired in a few minutes.
CLASS XXXI.—Iron and General Hardware.

[6344]

SINGER, JOHN W., Frome, Somerset.—Brass lecterns, altar rails, and medieval ornaments.

[6345]

SEIDMOOE ART MANUFACTURES COMPANY, The, Great Cotton.—Screen for Hereford cathedral; gas corona, pendants, standards, &c.

[6346]

SOUTTER, WILLIAM, New Market Street, Birmingham.—Tea-urns and kettles.

The following goods, suitable for the home and export trade, are exhibited:

1. Copper Brass Tea Urns, showing the early designs.
2. Copper Brass Tea Urns, most modern designs, showing the various modes of heating by spirits of wine, iron heater, and charcoal.
3. Copper Brass Swing Kettle, used for same purpose as the urn, showing latest improvements in spirit lamp.
4. Brass Urn or Samovar, as used in Russia, heated by charcoal.
5. Brass Coffee Urn and Flask, as used in Turkey, heated by charcoal.
7. Brass Flask, used in Turkey.
8. Copper Box Irons, heated by charcoal; used in the Cape trade for ironing purposes; two patterns, showing the latest improvements.
9. Large Copper Boiler or Stock Pot, raised from the sheet metal without seam, by an entirely new process.
10. Assortment of Copper Cooking Utensils.

[6347]

STEER, JOSEPH, 44 Wouvermen Street, Birmingham.—Corinices, cornice poles, ends, rings, brackets, and curtain bands.

[6348]

STONE, JOSHUA, Deptford, London, S.E.—Copper and cast composition boat and ship nails, &c.

[6349]


[6350]

SUDD, W., Market Street, Westminster.—Gas meters; governors and pressure gauges; iron burners; and public lamp governers.

[6351]

TAYLOR, JOHN, & Co., Longbourn.—A large bell, three tons weight, note B, suspended on frame, with hammer for striking.

Obtained the Prize Medal, Great Exhibition, 1851, and the special approbation of the jurors.

[6352]

THOMASON, THOMAS, & Co., 30 St. Paul's Square, Birmingham.—Ecclesiastical and domestic Gothic metal work.

[6354]

TONES, WILLIAM, & SONS, Moseley Street, Birmingham.—Brass work for builders, cabinet-makers, and upholsterers.


Hinges, bolts, sash, casement, and espadrille fasteners, knee, handles, door porters and knockers, brackets, shop-window fittings, organ, pew, and desk railings, moldings, sideboard edgings, picture and stair rails, bell pull and levers, upright and mental-piece screens, sconces, candlesticks, vaselines, &c.

Verity, B., & Sons, 31 & 32 King Street, Covent Garden.—Gaseliers and brass works.

The following chandeliers are exhibited:

1. Large Eight-light Gaselier, designed by the late John Thomas. Price £95 0 0
2. Eight-light Polished Gaselier (Old English). Price £30 0 0
3. Five-light Gaselier, in bronze (Grecian design). Price £21 0 0
4. Oriental Hall Lamp, designed by George Somers Clarke. Price £30 0 0
5. Five-light Gaselier, designed by the late John Thomas. Price £21 0 0
6. Tazza Gaselier, for three lights, suitable for a boudoir. Price £3 10 0

And several other gaseliers, all new designs, suitable for drawing and other rooms.

Verity & Sons manufacture and fit gas baths, and gas and hot-water apparatus. They make gaseliers and every kind of brass work to any design required, and erect private gas works. A working model of one of the latter is exhibited at the factory.

A large assortment of gaseliers, brackets, &c. of their own manufacture is always kept in stock at their show-rooms.

Factory, Hart Street, Covent Garden; West End branch, Charles Street, Westminster Terrace.

Warner, John, & Sons, Crescent, Cripplegate, London.—Bells, urns, baths, lamps, brassery, weights, and measures. (See pages 128 to 132.)

West & Gregson, Oldham.—Model gas (station) meter, with its appurtenances.

Wootton & Powell, Parade Works, Birmingham.—Gas chandeliers and wall brackets.

Wyatt, Alfred, 22 Gerrard Street, Soho, W.—Silver-plated state carriage lamps.

Young, John, & Son, 46 Cranbourn Street, London.—Weighing machines, with multiplying power, for persons or goods.
Warner, John, & Sons, Crescent, Cripplegate, London.—Bells, urns, bells, lamps, brasserie, weights and measures.

Prize Medal awarded 1851 for bells.

No. 8. A 12-in. Turned and Polished Ship’s Bell, in bronzed cast-iron dolphin frame. Other sized bells can be had when required.

No. 9. A Gong, or Call Bell, forming an appropriate ornament for the halls of mansions.

Musical Bells

Tuned to the Chromatic Scale, with improved Cappers, and pegged on a new system, which gives a superior tone and facility for ringing.

Prices of peals of hand bells:

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<tr>
<th>No.</th>
<th>Size</th>
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<th>A peal of 18</th>
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An extensive stock kept of—
House bells; ditto, turned and lacquered; ditto, with springs for shutters; bells for ships, yachts, steamers, &c.; horse bells; sheep bells; dog bells; chime bells for cattle; forest bells; aquatic bells; dinner bells; tea bells; bellman’s bells; self-acting alarm bells; small clock bells.
Class XXXI.—South East Court.

Warner, John, & Sons, continued.

Obtained a Prize Medal in 1851.

PEAL OF EIGHT Bells.

Drawing showing a peal of eight bells in a frame for ringing. In connection with it, is shown one of J. Warner & Sons' Improved Chiming Machines, by which a lad entirely unacquainted to music may correctly chime a whole peal. In parts of the country where no good ringers are to be obtained, this simple machine will be found invaluable. John Warner & Sons continue to supply estimates for bells of all sizes, singly or in peals, as well as for repairing broken or bad bells, new oak frames and fittings, and contract to hang bells.

The original Big Ben, the largest bell ever cast in England, the present quarter bells in the clock tower of the Houses of Parliament, the bells at Her Majesty's palace at Balmoral, the hour bell at the Leeds Town Hall, the peal of eight at Hexham Cathedral, and the bells exhibited in connexion with Mr. Dent's large clock, were cast by John Warner & Sons.
WARNER, JOHN, & SONS, continued.

Obtained a Prize Medal in 1851.

No. 56. Moderator Lamp.
No. 87. Warwick Grecian Lamp.
No. 196. Crescent Oil Lamp.

No. 1, 2. Crimping Machine.
CLASS XXXI.—South East Court.

WARNER, JOHN, & SONS, continued.

Obtained the Prize Medal in 1851.

No. 296. A 4-quart Urn.

No. 297. A 5-quart Urn.

No. 1. Swine Kettle on Brown Stand, with lamp or heater, several sizes.

No. 3. Swine Kettle on Black Stand, with lamp or heater, several sizes.

Urn and kettles of various patterns, and every variety of brassy goods, kept in stock.

(121)
Gun-metal Steam Gauge Work, for portable or fixed engines—
No. 4084. Gun-metal Double Grease Cock.
No. 390. Gun-metal Water Gauge.
No. 404. Gun-metal Steam Whistle, of all sizes.
No. 408. Gun-metal Grease Cock.
No. 392. Gun-metal Fullway Gauge Cock.
No. 398. Gun-metal Syphon Oil Cup.
No. 393. Gun-metal Valve Box.
No. 3904. Cast-iron Valve, for steam, water, or gas.

Illustrated and priced catalogues can be had on application.
Class XXXI.—South East Court.

Sub-Class C.—Manufactures in Tin, Lead, Zinc, Pewter, and General Brazery.

[ 6373 ]
Azulay, Buxby, Rotherhithe, Surrey.—Heat-retaining vessels for boiling-water, &c.

[ 6374 ]
Baard & Dent, 21 Newcastle Street, Strand.—Plumbers' appliances.

[ 6375 ]
Brady, Frederick, & Co., Eton Works, Eton Road, London.—Galvanized zinc; galvanized iron; roofing felt; perforated metals. (See page 134.)

[ 6376 ]
Chatterton, John, Wharf Road, City Road, London.—Specimens of lead, block tin, and composition pipe.
Specimens of improved lead pipe, pure block-tin pipe, composition gas-tubes, and also of lead pipe, casted internally with tin, and the patent compound tube, or lead pipe, lined with gutta percha, for use in localities where water acts upon lead.

[ 6377 ]
Cooksby, Hector Richard, 148 Beresley, Birmingham.—Coffin plates, handles, and ornaments.

[ 6378 ]
Dixon, James, & Sons, Sheffield.—Britannia metal wares.

[ 6379 ]
Ellis, Joseph, 130 King's Road, Brighton.—The Elutriator, for decanting wine or other liquids successfully, but without additional care or trouble.

[ 6380 ]
Ewart, Henrietta, 348 Eton Road, N.W.—Baths, washstands, flower-boxes, meat-safes, spirometer, flues, mouldings, and other zinc goods. (See page 136)

[ 6381 ]
Foxall, Samuel, 52 William Street, Regent's Park, N.W.—Confectioners' moulds, piecr, &c.

[ 6382 ]
Gilbert, John A., & Co., Clerkenwell, London.—Mills, scales, canisters, and shop fittings used by grocers.

[ 6383 ]
Hickman & Clive, William Street North, Birmingham.—Coffin furniture.

[ 6384 ]
Lovgrove, John James, 6 Pembroke Place, Spring Grove, Iseworth, Middlesex.—Specimens of plumbing, from 14th century to present time.

( 133 )
Perforated zinc in various designs and sizes of holes, for ventilations, sieves, window blinds, larders, meat safes, dairy windows, &c.

Zinc frizes and frets for verandahs, lamps, and decorative purposes.
Zinc saws for cutting salt.
Sheet zinc, and zinc nails.
Zinc tubing for bell hangings.
A zinc meat safe.
A perforated zinc window blind.
Pierced tin plates and perforators.
Perforated galvanized iron.
Studded zinc for multi-kill plates.

Roofing Felt, 4d. per square ft.
Corrugated galvanized iron for roofing.
Malleable galvanized iron sheets of superb quality.
Wire netting, galvanized and japanned.
Galvanized iron coal-scoops, buckets and basins,
turnip skops, oval pans, &c.
Galvanized iron furnace pans, or wash boilers.

Portable folding galvanized wire garden-stools, 4d. 6d. each.
Ditto, chairs, 7½ 6d. each.
Patent top for curing smoky chimneys.

Galvanized iron basins for use of schools.
Perforated slide-board and cards, fancy.
Zinc mouldings, flower baskets, stands, &c.
Spelter for brass-founders.
Loveridge, Henry, & Co., Wolverhampton.—Papier-maché trays, wares, &c.

Beart & Platow’s coffee pots and urns, of which Messrs. Loveridge & Co. are the patentees and manufacturers.

Dish covers.

Victoria Regia sponge and patent hip-baths.

Patent hip-bath with jointed covers.

The patent folding roasting-jack screen.

Patent Persian coal-scoops.

Albert and Windsor coal-scoops, and coal vases of every description.

Iron and patent paper and fine papier-maché trays.

The coal vase here represented will be found in the Wolverhampton Court.

This vase is a composition after the Elizabethan period, designed by Remmett, and is the first instance with which we are acquainted of a successful union of a bright metallic surface (silver-plated or ormolu) with japanned ware.

The metal handles and pillars may be taken off for repairs and cleaning.

The plating is protected by a white lacquer from the effects of the atmosphere.

The objection to silver-plating, viz. its liability to tarnish, is thus entirely obviated.

This vase may be fitted up as a Canterbury, a cellarette, or with a loose lining as a coal vase; it was for the last purpose more particularly designed.
CLASS XXXI.—Iron and General Hardware.

Ewart, Henrietta, 346 Euston Road, N.W.—Baths, washstands, flower-boxes, meat-safes, spirometer, flues, mouldings, and other zinc goods.

1. Roman Bath, with a new arrangement for a supply of hot water. Can be adapted for either gas or coke, and does not require any fire-place in the bath-room. It is also so constructed that hot water can be drawn off for cleansing or other purposes, as well as for the bath. The water system of heating can be applied to all kinds of baths, and will be found speedy and economical. Price, complete, including cocks, levers, and handles, £12 12.

2. Deep Wash-hand Basin, for gentlemen, 24 in. diameter, 12 in. deep, on stand 3 ft. high, with castors. The basin is provided with a plug, by means of which it can be emptied, after use, into the bath beneath without removing either. Price, including the water can, which contains about 4 gallons, £2 10.

3. Spirometer, an instrument made of zinc, for testing the capacity of the lungs. Price £3 10.

4. Zinc Meat Safe, with hollow shelf, which can be filled with warm water in winter, and with ice in summer. Price £4 4.

The same pattern can be made any size, or japanned any colour, at proportionate prices.
Ewart, Henrietta, continued.

5. Fern Case on stand, with sliding door at each end. Price, complete ... £3 3

6. Models of Flues, Cowl, and various contrivances made of zinc, for curing smoky chimneys and preventing down-draughts.

7. Specimens of zinc mouldings, rain water-pipes, gutters, and heads.

8. Specimens of zinc sash-bars, tubes, astragles, &c.

9. Flower Box for windows, made of zinc, mounted with tiles. Size, 8 in. by 8 in. Price 4s. 6d. per ft.

10. Flower Box for windows, made of zinc, mounted with tiles. Size, 10 in. by 10 in. With mouldings, price 5s. 6d. per ft.

11. Flower Box for balconies, all of zinc. Size, 11 in. by 12 in. Price 5s. 6d. to 7s. 6d. per ft.

Marston, John, London Works, Bilston, Staffordshire.—Trays, waiters, coal vases, toilette ware, and other japanned goods.

Perry, Edward, Jodko Works, Wolverhampton.—Japan and tin wares.

Tylor, J., & Sons, Warwick Lane, Newgate Street, E.C.—Baths for private dwellings (See page 138.)

Watts & Harton, 61 Shoe Lane, Holborn Hill.—Pewter articles of every description.

Wilson, R. & W., London.—Baths, various, and pedestal rotary plate warmer.

Wolverhampton Electro-Plate Company, The, Peel Works, Wolverhampton.—Silver-plated wares, tea and coffee services, &c. (See page 138.)
Class XXXI.—Iron and General Hardware.


J. Tylor & Sons' Bath, white marbled inside for fitting in wood casing. These baths are made both in copper and galvanized tinned iron, 5 ft. to 5 ft. 6 in. long.

J. Tylor & Sons' Patent Bath Boiler, which may be fixed in any fire-place, and will serve a bath with hot water in any apartment below the level of the cold-water cistern. Catalogues containing illustrations of nine methods of fitting a warm bath on application.
CLASS XXXI.—South East Court.

WOLVERHAMPTON ELECTRO-PLATE COMPANY, The, Peel Works, Wolverhampton.—Silver-plated wares, tea and coffee services, cruet frames, spoons, forks, &c. &c.

BREAKFAST OR DINNER CRUET, also made as an inkstand—Neptune driving through the sea. No. 1296.

ZOBEL, JULIUS, 139 Euston Road.—Geometrical works; flower ornaments for gas and water, &c.
Class XXXII.

STEEL CUTLERY AND EDGE TOOLS.

Sub-Class A.—Steel Manufacturers.

[6425] Acadian Charcoal Iron Company (Limited), 17 New Church Street, Sheffield.—Pig and bar iron, steel, and steel tools and cutlery.

[6426] Alcock, Samuel, & Co., Unicorn Works, Bradfield, and 121 King Street, Toronto.—Neddles, fish hooks, and fishing tackle.

[6427] Bessemer & Longdon, 4 Queen Street Place, New Cannon Street.—Various specimens of Bessemer iron and steel. (See page 142.)

[6428] Boulton, William, & Son, Bradfield.—Needles for plain and ornamental work; fish-hooks for sea and river.


[6431] Caldwell, Brothers, 15 Waterloo Place, Edinburgh.—Serpentine pen, overcomes greasiness of paper, marks easily, quill-like, and durable.


[6433] Dewnap, J., 10 St. Thomas Street, Sheffield.—Leather and cabinet goods, dressing cases, &c.
The whole of the cast-steel employed in the manufacture of the various specimens exhibited was made by the Bessemer process, at the Works of Messor, Henry Bessemer and Co., Sheffield, with the exception of the locomotive engine tyres, which were made by the same process direct from the fluid iron as it leaves the blast furnace, by M. F. Gjersen, of Oslo, Norway.

Cast steel in a material possessing greater strength and elasticity than any other known metal, while its power to resist wear and elongation, and its perfect homogeneity character, render it greatly superior to wrought iron for nearly every purpose to which that metal is now applied.

The cost of cast-steel as ordinarily made by melting blister steel or puddled steel in crucibles, is so great as to have hitherto confined its use within very narrow limits, although enough has been done to show its great superiority over wrought iron.

All the cast steel made in this country, as well as that made in France and Prussia, has after its original conversion into steel by a series of laborious and expensive processes, still to be melted in clay crucibles in quantities varying from 10 to 50 tons, in weight, and hence it is only by the simultaneous fusion of hundreds of such crucibles of steel, and the skilful organization of a numerous staff of workmen, that the insulated steel can be rapidly collected and conveyed from the numerous furnaces employed for its fusion, and be poured from the separate crucibles in an unbroken stream into the mould.

The Bessemer process, instead of requiring blister steel or puddled steel as the raw material or basis of its manufacture, operates at once upon molten pig-iron, and thus entirely dispenses with the whole of the expensive labor, skilled labor, and fuel expended in the several processes now employed in making blister steel or puddled steel.

The Bessemer process produces from the crude molten pig-iron in a single vessel, several tons of cast-steel in a period of 20 or 30 minutes, wholly without the employment of skilled labor or any species of manipulation, or the expenditure of any fuel.

The great changes wrought in the character and properties of the crude metal in this short interval, is simply the result of forcing immense streams of air upward through the fluid metal, whereby the oxygen contained in the atmosphere is brought in contact with the excess of carbon present in pig-iron, producing an intense combustion and an increase of heat beyond that which has ever been obtained in furnaces employing fuel. The perfect malleability of the metal so produced, will be at once perceived by an examination of the various specimens exhibited, many of which have been heat or twisted cold, in order to show the extreme toughness of the metal, and to what extent it will suffer a change of form without fracture.

The more prominent advantages of the Bessemer process may be briefly stated as follows:—

Masses of tough cast-steel from 20 to 30 or more tons in weight, can be made in half an hour from molten pig-iron.

Large marine engine cranks, shafts, ship's plates, chilled outline beams, and other massive parts of machinery, may be made in one piece of cast-steel, without weld or joint.

The tensile strength of this steel varies with the degree of carbonization, and ranges between 40 and 70 tons per square inch, the tough qualities being suitable for engineering purposes being about 40 to 45 tons as against 21 tons for common wrought iron, and 26 tons for the celebrated iron of Yorkshire.

The Bessemer steel is produced in a perfectly fluid state, and abrades of being cast into various forms, such as heavy spar wheels, metal rolls, guns, mortars, propellers, screw propellers, railway wheels, marine and other engine frames, hammer blocks, &c.

The apparatus now employed in the manufacture of Bessemer steel, is reduced almost entirely within the control of one directing hand, who applies hydraulic force to effect every movement.

The cost of the complete apparatus for carrying on this process, including steam and blast engines, is considerably less than the mere furnaces required to melt an equal quantity of blister or puddled steel.

Apparatus for carrying out the new process on an extensive scale, is now in course of erection in different parts of England, in Scotland, France, Belgium, Prussia, Sweden, and the East Indies.
CLASS XXXII.—South East Transcept, South East Court.

[ 6434 ]

GILLOTT, Joseph, London and Birmingham.—Specimens of metallic pens and penholders.

[ 6435 ]

GOODMAN, George, 82 Caroline Street, Birmingham.—Patent elastic pins and needles.

[ 6436 ]

HARFIELD & SHIPMAN, Attercliffe Steel Wire Mills, Sheffield.—Steel wire for crinoline, umbrella ribs, ropes, fish-hooks, springs, &c.

CAST-STEEL WIRE IN RINGS, IRON WIRE RINGS.

CAST-STEEL WIRE IN RINGS, IRON WIRE RINGS.

NEEDLE WIRE RINGS.

ROPE WIRE RINGS.

HARFIELD & SHIPMAN are general merchants and manufacturers of crinoline, hardened and tempered, and all sorts of cast-steel wire for needles, pins, fish-hooks, tackle pins, spiral springs, watch springs, &c.; also hardened and tempered cast-steel wire for patented and umbrella ribs; ropes for deep pins, telegraphs, cables, &c.

[ 6437 ]

HINKS, WELLS, & Co., Birmingham.—Steel pens and penholders.

[ 6438 ]

HOEY, THOMAS, & Co., 25 New Row West, Dublin.—Pins and hair pins.

[ 6439 ]

HUTCHISON, P., & SON, Kendal.—Fish hooks and fishing tackle.

[ 6440 ]

KIRBY, BEARD, & Co., 62 Cannon Street West, E.C.—Pins, needles, fish hooks, sewing cotton, and general warehousemen, &c. (See page 144.)

[ 6441 ]


These drilled and angi-eyed needles are among the best that are manufactured. They possess the combined advantages of a brilliant polish, great elasticity, and an extreme smoothness of the eye which effectually prevents the cutting of the thread. Knights & Co. are the inventors of a registered needle box.

[ 6442 ]

LEWIS, HENRY, & SON, Church Green East, and Queen Street, Redditch.—Sewing needles and fish hooks.

Class XXXII. ( 143 )
CLASS XXXII.—Steel Cutlery and Edge Tools.

KIRBY, BEARD, & CO., 62 Cannon Street West, E.C.—Pins, needles, fish hooks, sewing cotton, and general warehousemen.

Obtained the Prize Medal, London, 1851; Paris, 1855.

PIES.

NEEDLES.

TRADE MARKS.

Pins of very superior finish; solid heads and subcutaneous points, stuck on paper, loose in boxes, and in boxes.

Sewing Cotton, double spun, celebrated for smooth finish and softness, warranted the lengths marked on the reels, and the sizes are apportioned to the needles in the following order, viz.:

Needles, No. 1 to 4, 6, 7, 8, 10, 11, 12.


Needles of high temper and superior finish, dilluted and burnished eyes, warranted not to cut the thread; also their celebrated egg-eyed needles, large convenient eyes, also needles for every kind of fancy work.

Fancy Boxes of Pins, 4-penny boxes, in excellent photographic and other designs, and 1 oz. and 2 oz. boxes. Needles in rich fancy-paper boxes, and elegant sets of and silk velvet portmanteau.

Sewing-cotton boxes, in photographic and other designs, 1 and 2 dozen boxes.

To ensure the articles being genuine, purchasers should ask for Kirby, Beard & Co.'s manufactures, as their trade marks are sometimes imitated on spurious goods.

[6443]

MILWARD, HENRY, & SONS, Redditch.—Needles and fish hooks; extra quality needles, specially manufactured.

Obtained a silver Medal at the Paris Exhibition, 1855, and a First-Class Medal at the New York Exhibition.

The exhibits are patterns of the patent method of wrapping needles, and manufacturers of the registered needle case.

Amongst the specimens will be found the needles saleable in each quarter, and all the different countries of the globe, and in addition to the ordinary sewing needles, needles for tailors, milliners, saddlers, harness makers, stay and mattress makers, sail makers, sack makers, needles for surgeons and veterinary surgeons; needles for knitting, netting, darning, worsted darning, crochet, embroidery, needle and tambour work; needles for carpet, and carpet needles, and every description of needles for sewing machines.

There are also fish-hooks and fishing tackle for all waters, at home and abroad.

The interest that has always attached itself to the manufacture of needles, has induced Messrs. Milward & Sons to exhibit beautifully finished models of the whole in the Process Court, of the machinery required, from which it will be easy to obtain an idea of each process through which the needle passes. Amongst the most interesting is the painting, both on account of the great danger, indeed certain death, formerly attending it, and of the simple machine called the "fan," by which this has been overcome, and by which the dangerous particles of steel formerly inhaled are driven away from the "pointer." Attention may be also called to the ingenious counting machines, for the use of which the exhibitors are licensed by the patents, by which a great saving of time is effected.

For further particulars, reference should be made to the Process Court, and the South Kensington Museum.

[6444]

MITCHELL, WILLIAM, Washington Works, Birmingham, and 74 Cannon Street West, London.—Cased of metallic pens and penholders.

[6445]

MITCHELL, W., 41 London Street, Fitzroy Square.—Springs.

[6446]

MOGG, JOSEPH, & CO., Adelaide Works, Redditch.—Needles, fish hooks, and fishing tackle.
M. Myers & Son respectfully call the attention of the public to their recently patented novelties in paper knives, book makers, and letter clips, which, for adaptation, utility, and elegance, stand prominently forward as a great step in advance of any that have yet been before the public, and at a price so exceedingly moderate, that even the most fastidious will claim a general adoption.

M. Myers & Son would also take this opportunity of sincerely thanking the public for the very flattering preference they have given to their galvanized pens, and beg to assure them that they still continue to manufacture them with the same care and attention, through their patented process, which has secured for them the enviable distinction of being a reliable pen, as, in their freedom of action they glide over the surface of the paper with that smoothness which is so desirable to the general writer, and, at the same time, resists for a much longer period the acidity of the ink. These pens, they confidently recommend to the commercial world, and the public generally. Drapers, haberdashers, &c., would do well to try our price ticket suspenders, as, by an ingenious but simple contrivance, they can be attached and detached instantly without the least injury to the most delicate article. Secured by letters patent.

---

No. 1. Metallic Pens, various.


No. 3. Pen Holders, various.

No. 4. Skeleton Points, for tickets.

No. 5. Gilt, Silvered, and Galvanized Pens.

No. 6. The Patented Gauge Pens.

---

Myers & Son, Charlotte Street, Steel Pen Works, Birmingham.—Steel pens, holders, letter clips, paper knives, drapers’ ticket suspenders, &c.

Obtained Medals at the Great Exhibitions, 1851, and at the Paris Exhibition, 1855.

---

6d each.

Paper Knife.

---

No. 7. Paper Knives and Book Markers, elegant, simplicity, and utility.

No. 8. Letter Clips for adaptation, utility, and price, stand prominently forward as a great step in advance of any before the public.

No. 9. Price-Ticket Suspenders, for drapers, haberdashers, &c. By an ingenious yet simple contrivance they can be attached or detached instantly, without the least injury to the most delicate fabric.

No. 10. Paper Holders, for stationers, &c.

No. 11. Railway Safety Ticket Holders.

No. 12. Chromatic Fasteners.
NAYLOR, VICKERS, & Co., Sheffield.—Cast-steel disc wheels, tyres, crank and straight axles, castings to pattern.
CAST-STEEL BELLS.

Cast-steel bells are stronger and more durable than bronze bells. Cast-steel bells of the same note and volume of sound, are only two-thirds the weight, and one-third the cost, of bronze bells. For example, the peal of eight cast-steel bells (shown in the above sketch), tenor 34 in. diameter, key E, weighs about 8,000 lbs.

Price £300

The largest bell exhibited by Naylor, Vickers, & Co. is in. diameter, note G, 9,000 lbs. Price £300

A list of the peals of cast-steel bells in use in Great Britain, with testimonials; also estimates for peals or single bells, may be obtained by applying to Naylor, Vickers, & Co. River Don Works, Sheffield; 89 Lombard Street, London; 4 Cook Street, Liverpool; 10 John Street, New York; 89 State Street, Boston, U.S.; 425 Commerce Street, Philadelphia.
A VISIT TO THE BRITISH NEEDLE MILLS, REDDITCH.

Why are needles made at Redditch? Why should a beautiful and secluded part of the county of Worcestershire, many miles distant from what are termed the "manufacturing districts," contain a village, whose inhabitants, one and all, live directly or indirectly by making these little steel implements? The fact is demonstrable, but the reason is not. The good housewife who needs her child's pinheads, the milliner who dresses a lady in her delicate attire, the hard-working spinners who make their "made-up goods" in the shops, the school girl who wants her sampler—ill, however little they may be aware of the fact, are dependent principally on a Worcestershire village for the supply of their needles. Their "Whitechapel needles" are no longer made at Whitechapel, even if they ever were; and though they may in some cases seem to consist from London manufacture, the chances are that they were made at Redditch. Not that other towns are without indications of this branch of manufacture; but in them it is merely an isolated feature, while at Redditch, as we shall presently see, needle-making is the staple, the all-in-all, without which, almost every house in the place would probably be shut up; for although there is a fair sprinkling of the usual kind of workmen, workshops, dealers, &c., these are only such as are necessary for supplying the wants of the needle-making population. It is a strange thing that the Redditch manufacturers themselves seem scarcely able to assign a reason why this branch of industry has centred there, or to name the period of its commencement. Indeed, the early history of the needle-trade is very indistinctly recorded. Now tells us while speaking of the kind of shears found in Cheapside and other busy streets of London, that needles were not sold in Cheapside until the reign of Queen Mary, and that they were at that time made by a Spanish negro, who refused to discover the secret of his art. Another authority states that "needles were first made in England by a native of India, in 1545, but the art was lost at his death." It was, however, recovered in 1560, by Christopher Greening, who settled with his three children at Long Credon, in Buckinghamshire. Whether the sage in one of these accounts is the same individual as the native of India mentioned in the other, cannot now be determined, nor is it more clear at what period Redditch became the centre of the manufacture. There are slight indications of Redditch needle-making for a period of two centuries, but beyond that all is blank.

A reader, who associates the potteries with the clay districts of North Staffordshire, and the smithing works with the coal and iron districts of South Staffordshire, will naturally seek to know whether any features distinguish Redditch which will enable us to assign a probable origin for the needle-manufacture there. A visit, in any degree accustomed to watch the progress
of manufacturers, looks around him to seek for any indications whence he may account for the location of needle-making; he looks for a stream or canal, or something which may be to the manufacturer in the position of came to effect it; but very little of the kind is seen. Needle-making is nearly all the result of manual dexterity, requiring little aid from water or steam power. There are, it is true, a few water wheels employed for polishing and annealing the needles, but Bedford presents no other facilities for this purpose than such as are provided by a thousand other places in the kingdom. In short, there seems to be no other mode of accounting for the settle- ment of the needle-manufacture in this spot, than that which may be urged in reference to watchmaking in Chelsea, or the candle-making in Long Acre. A needle- maker we will suppose—say two centuries ago—settled at Bedford, and gradually accumulated around him a body of workmen. A supply of skilled labour having thus secured, another person set up in the same line. In time, the workman’s children learned the occupation carried on by their parents, and thus foun- ded an increased supply of labour, which in its turn, led to the establishment of other manufacturing firms. By degrees so many needles were made at Bedford, that the village acquired a reputation throughout the length and breadth of the land for this branch of manufacture, and hence it became a positive advantage for a maker to be able to say that his needles were “Bedford needles.” This train of success may perhaps appear pretty nearly to the truth.

Let us, however, leave conjecture and proceed to facts. There are in Bedford about half-a-dozen manufacturers who conduct the needle-manufacture on a large scale, and employ a considerable number of persons. Some work in factories built by and conducted under the superintendence of the master manufacturers; while others work at their own houses. In no occupation, per- haps, is the division of labour more strictly carried out than in needle-making; for, as he who can make the wire does not generally make the eyes or polish the needles. Both within and without the factory the same system is carried up, for a cottage works from a needle-manufacturer does not undertake the making of a needle, but only one particular division of the work, which he is paid at certain recognised prices. Many of the workpeople live a few miles distant from the place, and commute to it daily, in a few days, a plan which can be adopted without much inconvenience, since the occupation of these little articles may be packed in a small space. It is, we believe, estimated that the trade of Bedford is about three thousand, and in the whole district of which Bedford is the centre, six or seven thousand, of whom a considerable number are females.

The word “needle” is given to the needle- factories, each one having some distinctive name whereby it may be indicated. This is the establishment which we have been obligingly permitted to visit, and the arrange- ments which will be here described, is called the “British Needle Mills,” to the British Needle Mills of 8,000 we refer. From these our account is derived.

This factory has been recently constructed, and is situated on the outskirts of the village. It consists of a number of court-yards or quadrangles, each surrounded by buildings wherein the manufactory is conducted. The object of this arrangement seems to be to obtain as much light as possible in the workshops, since most of the processes of the needle-making require a good light. Some of the rooms in the factory are small, containing only three or four men; while others contain a great many workmen, according to the requirements of the several processes of the manufacture. From the upper part of the factory, the surrounding hills districts of Woburn, Dunstable, and Beds are seen in a wide extent, wholly un- interrupted by any indications of manufactory or town borough. The view is a striking one. Taking a turn over this prospect that one wonders how on earth needle-making came to espoke such a scene.

The sub-divisions of the factory correspond with those in the manufactory, and we accordingly find, that while some of the shops are occupied by men, others contain only females, and others again British employ- ment is chiefly for boys. We should surprise many a reader were it to enumerate the various trite details incident to the manufacture of a needle, giving to each the technical name applied to it in the factory. The number was enormous, and on our return to London, it will be more in accordance with our object to dispose with such an enumeration, and to paint the details of manufacture in certain groups, without adhering to a strictly technical arrangement.

First, then, for the material. It is scarcely necessary to say that needles are made of steel, and that being brought into the state of wires before it can assume the form of needles. The needle-makers are not wire- drawers; they do not prepare their own wires, but pur- chase it in wire varying with the kind of needle which they are about to make. We will suppose, therefore, that the wire is brought to the needle factory and deposited in a store-room. This room is kept warm by hot air to an equable temperature, in order that the metal may be preserved free from damp or other sources of injury. Around the walls are seen wooden bars or racks, on which are hung the hoops of wires. Each hoop con- tains what is called a packet, the length varying accord- ing to the diameter. Perhaps it may be convenient to take some particular size of needle and make it our standard of comparison during the details of the process.

The usual sizes of sewing needles are from No. 4, of which twenty-two thicknesses make an inch, to No. 16, of which there are a hundred to an inch. Supporting that the manufacturer is about to make sewing needles of that size known as No. 6, then the coil of wire is about two feet in diameter; it weighs about 13 lbs.; the length of wire is about a mile and a quarter; and it will produce forty fifty thousand needles. The manu- facturer has a gauge, consisting of a small piece of steel, perforated at the edge with eighteen or twenty or more, all of different sizes, and each having a particular number attached to it. By this gauge the diameter of every coil of wire is tested, and by the number every diameter of wire is known.

cell of wire when about to be operated upon, is carried to the “winding shop,” where it is cut into pieces. Fixed up against the wall of the shop is a handsome pair of shears, with the blades supported. The workman takes probably a hundred wires at once, groups them between his hands, and that against a gauge to determine the size which they are to be cut, places them between the blades of the shears, and cuts them by pressing his boot- th against one of the handles of the shears. The coil is thus reduced to twenty or thirty thousand pieces, each about three inches long, and at each piece has formed a portion of a curve two feet in diameter, it is evident that it must necessarily deviate somewhat from the straight line. This straightness must be regained at the first time by the wire before the needle-making is com- menced, and the gauge by which it is effected is one of the most remarkable in the whole manufacture. Around the walls of the shop we see a number of iron stands rising up, each from three to six or seven inches in diameter, and a quarter or half an inch in thickness. Two of these rings are placed upright on their edges at a little distance apart, and within them are placed many thousands of wires, which are kept in a group by resting on the interior edges of the two rings. In this state they are placed on a shelf in a small frame, and there kept till red hot. On being taken at a glowing heat, they are placed on an iron plate, the wires being horizontal and the rings in which they are inserted being vertical. The process of ‘rubbing’ (the technical name for the straightening to which we allude them) commences. The workman, as he supposes, takes a long piece of iron, and inserting it between the two rings, rule the wires backwards and forwards, causing
Thomas, Samuel, & Son, continued.

The process of "nibbing." Each to roll over on its own axis, and also over and under these by which it is surrounded. The noise emitted by this process is just that of filing; but as filing takes place, for the rubber is smooth, and the sound arises from the rubbing of one wire against another. The outside of the process is this—the action of one wire on another brings them all to a perfectly straight form, because any convexity or curvature in one wire would be pressed out by the close contact of the adjoining ones. The heating of the wire facilitates this process, and the workman knows by the change of sound, when all the wires have been "straight" straight.

Our needles have now assumed the form of perfectly straight pieces of wire, say a little more than 5 in. in length, bent at both ends, and thrust into the eye of the hammer. Each of these pieces is to make two needles, the two ends constituting the points; and both points are made before the piece of wire is divided in two. The point immediately succeeds the rubbing, and consists in grinding down each end of the wire till it is perfectly sharp. The workman sits on a stool or "lounge" a few inches distant from the stone, and bends over it during his work. He takes fifty or a hundred wires in his hand at once, and holds them in a peculiar manner. He places the fingers and palm of one hand diagonally over those of the other, and grasps the wires between them, the whole being parallel. The thumb of the left hand comes over the back of the fingers of the right, and the different knuckles and joints are so arranged, that every wire can be made to rotate on its own axis, by a slight movement of the hand, without any wire being allowed to roll over the others. He grasps them so that the end of the wire (not the end of each piece) projects a small distance beyond the edge of the hand and fingers, and these ends he applies to the grindstone in the proper position for grinding them down to a point. It will easily be seen, that if the wires were held facially, the end would merely be filed off, in the manner of a graver, and would not give a symmetrical point; but by curving each wire so to rotate while actually in contact with the grindstone, the point works equally on all sides of the wire, and brings the point in the axis of the wire. At intervals of every few seconds, he adjusts the wire to a proper position against an iron plate, and dips its ends in a little trough of water between him and the grindstone. Each wire sends out its own streams of sparks, which seconds diagonally in a direction opposite to that at which the workman is placed. He rigidly secures his movements, that he will point accurately or a hundred needles, forming one hand-group, in half an hour, thus getting through a thousand in an hour.

The reader will bear in mind, that the state of our finished needle is simply that of a piece of chill straight wire, about 5 in. long, running with it to the stone, and pointed at both ends. The next process is one of a series by which the ends are filed through the die. The first takes place at a point with a hundred needles, forming one hand-group, in half an hour; the second, in a few minutes, and so forth. The workman, thus prepared, must now take the needle and pass it through the die. A number of very curious operations are connected with this process, involving mechanical and manipulative arrangements of great worth. Those who are learned in the quality of needles—so that they will not "cut in the eye" and so forth—will be prepared to expect that much delicate workmanship is involved in the production of the eye, and they will not be in error in so supposing. Most of the improvements which have from time to time been introduced in needle-making, relate more or less to the production of the eye. In the commoner kinds of needles, many processes are omitted which are essential to the production of the finest qualities; but it will show the whole nature of the operations better for us to take the one of those which involve all the various processes.

After being examined, when the point has done its portion of the work, they pass to the second examination which is undergone after every single process throughout the manufacture; the wires are taken to the "stamping shop," where the first germ of an eye is given to each half of every wire. The stamping machine consists of a heavy block of stone, supporting on its upper surface a bed of iron, and on this bed is placed the naked half of a die or stamp. Above this is suspended a hammer, weighing about 30 lb., which has on its lower surface the other half of the die or stamp. The hammer is struck by a lever moved by the foot, so that it can be brought down exactly upon the tools. The form of the lower half of the eye may be best explained by stating the work which it is to perform. It is a groove called the "groover" or channel in which the eye of the needle is admitted, and which is to guide the thread in the process of threading a needle.

But besides the two channels or grooves, the stampers make a perforation partly through the wires, as a means of marking exactly where the eye is to be. The first is on the two halves of the die is consequently a raised line, since it is to produce depression in the wire. The workman holding in his hand several wires, drops one at a time on the bed of the machine. Above it to the die, brings down the upper die upon it by the action of the foot, and allows it to fall into a little dish when done. This he does with such rapidity that one stamper can stamp 4,000 wires, equivalent to 4,000 needles, in an hour, although he has to adjust each needle separately to the die.

To this process succeeds another, in which the eye of the needle is pierced through. This is effected by having, each of whom works at a small hand-press, and the operation is at once a simple and ingenious one. The boy takes up a number of needles at a time, and spreads them out like a fan. He lets them fall on a small iron bed or slab, holding one end of each wire in his left hand, and bringing the middle of the wire to the middle of the press. To the upper arm of the press, two horizontal steel points or cutters, being in size and shape exactly corresponding to the end of the wire, is attached. Both of these points are to pass through each wire very neatly and instantly, and at a small distance on either side of the start centre of the wire. The wire being placed horizontally between the points, the press is moved by hand, the points descend, and two little bits of steel are cut out of the wire, thereby forming the eye for two needles. As each wire becomes thus pierced, the boy
THOMAS, SAMUEL, & SONS, continued.

shifts the fan-like array of wires until another one comes under the pincers, and so on throughout. The press has to be worked by the right hand for placing each wire, and the head of the boy is held down pretty closely to his work, in order that he may see to "eye" the needles properly. Were not the wires previously prepared by the stamper, it would be impossible thus to guide the pincers to the proper point, but this being effected, patience, good eye-sight, and a steady hand affect the rest.

There are several processes about this stage which are affected by boys; some of these little laborers take the needles when they have been "eyed" and proceed to "spit" them, that is, to pass a wire through the eye of every needle. Two pieces of fine wire, perhaps three or four inches in length, are prepared, the diameter nearly equal to that of the needles. These two pieces of wire are held in the right hand, parallel, and at a distance apart equal to the distance between the two eyes in each needle-wire. The picked needles, being held in the left hand, are successively threaded upon the two pieces of smaller wire, till, by the time the whole is filled, the accumulation has something the appearance of a fine toothed comb. A workman then forms the bar or protruberances left on each side of the eye by the stamper.

The wire "spitted."

It must be borne in mind that throughout all these operations the needles are double; that is, that the piece of wire three inches in length, which is to produce two needles an inch and a half long each, is still whole and undivided, the two eyes being nearly close together in this centre, and the two points being at the ends. Now, however, the separation is to take place. The file, after he has brought down the protruberances on each wire, but before he has laid the comb of wire out of his hand, bonds and works the comb in a peculiar way until he has broken the comb into two halves, each half "spitted" by one of the fine wires. The needles have arrived at something like their desired shape and size, for they are of the proper length and have eyes and points. In the anneal cut we can trace the wire through the processes of change hitherto undergone.

(At the wires for two needles; B the same, pointed at one end; C pointed at both ends; D the expanded impress for the eyes; E the eye pictured; F the needles just before separation; a, b, c, enlargements of D, E, F.)

But although we have now little bits of steel which might by courtesy be called needles, they have very many processes to undergo before they are deemed finished, especially if, in accordance with our previous statement, they are of the finer quality.

The needles are by this time pointed and eyed, but before they can be brought to that beautiful finished state to which we are all familiar, it is necessary that they should be "hardened" and "tempered" by a peculiar application of heat. After being examined to see that the preceding processes are fully performed, the needles are taken to a shop provided with ovens or furnaces. They are laid down on a bench, and by means of two trowel-like instruments spread in regular thick layers on narrow plates or trays of iron. In this way they are placed on a shelf or grating in a heated furnace. When the proper degree of heating has been effected, the door is opened and the needles are shifted from the iron tray into a sort of cylindrical or perforated vessel immersed in water or oil. When they are quite cooled the hardening is completed, and if it has been affected in water the needles are simply dried; but if in oil, they are well washed in an alkaline liquor to free them from the oil. Then comes the tempering process. The needles are placed on an open plate, heated from beneath and covered short with two little trays until every needle has been gradually brought to a certain limited temperature.

We now leave the furnace-room and proceed to one of the upper rooms of the factory, where a multitude of minor operations are conducted. The needles have become slightly dianosed in shape by the action of the heat in the processes just described, and to rectify this they...
The needle-makes, as a rule, are a number of men and boys, with small drills working horizontally with great rapidity. The workman takes in a few needles between the finger and thumb of his left hand, spreads them out like a fan, with the tips upwards, and then in a time opposite the point of the drill, and drills the eye, which is equivalent to making it even, smooth, and polished. He moves the thumb and finger, so as to bring the opposite side of the needle, in succession, under the motion of the drill; and thus gets through so much rapider. The preparation of the drills, which are small pieces of steel three or four inches long, is a matter of very great nicety, and it depends much of that beauty of graining which constitutes the pride of modern needle-makers.

We next pass into the needle-room (see illustration on page 149), where a multitude of little wheels are revolving with great rapidity, some inclined for what is termed "grinding," and setting the needles, and some for polishing. The men are seated on low stools, each in front of a revolving wheel, which is at a height of perhaps two feet from the ground. All the wheels are connected by straps and bands with a steam-engine in the lower part of the factory. A constant humming noise is heard in the room, arising from the great rapidity of revolution among a number of wheels; and it is not difficult for the ear to detect a difference of tone or pitch among the associated sounds, due to differences in the rate of movement. The workman takes up a layer or row of needles, between the fingers and thumbs of the two hands, and applies the heads to the stones in such a manner as to grind down any small asperities on the surface. As the small针gravees are revolving three thousand times in a minute, it is plain that the steel may soon be sufficiently worn away by a slight contact with the periphery of the stone.

The grinders and polishers are in mass together, so that the latter take up the series of operations as soon as the former have had time to separate the needles ready for the work. The needles are then laid down and are placed in a small box, which serves as a receptacle, by shaking and vibrating in a curious manner, they are all brought into parallel arrangement. From these they are removed into flat paper trays in long rows or heaps, and passed on to the "header," a small little girl, whose office it is to turn all the heads one way, and all the points the other. This is one among the most minute but curious processes involved in this very curious manufacture, which surprises us by the rapid and noiseless execution. The girl sits with her face towards the window, and has the needles ranged in a row, as she sits, which are further parallel with the window. She draws out daily to the right hand those which have their eyes on the right head, into one heap, and to the left those which have their eyes in that direction, in another heap. Ten thousand it is a packet, six inches long, and a half wide, and under two in thickness.

Thus have we followed the manufacture to its close. Note but the best needles make up the whole of the process commenced; but we have wished to give them as a means of estimating the complexity of the manufacture of an article apparently so simple.

The arrangements of the "British Needle Mills," as to apparatus, are as follows: There are two thousand needles in a day, the whole output of the factory is a hundred millions of best needles per annum. Those are slanting needles, with a larger weight, including the scale of manufacture. In England, we must not forget to include the remarkable Worsley's village of Rochdale.
CLASS XXXII.—South East Transept, South East Court.

[ 6450 ]

PAUL, W. & J., 70 & 71 Mott Street, Birmingham.—Specimens of cork-nuts and other steel toys.

[ 6451 ]

PEACOCK, JOSEPH & Co., Sheffield.—Saws; bright rolled steel, and saws from same; crinoline; steel brushes.

[ 6452 ]

PEERY, JAMES & Co., 37 Red Lion Square, and 3 Cheapside.—Steel and gold pens, penholders, and stationers' sundries.

[ 6453 ]

REYNOLDS, G. W., & Co., 12 Cheapside, London; and Birmingham.—Steel wire, crinoline steel, umbrella frames, &c.

[ 6454 ]

ROWELL, JEREMIAH, 7 St. Albein's Row, Carlisle.—Artificial flies and fish hooks.

[ 6455 ]

SOMMERVILLE, A., & Co., Sheffield.—Specimens of cork-nuts and other steel toys.

SOMMERVILLE, A., & Co., merchants, steel converters and refiners, forge, tills, and rolling mills.

Description of steel, &c. exhibited—
Best cast-steel in bars; cast-steel rolls; Howell's patent homogeneous metal in bars and sheets. Homogeneous metal tubes for boilers, and samples of same bent in various forms, showing the extreme ductility of the metal; also bars of the same metal bent cold in various forms; glass case containing specimens of the ends of cast-steel ingots, showing the fracture up to 16 inches square; and glass case containing samples of best cast-steel for engineers' and machinists' purposes; cast-steel shell to be charged with carbon in Van Marle's principle; Howell's patent coupling chains for railway carriages, &c. In one continuous coil.

London Office: 32 Bedford Street, Strand; New York Store, 24 Cliff Street.

[ 6456 ]

SMITH, JOHN WIGHT, High Cross Street, Leicester.—Patent self-acting and other hosiery needles.

[ 6457 ]

SMITH & HOUCKTON, Warrington.—Superior qualities of pianoforte wire, pinion and round steel wire, &c.

[ 6458 ]

SOMMERVILLE, A., & Co., Birmingham.—Best-class carbonized patent regulator, enamelled gilt-pointed, and other steel pens.

Slide up—very flexible. Slide in the middle—moderate flexibility. Slide down—best.

Registered metal spring regulator, showing 700 different numbers of steel pens, patent and carbon steel pen boxes and cases.

Best class carbonized steel pens. Celebrated gilt pointed steel pens on white and blue steel.

A large model, moved by machinery, of A. Sommerville & Co.'s patent regulating spring slide pen. By moving the spring slide up or down the pen, every degree of flexibility is obtained.

( 150 )
Class XXXII.—Steel Cutlery and Edge Tools.

Turton, Thomas, & Sons, Sheaf and Spring Works, Sheffield; 17 King William Street, City, London; 10 Rue du Grand Chantier, Paris; 83 John Street, New York; 3 North Street, Fifth Street, Philadelphia.—Steel files, edge tools, railways springs, &c.
CAST-STEEL SLIDE BAR.

CAST-STEEL SLIDE BAR.

CAST-STEEL PISTON ROD.

RAILWAY BUFFER WITH PATENT CONEA SPRING.

LOCOMOTIVE SPRING.
CLASS XXXII.—Steel Cutlery and Edge Tools.

[6460]
Spencer, John, & Sons, Newcastle-on-Tyne.—Cast-steel tyres, volute spring buffe springs, steel, and files.

[6461]
Thomson, Samuel, & Sons, British Needle Mills, Redditch.—Improved steel spring needles and fish hooks. (See pages 148 to 152.)

[6462]
Townsend, George, & Co., Redditch and London.—Machine and other needles, and tools for making them.

[6463]
Turner, E., & Co., London; and Old Factory, Redditch.—Sewing machine and other needles, and tools for making them.

[6464]
Turney, George Leonard, 20 Lawrence Lane, Cheapside.—Needles in cylinder cases and pins in boxes.

[6465]
Turnor, M., & Co., Icknield Port Road, Birmingham.—Carbonized, galvanized, and gilt pens; holders; patent rectangular pen-boxes.

[6466]
Turton, Brothers, Phanvit Steel Works, Sheffield.—Steel files, saws, engineering tools, &c.

[6467]
Turton, Thomas, & Sons, Sheaf and Spring Works, Sheffield.—Steel files, edge tools, railway springs, &c. (See pages 154 and 155.)

[6468]
Walker, Henry, 47 Gresham Street, and Alcester.—Patent ridged and other needles, fish hooks, &c.

H. Walker’s new needles. The patent ridged eyes are easily threaded, and work without the slightest drag. A hundred post-free for 12 stamps, of any respectable dealer.
CLASS XXXII.—South East Transept, South-East Court.

Sub-Class B.—Cutlery and Edge Tools.

[ 6480 ]
Addis, James Bacon, 159 Waterloo Road.—Carvers' tools.

[ 6481 ]
Addis, Samuel Joseph, 49 and 50 Worship Street, Shoreditch.—Assortment of carvers' and general edge tools.

[ 6482 ]
Allarton, Thos., & Powell, Birmingham.—Awls, and sewing-machine needles, of every size and shape.

[ 6483 ]
Badger, Charles, 1 Stangate, Lambeth, S.—Planes in iron and gun-metal, for joiners, cabinet makers, &c.

[ 6484 ]

[ 6485 ]
Barker, Robert, & Son, Easingwold.—Butchers' and table steels, manufactured from the best refined cast-steel.

[ 6486 ]
Beach, William, Salisbury.—Case of assorted cutlery of Salisbury manufacture.

This case contains carving, table, sportsman's, pocket, pen, pruning, and paper knives; scissors, and cases of ditto; razors, daggers, &c. These goods are forged from the best cast-steel, and ground and fitted by the exhibitor.

[ 6487 ]
Beardshaw, George, Turnspit Lane, Sheffield.—Table, dessert, and carving knives and forks, palette, pruning, farriers', butchers', and shoe knives, bowie and bread knives, &c.

[ 6488 ]
Bolsover, Thomas, Ford, Ridgeway, Sheffield—Sickles, and reaping hooks, suitable for all parts of the world.
Class XXXII—Steel Cutlery and Edge Tools.

Bond, Wm. J., Bethnal Green Road, London.—Saw, cabinet, bench, hand screw, and mechanical tools.

The exhibitor is a manufacturer of cabinet work, benches with double screws, also with single screws, and doubleslide for keeping the chop at all times parallel, and with end or cramp screw.

Booth, Henry E., & Co., Norfolk Works, Norfolk Lane, Sheffield.—Table knives and forks, spear, butcher, bowie, and dagger knives.

Table knives and forks, spear point, palette, and butchers’ knives, bowie, dagger, and hunting knives also plated desserts, razors, and general cutlery, suitable for home and export trade.

Brookes & Crookes, Atlantic Works, Sheffield.—Fine pen and sportsmen’s knives, razors, and dressing case fittings.

Brown, Henry, & Sons, Western Works, 108 Rockingham Street, Sheffield.—Braces, bits, joiners’ tools, augers, gimblets, skates, tool-chests.

Brooks & Crookes, Atlantic Works, Sheffield.—Eine pen and sportsmen’s knives, razors, and dressing case fittings.

Brown, Henry, & Sons, Western Works, 108 Rockingham Street, Sheffield.—Braces, bits, joiners’ tools, augers, gimblets, skates, tool-chests.

Buck, Joseph, Newgate Street, and Waterloo Road, London.—Mechanical tools for engineers, carpenters, &c.

Circular saws from 1 to 60 in. diameter.
Mill, veneer, and endless band saws.
Cutlery of the best quality.
Fret-cutting machines.
Buhl saw-machines, and tools for buhl work and ornamental carving.

Champion & Co., 169 Broad Lane, Sheffield.—Fine scissors.

Cockbain, John, Portland Place, Carlisle.—Joiners’ and cabinet tools.

Digges, George, 20 Bessborough Place, Piccadilly.—Iron and metal planes; castings, rough and machine planed.

Deasle, James, & Co., Orchard Works, Sheffield.—Table knives and forks; spear, butchers’, and dagger knives.

These exhibitors manufacture knives, forks, &c. entirely by machinery, and are thus enabled to supply goods more uniform in appearance, and as good in quality, at less cost than where hand labour is employed. The small case exhibited by them contains a fair sample of their productions.

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Eadon, Moses, & Sons, President Works, Sheffield.—Steel saws, files, machine knives, hammers, &c.

Eastwood, George, 31 Welsgate, York.—Assortment of planes, with modern improvements, suitable for joiners, cabinet makers, &c.

Fletcher, John Care, Crown Works, Sheffield.—Chisels, plane irons, axes, adzes, hatchets; augers, hammers, compasses, pliers.

Fuller, John H., 70 Hatton Garden.—Patent tube cutters, stocks and dies, taps, &c.

Fletcher, John Care, Crown Works, Sheffield.—Chisels, plane irons, axes, adzes, hatchets; augers, hammers, compasses, pliers.

Gallienne, George, 138 Goswell Street.—A general assortment of cutlery; hoar spears, hunting knives, &c.; a very large bread knife, and trowel slicer.

Gibbins, J., & Sons, Sheffield.—Scissors; nail and champagne nippers; pruning shears and pocket cutlery.

Gilbert, Brothers, 60 St. Philip's Road, Sheffield.—Razors; pen, pocket, and sportsmen's knives of all kinds.


Gorhill, Robert, & Son, 159 Eyre Street, Sheffield.—Fine scissors.

Gray, John H., Pelham Street, Nottingham.—Improved skates.

Greenslade, R. A. & W., Thomas Street, Bristol.—Planes.

Greer, James, 90 Neavegate Street.—Specimens of London-made table cutlery; also knives used in various trades.

The best plain ivory handle table knives, 30/0 per dozen.
Ditto, dessert knives, 24/0 per dozen.
Ditto, carving, 18/0 per pair.
Ditto, with ornamented shoulders, 26/0, 30/0.
Ditto, carving, 12/0 per pair.
The best electro silver-plated table spoons and forks, 40/0 per dozen.
Ditto, dessert spoons and forks, 36/0 per dozen.

Class XXXII.

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Tea, salt, egg, and mustard spoons, 12/0 per dozen.
Gravy spoons, 7/0 each.
Soup ladles, 15/0 each.
Carved wood bread trays and butter dishes, from 5/0 each.
Break knives, table steels, corkscrews, razors, scissors, pocket knives, needles.
Knives made expressly for use in all the various trades.
Class XXXII.—Steel Cutlery and Edge Tools.

Hannah, Alexander, Calton, Glasgow.—Screw-augers, brace, bracebits, and all kinds of tools for boring wood.

Hart, Thomas, 44 Milton Street, Sheffield.—Botton-hooks, nail files, corkscrews, stilletos, tweezers, nail picks, &c.

Hargreaves, Smith & Co., Eyre Lane, Sheffield.—Sheffield cutlery and hardware. (See page 161.)

Haslam, John & Sons, Ridgeenny, near Sheffield.—Scythes, sickles, and reaping hooks.

Hawcroft, William & Sons, Bath Works, 53 Bath Street, Sheffield.—Razors of superior quality in great variety of pattern and mounting.

Haywood, Joseph & Co., Sheffield.—Pruning knife, and cutlery in general.

Heath, Simon, Union Place Paddock, Walsall.—Improved spring splitting machine, and general assortment of saddlers' tools.

Hill, J. V., 5 Grev’s Inn Road, King’s Cross.—Samples of London-manufactured saws.

Howarth, James, Broomspring Works, Sheffield.—Edge tools; joiners’, engravers’, carvers’ and turners’ tools; augers, skates, &c.

Obtained Prize Medals from the London, 1851, and Paris, 1855, Exhibitions, and Special Medal of Honour from the Society of Arts and Industry, 1856, for superior quality of goods exhibited.

Jackson, Newton & Co., Sheaf Island Works, Sheffield.—Steel files, saws, edge tools, cutlery sheep shears.

Jolley, John & Thomas, Excelsior Works, Warrington.—Files, railway-ticket nippers, telegraph vices, and engineers’ tools.

The following are the manufactures of Messrs. Jolley, of which specimens are exhibited:

Files, telegraph vices and nippers, railway-ticket nippers, stock taps and dies, wrenches, spanners, ratchet drills, cast-steel hammers, saws for burl, iron, and steel, bench vices, head vices, screw-plates, plain, wing, rack and millwrights’ compasses, squares, spring dividers, index, plain, wing, rack in and out, pocket, and spring callipers, handcuffs, &c.
HARGREAVES, Smith, & Co., Eyre Lane, Sheffield.—Sheffield cutlery and hardware.

Table and dessert knives.

HARGREAVES, Smith, & Co. exhibit—
1. One dozen carved ivory-handle table and dessert knives in a case of carambola wood.
2. A carved ivory-handle bread knife.

HARGREAVES, Smith, & Co. Manufacturers, Sheffield.
Class XXXII.—Steel Cutlery and Edge Tools.

Jowitz, Thomas, & Son, Sheffield.—Specimens of manufactured steel, and files for engineers and exportation.

King & Peach, Hull.—Planes, various.

Kingsbury, Thomas, 9 New Bond Street.—Cutlery; cutlery applied to dressing-cases of a new construction.

Linkesher, Havel & James, Cobner Works, Sheffield.—Scythes, sickles, chaff machine knives, and straw knives.

Reaping and Straw-cutting Machine Knives, Setters, Sickles, and Hooks.

The temper of the edge is produced by a new process, ensuring perfect regularity; also, the back part of machine knives, scythes, &c. are made spring temper to prevent breakage and increase the strength (see Engineer, July 15, 1861, page 83). Every article is of the best and most modern construction, and supplied in patterns suitable for all countries. Established 1768.

MaGuire Brothers, 222 Regent Street, 67 & 68 King William Street, City, and Queen's Cutlery Works, Sheffield.—Cutlery.

Mappin & Co., opposite the Pantheon, Oxford Street, London.—Their celebrated cutlery from their works at Sheffield. (See pages 164 and 165.)

Marsh, Brothers, & Co., Pond Works, Sheffield.—Steel files, saws, tools, cutlery, railway and carriage springs.

Matthewman, Benjamin, Jun., 80 Milton Street, Sheffield.—Scissors, with miniature photograph of the Royal Family.

M'Givin & Bazin, 4 Leadenhall Street, and 112 Regent Street.—Fine cutlery—razors, table knives, scissors, sporting and pen knives.

Mitchell, J. W., 1 Bridge House Place, Newington Causeway.—Saws and tools.

These tools are of the best materials, and moderate prices. Lists will be sent on application.

Mitchell, William Henry, 3 Britannia Place, Limehouse, E.—Hand, panel, and tenon saws.

London-made saws, frames, and other tools for cabinet makers, carpenters, and shipwrights. These goods are of excellent quality, and their prices are moderate.
CLASS XXXII.—South East Transcept, South East Court.

MONK, THOMAS, 74 Edmund Street, Birmingham.—Moulders, plasterers', and stonemasons' tools.

MORELEY, JOHN, & SON, 54 Broad Street, Bloomsbury, London.—Planes and other joiners' tools.

MORELEY, JOHN, & SON, 27 Bedford Street, and 17 & 18 King Street, Covent Garden.—Cutlery and tools.

MUSHET, ROBERT, & Co., Coleford and Sheffield.—Cutlery of all kinds; edge tools, and samples of steel.

NURSE, C., Mill Street, Maidstone.—Carpenters' planes.

PARKES, Francis, & Co., Sutton Works, Birmingham.—Cast-steel forks, spades, draining, edge, and plantation tools.

CAST-STEEL FORKS, &C.

Cast-steel forks, four to twelve prongs, for lifting tan, coke, malt, chaff, and other light substances.

Cast-steel forks, three to eight prongs, for digging, stoning, and bulbous roots.

Cast-steel forks, three to six prongs, for digging, subsoiling, and clearing land.

Cast-steel forks, two to three prongs, for harvesting.

Solid cast-steel spades and shovels.

Solid cast-steel drainage tools.

Draining tools partly of steel.

Spades and shovels, the surface of which is plated with cast-steel.

Cast-steel axes, hatchets, pickaxes, and mattocks, hedging bills, &c.

Cast-steel ploughshares.

PARKIN, JOHN, Steel Works, Harvest Lane, Sheffield.—Saws, files, machine knives, paper-makers' bars and tools.

PEACE, WARD, & Co., Agranor Steel Works, Sheffield.—Steel files, tools, saws, hammers, machine springs; cutlery.

RODRIER, Joseph, & Sons, 6 Norfolk Street, Sheffield.—Pocket, pen, and sportsman's knives, table cutlery, razors, scissors, fish carvers.
CLASS XXXII.—Steel Cutlery and Edge Tools.

MAPPIN & COMPANY, 77 & 78 Oxford Street, London, opposite to the Pantheon.—Celebrated cutlery.

Mappin & Co.'s scissors have long been famous for their exquisite quality and finish. They can be had as low in price as 1/6 per pair, and a set of three in a handsome case for 8/0.

Mappin & Co.'s razors, well known for their great longevity, are well represented in the Exhibition. Their 1/0 razor has a world-wide reputation, and an enormous sale.

Mappin & Co.'s penknives, and sportsmen's knives for hunting, angling, &c., are of the finest quality, and of perfect mechanism; the specimens exhibited are fully fitted, as specimens of what can be done with steel for ornamental cutlery.
Table knives with secure ivory handles, balanced, from 13/0 per dozen.

Carvers, with secure ivory handles, 4/6 per pair.

Bread knives with beautifully carved wood and ivory handles, the quality of steel warranted.

The above is one of the best designs exhibited for a dessert knife, being artistic in form, and of a most convenient shape for use. It is an admirable specimen of Mappin & Co.'s manufactures in this department, in which they greatly excel.

Mappin & Co.'s pen and pocket knives are unequalled for the excellence of the steel and other material used, and the exquisite finish with which they are put together; the prices also at which they are produced are very low—

A most serviceable knife with ivory handle and two blades of the very best steel being sold for 1/0; selected beautiful knives with pearl and tortoiseshell handles elaborately fluted, four best steel blades, to 10/6 each.
Class XXXII.—Steel Cutlery and Edge Tools.

[ 6546 ]

RUSSELL, THOMAS, & CO., Canada Works, Charles Street, Sheffield.—Saws.

The exhibitors are proprietors of the marks "Russell & Horshill," "John Sanderson," and the corporate mark, Their one contains specimens of back saws with electro-plated back, hand saws with etched blade and Albert shield on handle, and other varieties of saws.

[ 6548 ]

SAYNOR & COOE, Paxton Works, Sheffield.—Pruning, budding knives, scissors, &c.

SHIRLEY, WILLIAM, Crescent Works, Charles Street, Sheffield.—Pen, pocket, sportsman, dirk, and bowie knives.

SPEAR & WISHER, Castle Hill Works, Sheffield.—Scissors, razors, knives, table cutlery, &c.

SUTTON, W., & SONS, New Town Row, Birmingham.—Awl blades.

TAYLOR, H., 105 Fitzwilliam Street, Sheffield.—Various trades' tools.

THOMAS, RICHARD, Icknield Edge-Tool Works, Birmingham.—Edge tools for home and foreign markets.

TUTON, MATTHEW, Scarboro' Road, Driffield.—One stand forks and hedge tools.

UNWIN & ROGERS, Rockingham Street, Sheffield.—Table and spring knives, razors, and every description of cutlery.

WALDROW, WILLIAM, & SONS, Bellbroughton, Stourbridge.—Scythe, hay and chaff knife, hook, and edge tools.

WARD, GEORGE, 171 Eyre Street, Sheffield.—Fine pen, pocket, desk, and sportsman's knives, lancets, &c.

WARD, THOMAS, 31 Brightmore Street, Sheffield.—Improved penknives, the blades cannot be injured in shutting.

WILKINSON, THOMAS, & SONS, 17 New Church Street, Sheffield.—Cutlery, scissors, improved tailors' shears, &c.

WILKINSON, WILLIAM, & SONS, Spring Works, Grimshoarpe, near Sheffield.—Sheep, horse, glovers', thatchers', and other shears.

WINKS, B., & SONS, 53 Birtl Street, Sheffield.—Razors, table knives, and scalping blades.
Class XXXII.—South East Transept, South East Court.

[6503]

WOSTENHOLM, GEORGE, & SON, Washington Works, Sheffield.—Pen, pocket, table, bowie, and sportsman's knives; trunks and scissors.

Obtained the Prize Medal at the Exhibition in 1851, and the large Gold Medal at the Paris Exhibition, 1855.

GEORGE WOSTENHOLM & SON are the sole manufacturers of the genuine congruent and fine pipe razors. These are really good and useful articles.

CLASS XXXII. (367)
CLASS XXXIII.

WORKS IN PRECIOUS METALS, AND THEIR IMITATIONS, AND JEWELLERY.

[ 6595 ]

ADAMS, George William, Hosier Lane, London.—Knives, forks, spoons, and various articles of new design.

[ 6596 ]

ASKINS, Henry, & Sons, 22 Weamans's Row, Birmingham; 4 Thavies Inn, London.—Electro-plated goods, epagnues, crouet, liquor, and egg frames, &c.

[ 6597 ]

ANGELL, Joseph, 10 Strand, and 25 Panton Street, Haymarket.—Jewellery, gold and silver plate.

[ 6598 ]

ASTON, Thomas, & Son, Regent Place, Birmingham.—Jewellery, goldsmith's and silversmith's work.

[ 6599 ]

ATKIN, Brothers, Sheffield, and 39 Ely Place, London.—Electro-plate, Britannia metal, silver and plated cutlery.

[ 6600 ]

ATTENBOROUGH, Richard, 19 Piccadilly, London.—Silver cups, ebony and silver casket jewellery, watches.

[ 6601 ]

BAILEY, John, 74 Hatton Garden, and 44 St. Paul's Square, Birmingham.—Gold chains, and gold, plated gold, gilts, and black jewellery, &c.

[ 6602 ]

BARKER, William, 42 & 43 Paradise Street, Birmingham.—Silver, plated, Nickel silver, and Britannia metal wares.

[ 6603 ]

BAYRT, Walter E., Egyptian Hall, Piccadilly.—Gilt metal work, applied to the mounting of artistic productions.

class xxxiii.

BENSON, J. M., Corsehill.—Argentine and electro-plate dinner and tea services, of rich and elegant design.

BIRMINGHAM COMMITTEE, The, Birmingham.—Gold and silver jewellery, gold and silver plated jewellery, chains, &c.

EXHIBITORS—


BEDFORD, JOHN, 37 Cheapside.—Gold seals, signet rings, stone and other engravings; specimens of moss-agate stones.

BROOK, THOMAS & JOHN, Vittoria Street, Birmingham.—Gold bracelets, brooches, earrings, pins, studs, and links.

BRYAN, CHARLES, West Cliff and Bartergate, Whitby.—Brooches, bracelets, ear-rings, coronets, necklets and necklace, hair pins, &c.

BRYDON, J., & Sons, 29 Princes Street, Edinburgh.—Devices with human hair for brooches, lockets, pictures; also gold-mounted hair jewellery.

The art of working in human hair has been brought to its present stage of perfection by the Messrs. Brydon, and so skilful have they become, that any length or quality of hair can be manufactured into any form. Gold-mounted rings, 5s. to £5; brooches, £5. to £15; bracelets, 5s. to £20; smart pins, 6s. to 40s.; chains, 12s. to £2; lockets, 10s. to £20; necklets, &c. Illustrated catalogues free by post.

COLLI, GEORGE RICHMOND, & Co., 130 Regent Street, London, and Church Street Works, Birmingham.—Silver and electro-plated services.

G. B. Collins & Co. exhibit specimens of their manufactures, showing the application of electro-silver plating and gilding to objects of art and domestic utility.

They are makers of breakfast, dinner, and tea services in silver and electro-plate; and their establishments are replete with every novelty of each season.

DEWEY & JONES, Great Hampton Street, Birmingham.—Plated table service, spoons, forks, tobacco and vesuvian boxes, pencils, &c.

The following are exhibited.—Plated tea, coffee, table, and dessert services, snuff boxes, card cases, vesuvian boxes, and pipe mounts, pencil cases, pen-holders, and gold pins. Dewey & Jones are the inventors and sole makers of the New Spanish Silver Spoons and Forks, the whitest substitute for silver ever made.
Class XXXIII.—South-East Court, Central Division.

[6613]

Dixon, John, 95 Lillington Street, Pimlico, S.W.—A collection of bronze medals.

[6614]

Dixon, James, & Sons, Sheffield.—Best Sheffield and electro-plate.

[Obtained Two Medals at the 1851 Exhibition; One Medal at Paris, 1855, Exhibition; One Medal for Plated Ware in the 1851 International Exhibition; and another for Britannia Metal Goods in Class 31.]

1. Coffee and tea service, in Grecian style, with coffee tray.
2. Wine cooler, in Roman style.
3. Dinner service, in Flemish style.

[6615]

Dodd, P. G., & Sons, 45 Cornhill, London.—Artistic works in the precious metals, &c.

[6616]

Douglas, W., & Sons, 5 Great Vine Street, and 51 Cheapside.—Engravings on precious metals.

[6617]

Declos, L. D., 13 Whitchin Street, Clerkenwell.—Cameos, &c.

[6618]

Duncan, J., 4 St. Nicholas Street, Aberdeen.—Granite jewellery, &c.

[6619]

Elkington & Co., Newhall Street, Birmingham; 20 and 22 Regent Street, S.W., and 43 Moorgate Street, E.C., London; 25 Church Street, Liverpool; and 28 College Green, Dublin.—Manufactures in silver, electro-plate, and bronze. (See pages 4 to 8.)

[6620]

Ellis, Brothers, Exeter.—Brooch, and bracelet of Sidmouth pebbles.

(3)
ELEKINGTON & Co., Newhall Street, Birmingham; 20 and 22 Regent Street, S.W., and 45 Moorgate Street, E.C., London; 25 Church Street, Liverpool; and 29 College Green, Dublin.—Manufacturers of artistic works in silver, bronze, and other metals, by special appointment, to Her Majesty the Queen.

SILVER REPOUSSE TABLE.

The ornamental portions designed and executed by Morel Ladeuil (one of the artists in the employment of Elkington and Co.) This engraving only shows the top (or upper surface) of the table.

The subject of this design is intended to represent the dreams of three figures—a minstrel, a soldier, and a husbandman—who sleep at the base, they being under the influence of the goddess who floats over the centre, strewing poppies around.

The execution of this work occupied nearly three years.

The stem and base of the table are given upon the following page.
Elkington & Co., continued.
The vase is adorned with allegorical figures and reliefs, emblematical of Day.

The dish is divided into four panels containing reliefs emblematic of the elements, which are treated in an original manner. The vase and dish were designed by the principal artist of this firm; and who is also the designer of the silver enamelled dessert service, and of several other important works exhibited by Elkington & Co.
This centre-piece, in the Pompeian style, forms part of a complete service intended for dessert. It is enriched by enamel and gold. One of the figures represents a Priestess of the Temple of Peace; the others typify Agriculture and Commerce, as votaries of Peace.
SILVER ENAMELLED CANDELABRUM AND ENAMELLED PIANO CANDLESTICKS.

Designed by A. Willms.
CLASS XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

[6619]

Elkington & Co. obtained—The Council Medal, London, 1851; the Gold Medal of Honour, and the Cross of the Legion of Honour, Paris, 1855; London, 1862—Upon the Jury, but Medals were awarded to the two principal Artists in the employ of this Firm.

The silver repoussé tazza upon this page was designed and executed by Morel Ladeuil. It is one of a pair, emblematic of "Night" and "Morning." The latter is given on the following page. Each subject tells its own tale so thoroughly, that no description is required to suggest more than the work itself illustrates.
Class XXXIII.—South-East Court, Central Division.

Elkington & Co., continued.

At the foot of "Morning" is placed a Cock; "bright Chanticleer" at that of "Night" is the Owl. The stems of these tazz have not yet been engraved; they will be given in a more extended catalogue, before the close of the present year.

( S * *)
Class XXXIII.—South-East Court, Central Division.

Elkington & Co., continued.

SILVER ENAMELLED DESSERT STAND.

By A. Willms.

SILVER TANKARD, WITH YORK EMBLEMS.

By A. Willms.

Extract from an Article which appeared in the "Midland Counties Herald" on June 10, 1862.

By George Wallis, Esq.

The exceptional and varied character of the productions exhibited by Messrs. Elkington and Co., together with the extent of their display, renders necessary a separate and distinct notice of works which in themselves form no ordinary exhibition.

It has been our privilege from time to time since 1851 to notice various works emanating from this great centre of art-manufacture in Birmingham, and on this occasion we must again many of them, and it is no little satisfaction to find that renewed acquaintance has by no means lessened opinions already expressed and recorded of their merits.

Messrs. Elkington's exhibits may be divided into two groups. One of these forms a trophy in the nave. The other group of exhibits occupies a limited production in the class devoted to works in precious metals.

The trophy consists of several tiers of works, as to speak, chiefly in bronze, the base being surrounded by works in gold and silver, whilst the whole pyramidal arrangement is surmounted by the bronze group of "Bunrana and his Daughters," by the late John Thomas. The first tier of figures below the apex of this Art-pyramid consists of "Stephen Langton, Archbishop of Canterbury," also by John Thomas; "Almeric, Grand Master of the Knights Templars," by MacDowell; "Roger, Earl of Norfolk," by T. Thornycroft, all being subjects executed in bronze, and placed in the House of Lords since 1861; together with "Prince Bismarck," by W. Thoed, after Rauch, and "Sir George Murray," also by Thoed, being two of the statues for the Wellington College presented by Prince Consort. A space between the two latter is filled up with a copy of a suit of armour now in the Tower of London, and effectively reproduced by the electroplating process. The latter work is an admirable illustration of the manner in which fine works of this kind, in which a high class of art was developed in the middle ages, can now be initiated with the greatest accuracy, and circulated as art examples where it would have been impossible over to have expected to see the originals.

Below this tier of figures, on each side, are placed models of six-inches, also executed for the House of Lords. One represents the escape of Mary Queen of Scots from Leckwinc, and the other the meeting of the Emperor Charles the Fifth and Henry the Eighth, at Windsor. The first-named is especially interesting and highly artistic work. At each angle of the base a bronze statue is placed. These are, "Malcolm Canmore," by Thoed, executed for Her Majesty, and to be placed at Balmoral; "Leslie," by Camburnworth; "The Young Naturalist." by Wrench; and "A Daughter of Eve," by John Bell. Each of these has its own distinguishing features, the first-named being an artistic and poetical reproduction of a noble Scottish Tain, the last so touching an appeal against the barbarous hypocrisy which attempts to justify human bondage on the
This work is executed from the original models taken direct from the Palace of the Alhambra, at Granada, Spain, and presented by His Highness the late Prince Consort, and presented to His Majesty by His Excellency the late Embassador, and are amongst the most remarkable pieces of his singular power alike over the human figure, animal forms, and ornament. The statuette is placed upon an enamelled base of appropriate design, and is a graceful and charming illustration of the old old story of the

"With that grace and, who ruled in Coventry."

The models, which form a portion of a set retained for use at Buckingham Palace, are remarkable for the originality of their composition and details. There are three lights in each, with a tripod base. The light sockets are formed by a successful ornamental treatment of the tripod forms, which is still unobscured by any kind of a string as it is of a singular material.

On one side of the base of the tripod, between "A Daughter of Eve" and "The Young Naturalist," a variety of small works in bronze have been arranged. Consisting amongst these, for its simple elegance and charming expression, is the figure of "Olive Goldsmith," the first of the original model by Faby, for the statue executed for the University of Dublin. A very successful reduction of the "Characthe" by the same sculptor is also noticeable for its force and energy. On the other side, and between the "Malcolm Cameron" and "Leslie," a gilt and enameled table and mirror is placed.

Note.—The statue of the Queen, by Durren, exhibited at a recent exposition of the Society of British Artists, in London, is of the same model as that in the Royal Academy at Paris, and is intended to have a dinner service for London.
Exhibit from an Article "On Our Way Through the Exhibition." By Blanchard Jerrold, Esq.

Our way shall be from Milbon and Co.'s St. George's Street, with its winged Victories holding aloft St. George and the Dragon. We mean, sloping, like great Orion, slowly to the west.

The way is past British furniture trophies, the model of the Warrrow, the granite obelisk from the Chersewting quarter, Elkington and Sons' leather trophy, Nicholls's fire—a mere shop-door from Oxford Street—the smallest statue or the greatest Orton, of which the elector process has proved itself capable, is necessary to spend a few days in an establishment like that of Messrs. Elkington and Co., Newhall Street, Birmingham. Here may be seen in perfection every variety of the elector process; in one part are the mighty figures modelled by Southey for his Great Exhibition Memorial, lying in their copper baths; in another are the finest brooches receiving their coat of paint. Wandering from room to room, from shed to shed, from courtyard to courtyard, the visitor is bewildered with the constant variety of skill and ingenuity brought to bear upon common objects of daily life.

British porcelain trophies; the Rod trophy, a strange mixture; the shows of Hunt and Restell, Harry Samuel, and the great display of Messrs. Elkington and Co.

Before this last trophy we will bid the reader rest awhile, while we carry him away to the great scene of human activity where these fine works of science and skill proceed. It is by the studying and mastering of the difficulties that have to be overcome before the smallest statue or the poorest plate can be fashioned, that visitors to the Exhibition may derive solid advantage out of their wanderings. . . . To appreciate fully all the useful and ornamental developments of which the elector process has proved itself capable, it is necessary to spend a few days in an establishment like that of Messrs. Elkington and Co., Newhall Street, Birmingham. Here may be seen in perfection every variety of the elector process; in one part are the mighty figures modelled by Southey for his Great Exhibition Memorial, lying in their copper baths; in another are the finest brooches receiving their coat of paint. Wandering from room to room, from shed to shed, from courtyard to courtyard, the visitor is bewildered with the constant variety of skill and ingenuity brought to bear upon common objects of daily life.

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elkington & co., continued.

exquisite is the rendering—the dreams natural to each. Mark the minstrel's dream, it is of Music, Pleasure, Fortune, Love, speaking in the stile forms of women and children. Happy dreamer! The warrior's vision is grim. Here is intrepid glory; here victory and renown, with their fitting emblems. The agriculturist—honest tiller of the soil—dreams of abundance. Women and children, bearing fruit, flowers, ears, and grapes—brining the brilliant and glorious treasures of mother Earth. This is all grandly conceived, and the execution matchless. The central figure crowns the whole idea. The exquisite draped figure in Gombrich's four children's heads represent the four winds. Jupiter's wing is the capital bit. This elaborate and artistically-studded work will delight connoisseurs. We may point to other productions from the graceful pencil of M. Willms and the skilful brush of M. Morel-Ladeuil. Here, for instance, are the Four Seasons, represented by four masks, encompassed by seasonal flowers and plants; the flagon is a mass of flowers and butterflies fantastically grouped. M. Willms' silver tankard has theatrical art for its subject. It is in the Greek style. The bas-reliefs and figures are in ivory. These bas-reliefs represent Comedy, Tragedy, Song, and Dancing.

sleep, scattering her poppies, and so dominating the sleepers.

we now look upon a silver flagon and dish, upon which the four elements are developed. This remarkable work is designed by M. Willms, the directing artist of this house. The dish or plateau is from bas-reliefs, representing Earth, Water, Air, and Fire. These are encompassed with ornamental work and flowers. A border with lion's heads frames the plateaux. The flagon, a bold and graceful design, is decorated with two bas-reliefs, upon one of which Apollo appears, encompassed by the signs of the zodiac, while the other is occupied by Diana, surrounded by the principal planets. Beneath, a child bending over crowns the lid. The names of ancient authors are worked in letters of gold upon enamel over each bas-relief. Nor should those perfumeholders to enamelled copper be passed over. The silver enamelled dessert service, in the Pompeian style, is a splendid specimen of art-workmanship; and so are the great Indian rose, the Mauresque epergne, the centre piece discovering "Zoro's Pabilon," and an imitator in the style of Louis XIV. The Indian and Renaissance teascops are also in the highest style of art.

we pass from before these noble works of thought and skill, fascinated by the beauty of form and brilliancy of material here offered to the luxurious and wealthy.

class XXXIII.—works in precious metals, and their imitations, and jewellery.
EMANUEL, E. & E., Jewellers and Silversmiths to the Queen, H.R.H. the Prince of Wales, and the principal Courts of Europe, 101 High Street, Portsmouth.—Works of art, &c., in the precious metals; jewels; horological machinery.
Class XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

Emanuel, E. & E., continued.
Class XXXIII.—South-East Court, Central Division.

Emanuel, E. & E., continued.
EXAMINE, E. & E., continued.

A silver shield, the outer circle of which is surrounded, in relief, with a frieze of horses and warriors, taken from the celebrated Elgin marbles.

The centre of this shield is in alta-relievo, and is a copy of the clashe cameo by Achilles, in the Royal Museum at Naples, illustrating "the Conquest of the Titans by Jupiter," described in the following terms, by Horace (Od. iii. 4—12):

"... Scimus..."

Jupiter is represented in his car, drawn by four horses, and preparing to hurl his thunderbolts at the giants, who, in accordance with Ovid, are depicted by the artist as men of great stature, having serpents in the place of legs:

"Sphingaque et Harpyias serpentipedasque Gigantes."—Ovid, Tristia iv. 7, 17.

Designed and modelled by Mr. Henry Morrell, in the manufactory of the Exhibitors. The property of the Right Hon. the Earl of Lonsdale, by whom it has been kindly lent for exhibition.

A dessert service in silver, allegorical of the International Exhibition, for which occasion it has been expressly designed and manufactured.

The service consists of:

A silver candelabrum, with basket at top for fruit or flowers. As portions of the branches can be removed, it is made applicable as an epergne. On the base is a large group, representing Britania seated on a lion, and attended by an allegorical figure of Industry, distributing rewards to the representatives of the various nations of the globe, who are represented laying the products of their several countries at her feet. The decorations of the whole of this service, which are of a floral character, are of an entirely novel design. The allegory is carried out in—

Two epergnes, with figures of the Arts and Sciences; and

Four dessert centres, containing figures, severally representing, "Europe," "Asia," "Africa," and "America," containing an allusion to the four quarters of the globe being represented at the Exhibition.

In each of the figures the artist has succeeded in producing the acknowledged type of countenance and dress. Designed and modelled by Mr. J. W. Clarke, and produced in the manufactory of the Exhibitors. The accompanying plates, No. 1 and 2, represent portions of this service.

A classic group in silver, representing "Thetis bringing to her son Achilles the Armour forged by Vulcan."

"Tu vero Vulcano auro inlaya arma setipe,
Polisim profecta, quod lauris quibusque vir humeros
gestavit.
Sic sane locatis Deus arma depusit"—Virgil.

"Ante Achilleum: illa vero onibus-ediles facta artificiose omnia."—Iliad, Bk. xvi.

Designed and modelled by Mr. Henry Morrell, in the manufactory of the Exhibitors.
EMANUEL, E. & E., continued.

A vase in silver (parcel gilt), dedicated to Tasso; the outline in the Italian style, the ornaments of the Cinque-cento period.

The large group in alto-relievo, illustrates "The Combat of Clorinda and Prince Tancred," portrayed in Tasso's "Jerusalem Delivered," Canto ili. stanza 31:

"Meanwhile Clorinda rushes to assault
The Prince, and level lays her spear renewed;
Both horse-strike, and on the harnessed vantage
In thrones &g, and she remains disconsolate;
For, bust all her silver rivets, to the ground
Her helmet leaped (incomparable blow!)
And by the redness of the shock unbound,
Her soul to all the world.chivalrously, flow.
Loose to the charmed winds her golden tresses blow."

One bas-relief represents the First Interview of Prince Tancred and Clorinda at a Fountain, (Canto I. stanza 47):

"To the same warbling of fresh waters drew,
Armed, but unhelmed and unloosed, a maid:
She was a Pegum, and mine Unhiroo too,
To QUEMCH her thimth beneath the pleasant shade;

A silver vase, in the Grecian style, the bowl enriched with festoons of vine-leaves and grapes in alto-relievo, with handles formed of winged horses; the base ornamented with rich foliage, and Bacchannalian heads.

The first group in alto-relievo, on the base, represents the attack of the Trojans, Eneas and Pandarus, on Diomed, receiving in the death of Pandarus, the rescue of Eneas by Venus, and the capture of Eneas’ celebrated horses. (Iliad, Book V.):

"Thus while they spoke, the fat came forth, on
And stern Lycurgus warlike rose begun:
Prince, thou art not. Though late in valour sav’d
The spear may enter where the arrow fail’d."

The second alto-relief represents the Horaces being unleashed from Juno’s car by the attendant Hours. (Iliad, Book viii.):

"She spoke, and backward turn’d her steeds of light,
Adorn’d with manes of gold, and heavenly bright.
The Hours unloosed them, putting as they stood,
And lamp’d their mangers with ambrosial food."

Designed and modelled by Mr. Henry Morrell, in the manufactory of the Exhibitors. Exhibited by kind permission of Captain Alexander, Belgrave-square.

A suite of articles in silver for the writing table, of entirely novel design, consisting of inkstand, blotting book, envelope case, match box, date indicator, pair of candle sticks, penholder, seal, &c.

The bodies of engraved silver, and the wire mounts in silver gilt.

(35)
A silver tazza. Bassi-relievì around the body, representing "The Battle between Richard Cœur de Lion and the Saracens."

The group on the summit represents "The Friendly Meeting of Richard Cœur de Lion and Saladin." Designed and modelled by Mr. W. Clarke, at the Exhibitors' manufactory.

A silver candelabrum and epergne, with allegorical figures, severally representing "Comedy," "Dancing," and "Music."

This piece of plate was presented to Edward Weston, Esq., by whom it has been lent for exhibition. Designed and modelled by Mr. W. Clarke, and produced in the manufactory of the Exhibitors.

A silver vase, Louis Quatorze style. Subject on summit: "Perseus Slaying the Dragon, and Rescuing Andromeda."

The bowl is richly embossed. There are figures in silver of rampant horses, at each corner of the base. Designed and modelled by Mr. H. Morrell, in the Exhibitors' manufactory.

A large silver group in alto-relievò, representing "an Episode in a Steeple-chase—"Jumping a Stone Wall."

One of the competitors is represented as having "come to grief," while the others are gallantly charging the wall. Designed by Mr. W. E. Clark, and produced in the manufactory of the Exhibitors.

A silver tazza, dedicated to Homer. A group in alto-relievò, at top, represents Achilles in his chariot. The stem and base is composed of copies of ancient armour, shields, &c.

The body of the tazza is surrounded with illustrations of the following subjects portrayed in the Iliad—"Diomed casting his Spear at Mars," "The Homer taking the Horses from Juno's Car," "The Gods descending to Battle," "Hector's Body dragged at the Car of Achilles." Designed and modelled by Mr. Henry Morell, in the Exhibitors' manufactory.
CLASS XXXIII.—South-East Court, Central Division.

[ 6622 ]
EMANUEL, Harry, 70 Brook Street, and Hanover Square.—Original and artistic articles in precious metals and jewels. (See pages 18 to 32.)

[ 6623 ]
FORRER, Antony, 2 Hanover Street, Hanover Square.—Hair jewellery, brooches, bracelets, chains, rings, pins, studs, necklaces, earrings, pencil-cases, lockets, &c., &c.

[Obtained the Prize Medal at the Exhibition of 1851.]

The exhibitor was appointed “Artist in Hair Jewellery to Her Majesty,” in 1845; and it is in great measure owing to his efforts that this art has attained its present popularity. He designs and manufactures ornaments and bijouterie of every description in hair, and will send drawings by post for inspection. He has no connection with his late establishment in Regent Street. This fact is mentioned, as, from his name remaining still on his late premises, mistakes might easily occur.

[ 6624 ]
FRANCIS, William, 18 Hemingford Road, Islington.—Patent regulating pencils, adapted to take all and any sized leads.

[ 6625 ]

[ 6626 ]
GOGGIN, J., 74 Grafton Street, Dublin.—Ornamental jewellery in bog oak, &c.

CLASS XXXIII. ( 17 )
An equestrian statue of H.R.H. the Prince of Wales, by Marshall Wood.

The likeness is most accurate, the Prince having honoured Mr. Wood by a sitting.

His Royal Highness is represented in the uniform of Colonel of the 100th (Canadian) Regiment, acknowledging a salute.

The horse is very life-like, and the delicacy of the chasing produces all the details with a marvellous fidelity. The different textures of cloth, lace, &c., and the flesh and hair, will bear minute examination.
The female figure in the accompanying illustration deserves particular attention, both from its intrinsic merits as a work of sculpture, and from the very great size of the block of ivory from which it is carved; is being of one piece, with the exception of the arms, which are added. It stands two feet high; and the

Here, a translation from the Greek, from which the artist, Mr. Chesneau, has drawn his inspiration, will best convey the meaning:

'Oδὲ οἴχῃ τῷ θηλέοις κατασχέσας διότι

"Εὖες, ο ημερο, σίμω τὰ πάθην ἐκεῖνα
Τὴν τοιοῦτον κηλῆνσιν ἔχων παραπεπήμενα

Οἰνοπλακεῖς, ὥστε στέφανον ἔτι καὶ μείζονα

In gilded cage like me you pine,

And long for home and playmates dear

I cut the links which make thee mine—

Go, thou art free; I must stay here.

The graceful attitude, the sad and pensive expression in the face of the slave girl, who, while liberating her bird, regrets her home and freedom, render most aptly the sentiment of the poet; and the delicate colour of the ivory, which of all substances comes nearest to the natural colour of flesh, and which is set off by the contrast of the jewels with which the girl is decked, explains the reason of the fondness of the ancients for this material for their works of art.
Emanuel, Harry, continued.

These dessert stands represent the "Seasons," and consist of children bearing the attributes of each season; thus, Spring is a flower-girl, Summer a boy reaper, Autumn a vintner, and Winter a skater.

SPRING.

SUMMER.

AUTUMN.

WINTER.

The spirit and vigour with which these little figures are modelled and finished, have received the approbation of all connoisseurs. All these pieces were modelled by Mr. Chesneau.
Emanuel, Harry, continued.

This illustration represents a dessert service, consisting of seven pieces, made expressly for the Exhibition. The models are by Chesneau. The subject of the centre-piece, which forms either an epergne or a candelabrum, is the "Love-Letter." A peasant-girl is reading a letter, whilst a youth looks over her shoulder in anxious expectation.

The two oval dessert stands, destined for either end of the table, carry out the same history; in the one we have the same maiden crossing a shield, whilst the youth, doubtless no longer, assists her descent with his arm around her waist; in the other, which presents the

The illustration on the next page represents a fountain for the dinner-table, in lapis-lazuli and silver, forming also a centre-piece for fruit or flowers. This piece of plate, which is chased throughout with the minuteness of a piece of jewellery, and which, for finish and originality, is unequalled, stands in a circular plinth, made to serve as a jardiniere. The base is square, and at each side are figures of children holding arms, from which they jet green forth into crystal shells, whilst underneath a dome, supported by lapis-lazuli and silver columns, is a fountain, sending its stream

The two stands are supported by two trees entwined, and are ornamented by the novel introduction of crystal prisms, which add considerably to the effect when lighted. The figures are chased with much delicacy, and great attention has been paid to the perfect representation of the various textures introduced.
Class XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

Emanuel, Harry, continued.
CLASS XXXIII.—South-East Court, Central Division.

Emanuel, Harry, continued.
Emanuel, Hardy, continued.

The silver cup in the accompanying illustration is of very large size, and entirely covered with the most elaborate repoussé work, portraying the history of Undine. The body is divided into compartments, each of which is represented by an incident in the story of Lamott Fosqué. The handle is composed of a griffin and a recumbent female figure; around the base are grouped the otter, the pelican, the snake, &c., and every artistic and decorative idea suggestive of, and has some connection with, the water.

The figure of Hildebrand on horseback, trumpeting through the water, is treated in a masterly manner, and the chased and modelling of the important work are distinguished by a grace and elegance rarely met with in metal.

Five diamonds, mounted as stars, of enormous size, valued at £20,000.

More than fifteen hundred different articles of jewellery, for personal ornament.

Various ornaments made of rock crystal, engraved in intaglio, and enamelled plate tondo, producing the effect of carving in relief, and imitating natural marvellously.

Watches on the patent winding principle, with all the latest improvements, by Harry Emanuel, from the size of a steppe upwards; chronometers, racing, and stop watches.

COLOURED ILLUSTRATIONS.

Gold (Perseus and Andromeda) Cup.

A brown topaz, or emerald, of very large size, carved in the form of a cup of early date, and hollowed with great skill, has here been mounted into a gold vase of the very highest pretensions as a work of art. It is made of pure gold, repoussé throughout, and partially enamelled. The grace of its composition, the spirit and truth of the modelling, and the harmonious blending of the colours, render it one of the most important specimens of goldsmith's work that has ever been produced in this country. It represents the history of Perseus and Andromeda.

Andromeda is chained to the rocks which form the base of the cup, within the Dragon has clambered up to attack Perseus, who, armed with the sword of Vulcan and Minerva's shield, and mounted on Pegarm, surmounts the cover. The novel design and execution are the work of Mr. Chimond.

Patented Ivory Jewellery.

Various ornaments in ivory and gold, inlaid with different gems.

This style is perfectly novel, and from the semi-transparency, durability, and beauty of the material, it is admirably calculated to show the jewels and the design in the most favourable light; whilst the neutral colour of the ground admirably blends the gold and gems employed. In the hair, also, it has a very good effect. It is capable of adaptation in innumerable ways, and from the success it has met with, and the approbation which it has been universally expressed, it seems likely to enjoy a lasting popularity.

Emerald Brooch and Pearl Necklace.

This illustration represents a brooch, consisting of an enormous emerald, which once formed part of the Burgundian jewels. It is of very fine colour, and singularity fine from flaws and defects, and is mounted in a ribbon of large brilliants. This stone weighs 156 carats. It has for pendant a pear pendeloque, two inches long, of matchless size and beauty. This pendant formed part of the French booty from the Summer Palace at Pekin, and is one of the very largest known. The mounting and diamond setting is light and graceful.

A necklace of Oriental pearls, of stupendous size and extraordinary beauty and lustre, with a brilliant splash.
CLASS XXXIII. WORKS OF ART IN PRECIOUS METALS

GOLD (PERSEUS & ANDROMEDA) CUP.
MANUFACTURED BY HARRY EMAUILL, 70 & 71, BROOK STREET, HANOVER SQUARE.
EMERALD, OEUCH & PEARL NECKLACE.

MANUFACTURED BY HARRY EMANUEL, 70 & 71, BROOK STREET, HANOVER SQUARE.
PATENTED IVORY JEWELLERY.

MANUFACTURED BY HARRY EMANUEL, 70 & 71, BROOK STREET, HANOVER SQUARE.
CLASS XXXIII... WORKS OF ART IN PRECIOUS METALS.

PINK PEARL SHELL JEWELLERY.

MANUFACTURED BY HARRY EMMANUEL, 70 & 71, BROOK STREET, HANOVER SQUARE.
[ 6627 ]
GREEN, C., 48 Augusta Street, Birmingham.—Signed rings.

[ 6628 ]
GREEN, Richard A., 82 Strand.—Artistic jewellery and art, under £20 in value.

[ 6629 ]
HANCOCK, C. F., Buxton Street, Bond Street.—Jeweller and silversmith to the Queen and Courts of Europe. (See pages 20 to 32.)

[ 6630 ]
HARRISON, W. W., Montgomery Works, Forge, Sheffield.—Electro-silver plate. (See page 41.)

[ 6631 ]
HAZLETON, 45 Northampton Street, Birmingham.—Filigree jewellery.

[ 6632 ]
HILLIARD & THOMASON, Spencer Street, Birmingham.—Silver fancy goods.

[ 6633 ]
HOWELL, James, & Co., 5, 7, 9 Regent Street.—Goldsmiths, silversmiths, &c. (See pages 42 to 45.)

[ 6634 ]
HUNT & ROSELL, 156 New Bond Street.—Artistic works in gold and silver, watches and clocks, pearls, precious stones, &c. &c. (See pages 46 to 53.)

[ 6635 ]
JAMIESON, George, Jeweller to the Queen, 197 Union Street, Aberdeen.—Granite and pebble ornaments.

[ 6636 ]
JENNER & KNOWSTON, 33 St. James's Street, and 46 Jervois Street.—Gold and silversmith's, and metal work.

[ 6637 ]
JOHNSON, Joseph, 22 Suffolk Street, Dublin.—Oak ornaments. Patronized by Her Majesty.

[ 6638 ]
KEITH, John, 41 Westminster Place, Olby Road.—Church plate of every description.

[ 6639 ]
KONING, Heskik & Co., 79 Dean Street, Soho, London.—An ormolu enamelled clock, and specimens of enamelling.

[ 6640 ]
LAMBERT & Co., Coventry Street, Piccadilly.—Chased shield, large cistern, pot-pourri jar, tall beakers, antique figures, cups, chalices, monstrances, centros, &c., &c., &c.

[ 6641 ]
La ROCHE, Miss E., 21 Noel Street, St. James's.—Specimens of piercing for jewellers and other workers in metal.

CLASS XXXIII
THE POETRY OF GREAT BRITAIN, a Group in Silvers.

Manufactured by C. F. Hancock, Jeweller and Silversmith to the principal Sovereigns and Courts of Europe, expressly for the Exhibition. Designed and modelled by Signor Monti.

A Vase of Shakspeare.
This vase is surmounted by the figure of the Poet, designed in such an inspired attitude as that described in Ben Jonson's lines:

Thine eyes, starry streamers in thy face, and blazing star of man, who mused sublimely.

Majestic—said the solitude of time.

The allegorical winged figures, which in this Vase occupy the place of banisters, represent TRAGEDY and COMEDY. Tragedy, closely draped, seems like ringlets encircled by a royal band, plunged in deep thoughts, holds the dagger, half concealed, under her elbow.

Comedy, in loose garments, crowned by ivy and vine, the shepherd's staff and the hieratic mask in her hand, looks wond'ring towards the image of the Poet.

The subjects treated by Shakspeare are rendered in the dedications of the Vase in the following manner:

A Four Female Heads, on shields, surrounded by fasces of laurel, represent:

SILVA, in the "Two Gentlemen of Verona."

Silva is Faust-like.

VIOLETTA, in "Twelfth Night; or, What You Will." Conceal me—what I am, and be my aid. For such disguise as, hope, shall become.

The form of my figure, I'll surmount this Duke.

ISABELLA, in "Measure for Measure."
O, now it's but my life.

I'll show it down for your deliverance.

As leader as a pig.

Helenas, in "All's Well that Ends Well."
My friend were you, but honest, she's o'er. Be not offended, for it hurst not him.

That he was loved by me.

B The Frieze, around the swelling of Vase, presents the following subjects—On the front:

Scene of the Masquers, in "Merry Wives of Windsor."

Rosaline. Does not sweet Rosaline, and lovely Fair Rosaline?

限额, my Plays, see that they stand me in prayer.

Antonio, Mariano, and Battirocco, in the "Merchant of Venice."

Battirocco. Go with me to a botany, and see there Your sweet balm.

Helenas and Helens, in "Midsummer Night's Dream."

Helena. God speed, Sir Helen, you're better away.

Helena. Call you me blar? that his again merry,

Detricus loves you her. O happy her!

On the reverse:

PETRONIO, Katharina, and Shakspeare, in the "Taming of the Shrew."

Petronio. It is a pulley cap.

Falstaff, Mrs. Ford, and Mrs. Page, in the "Merry Wives of Windsor."

Mrs. Ford. He is too big to join them. What shall I do?

Falstaff. Let me see, let me see it, I'll in, I'll in.

Mrs. Page, What? Sir John Falstaff? Are these your letters, knight?

Falstaff. I love thee, and none but thee; help me away.

Benedick and Beatrice, in "Much Ado about Nothing."

Benedick. How doth your countess?

Beatrice. Very ill.

Benedick. And how do you?

Beatrice. Very ill too.

Benedick. Here lies, here lies, and mends.

C The Conna Medallions represent—On the front:

Othello and Desdemona in the Council Chamber, in "Othello."

Dramatis. Look to see, Man, have a quick eye to see; She has desisted her father, and may there.

Othello. My life upon her faith.

On the reverse:

Ferdinando brought by the spells of Prospero before

Melinda, in the "Tempest."

Caliban. I must obey! (Exit.)

Ariel, (enters as a Water Nymph, playing and singing.)

Ferdinando. Where should this music be?

Prospero. The fumed varieties of things you advance,

And say, what thou see'st yond?

Melinda. What is't? an spirit—

Lord, how it looks about! Believe me, sir, It surives a brave form.

D In the spaces between the Conna Medallions and the Allegorical Figures, are introduced the fantastic characters of the Plays of Shakspeare, viz.:

On the front of the Vase:

The Female Masquer L. Pocca, of Orleans. (Act V., Scene 1, First Part of "King Henry VI."

The Ghost of Hecuba's Father. (Act L, Scene 5, in "Hecuba."

Johann Cordier's Ghost in the tent of Berenice. (End of Act IV., in "Juliet, Omen."

On the left of the spectator.

The apparition of the Right Arm of Hecuba's cove, and Bajulat's Ghost, evoked by the Three Witches in the presence of Hecuba. (Act IV., "Macbeth."

On the right.

On the reverse:

Oberon, amongst his attendants, is shown by Puck, Titania, surrounded by her Fairies clothing Botes, waited on by Puckもり, Euboeus and Mustard-Seed. (Act IV., Scene 1, "Midsummer Night's Dream."

The Nymphs, Iris, Diana, and Juno of the Mask. (Act IV., Scene 1, "Tempest."

(55)
CLASS XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

THE CUP OF RHODES.

THE VASE OF BURNS.
HINCOCK, C. P., continued.

E Four Bas-reliefs on the stem of the vase record—
THE PRINCESS OF FRANCE, in "Lear's Labour Lost;"
Till him the daughter of the King of France;
And, one by one, casting quick glances
In the wilder part of "Lear's Garrick." What then became of them I cannot tell;
I to the fortune that we are in—
ROBERTSON, in "To You Like 6."
I'll have no husband, if you be not. [To Du NEY.
Nor I'll have none if you be not she. [To FLAHERTY.
HERBERT, in "Walter's Tale."
LERTON. Her natural posture!
Child me, dear mother. that I may my indeed,
There are Hesperus!
F The Foot of the Vase is surrounded by Figures in Bas-relief, representing-
LEAH in the Garden, in "King Lear.
Said, 'alas, shall read your shoes! says! says!'
Yes countless and browailing spoils.
SAINT in the Churchyard, in "Hamlet."  
And yours York! I know him.
OBELIS DISTRIBUTING FLOWERS, in "Hamlet."
There's a delay, I would give you some violets,
But they without all, when my father died.
LADY MACBETH SITTING under the statue of the King, in
"Macbeth."
... Hark! Pense!
He is about it!
The Base of the Stand is ornamented in the following manner—
G By Eight Miniature Low-reliefs, in which are given—
Troilus, Cressida, and Pandarus, in Troilus and Cressida; 
Tosca and the Steward in the Wood, in "Vivace of Acheson;" Cressida and Voltemade, in Constance; 
Brutus and Portia in the Orchard, in "Julius Caesar;" Cleopatra applying the Asp, in Antony and Cleopatra;  
Images as Plutus, and her brothers, in Ophelia; Lavinia making known her deliverance, in Titus Andronicus; 
Marta nursing her father, in "Pericles, Prince of Tyre;"
H By Hands in High-relief, representing the Kings' heads, in a pyramidal piece, viz.:—
John, Richard II., Henry IV., Henry V., Richard III., and Henry VIII., to which has been added that of Queen Elizabeth, as the Sovereign under whom the Frost lived and flourished, and of whom he says in her "Merry Wives of Winter's Tale,"
... She shall be—
... A pattern to all princes living with her, 
And all that shall succeed—

THE CUP OF MELROSE.  

The Cup rests upon a Stand, decorated with Fruit and Flowers, and bearing on its Stem Heads in High-relief of BARBER (from "Sonnet Ascotan");
His passion, but unsaid, where they led him 
Came to the place.
DALIA (from the same Poem).
With steadfast foot and waving resolution,
I mean, still dressing the Sunflowers, Sunna.
The Virtuous Young Lady (from the Sonnet).
Lily, in the prime of softest youth, 
Worlds best adorned the broad way and the green.
LAVINIA (from "Titus Andronicus").
Whence were ye, nymphs, when you recurred deep 
Clothed in a sea of your beloved Lythach?
The subjects of the Bas-reliefs on the Cup are—
CHRISTIAN, addressing Adam and Eve (from "Paradise Lost.
To whom the Angel:— Son of Heaven and Earth 
Able, but no more to us. Let God. 
That then earthmost—none to thyself, That is, to thy shamans—thine stand. 

And JABIRUS rising from the Water (Corpus).  
Sahara, where they are sitting, 
Listen, and appear to us.
The Coronet of the Cup is ornamented by a Figure of 
Crescent, from Book VII. of the "Paradise Lost."
Founted from heavens, Ure, 
... Up by led th' 
In the horizon of heaven I have preserved.
And besides Bas-reliefs with Figures of Fame and 
Genius distributing Laurels, it has two Medallions, representing—
THE ALLEG.  But come, then goddess, fair and free! 
And The Poem: Amen. Hail, divinest Menadon! 

THE CUP OF DION.  

The Stand is decorated by Hands representing
THE GARDEN. ("Garden.")
Dark and minutely is the novel
That gives breath to his handy mouth.
MYRDAL ("Scots-Gaelic.")
... My kib, I am no holder of my love,
Nor of my satisfactions; I have shared your splendour 
And will partake your torture.
ALP ("Songs of Greece.")
... Fiest and freshen of the bower,
Which one-tawnly's Stablon there can boast.
ZEBULON ("Priest of Asaph.")
Wrest to the head whose eye behold 
... My child Elekia's face uncall'd.
The Bas-reliefs on the body of the Cup illustrate 
"Marsyas."
... Bring forth the leisure! The leisure was brought—
... They bound me on—
... Upon his back with many a string—
... They joined him with a sudden hark—
... Away—... and on we shall.
DON JOHN and HANSEL.  
... And lately he remaining ye was seen—a
... A lovely family feast of seventeen.
Said sending day ore it.
The Cover is ornamented by a figure of the Nymph
EGRIE (from "Child Harold's Pilgrimage."
Egri, sweet creation of some hunt,
Which wand on mortal nor yet is so fair 
As this ideal bower!
And has four Medallions of Hannibal and the Chassar 
Norton (from "Hampsh."),
CHASSAR Norton. Help, maimed! 
Away with it—I will not quit my bold! 
And of Gusek and CONRAD (from "The Corsair."
... She goad to wade with—Can she calmly sleep—
... With deeper breaks! 
He raised his hand.
The other two being occupied by figures of Genius and 
Fama, holding laurel. 

THE TAZA OF BURNE.  

The subjects illustrated in this Taza are the following—
On the outside, and in the centre panels,
"The Other's Saturday Night."
... The plain-like figure rests on the marble page.
And Two 'Oliver's Bike Homes.
For Samson, for before the rest
Had upon while Magpie press,
... But little was his Magpie's might—
Wiping spring of her master's mouth,
But she behind her arm cross roll.
On the Ornaments of the Side Panels and under the 
Handel, are introduced "The Mountain Daley, " The 
Favorite subjects amongst those treated by the Poet.
The Spandrels between the Bas-reliefs are decorated by 
the emblematic Thistle; and the interior of the Bowl 
contains a Medallion representing "Killed Mary—
... O my sweet Highland Mary!"
Hancock, C. F., continued.

Testimonial in silver, presented by the officers of the 1st Life Guards to Gen. Hall.
The three different epochs of the regiment—Charles II., George II., and Queen Victoria.
The "Craven" Vase, for flowers or fruit, in silver.

Vase in Cellini style, in silver.

The "Queens" Yacht Cup, in silver.

The Volunteer Tankard, "Our Hearts and Homes." in silver.
CLASS XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

HANCOCK, C. F., continued.

THE TAZZA OF MOORE.

This Tazza (like that of Burns) rises on a Stand decorated by Figures of young Goliath, beheading Saxon of Flowers, and standing between fanciful Griflins. The Body of the Tazza presents in its centre Brasso Relief. The Port offering to Heaven the blood of the Saint Warrior (from "Paradise and the Peril.")

No sooner was the frozen crown
Placed on her head, than sleep came down,
Gently at height of summer fill,
Upon the lids of Nestor's son.

And now a spirit
Hovers around her.

On the Ornamental Panels, under the Handle, are introduced, The Sword and the Loved Wreath; the Fleas Top; the Last Rose of Summer; and the Harp of the Minded Boy; subjects from the "Melodies." The Symbols are decorated with the Shamrock, and the Medallion in the interior of the Tazza represents "Nora Creina."

[ 6642 ]

LAW, JOHN, 3 & 4 North Side, Bethnal Green.—Gold and silver leaf, and gold-beaters' skin.

[ 6643 ]

LEE, BENJAMIN, 41 Rathbone Place.—Bracelets, brooches, earrings, rings, guards, pins, studs, and devices of hair.

The following articles are exhibited, viz.:

Several suits of laced jewels, of new and elegant designs. Ladies' bracelets, brooches, earclips, rings, necklaces, chouchonets, novelties, brooches, pencil cases, book markers, chairs, and riding whips; Gentlemen's Albert guards and keys, gauntlets, chains, pins, rings, and studs. Miniature and device brooches. A choice collection of designs and specimens of hair devices for brooches and broochets. A large boquet of 90 flowers, formed of delicate shades of hair, and other novelties in the art of working human hair.

[ 6644 ]

LEES, Josiah, 37 Spencer Street, Birmingham.—Gold and plated chains, patent hooks, swivels, rings, &c.

[ 6645 ]

LISTER, W., & SONS, 12 Mosley Street, Newcastle-on-Tyne.—Silver plate and jewellery. (See page 54.)

[ 6646 ]

LOACH, A. M., Regent Parade, Birmingham.—Plated gold brooches, bracelets, and lockets.

[ 6647 ]

LOEWENSTEIN, A. D., & SON, I Devouces Court, Strand, W.C.—Masonic jewels and paraphernalia, gold and silver military medals, friendly societies' presentation medals, &c.; Shagreen work.

[ 6648 ]

LONDON & RYDER, 17 New Bond Street.—Modern gold jewellery, specimens of diamond work, and silver plate.

[ 6649 ]

MANTON, H., 110 Great Charles Street, Birmingham.—Fancy silver goods.

[ 6650 ]

MAPPIN, BROTHERS, 222 Regent Street; 67 & 68 King William Street, City; and Queen's Cutlery Works, Sheffield.—Electro-silver plate.

[ 6651 ]

MAPPIN & CO., 77 & 78 Oxford Street, W. (opposite the Pantheon), London; Rue de l'Etoile, Brussels; 17 Boulevard des Italiens, Paris; Manufacturer, Royal Cutlery Works, Sheffield.—Electro-silver plate, &c. (See pages 56 and 57.)

( 40 )
CLASS XXXIII.—South-East Court, Central Division.

HARRISON, W. W., Montgomery Works, Fargate, Sheffield.—Electro-silver plate.

Tea and coffee urns, or vases, for which Her Majesty's Royal Letters Patent were granted, May 8th, 1861.

Tea and coffee urns, or vases, for which Her Majesty's Royal Letters Patent were granted, May 8th, 1861.

SECTION OF COFFEE URN.

This very simple invention produces the best and clearest coffee to be obtained by any known method. The ground coffee is placed in a central perforated compartment, called the Extractor, which has an inner tube, also perforated. The boiling water is poured into the receiver, A, and after passing into the inner perforated tube, B, flows out through the coffee, C, into the body of the vessel, D, in its course acting upon every particle of the coffee, and extracting all its useful properties. The infusion, before it can reach the outlet, must pass a second time through the lower portion of the ground coffee, which now acts as a filter, and renders the infusion perfectly clear.

Coffee pots on the same principal as above; Tea and Coffee services of several choice designs; Cruet stands in a variety of patterns; Breakfast stands, to contain toast, eggs, salt, and butter, with spoons, &c., complete. (Registered designs.)

Butter coolers in considerable variety; Tea caddies, neatly engraved and richly chased; Claret jugs, cut glass, with ornamental mountings; Flower vases in various styles, with coloured glass linings; Centre dishes, or Salver stand, Laketanks, Tea tray, Waiters, &c., in a variety of designs; Spoons and Forks, in plain and ornamental patterns.
CLASS XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

HOWELL, JAMES, & Co., 5, 7, 9 Regent Street.—Goldsmiths, silversmiths, &c.
CLASS XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.
CLASS XXXIII.—South-East Court, Central Division.

Howell, James, & Co., continued.

1. Tiara, pierced gold, turquoise, and diamond pave, pearl fringe—Japanese.
2. Locket, fine brilliant centre and drop, pierced open setting—Brescian.
3. Bouquet holder, with folding cramps as flower vase, elaborately engraved gold mounts—Greek, British Museum.
4. Locket, pearl pave, emeralds, rubies, pierced enamel—Etruscan Collini.
5. Locket, oriental cameo, emerald, and pearl—Anglo-Indian.
7. Locket, carbuncles, emeralds, and white enamel—Holbein.
8. Bracelet, Gothic, crystal, turquoise, and bell-pendant—Jubilee.
9. Shovel or hair-pin, turquoise and diamond—Albanian.
10. Locket, very fine carbuncle, emeralds, and diamonds, to act as brooch—Holbein.
11. Shovel or hair-pin, coral, enamel and pearl border, —Saxon.
12. 10, 13, 14, 15. Carbuncle, emerald, and diamond, pierced enamelled unio, comprising brooch, cenvings, necklace, and bracelet—Holbein.
13. Locket, pink coral and diamond, with pearl roses—Holbein.
17. Ear-ropes, crystal bails, with pink coral mounts, engraved illuminated inscription, from Schiller's "Gedichten"—Gothic.
18. Silver spagnum and centre-piece, with pierced silver baskets for fruit, and crystal pendants for flowers; six branches for lights, with emblems of life and papyrus leaves. Designed by Professor Miller.
19. The Raffles Jubilee testimonial, solid silver casket, from designs and models by Professor Miller, South Kensington School of Art.

The patent dressing-case exhibited by Messrs. Howell and James is a masterpiece of skillfulness in workmanship, great mechanical ingenuity, and good and artistic ornamentation.

The most remarkable feature in it is, undoubtedly, a clever and ingenious mechanism, by which, on the lid being raised by the hand in the usual way, the various compartments are made to open into their respective places; so that any single article that may be required for the toilet is seen at a glance, and can at once be removed without altering or disturbing any other. Those who have been accustomed to the ordinary dressing-cases, and have experienced the delay in lifting this tray, closing that drawer, and pressing the other article back into its place, will be well able to appreciate the boon now offered to them by the Inventors and Exhibitors of this case. In addition, they beg leave to call attention to the elegance and artistic manner in which it is fitted up throughout; it is lined with the richest silk velvets, the fittings are silver gilt, with solid gold centres, enriched with settings of pink coral. All the various instruments for the use of the toilet, with which the case is amply supplied, are of the finest quality, set in Russian malachite handles. The pierced ornament which surrounds the interior, and covers the backs of the ivory columns, is also remarkable for the artistic manner in which it is treated; it is engraved to correspond with the fittings.

Howell, James, & Co., by Appointment, 5, 7, 9 Regent Street. Goldsmiths, jewellers, silversmiths, manufacturers of dressing-cases, clocks, &c.

(45)
Class XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

Hunt & Roskell, 156 New Bond Street.—Artistic works in gold and silver, watches and clocks, pearls, precious stones, &c. &c.
HUNT & ROSSELL, continued.

The objects sought to be attained by Messrs. Hunt and RosSELL in the articles which they have exhibited, is the combination of utility with the highest possible artistic excellence. They have endeavored to make the object, whether an ornament for the table, a tea-ceremonial, or a memorial, valuable; not only for the precious metal of which it is formed, but also for the workmanship by which it is adorned; and in so doing, they believe that they are carrying out the intention which has animated all the best workers in the precious metals. Further to forward the interests of Art, they have appended to each piece the name of the artist employed, and they are assured by the public voice that they have been so far successful that they have produced from their metalmart and shop works of art which this age can boast—masterpieces which indeed will compare with the best works in silver produced in any age or country.

Two of their artists have received the Medal of Honour in this Exhibition. In addition to medals previously gained, but the fact of one of the firm having complied with a subscription to fill the office of Judge of the Class, will explain the reason why they are otherwise unmentioned.

1. Venus, the Property of Her Majesty the Queen. A vase in oxidized silver, enamelled. Subject: the Contain and Lapithae. On the pedestal are groups and emblems illustrative of the same subject, and enriched by the introduction of corolla and topiary-work. A vase and pedestal in oxidized silver, marine composition. The bas-relief represent Venus and Adonis and Thetis pessing to her son Achilles the armure forged by Vulcan. These highly artistic and elaborate works, by Antoine Verdelle, are the property of Her Majesty the Queen, who has graciously permitted their exhibition. They were purchased by his late Royal Highness the Prince Consort.

2. An Obelisk in Silver. This magnificent obelisk, one of the trophies of the International Exhibition of 1851 was suggested by Mr. T. Hamshere. On it are engraved the statutes of the Exhibition, an explanatory descriptive, and appropriate inscriptions, and monograms in Greek and Latin.

3. The Goldsmiths’ Plate. Previous to the Exhibition of 1851, the Goldsmiths’ Company offered prizes for the best productions of art in silver. The works to which these prizes were awarded were not considered adapted to the tables of the Company, neither did they mark the state of the art of the period. They there-fore, for the second time (1854), they have proposed to expand in works in silver for their tables, open to competition for designs, &c., for all goldsmiths; and also resolved in the selection of the following three candelabras and two groups.

The group on the base of the grand candelabrum illustrates the granting of the Charter to the Company by Bishop Richard II., A.D. 1392. The figures represent the King delivering the Charter into the hands of the Primo Wardens; a second reading it seated on the throne with spears in his hand; the throne with spearmen of the craft; Thomas D’Ardoun, Chancellor and Archbishop of Canterbury; the Queen, Anne of Bohemia; an attendant bearing plate; William Swaddon, Mayor of London, with the insignia of his office; the Chamberlain; pages playing with greyhound, &c., &c. On the base, the presence of mining, refining, and working the precious metals are illustrated. The portraits of the King and Queen are from those in Westminster Abbey and the painting formerly in the St. Chamber, that of Thomas D’Ardoun, from a painting in the Archbishop’s Palace at Lambeth.

The groups at the base of the second candelabrum represent Michael Angelo in the studio of his master, Domenico Ghirlandaio, sketching a boy who is sitting on one of the pedestals from the Statues of which, Cennelli, Ghirlandaio’s father, derived his name; Lorenzo de’ Medici, Michael Angelo’s patron, is inspecting artistic works handed to him by a page. On the base are the arms of the Company. The youthful portrait of Michael Angelo is from the bust formerly in the possession of Sir T. Lawrence, and various old prints. Venus is the magnificence for that of Ghirlandaio. The portrait of Lorenzo de’ Medici is from a terra-cotta by Michael Angelo, in the possession of the Rev. J. Sandford.

The figure on the base of the third candelabrum represent Bernocato Collini, George Horst, and Sir Martin Howes, each attainted by a figure of Genius bearing emblems of the craft. The portraits of Bernocato Collini is from prints by Vasari; that of George Horst, from a painting and statue in Edinburgh; that of Sir Martin Howes, from the painting possessed by the Goldsmiths’ Company.

A group in silver, illustrating the business duties of the Goldsmiths’ Company. On the summit, a figure of Science, her hand resting on a crenelated point and Law upheld by Justice, in allusion to the regulation of the standard of the precious metals. On the left, a figure of Industry, with beehive and specimen of craft; Mercury, as Commerce; Phaeton, the god of Wealth. On the pedestal are medals of Edward III., Henry VII., and James I.; at the angles the arms of the Company. The portraits of Henry VII. and Edward III. are from Westminster Abbey; that of James I. from prince and painting in the British Museum.

A group in silver, illustrating the benevolence of the Goldsmiths’ Company. On the summit is a figure of Prudence, and by her side Benedicence distributing to the necessities from the box of Charity. The figures beneath are a scholar and his tutor; a sick man; a widow and her orphan children, and an aged artisan to lay aside his implements of trade—all sustained and relieved by the Goldsmiths’ Company. On the pedestal are medals of Edward III., Henry VII., and James I. At the angles are the arms of the Company. Alfred Brown, Del. et Stip. (?

The Ducal Arms are Treasures Exhibition Tituln—Consisting of seven pieces from one model, presented to each of the members of the Executive Committee.

A figure of Genius contending with an eagle represents the column, around which three figures, distinguished by appropriate emblems, illustrate Painting, Sculpture, and Industrial Art. On the column are Eros, Shamrock and Thistle, and the motto of the Exhibition—the first line of Scott’s “Hyperion”—

“A thing of beauty is a joy for ever.”

H. H. Armstrong, Del. et Stip.

The Parkington Tituln.

A shield in oxidized silver, illustrating the public and official career of the Eight Hon. Sir John Pakington, Bart., G.C.B., as First Lord of the Admiralty. Secretory of State for the Colonies, and as aide-de-camp for general education. The allegories are typical representations of events in English history.

The Oatman Shield.—Presented to Lieut-General Sir James Outram, Bart., G.C.B., of H.M. Bombay Army, by his friends, admirers, and brother officers.

The shield illustrates some of the most important events in the career of Sir James Outram, commencing...
Class XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.
HUNT & ROSELL, continued.

with the mitigation of the Hull, in 1821, and terminating with the Relief of Lucknow, 1807. The frame of the shield is of steel, richly damascened with gold, and consists of eight medallion portraits of Sir James's companions in the Lucknow campaign, and his companions in the Persian War. H. H. Armstead, Del. et Sculp.

7. The Lawrence Testimonial.—Presented to Sir Henry Lawrence, K.C.B., by his Friends of the Punjaub.

The figure on the summit of the candelabrum typifies India. Around the shaft in bas-relief are five reclining deities, representing the Punjab. The branches are richly decorated with Indian ornamentation. The palm, pomegranate, and lotus, adorn the shaft. The first group on the base is typical of the state of anarchy which existed in the Punjab. One of Ranjit Singh's body-guard is attacked by a Hill-man; an Akedar lies dead on the ground, and above him is a dismounted Irregular horseman. The second group represents the continuation with the British forces; the figures introduced are a Sikh Irregular horseman, an Artilleryman, a Sikh infantry soldier on the ground, and a man with a dismounted British Dragon. The third group represents the pacification of the Punjab. The figure of Sir Henry Lawrence is a portrait of the distinguished man; an Afghan and a Sikh chief surrender their arms to him, and accept implements of husbandry from the hands of figures allegorical of Industry and Peace. Alfred Brown, Del. et Sculp.


10. The Napier Statuette.—Presented to Lord General Sir Charles Napier, G.C.B., Colonel of the 22nd Regiment of Foot, &c., &c., the Conquest and late Governor of Scinde, as a memorial of their administration, respect, and unceasing attachment, by the Officers who enjoyed the distinction of serving under him in the civil administration of Scinde. Surmounted by the base an elephant carries a rich howdah, with Beecroft and Seelin attending, in Across costume. The groups of figures, British Infantry, Zemindar and Moonshas, Water-carrier, and Fruit-seller, severally represent the military, civil, and industrial power of Scinde. Alfred Brown, Del. et Sculp.

11. The Napier Sword.—Presented to General Sir Charles Napier, G.C.B., Colonel of the 22nd Regiment of Foot, &c., &c., by the Beloch Shikar of Scinde, in token of the attachment and gratitude which his honourable and generous treatment of them after victory, and during a long administration of the Scinde government, has secured for him in the breasts of his former foes. Hyderabad, January 9th, 1851.

The hilt, in gold, is composed of four compartments, in which are figures of Fortune, Truth, Justice, and Victory; the arms of Sir Charles, and the visors of Moons, Hyderabad, and the Mooltan campaigns; figures of Commerce and Industry. The scabbard, of silver gilt, contains four medallions on each side, representing severely, Britannia supported by Peace, Literature, Art, and Science. The Beecroft and Scindians emasculate inside their arms, and he by Victory to Civilization, Amity in chains. The conquest of the Hyderabads, India supported by Law and Justice. Peace prevailing with mutual treaty to the Military, Industrial, and Commercial population of Scinde. Rebellion overthrown. Apotheosis of the Python. Alfred Brown, Del. et Sculp.

12. A Sword.—Presented by the Legislature of Nova Scotia to her distinguished son, Major-General Sir William Peregrine Williams, K.C.B.

This blade is manufactured of steel from the mines of Nova Scotia. On the hilt are two figures emblematical of Wisdom and Truth; on the scabbard are appropriate medallions. Thomas Brown, Del. et Sculp. Exhibited by permission of Major-General Sir W. F. Williams, K.C.B.

13. The Indian Sword.—Presented to Major-General Sir John Keirley Wilson Inglis, K.C.B., by the Legislature of Nova Scotia, in testimony of the administration in which his heroic defence of Lucknow and other distinguished services, are held by the people of his native province.

The blade is manufactured of steel from the mines of Nova Scotia. The hilt, which is of silver oxidized, and purity gilt, is formed of three figures—Peace, Victory, and Justice—pierced around a shaft on which is the Royal Crown, which forms the pendant of the award. The scabbard is divided into five medallions, containing appropriate designs. Thomas Brown, Del. et Sculp.

14. The Richmond Testimonial.—Presented to His Grace the Duke of Richmond, London and Edinburgh, K.G., by the recipients of the War Medal, in grateful remembrance of his long and unswerving exertions in their behalf.

The group on the summit represents His Grace the late Duke of Richmond directing the attention of Britannia to the merits of his military and naval powers, illustrated by figures of Mars and Neptune. Britannia holds the Venusian modius, which she is about to bestow. Alfred Brown, Del. et Sculp.

15. The Scarlet Testimonial.—Presented to the 5th (Princess Charlotte of Wales) Dragon Guards, by Major-General the Hon. Sir James Yorke Scarlett, K.C.B., and Commander of the Legion of Honour, as a token of his affection for the regiment, to whose discipline at home, and gallantry before the enemy, he owes his reputation as a soldier.

Upon the shaft of this testimonial are bas-reliefs of the battles of Lissa, Slapany, and Vittoria; and at each end stands a bronze of the dukes Hesse, 1796, and 1800. The figures on the top are mounted and ornamented in silver, in Orissian taste. The pedestal contains three panels—Balaclava, Jemadar, and Sebastopol—and at the angles are recorded the various battles in
CLASS XXXIII — Works in Precious Metals, and their Imitations, and Jewellery.

Hunt & Roskell, continued.
HUNT & ROSELL,

which the regiment has been engaged. The panels on
the pilasters contain the inscriptions, the badge of the regi-
ment, and the arms of the donors. Thomas Brown, Del. et Sculp.
Exhibited by permission of the Officers of the 5th Dragons Guards.

19. THE LONDONERS TESTimonial.—A monument
of affection, from Charles William Vane, Marquis of Lan-
derry, K.G., G.C.B., &c., &c., Colonel of the 2nd Life
Guards, to his Regiment.

On the summit is a figure of Britannia. The base
around the column represents the final charge of the
Life Guards at the battle of Waterloo. On the base
are figures of a mounted officer, a private, and a
Exhibited by permission of the Officers of the 2nd Life
Guards.

17. A SHEILD, in silver and iron, damasconized with gold.
The chief of which is entirely exposed, or embossed;
the subjects are dedicated to Shakespeare, Milton, and
Newton. This work was commenced for the Exhibition
of 1851, in which the first rude sketch was shown.
Antoine Yechte, Del. et Sculp.

18. THE TITAN VASE.

A vase of Etruscan form, embossed from thin sheets
of silver, in the highest and lowest possible relief. The
subject, which is treated in the style of Michael Angelo,
is the destruction of the Titans by Jupiter, who made
war upon them for having imprisoned his father Saturn.
The giant sons of Ceres and Tersus, seeking to revenge
the death of the Titans, are seen attacking the gods, and
doubling to reach heaven. On the summit of the vase
is Jupiter, who, with stern and angry looks,
gives thunderbolts which he hurl on the prostrating
giant Titans below. Antoine Yechte, Del. et Sculp.

19. A VASE and PENETRAT in oxidized silver, by Antoine
Yechte. Subject: the Centaurs and Lapiths, name
as No. 1. The property of the Right Hon. the Earl of
Wemyss.

20. A VASE in oxidized silver, designed for a race prize.
The design of the prize is from Homer. This was
the last prize given by the late Emperor of Russia to the
Austrian races. Antoine Yechte, Del. et Sculp.

21. THE KIAI TESTimonial.—Presented to Charles John
Keen, Esq., F.R.A., by many of his fellow-Eskimos,
together with numerous friends and admires among
the public, March 22nd, 1862.

A vase in oxidized silver. The relief on the body
contains portrait-models of Mr. and Mrs. C. Keen, in
the play of Lasi, Moekeh, Hamlet, Richard III., Henry IV.,
Winter's Tale, King John, Richard III., Much Abo About
Stingy, Henry VIII., and Merchant of Venice, with
figures of Shakespeare, Tragedy, and Comedy.

Two candidates for five lights. Upon the bases are
portraits of Shakespeare in bas-relief. The plinths are
enriched with masks of Tragedy and Comedy, in bold
relief.

Four desert stools, in oxidized silver, richly decora-
ted.

Two groups in oxidized silver, the first Illustrative
of Shakespeare's Night's Dream. H. H.
Armshead Del. et Sculp. Exhibited by permission
of C. T. Keen, Esq., F.S.A.

22. A HORSE-WATER FOUNTAIN, in silver, partly gilt,
pre-

23. A VASE, to serve also as a candelabrum. Ex-

24. A GROUP of STEGS, designed and executed for
the Earl of Stanfard and Warrington. The wirhated
cats are modelled from those in Lord Stanfard's

25. THE SEYMOUR TESTimonial.—Presented to H. E.
Hor Admiral Sir Michael Seymour, K.C.B., Com-
missioner-in-Chief of Her Majesty's Naval Forces
on the East Indies and China Station, by the British-
American Community of Hong Kong, March, 1859.

A service of plate. On the base of the central cran-
men are four figures, representing Britannia, China,
Navigation, and Commerce; panels with views of Pekin,
Canton, Victoria, Dragons, an emblem of China, &c., &c.
Thomas Brown, Del. et Sculp.

26. THE BRASSER TESTimonial.

A silver vase, surmounted by a figure of Seaman, on
a coral base with cable border. On the base are figures
of a Sailor, a Navigator, a Miner, and an Engineer. The
four figures surrounding the stem represent the ele-

27. GOODWOOD, 1860.

A vase in silver; subject illustrative of Chaucer's
"Canterbury Pilgrimages." On the cover the Poet is
seated amidst Sport. The handles are formed by figures
embellished of Spring, the poem opening at that season.
By Thomas Brown.


A cup in oxidized silver, illustrative of the ancient
ballet of the 15th and exploits of St. George. By
H. H. Armshead.

29. THE GOODWOOD CUP, 1861.

A vase in silver; the form, ornament, and moulding
of pure Greek style. Two reliefs illustrate the self-
sacrifice of Curtiss. R. H. Bentell, Del. et Sculp.

And many others.

30. TWO large SILVER VASES, designed for modernist
kunds. The machinery is on a new principle, for
deep borders. On the covers are groups of signs
and lamps; on the bodies, panels containing still-
relics of the chase; on the feet, groups of deer-
stalkers.

( 53 )
Hunt & Eoskell, continued,

TESTIMONIAL IN FORM OF A CLOCK, PRESENTED TO SIR PROBY T. CATTLEY, K.C.B.
CLASS XXXIII.—South-East Court, Central Division.

HUNT & ROSKELL, continued.


32. A Medallion in platinum repoussé, by Antoine Voches, executed for the Department of Science and Art, South Kensington. A deposit copy of this model is awarded to the successful students in schools of art.

33. A Vase, by Antoine Voches, in silver repoussé, executed for the late Earl of Ilchester.

On one side, a relief represents Cupid carrying Psyche to Heaven, accompanied by the Graces. On the other, Psyche is presented to Venus by Bilde Love, who endeavours to appease the anger of the goddess.

34. A Medallion (unfinished) in platinum repoussé, by Antoine Voches, executed for his Royal Highness the Duke of Arundel.

The subject of this work of art is the Assumption of the Virgin, who is represented surrounded by angels, about to place upon her head a coronal crown.

35. The CHANDOS TROPHÉE.—Presented by the Edinburgh, Perth, and Dundee Railway Company, the Scottish Central Railway Company, and the foot- path North-Eastern Railway Company, to the Marquis of Chandos.

A candelabrum, or cypresse, in the Greek style; the shield supported by a figure of Science, and surrounded by that of Mercury. Two smaller candelabres, or cypresse, supported by figures of Wisdom and Justice.

36. The WYNNESCOTE TROPHÉE.—Presented to J. P. Wynn, Esq., on his return from his leasure Bombay, on the 3rd of May, 1851, for his philanthropic labours in the alleviation of infirmities in the province of K infrastructure, &c.

A centre-piece, composed of a column of Indian character, surmounted by a lion. The two groups upon the plinth illustrate the actions of Mr. Wilkinson for the suppression of infirmities—the one, "Wisdom appealing to Natural Affection," the other descriptive of the distresses sustained by the successful termination of his labours.

37. THE CONOYLY TROPHÉE.—Presented to John Conolly, M.D., Physician to the Hanwell Lunatic Asylum, for improving the condition of the insane, 1852.

The groups illustrate Melancholy and Suffering Madness under restraint, &c.


A figure of Fame on a plinth engrav'd with chart, showing the North-West Passage.

39. The SALMON BRIDGE AND CHAIN.—A massive gold Corporation chain, with a ruby ornamented gold and enamelled badge, with the arms, crest, and supporters of Saltcoast.

40. The BUCKINGHAM BRIDGE AND CHAIN.—A massive gold badge with chain, executed on the design of the ancient medallion, arms, and badges of the Mayors and Guilds of Bishops.

Many other works in silver.

Among the jewels exhibited by this firm are the Nason and Arcot diamonds, the property of the Most Noble the Marquis of Westminster, by whose permission they are exhibited.

Other fine jewels, consisting of a splendid sapphire and diamond necklace, together with some fine diamonds, pearls, and opals, &c.

A Head Ornaments, containing a remarkably fine and large ruby, a "Plaice d'Ébatisation," set with other rubies and diamonds.

A very fine sapphire, weighing 690 grains, and a fine ruby sapphire, 228 grains; these stones are set with epergnes of brilliants. The ruby sapphire was recently cut by Messrs. Hunt & Roskell, from a stone presented by various kings of Delhi, similar in shape to those forming the Queen's necklace, exhibited in Messrs. Garrard's case.

A fine brilliant, weight 811, and another weighing 651 grains, set as stars.

A row of thirty-two extraordinary fine pearls, weighing 1355 grains, each pearl averaging upwards of 20 grains; value 25,000. This is believed to be the largest pearl necklace of so fine a quality now for sale.

To show the art of DIAMOND CUTTING, Messrs. Hunt & Roskell have erected a mill in the Western Avenue, Class 7, No. 1027, where the process may be seen and clearly exhibited. As the exports in this set are all of the Jewish persuasion, no work will be done on Saturday; but Mr. Atherstone or one of his assistants will attend on those days to explain the process. The chief difficulty in diamond cutting resides in the fact that the diamond is the hardest substance known to exist, and it follows that it can only be cut by itself, and that in polishing it a great Rapidity of motion is necessary. The first step taken with diamonds of ordinary size is to set them in cement on the ends of two pieces of wood, which are then held in the hands, and rubbed together; and the one diamond grinds the other away to nothing of the form required. The dust, which is of considerable commercial value, is carefully preserved for the purpose of polishing.

After cutting, in order to proceed with polishing the stone, the diamond is embossed in soft metal, and, by means of chips, brought to bear upon the skivers at the proper angle. The skivers are two horizontal plates composed of soft iron, and this plate is charged with diamond powder and oil, and has a revolution imparted to it of from 6000 to 8000 times a minute; it is about twelve inches in diameter, and the proprietor, therefore, travels at the rate of about 100 miles per hour, and runs until the required facet is formed and polished; for the skivers first cut, and then, as the poorer runs finer, polishers.

On the double cut diamond there are sixty-two of these facets; namely, on the upper part thirty-three, and beneath the girdle twenty-nine. Large diamonds are not exposed to the risk of cutting, but are polished from the rough on the skivers.

In the Art Designs for Manufacturers, Class 80 A, Messrs. Hunt & Roskell have, by request, exhibited some designs by their artists, Messrs. Armstrong, Alfred Brown, Thomas Brown, A. J. Hazen, Bulley, E.A., N. B. Roskell, Antoine Voches, and others. Also some models: the Alhama shield, by Platz; a figure of Neptune, and another of the goddess Venus, by Charles Kemblis, in the character of Minerva, by Clinchey, R.A.; the latter highly interesting, as being the last model made by this eminent sculptor; work in silver; also a modillion medal by Stannard.
Class XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

LISTER, W., & Sons, Newcastle-on-Tyne.—Silver plate and jewellery.

Dessert service in silver, electro-plate, or gilt.
Registered design by Wm. Lister & Sons, Silversmiths to the Queen.
CLASS XXXIII.—South-East Court, Central Division.

[ 6652 ]
MARSHALL, W., & Co., 24 Princess Street, Edinburgh.—Gold and silver enamelled jewellery, in antique style.

[ 6653 ]
MARTIN, HALL, & Co., Sheffield.—Silver and electro-plate, and silver-plated cutlery.

[ 6654 ]
Muirhead, James, & Son, Glasgow.—Silver and electro dessert, tea services, covers, dishes, steam-boat plate, &c., &c.

[ 6655 ]
Nelis, John, Omagh, Ireland.—Specimens of pearls found in the river Strule, Omagh, Ireland.

[ 6656 ]
Parker & Stone, 7 Myddelton Street, Clerkenwell.—Gold chains and jewellery.

[ 6657 ]
Payne, Edward Robert, Goldsmith to the Queen, Bath.—Two vases in silver, from the antique.

[ 6658 ]

[ Prize Medal for Excellence in Design and Manufacture. ]

An enamel portrait of Shakespeare, by Essex, from the Chandos picture, mounted as brooch, of Elizabethan design, enriched with jewels, enamels, and arabesques.

Bracelet of rare pink coral, mounted in the Etruscan style, in rich massive gold, relieved by pale grey enamel; part of a parure made for Mrs. Thomas Fairbairn.
Class XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

Mappin & Co., 77 & 78 Oxford Street, W. (opposite the Pantheon), London; Rue de l’Ecuayere, Brussels; 17 Boulevard des Italiens, Paris; Manufactory, Royal Cutlery Works, Sheffield.

Selections from the following manufactures are exhibited:

Celebrated electro-silver plate on hard Nickel silver.

Presentation plate prizes, for Rifle and Archery matches.

Candelabra.

Epergnes.

Fruit Stands.

Flower Stands.

Plantes and artistic plate of every description for the table.

Epergne.

Subject—Cupid Disarmed.

Epergnes from £11 to £100, of the most beautiful designs, in stock, ready for presentation.

FRUIT STAND.

Sea-horse, supporting Flail.

DESSERT STAND.

Fox and the Crane.

Desert stands from 30s. to £20.

Mappin and Co.’s celebrated Dressing-bags and Cases.—See page 6, Class XXXVI.
Mappin and Co. have a beautiful selection of Tea Services, from £1 10s. the complete service.

Mappin and Co.'s Dish Covers have been manufactured with special attention to beauty of form and ornament. Prices range from £10 to £35 the set of four.

Waiters, from 24s. to £10.
Butter Dishes, from £1 to £3.

Mappin and Co.'s Side Dishes, arranged so that a set of four will form eight dishes, from £9 to £30 the set.

Mappin and Co.'s celebrated Cutlery.—See pages 164, 165, Class XXXII.

Class XXXIII—South-East Court, Central Division.

Mappin & Co., continued.

Celebrated Electro-silver Plate on hard Nickel Silver.
Class XXXIII.—Works in Precious Metals, and their Imitations, and Jewellery.

[ 6659 ]
Portland Company (Limited), 6 Ridinghouse Street, London.—Silver and electro-plated goods, by patent machinery.

[ 6660 ]
Prime, Thomas, & Son, Magneto-Plate Works, Birmingham.—Dinner, dessert, and tea services, &c., in silver and electro-plate. (See page 98.)

[ 6661 ]
Reading, John, 82 Spencer Street, Birmingham.—Patent spring sleeve-links and solitaires, key-rings, hooks, swivels, &c.

[ 6662 ]
Reid & Sons, Newcastle-upon-Tyne.—Silver and electro-plated services, articles in aluminium and aluminium-bronze, &c. [Obtained Honourable Mention at the Exhibition of 1851, and Medal, 1862.]

Messrs. Reid and Sons have the honour to be appointed Goldsmiths and Jewellers to Her Majesty. The following are exhibited by them, viz.—

Ten and coffee service, new Vase form.
Silver, headed, "Renaissance."
Dessert stand, "Venus rising from the Sea."
Helping spoons and ladles, Antique.
Fish servers, dito.
Potato spoons, with bust of Raleigh.
Alms dish, presentation trowel, watch, knives, forks, spoons, and sundry small articles, in aluminium and aluminium-bronze, produced at Newcastle.

[ 6663 ]
Rettie, Middleton, & Sons, Union Street, Aberdeen.—Granite jewellery, and silver crest brooches.

[ 6664 ]
Robinson, H., 61 Bolsover Street, Boston Road.—Inkstands, caskets, vases, &c.

[ 6665 ]
Russell, J., Warstone Lane, Birmingham.—Silver and gold jewellery.

[ 6666 ]
Shaw, C. T., Great Hampton Street, Birmingham.—Gold brooches, bracelets, rings, and chains.

[ 6667 ]
Smith & Nicholson, Manufacturers, 12 Duke Street, Lincoln’s Inn Fields, London.—Silver and electro-plated articles.

[ 6668 ]
Spencer, William, 33 Regent Place, Birmingham.—Gentleman's rings, pins, and studs; ladies' rings, earrings, necklets, &c.

[ 6669 ]
Speck, W., 5 New Hall Street, Birmingham.—Electro-silver tea services, entrée dishes, &c.

[ 6670 ]
Tatnell, Henry, 120 Salisbury Square, Fleet Street.—Electro-silver plated on German silver wares.
PIECE, THOMAS, & SON, Magnet-Plate Works, Birmingham.—Dinner, dessert, and tea services, &c., in silver and electro-plate.

(Obtained the Medals of the Paris Exhibition, in 1855, and the present Exhibition.)

1. Italian epergne or centre piece, and plateau, with figures of Tragedy, Comedy, and Music.
2. Coffee and tea service, kettle and tray, designed after Greek models.
3. Coffee and tea service, kettle and tray, richly engraved; wrought by hand, without the use of dies.
4. Enriched gothic communion service.
5. Silver cruets frame, with engraved bottles; the design and ornamentation in the Moreseque style.
6. Engraved glass claret jugs, with plated mounts and handles.
7. Silver claret jug, richly engraved.
9. Presentation trowel, partly oxidized, and gilt, the handle enriched with cameos.
10. Engraved glass butter dish and cover, with plated stand—Greek.
11. Pair of fish carvers, beaded handles.
12. Spoons and forks, Princess and other patterns.
13. Dessert, butter, and fish table knives.
14. Pair of fish carvers, beaded handles.
15. Engraved waiters, various designs.
Worlcs in Precious Metals, and their Imitations, and Jewellery

Tennant, J., 149 Strand, London.—Stones used in jewellery, &c.

Thomas, 153 New Bond Street, London.—Elegant and useful articles in silver plate. (See page 61.)

Westwood, B. W., 20 Wardune Road, Birmingham.—Rings, brooches, pins, &c.

The following are shown, viz.:

An assortment of 18 carat standard gold mourning rings, in Ecclesiastic, Egyptian, Old English, Grecian, and Arabesque styles.

An assortment of gentlemen's signet, stone, cameo, and other rings, bright and coloured, in 9 carats, 15 carats, 18 carats, 22 carats (or guinea gold), and 24 carats, the standard of purity, or virgin gold.

An assortment of ladies' rings set with diamonds, rubies, emeralds, and other precious stones.

Onyx cameos brooches, with mourning and fancy borders, in 18 carat gold.

Bracelets, scarf-rings, pins, &c.

Wheatley, James Atkinson, 31 English Street, Carlisle.—Cumberland lead, lead ore, Cumberland silver; the Cumbrian cap, jewellery, &c. (See page 62.)

Widdowson & Yeale, 73 Strand.—Silver plate and jewellery.

Wiley, W. E., Graham Street, Birmingham.—Gold pens, pencil cases, &c.

(6671)

(6672)

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(6676)

(6677)

(6678)
Mr. Thomas, of New Bond Street, exhibits many beautiful and highly-finished specimens of the silversmith's art. His attention has evidently been directed to the production of such articles as would be required in daily use.

We give an engraving of an exceedingly elegant and well-executed toilet glass, boldly chased in silver, and richly gilt.

There are also several specimens of repoussé work, which deserve notice on account of the general boldness of style and vigour of execution. The Bradgate Park Testimonial, a large rosewater dish or sideboard shield, the result of a penny subscription, subscribed for by the poorer inhabitants of Leicester, and presented to the Earl of Stamford and Warrington, is of a most elaborate character, and is a fine example of chasing.

The small, but prettily arranged, case of this exhibitor contains numerous pieces of plate, skilfully modelled, and of a very high order of merit; many admirably adapted for racing, yachting, volunteer, and other presentation prizes.
Wheatley, James Atkinson, 31 English Street, Carlisle.—Cumberland lead, lead ore, Cumberland silver; the Cumberland cup, jewellery, &c.

Specimens from the Allen Lead Mine, Cumberland, furnished by Messrs. Shield & Dining, Langley Street, Mills, Haydon Bridge, &c.—

1. Lead ore (two specimens).
2. Lead extracted from the ore.
3. Lead desilvered.

4. Cake of pure silver.
5. Granulated silver, lead crystals, and sulphur, introduced to illustrate the process of extracting silver from lead.

Cumberland silver jewellery, designed and manufactured by the exhibitor, including the following designs—

6. The Cumberland brooch and bracelet.
7. The Carlisle brooch and bracelet.
8. The Border brooch, brooch, and earrings.
10. Carlisle Cathedral brooch.
11. The Maggrew brooch.
12. The Nantwich brooch.
13. The Lancaster brooch.
14. The Burgal brooch, showing the monument erected to Edward I. on Burgal Marsh, erected on the spot where he died.

15. The Cumberland cup.

The body composed of white glass of the form of a Roman urn, with Cumberland silver mountings, standing on an oblong plateau, designed to simulate the peculiar features of Cumberland scenery.

16. A paper centre, designed in the form of a Roman sword, ornamented with scroll work, and bearing on one side the words "Muras Severa," and on the other "Luguvallium," the name borne by the city of Carlisle when a Roman station.

17. A vinaigrette, the lid bearing a crown in chased silver, surrounded by a wreath of thistles and roses enamelled.

18. A miniature portrait of Napoleon I. in water colours, by Cahan, representing the Emperor in his coronation robes, and mounted in a jewelled wreath of diamonds. The portrait is original, and was presented for the mother of Napoleon, and by her bequeathed to one of the old nobility of France.

19. A few fine specimens of goldsmiths' work in gold; gem and enamelled brooches, bracelets, and pins and signet rings of new designs, manufactured by eminent London firms; and scarf pins, with a new safety guard, the invention of the exhibitor, suitable to sporting or valuable gem pins, having a security against loss, and simple in operation.

[6678]

Wilkinson, H., & Co., Sheffield, and 1 Bolt Court, Fleet Street.—Silver and electro-plate, cutlery, &c.

[6679]

Wilkinson, Thomas, & Co., 15 Great Hampton Street, Birmingham.—Best electro-plated on German silver centre piece, &c.

[6680]

Wills Brothers, 12 Eaton Road, N.W.—Useful art works in terra cotta, silver, and silver-bronze, for "Rifle Cups," &c.

[6681]

MacCarthy, H., 21 Lower Grosvenor Street.—Groups in electro-silver and bronze.

[6682]

Restell, R., 35 High Street, Crewe.—Double-lock jewellery, a new mode of fastening.

[6683]

Thwaites, J. H. B., Bristol.—Specimens illustrative of a new method of cutting precious stones.

[6684]

Harrison, F. A., Birmingham.—Jewellery.

[6685]

Goggin, C., 18 Nassau Street, Dublin.—Bog oak ornaments.

(62)
CLASS XXXIV.

GLASS, FOR DECORATIVE AND HOUSEHOLD PURPOSES.

Sub-CLASS A.—Stained Glass, and Glass used in Buildings and Decorations.

[ 6710 ]
Bailie, Thomas, & Co., 118 Wardour Street, London.—Specimens of stained and painted glass for windows.

[ 6711 ]
Ballantine, James, & Son, 42 George Street, Edinburgh.—Stained glass windows for churches, halls, and mansions. (See page 64.)

[ 6713 ]
Bennett, Henry Mark, Newcastle-upon-Tyne.—Stained glass medallion and foliage window; subject, Life of Christ.

[ 6716 ]
Chance Brothers & Co., Glass Works, near Birmingham.—Crown, sheet, plate, painted, and optical glasses, shades, &c. (See pages 66 to 69.)

[ 6717 ]
Claudet & Houghton, 89 High Holborn.—Glass shades—Painted and stained window-glass.


Window of one compartment. Figure of St. John. Perpendicular.

Three compartments. Specimen of geometrical windows, various styles.

[ 6718 ]
Clayton, John R., & Bell, Alfred, 311 Regent Street.—Stained and painted glass windows.

[ 6719 ]
Cox & Son, 28 & 29 Southampton Street, and 43 & 44 Maiden Lane.—Painted glass for cathedral and church windows.

1. East window of Wimbladen Church. Subject, “The Crucifixion of our Saviour.”
2. Memorial window for Worthing Church.
3. Memorial window for Havergam Church, Newport Pagnell.
5. Specimens of geometric and other windows.

( 63 )
Ballantyne, James, & Son, 42 George Street, Edinburgh.—Stained glass windows for churches, halls, and mansions.

**WINNOW FOR M.S.C.**

**Vestibule window** for Chevalier Burnes, K.H., Ladbroke Square, with heraldic bearings, Order of Knight of the Guelph, &c.

Three windows were designed and executed 1861—1862.
FIELD & ALLAN, Edinburgh and Leith.—Painted glass window.

FOREST, JAMES ALEXANDER & Co., (late Forrest & Bromley,) 58 Lime Street, Liverpool.—Two stained glass windows, intended for Glasgow Cathedral and All Saints’, London.

Stained glass window for the crypt of Glasgow Cathedral, in memory of the late J. B. Nichol, Professor of Astronomy in the University of Glasgow. Subject, “The Wise Men’s Journey to Bethlehem.”

Stained glass window for All Saints’, Tillingham, London, illustrating three miracles in the life of our Saviour, viz., “Making the Blind to see,” “Raising of Lazarus,” “Healing the SICK of the Palsy.”

Price lists of plate, sheet, crown, photographic, and horizontal window glass sent free on application.

GIBBS, ALEXANDER, 38 Bedford Square.—Designs for stained glass windows. (See page 70.)

GIBBS, CHARLES, 148 Marylebone Road, Regent’s Park, London, N.W.—Crucifixion window, and one from the life of David, and various examples.

HARDMAN, JOHN, & Co., 166 Great Charles Street, Birmingham; 18 King William Street, Strand, London, W.C.; 1 Upper Camden Street, Dublin.—Stained glass windows.

1. Canterbury Cathedral (date, close of 12th century). The subjects are the same as the window originally existing, though long since destroyed, a description of which was found in a manuscript in the Library; and are in three divisions. 1st. Our Lord, with the Samaritan woman at the well, with four accompanying typical groups. 2nd. Mary and Martha, with Our Lord, and four typical groups. 3rd. Mary anointing Our Lord’s feet, surrounded by four groups.

2. Worcester Cathedral (date, middle of 13th century). Memorial window of the late Colonel Urect, of the 3rd Dragons. The subjects are taken from the life of Joshua, the great captain of the Israelites.

3. Two windows, selected from those given by His Royal Highness the late Prince Consort to the church at Whippingham, Isle of Wight. The subjects are, of the first, “The True Vine;” and of the other, the Royal Arms, those of the late Prince, and those of the Prince of Wales.

4. Harrow School Chapel (date, close of 18th century). Subject, the Transfiguration of Our Lord.

5. St. Stephen’s Crypt, Westminster (date, commencement of 14th century). Subject, the Deposition of St. Stephen, being one of a series of windows illustrating the life of the Saint.

6. Dunfermline (date, middle of 14th century). Subject, the Blessed Virgin, with typical subjects from the Old Testament.

7. Dunfermline, St. George’s Church (date, middle of 14th century), the cast window. Subjects from the life and passion of Our Lord.


9. Norwich Cathedral (date, middle of 14th century). The figures of Faith, Hope, and Charity, with appropriate groups beneath.


HARTLEY, J., & Co., Sunderland.—Specimens of stained glass, in the two windows terminating the nave.

CLASS XXXIV.
CLASS XXXIV.—Glass, for Decorative and Household Purposes.


"Robin Hood's Last Shot."
CLASS XXXIV.—South-East Court, Central Division.

CHANCE BROTHERS & CO., continued.

1. Sheet of specimens to illustrate the manufacture of CROWN AND SHEET WINDOW GLASS, the two kinds mostly used. Crown is preferred, on account of its brilliant surface, but is limited in size by the circular form and built-up eye, for which reason sheet glass is gradually taking its place. The sheet and crown spectacles are made of extra-white glass.

2. Samples, of various sizes and thickness, show the different qualities supplied for house trade and exportation, for glazing purposes and for prisms.

3. Samples of CRYSTAL SHEET GLASS, made from sulphate. A very superior article for engraving; it does not sweat.

4. CHANCE'S PATENT PLATE GLASS is blown plate, obtained by grinding off the uneven surface of sheet glass, and polishing it. See samples of different colours, thicknesses, and qualities, in various sizes. Attention is particularly directed to extra-white patent plate.

5. PATENT ROLLED ROUGH PLATE, 1/4 to 1-inch thick. An excellent glass for roofs of railway sheds, green-houses, skylights, factories, &c. Samples of various kinds, plain and tinted, &c.

6. COLLIZED WINDOW GLASS, flashed colours, pot metals, and cathedral tints, in sheet, plain, and antique, for leaded windows. ROLLED PLATE pot metals and cathedral tints are much liked for church windows; but ANTIQUE SHEET more nearly resembles old glass in appearance and effect.

7. HOLLOW LENSES, and BENT HAND-AND GLASSES, red and green, of different thickness, for railway signal lamps.

8. ANODIZITY SHEET SIGNAL-LIGHT LENSES, red and green, of various patterns.

9. PHOTOGRAPHIC GLASS.—Glass plates, glass balls, dishes, and lenses. Samples of various sizes and qualities of crown glasses, unpolished and polished, crystal sheet plates, purple plates (sheet and patent plate), opal plates, patent plate plates of light and extra-white colour, glass balls, greenish colour and yellow, glass dishes, glass dishes, glasses.

10. MISC. GLASS LENSES.—Glass ground plates, simple and corrugated, Ceylon patterns, &c., for roofs of huts, skylights, &c.; millpaths, propagating glasses, preserve jars, &c.; crown glass panes taken for steam boilers, much superior to those made in flint. Deco-lights and pressed callipers of extra-white glass.

11. CROWN GLASS LENSES, for clocks, ornaments, &c.

12. OPTICAL GLASS, for telescopes, microscopes, and microscopes. Dices from 25 inches diameter downwards, and plates for curving up, of crown and flint glass.

13. FRAMES, 3 by 3, of thin crown, and of patent plate, usual and white; and THIN MICROSCOPE GLASS, of three degrees of thinness, for covering objects for examination under a microscope.

14. ORNAMENTAL WINDOW GLASS.—Sheets of various engraved, stencilled patterns, and of double-etched, stained, enamelled, and embossed patterns, centre panels, landscapes, flowers, &c.

LINED WINDOWS.—Two specimens, from designs of Sébastien Evans, M.A., Manager of the Ornamental Department of Chance Brothers and Co., are exhibited in the North Gallery of the East Transport. The subjects are respectively, "Robin Hood's Last Shot," and "The Madonna and Child, accompanied by the Four Archangels." A drawing of the former is given on the opposite page, and a description (from the ballad) on this page. In the latter subject, Raphael hovers the pilgrim's staff and sword, Gabriel the lily, Uriel the scroll, and Michael the sword and scales—the symbolic emblems of "The Four Angels who sustain the Throne of God." In the canopy of this window are other attendant angels, and wreaths of lilies enwined with roses.

LENTICULAR LUMINOUS GLASS is manufactured by Chance Brothers and Co., for their own lens-making apparatus. See their First-order Revolving Light, exhibited as a trophy in the West Nave; entered under Class 13 in the Industrial and Illustrated Catalogues, a drawing and detailed description being, however, given under Class 34 in the latter, as the following pages. A medal has been awarded to them for this Light, and for their optical glass in general.

ROBIN HOOD'S LAST SHOT. (See opposite Page.)

"Ye he was bestraff'd, I wis,
By a wan'd woman,
The Princess of Kilkenny.
That o' the cent and tice-
She did me out o' my place,
And me out o' my heart's place.
Full evil may they fare!"

"Give me my bent bow in hand,
And a broad arrow 'tis I bow.
And where this arrow is taken up,
There shall my name appear.
Long may the King live.
And may no other at my feet
Which an a' see.
And may my bow be bow.
And may she ever be drawn;
As is most right and meet."

N.B.—Chance Brothers & Co. are excluded from competition for a Medal for their Window Glass and Lined Window, by consequence of the senior partner of their firm having been appointed a member of the Jury for Class 34, to which all the above glass belongs, with the exception of the Optical Glass (No. 12), which has been transferred by the Jury to Class 13, to which a Medal has been awarded in connection with the First-order Dioptric Light.
Class XXXIV.—Glass, for Decorative and Household Purposes.

Chance Brothers & Co., continued.
CLASS XXXIV.—South-East Court, Central Division.

CHANCE BROTHERS & Co., continued.

LIGHTHOUSE APPARATUS.

1. Dioptric Revolving Apparatus of the First Order, constructed according to Mr. Thomas Stevenson’s Holophotal improvement of the system of Augustus Fresnel.

This apparatus is formed of an eight-sided frame, in the centre of which the flame is placed. Each side comprises a compound lens and a series of totally reflecting prisms both above and below the lens; all these prisms, as well as the rings of the compound lens, being concentric round a horizontal axis passing through the centre of the lens.

The result is, to condense the light proceeding from the central flame into eight beams of parallel rays, without the aid of unnecessary reflections or refractions, so as to produce the maximum effect at sea.

LIGHT-room and LANTERNs.

2. The Light-room is made of cast iron; it is seven feet high, being cylindrical within, and having externally sixteen sides, which are alternately large and small, to suit the lantern which it supports. It is provided, outside, just beneath the lantern, with a gallery or balcony, on which the keepers can stand to clean the lantern-panes, and also with an inside gallery for the service of the apparatus. The inside of this light-room is lined with mahogany.

The Lantern is formed, 1st, of sixteen standards, alternately inclined to the right and left; they are made of wrought iron, covered with gun-metal flaxings, by which combination the greatest strength and the least interception of light are obtained, together with the most protection from the sea air. 2nd, of gun-metal standards, in two tiers, and of gun-metal sphyphoptics and sills. 3rd, of a double copper dome supported on iron rings. The whole is mounted by a revolving copper ball carrying a wind-mast. The panels of the lantern are purposely carved, to facilitate inspection of the apparatus.

3. A square cast-iron Pedestal with glazed doors, containing the clockwork for imparting rotatory motion to the apparatus. By a consequence communicated to the manufacturers by Professor Ahy, and for the first time used in lighthouse machinery, the winder is so constructed as to maintain an uniform speed of rotation, without any check during the winding-up. In other particulars, the plan of the pedestal and of the clockwork is in accordance with the Scotch system.

A Revolving Carriage; being an arrangement of rollers and guide-rollers, to give the least possible amount of friction, whilst it maintains the perfectly vertical position of the apparatus.

A fixed cast-iron Table, on which the oil-jump is placed, and on which the keeper stands for the service of the lamp.

4. The Oil-jump is a novel kind of “pressure-lamp,” and consists of a turned gun-metal cylinder, in which the piston that forces the oil into the burner is worked by a weight placed outside the cylinder, instead of inside, as hitherto.

Each of the four concentric wicks of the burner is supplied with oil by two independent feed-tubes communicating with the main pipe.

The Dioptric or Lensicular system of Lighthouse Illumination is distinguished for its superiority to the Catoptric or Reflecting system in the essentials of power, simplicity, durability, and economy.

The above First-order Dioptric Light is exhibited in the West Norse, near the Faroese Department. The whole of the optical apparatus, lamp, rotatory mechanism, lantern and light-room, has been constructed by Chance Brothers and Co., at their Glass Works, near Birmingham.

They have also constructed, under the direction of Messrs. B. and T. Stevenson, the following apparatus, exhibited by the Commissioners of Northern Lights (see Class 12 in Catalogue)—

1. A Holophotal Revolving Light of the sixth order.
2. An Astronomical Condensing Light of the sixth order.
3. A Totally-reflecting Hemispherical Glass Mirror.

And they have constructed the Fourth-order Holophotal Revolving Apparatus, in which is exhibited the Magneto-electric Light of Professor Holmes, in the Western Annex. (See Class 8 in Catalogue.)

A Medal has been awarded to them in the present Exhibition, for improvements in Dioptric Lights, and great excellence in optical glass.

Chance Brothers and Co. are the only manufacturers in Great Britain of Dioptric Lighthouse Apparatus. They have constructed, within the few years during which they have pursued this branch of business, eighty-eight complete Lights, of which thirty-nine are of the first and second orders; also thirty-four Lanterns. These have been supplied to the Lighthouse Boards of Great Britain, and to the other principal maritime countries of the world.

Their Lighthouses embrace all the successive improvements introduced by themselves or by others, and are testified to be excellent in design, material, and workmanship.

Perfect optical adjustment of the lenses and prisms, in accordance with the local data of each lighthouse, is applied to all the apparatus of their construction.

(69)
Class XXXIV.—Glass, for Decorative and Household Purposes.

Gibbs, Alexander, 88 Bedford Square.—Designs for stained glass windows.

Description of the specimens of stained glass in the International Exhibition, executed by Alexander Gibbs.

Large three-light window, price £250

The principal subjects in this window are taken from the early life of Christ, viz., a representation of Christ sitting in the midst of the Doctors in the Temple. Christ sitting on a throne, occupies an important place in the centre opening, having one of the Doctors in the background. In the right-hand opening, the principal figures are the Virgin Mary and Joseph; and those in the left-hand light, Doctors; some standing and some sitting complete the group. The whole is relieved by a diapered wall, and surmounted by rich canopies on ruby grounds.

Below the above subject are three smaller ones; the one in the centre light representing the Adoration of the Magi; in the right-hand light, the Flight of Joseph with the infant Jesus; and Mary, his mother, into Egypt; and in the left-hand light, the Annunciation. Above these are rich canopies, and a small arcade running along the bottom forms the base of the window.

On either side of this window are four smaller lights; these are:

- Left-hand, top. Single-light early decorated window, price £20

A large figure of a Bishop occupies the greater portion of this light, the remaining portion being filled up with rich canopy and base. Behind the figure is a rich diapered screen, jewelled with ruby.

- Left-hand, bottom. Single-light, semicircular heading, price £35

This window, of which the accompanying engraving is a sketch, needs no description, except so far as relates to colour. The foliage is on a ruby ground, halved by a rich border on blue, and the subjects are richly coloured on blue backgrounds.

- Right-hand, top. Single-light, early English, price £20

In this window, occupying the centre, is a figure of Christ sitting on a throne, and surrounded by a Virgin. The remaining portion is filled with geometrical interlace on a silvered ground, with an Angel top and bottom, in medallions, holding ribbons with the following text:

"Top Angel—"I am the Resurrection and the Life." Bottom Angel—"Behold the Lamb of God."

- Right-hand, bottom. Single-light, perpendicular, price £25

Christ’s Descent from the Cross is the principal feature in this light, surmounted by a rich canopy. In the base is an Angel on a blue background, holding ribbons with the following text: "It is finished," surmounted by rich foliage.

Large two-light window, on right-hand, price £75

The arrangement of this window is as follows:

The principal feature is a subject of Christ’s Charms to St. Peter. In the right-hand light, Christ is in the act of giving the keys to St. Peter; and in the left-hand light, St. Peter is kneeling to receive them; and behind him, St. John. This subject is richly coloured, on a blue diapered background, broken by an apple-tree running throughout. Above this subject are canopies on ruby grounds, and below, a small arcade base. The remaining portion of the window is grisaille, with interlacing coloured bands, enriched with four Angels in medallions on blue grounds, two at top and two at bottom. The two top Angels have ministerial instruments, and the two bottom ribbons with the following texts:

- Left-hand Angel—"Thou hast made him. Feed my sheep." Right-hand Angel—"I am the way, the truth, and the life." Large early English window, on left-hand, price £75

This window, which is carried out in the early style, is arranged thus:

There are four subjects in medallions, with blue diapered backgrounds. The bottom one represents The Last Supper; the one next above, The Agency in the Garden; the one next above that, The Transfiguration; and the top one, The Resurrection.

The ornamental portion of this window is composed of geometrical forms of rich colouring, on an interlaced background of ruby and green, the whole surrounded by a broad border on a ruby and blue ground.

(70)
CLASS XXXIV.—South-East Court, Central Division.

[6727]

HEATON, BUTLER, & BAYNE, Cavendish Street, Eton Square, London.—Stained windows, for St. Albans' Abbey and other places.

15th century stained window, for St. Albans' Abbey, illustrating the Baptism of Our Saviour and the Passage of the Israelites through the Red Sea.
14th century window, for Harpenden Church. (Shake, architect.) Subject, "The Six Acts of Mercy." 
14th century window, illustrating the "David of Our Lord."

[6730]

HOLLAND & SON, St. John's, Warwick.—Stained glass (in Transept).

[6731]

JAMES, W. H., 37 High Street, Camden Town.—Enamelled window glass.

[6732]

LONG, CHARLES, 17 Queen's Road, Bayswater.—Specimens of ornamental, embossed, and painted window glass.

[6735]

OSTINSON, MARSHALL, PAULKIN, & Co., 8 Red Lion Street, London.—Stained glass windows.

1. The great west window of Aylesbury Parish Church, it is probable date, a.d. 1490, designed to illustrate three great epochs—viz., "The Fall of Man," "The Means of Grace," and "The Restoration of Man." This is carried out with twomjpgems from the Old Testament for each epoch, thus—for "The Fall"—1. Adam and Eve eat the forbidden fruit; 2. Adam and Eve are expelled from Paradise. For "The Means of Grace"—1. The Passage of the Red Sea type of Baptism; 2. Abraham offering Isaac (type of Holy Communion). For "The Restoration of Man"—1. The Feast of the Passover; 2. The Lifting up of the Brazen Serpent. The tracery (of a great number of openings) has, in the lower series of lights, figures of the twelve minor Prophets; above these are figures of the four major Prophets, over which again are figures of Noah, Abraham, Moses, and David. Surrounding these figures are cherubim, while in the seven center lights of the tracery are represented the seven gifts of the Holy Spirit.

2. One compartment of the west window of St. Matthias Church, Stoke Newington, London, designed and executed in the manner of the early glass-stainers, with figures of Isaiah, David, and Noah.

3. Panels of heraldry in stained glass, consisting of the Royal Arms of Her Majesty the Queen, those of his late Royal Highness the Prince Consort, the arms of the Duke of Kent, and of her late Royal Highness the Duchess of Kent; being portions of a memorial window.

4. Life-sized figures of Jacob and Aaron, being a part of the series of windows for Ron College Chapel.
Class XXXIV.—Glass, for Decorative and Household Purposes.

Powell, James, & Sons, Glass Works and Warehouses, Whitefriars, E.C.—Stained glass for all purposes, and window work.

The specimens of quarries and borders are taken from stock, and can be recommended for simple glazing. They are very strong, and are found from their substance well adapted for hot or cold countries; the thickness of the glass prevents the flat effect in the cheaper kinds of painted glass. (A. B.)

Heraldry in glass, from drawings by Mr. Pollen. (C.D.)
Iron casements.
Figures and subjects from drawings by various artists, and best painted work. (E.) Old windows restored.
Geometrical patterns printed on muff glass, of good texture, with rich colours in the ornaments and borders. (F.G.)

Messrs. Powell exhibit, by permission, parts of windows executed by them; from the drawing of G. F. Street, Architect, for W. Cotton, Esq.; also from the drawing of E. B. Jones (the east window of Waltham Abbey), for the Rev. James Francis.

The manufacture and sale of glass was commenced at these works, A.D. 1700.

Writing on glass; Heraldry on glass for inlaying; glass mosaic. (72)
Glass made to patterns and drawings. Tube, enamels, opaline-plate. Muff glass for artists, the colour and texture like old glass. Horticultural glass, glass for museums, sheet and plain glass, English and foreign glass and porcelain for chemical use. Glass water pipes. Some specimens of the above are shown, and the colours and texture of the muff glass may be seen in the painted windows exhibited.

Groups of table glass selected from stock, simple in outline and moderate in price. Cut glass and good engraving. Flower glasses, wall lights, and chandeliers.
Class XXXIV.—Glass, for Decorative and Household Purposes.

[ 6738 ]
PROEYEN, FREDERICK, 13 York Place, Portman Square, London.—Stained glass, English art, 18th, 14th, and 16th centuries.

[ 6739 ]
PRYCE, A., & Co., 4 Trafalgar Square.—Specimens of illuminated glass.

[ 6740 ]
REEVES & BAKER, 175 Goswell Road, E.C.—Stained glass windows: Norman, early English, early decorated.


[ 6741 ]

WASHINGTON, JAMES P., 43 Hart Street, Bloomsbury Square.—Specimens of ecclesiastical, palatial, and domestic stained glass.

1. Figure, Judgment. First Pointed.
2. The Annunciation. First Pointed.
3. Four Knights (Neville). Decorated.
5. The Magdalen at the Sepulchre. Pictorial.

WASHINGTON, WILLIAM, jun., 17 Northumberland Place, W.—Specimens of stained glass.

WASHINGTON, WILLIAM, sen., 35 Connaught Terrace, W.—Progressive examples of stained glass from the 12th century.

[ 6743 ]
LAYERS & BARRAUD, Eastend Street, W.C.—Stained glass windows. (See page 75.)

[ 6746 ]
HERBERT, MRS. F., 20 Royal Avenue Terrace, Chelsea.—Paper transparencies.

Sub-Class R.—Glass for Household Use and Fancy Purposes.

[ 6756 ]
AIKE AND CADELL GLASS BOTTLE COMPANY, 61 King William Street, London.—Glass bottles.

[ 6757 ]
ALEXANDER, AUSTIN, & POOLE, Victoria Wharf, Earl Street, Blackfriars.—Glass bottles, jars, and insulators.

( 74 )
CLASS XXXIV.—South-East Court, Central Division.

LAYERS & BARRAUD, Echodell Street, Bloomsbury, London, and 3 Oxford Street, Manchester.

TWO LIGHTS OF THE GREAT WEST WINDOW OF LAVENHAM CHURCH, SUFFOLK, ILLUSTRATING EVENTS IN ST. PETER'S LIFE.
Class XXXIV.—Glass, for Decorative and Household Purposes.


[ 6760 ] Brown, Michael Lewis, 47 St. Martin's Lane.—Specimens of cut and engraved table glass in general use.

[ 6761 ] Candlish, John, Manufactories, Leaham and Sunderland; Warehouse, 224 High Street, Wapping, London.—Wine bottles.

[ 6762 ] Copeland, Mr., 160 New Bond Street; Manufactory, Stoke-upon-Trent.—Examples of cut and engraved English crystal glass.

[ 6763 ] Deavers, J., & Sons, 147 Houndsditch.—Crystal glass chandeliers, standards, lustres, and table glasses. (See page 77.)

[ 6764 ] Dowling, Edward, 2 Little Queen Street, Holborn.—Glass weights and glass rosettes for horses' bridles.


[ 6766 ] Garrett, John, Arundel Place, Haymarket.—Drinking goblet, with portable metallic handle and foot.

[ 6767 ] Green, James, 35 & 36 Upper Thames Street, London.—Cut and engraved table glass, chandeliers, and lustres. (See page 80.)

[ 6768 ] Hodgetts, W. J., Wordsley, near Stourbridge.—Table and toilet glass. (See page 81.)

CLASS XXXIV.—South-East Court, Central Division.

DEFEYER, J., & SONS, Works, London and Birmingham; Principal Depot and Show Rooms, 147 Houndsditch, City.

The exhibitors are manufacturers of crystal, bronzed, and ormolu chandeliers. Improved star and crystal sun-lights, and gas fittings of every description. Im.

proved paraffin and other lamps, for India and the colonial markets in general.
The exhibits are designed and manufactured of first-class ornamental and useful household glass-work, in lustres, dinner and dessert services, vases, mandalas, and flower glasses; sole manufacturers of Mr. Marsh's much-admired flower stands (registered), for which the Special First Prize was awarded, at the Royal Horticultural Society's exhibitions of 1801 and 1802, for dinner and drawing-room decors. (See illustrations on the opposite page.)

1. The Morrison Tassen, of very richly engraved glass, mounted in the finest gold and pearls. "The most extraordinary specimen of art manufacture of its kind in the whole Exhibition." — Times, May 17th, 1862.
   Price 250 guineas; tentatively to be reckoned, amongst connoisseurs, as one of the precious gems of art manufacture." — Morning Post, May 21st, 1862.

2. The Hamilton Vase; a flattened magnum chalice jug, on the centre of which is engraved a strange chimera, half cat, half dragon, from which a scroll springs on either side, twining in concentric rings over the body of the jug. Frescoes and pendants among bees, clustering and clustering among the foliage, are myriads of wild animals—a reminiscence, may be, of Odelle's inexplicable exclamation—Gods and monkeys! This is a picture fresh from Dreamland!" — Morning Post, May 21st, 1862.


4. The Oswald Vase, price 100 guineas. "Another thing of beauty, engraved with Pompeian designs in two circular panels, the one with Cupids playing on pipes, and on the reverse: two other Cupids are dancing to their brothers' tune. The purity of lines, and the charming simplicity of its style, must strike every beholder as admirable." — Morning Post, May 21st, 1862.

5. The Alba Jug, 50 guineas; very wonderfully engraved, with Buffalloes amongst ornamental scroll design, fruits, fruit, and flowers. "They are not so much engraved, as they seem to flow and ripple from the body of the vase, with an effect almost equal to an optical delusion." — Times, May 17th, 1862.

6. The Crawford Jug, 22 guineas (sold); very chastely engraved with flat incusec, scrolls, and figures, of Greek design.

7. The Gurney Cup; vine design, infused Bacchanales revelling amidst the vines, very beautifully engraved.


9. Patterns of cut glass service, made for the King of Portugal.

10. Patterns of engraved service, made for the Prince Napoleon.


This latter contains many specimens of art workmanship in glass never before accomplished. Price £500.

12, 13. Two chandeliers of Greek form, for six lights each. Many varieties of this admired design may be had.

14—20. Various designs in flower glasses, in the Venetian taste, with monograms in the centre; never before accomplished at the furnaces.

21, 22. Small glass candlesticks, for four lights each, registered. Unique and useful.


30—30. Various patterns for services of dinner and dessert glass.

90—70. Registered designs for flower glasses.

70—100. Various patterns of chalved jugs, most beautifully engraved.

150—200. Ditto, water jugs and goblets, ditto, ditto.
CLASS XXXIV.—South-East Court, Central Division.

Dobson & Pearce, continued.

Mr. March's Designs for Flower and Fruit Decorations.

Price Epergnes, with glass stem, suitable also to drawing-room, 15s., 18s., and 22s. each, according to sizes.

Price Baskets, with glass handles, turned or plain, 10s., 15s., and 16s. each, according to sizes.
Class XXXIV.—Glass, for Decorative and Household Purposes.

Green, James, 35 & 36 Upper Thames Street, London.—Cut and engraved table glass, chandeliers, and lustres.
Class XXXIV.—South-East Court, Central Division.

Hodgatts, W. J., Wordsley, near Stourbridge.—Table and toilet glass.

**Ruby Scent Jar, Cut, with Raised Pillars.**

Dessert service of flint glass, inlaid with a circle of ruby, consisting of decanters, carafes, finger basins, ice plates, elevated comport basins, jugs, goblets, champagne and other glasses.

**Jug, with Coloured Shield and Coat of Arms, Engraved.**

Dessert service of rich cut flint glass, designed for six persons.

Cut flint and coloured vases, scent jars, and pieces for drawing-room ornament.

**Water Jug.**

Water jugs and goblets cut and engraved, and with coloured shields attached.

**Central Dish.**

Decanters, wines, and a variety of ornamental glass.

Class XXXIV. (81)
Class XXXIV.—Glass, for Decorative and Household Purposes.

[6770]
Jennings, George, 263 High Holborn, London.—Specimens of writing, embossing, ornamenting, and gilding on glass.

[6771]
Kilner Brothers, Dewsbury, and Brook's Wharf, Upper Thames Street, London.—Superior glass bottles of every description. (See page 83.)

[6772]
Lloyd & Summerfield, Park Glass Works, Birmingham.—Glass show case, cut and engraved glass, glass window bars.

[6773]
March, Thomas Charles, St. James's Palace.—Examples of table decoration.

[6774]
Millen, John, & Co., Potters to Her Majesty, Edinburgh.—Engraved glass.

[6775]
Moore, Edward, & Co., South Shields; 8 Newhall Street, Birmingham; 120 Duke Street, Liverpool; 83 Temple Street, Bristol.—Pressed flint glass table ware (in every variety).

Examples are exhibited of pressed glass in flint and coloured table ware, and blown and cut goods, consisting of—

Also, butter-coolers, water cannels and cups, cressets, custard cups, candlesticks, colouris, handled cans, cheese stands, candle ornaments, decanters, dishes, centre pieces, goblets, honey pots, jellies, jars, jugs, mustard pots, pickle jars, gas reflectors, salts, salvers, sugar basins, cream jugs, covered sugars, tumblers, and wines.

Samples of the above-mentioned goods may be seen at the Works, South Shields, or at their Offices, 2, Barge Yard Chambers, Bucklersbury.

[6776]
Mott & Sons, Wine Merchants, Liverpool and Leicester.—Vessels for preventing flatness in draught beer. (Patent.) (See page 84.)

[6777]
Naylor & Co., 7 Prince's Street, Covent garden Square, London.—Unique and classical designs, shapes, and engravings. (See page 84.) (82)
KILNER BROTHERS, DOVER STREET, AND BROOK'S WHARF, UPPER THAMES STREET, LONDON.—Superior glass bottles of every description.

[Price Medal, the only one awarded to British Glass Bottle Manufacturers.]

FOR WINE MERCHANTS.

The above are illustrations of a very superior kind of bottle recently introduced to the public.

They are in sizes from half-a-gallon to eight gallons each, and are made expressly for containing articles of value, such as wines, spirits, tinctures, etc., and are of especial utility when, it is desirable to see the condition of the article, and draw off the contents without disturbance.

They are fitted with electro-plated or brass taps and vent-peg, and, when required, are covered with white wicker-work.

Kilner Rectifiers have succeeded in making garden edgings of various patterns in glass, coloured so as to resemble dwarf box. These edgings are the most permanent that have yet been introduced, as they will resist the severe influence of the atmosphere, and are not liable to oxydization like iron, or disintegration like stone. The patterns already on sale are—No. 1, the usual upright edging with a Vandyked border; No. 2, the pattern designed by Dr. Hogg, and introduced as Hogg's Edging Tiles; and No. 3, which is a modification of No. 2.

For soda-water, confectioners', drug, dispensing, and almoner's bottles of every description, stoppered and plain, our house has long stood unrivalled; and the fact of the very great increase of late years in the demand for them, both in the home and foreign markets, is a proof of their superior quality and fitness for the purpose required.

Price lists may be had and samples soon on application.

Perpetual Glass Edgings for Garden-Walks, Flower-Borders, etc.,—

<table>
<thead>
<tr>
<th>Edging Type</th>
<th>Length</th>
<th>Weight</th>
<th>Price per Yard</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. 1</td>
<td>9 ins</td>
<td>3 lbs</td>
<td>1 s.</td>
</tr>
<tr>
<td>No. 2</td>
<td>9 ins</td>
<td>5 lbs</td>
<td>1 s.</td>
</tr>
<tr>
<td>No. 3</td>
<td>9 ins</td>
<td>4 lbs</td>
<td>1 s.</td>
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Per Yard—s.

<table>
<thead>
<tr>
<th>Type</th>
<th>Per Yard</th>
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</thead>
<tbody>
<tr>
<td>No. 1, 100 yards and under</td>
<td>1 s.</td>
</tr>
<tr>
<td>No. 2, 200 yards and under</td>
<td>1 s.</td>
</tr>
<tr>
<td>No. 3, 100 yards and under</td>
<td>1 s.</td>
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</tbody>
</table>

Pet on the rail at any of the stations in London, or 20s. per ton paid towards carriage, if delivered direct from the works.

(88)
Mote & Sons, Wine Merchants, Liverpool and Leicester.—Vessels for preventing flatness in draught beer. (Patent.)

Mote's patent air-tight beer cans, for keeping ale and porter on draught and out of contact with the air.

In drawing ale and porter from an ordinary cask, the air has to be admitted into the vessel, and the result is the well-known "flatting" and rapid spoiling of the beer. In the patent cask, which are made of earthenware, and are very clean and convenient, the air is admitted into a separate expelling chamber, which fills up the space from which the beer is withdrawn, without suffering the air to come in contact with the liquid. Mechanical pressure being at the same time applied, the beer retains the carbonic acid gas generated in it, and grows riper instead of growing flatter while on draught. The invention, in a great extent, supersedes the necessity of bottling. The cans are made at present to hold 44 gallons.

Naylor & Co., 7 Prince's Street, Cavendish Square, London.—Unique and classical designs, shapes, and engraving.

1. An elegant goblet, of a tall, classical shape, richly engraved. Subject, "The Lord's Supper."—"A fine work of art."  
2. Compassion to Thabo. "The Crucifixion."  
3. A flat-sided handle claret decanter, richly engraved with "Daniel and the Lion," and fine Egyptian borders.  
4. A Moorish-shape claret decanter, richly engraved with Roman figures, borders, &c.  
5. A unique Etruscan vase, with rope handles carried all round, exquisitely made. Richly engraved subject. "Cupid," on each side, surrounded with garlands of flowers.  
6. Set of table glass, gilt, in forms of old Dutch, very chastely, with white Venetian stems.  
7. Set of table glass, exquisitely engraved in rich patterns, imitation of cock's wings, &c.  
8. Set of table glass, antique cut, with coloured Venetian stems, elaborately threaded.  
9. Set of table glass, correct copy of old Venetian, spiral threads all over.  
10. Set of table glass, finely and richly engraved borders.  
11. Set of table glass, Anglo-Venetian diamond mould, of the finest metal, and antique shapes.  
12. One tall, elegant, Etruscan water jug, very richly and characteristically engraved. Two goblets for ditto, to match.—"A very fine work of art." Purchased by H.R.H. the Princess Alice.

[ 6778 ]

Northumberland Glass Company, Newcastle-upon-Tyne.—Specimens of British first glass : cut, engraved, plain, and coloured.  

[ 6779 ]

Oxley, F. & C., 45 Oxford Street, W.—Pair of colossal candelabra, in crystal glass; glass vases, and specimens of lapidary cutting. (See page 85.)

[ 6780 ]

Pearce, William, & Co., 9 Brooke Street, Holborn, and Bridge Street, Bristol.—Toilets and smelling bottles.

[ 6781 ]

Pelly & Co., Glass Manufacturers to the Queen, 58 & 59 Baker Street, and Falcon Glass Works, London.—Cut and engraved table glass and chandeliers. (See page 86.)
CLASS XXXIV.—South-East Court, Central Division.

Osler, F & C., 45 Oxford Street, W.—Pair of colossal candelabra, in crystal glass; glass vases, and specimens of lapidary cutting.
Class XXXIV.—Glass, for Decorative and Household Purposes.

Pellatt & Co., Glass Manufacturers to the Queen, 58 & 59 Baker Street, and Falcon Glass Works, London.—Cut and engraved table glass and chandeliers.

The group of glass, in the early Italian style, here illustrated and engraved, is a selection of the first-prize design of the students of the Schools of Art throughout the kingdom; the prizes being awarded by Messrs. Pellatt and Co., for the best designs in engraved glass.

The group on the right is half-cased with ruby, and richly engraved and gilt in the Gothic style. Pellatt and Co. exhibit a table set of flint glass, cut in jewelled facets; various groups of engraved glass, chandeliers, lustres, gem work, medical and chemical glass, &c.

Phillips, Edward, Shelton, Staffordshire.—Glass gaseliers, chandeliers, candelabra, girandoles, and table glass, richly cut.

Phillips, W. P., & G., Designers and Producers, 359 Oxford Street, and 155 New Bond Street.—Table and dessert pieces of various kinds.

A service of crystal for table use, showing a novel application of ruby on the flint glass, consisting of port, sherry, champagne, claret, liqueur and hock glasses, decanters, chairs, and strikers, water sets, finger basins, butter dishes, sugar tray, ice plates, salt cellars, and dessert service, with centre piece of original design.

A service of engraved table glass, complete.

A service of cut brilliant crystal.

Price, James, 41 Castle Street, Leicester Square, W.C.—Specimen of embossed and burnished gold writing on glass.

Readwin, William Ramsom, 44 Warwick Street, Pimlico.—Plain and ornamental writing on glass.

Roston, Jesus Lane, Cambridge.—Ornamental illuminated alphabets, in various ancient and modern styles, gilded on glass.
Class XXXIV.—South-East Court, Central Division.

[6788]
Rust, Jesse, & Co., Lambeth, S,—Lamp glasses, globes, and perfumers' bottles; soluble glass for soap makers.

[6789]
Sharpes, T., & Cullum, W., 13 Cockspur Street, Pall Mall.—Unique designs of crystal table glass, &c.

[6790]
Sinclair, Charles, 5 City Road, Finsbury Square, and 177 Old Street, City Road.—Glass chandeliers and lustres, girandoles, &c.

[6791]
Spiers & Son, Glass and China Merchants, Oxford.—Specimens of table glass: plain, cut and engraved.

Specimens of glass for table use; comprising decanters, claret jugs, wine glasses, water jugs and goblets, &c., of new and original forms, cut and engraved with various designs in the Etruscan, Alhambresque, and other styles, among which are the following:—

"Oxford University New Museum" claret jug, the ornament taken from various parts of the museum, and bearing the University arms.

"Christ Church" water jug and goblets; the ornament taken from stone tracery of the college, and bearing the college arms.

Decorators, wine glasses and tumblers, Egyptian shape and pattern.

Antique-shaped claret jug, with flat sides, figure subject engraved after the antique, surmounted by an Alhambresque scroll border.

Tall claret jug, decorated with Alhambresque ornaments, with panel for receiving coat of arms or crest.

Claret decanters and wine glasses, old Venetian style.

Claret glasses, in form of a thistle, and many others.

Wine and Burgundy jugs, Etruscan style.

Exhibitors also, in Class 30, of the "Oxford Cyclopean Washstands, combining the largest capacity with the smallest requirement of space."

[6792]
Storey & Son, 19 King William Street, City of London.—Specimens of table and ornamental flint glass. (See page 88.)

[6793]
Toodooe, William, 37 Mount Street, Grosvenor Square, W.—White and green glass bottles, show jars, &c.

[6794]
Westwood & Moore, Brierley Hill.—Glass bottles.

[6795]
Wheeler, John Jackson, 1 Henry Place, Chelsea.—Medical glass, glass surgical instruments, and chemical apparatus.
CLASS XXXIV.—Glass, for Decorative and Household Purposes.

Streel & Son, 19 King William Street, City of London.—Specimens of table and ornamental flint glass.
Class XXXIV.—South-East Court, Central Division.

[ 6796 ]
Wood, John Henry, Cold Harbour Lane, Camberwell, S.—Anglo-Venetian silvered ornamental mirrors.

[ 6797 ]

[ 6798 ]
Claudet & Houghton, 89, High Holborn.—Glass shades.

[ 6799 ]
Lavers & Barraud, Endell Street, Bloomsbury.—Painted glass.

[ 6800 ]
Powell, J., & Sons, Whitefriars.—Glass for all purposes.
CLASS XXXV.

POTTERY.

[ 6827 ]
Ashworth, George L., & Brothers, Hanley, Staffordshire.—Dinner, dessert, toilet ware, &c., in ironstone china and earthenware, &c.

[ 6828 ]
Atkins, Thomas, & Son, Engineers, 62 Fleet Street, London.—Patent moulded carbon filters, and patent glass circulating filter fountains, supplying filtered water for public use. (See page 92.)

[ 6829 ]
Battam & Son, Gough Square, London, E.C.—Decorated Etruscan vases from the antique, and other ceramic works.

[ 6830 ]

[ 6831 ]
Bevington, Messrs., & Son, Hanley, Staffordshire.—China, porcelain, parian, earthenware, &c. (See page 93.)

[ 6832 ]
Blanchard, Mark H., Blackfriars Road, S.—White and coloured terra cotta for architectural decoration and other purposes.

The objects here exhibited are—

1. Copy of the Western vase, from the original in the British Museum.
2. B. Reduced copies of the Warwick and Alhambra vases.
4. A pair of Neapolitan vases, from the antique in the Kensington Museum, all in red terra cotta; commissioned to be executed for the Science and Art Department, South Kensington.
5. A column, as executed under the First Commissioners of Her Majesty's Parks and Buildings, for the arcades of Victoria Park.
6. A column, as executed for the arcades of the Royal Horticultural Gardens, for the Royal Commissioners.
7. A statue of Flora, from the Capitol, and a series of vases and other objects.
8. Duplicate of the Flagstaff Pedestal from St. Mark's Column, Venice, commissioned to be executed by the Department of Science and Art, Kensington Museum.
Atkins, Thomas, & Son, Engineers, 62 Fleet Street, London.—Patent moulded carbon filters, and patent glass circulating filter fountains, supplying filtered water for public use.

1. Ornamental stand of filters, made in many different shapes and of various materials for portable, domestic, trade, and ship purposes. They constitute some of the most improved articles in sanitary reform. In addition to the ordinary results derived from mere mechanical percolation of impure fluids through porous substances, these filters possess the power of chemically purifying such fluids without rendering them flat, rapid, or insipid. From their peculiar construction, they impart the valuable constituents of palatable water, viz., oxygen and carbonic acid gas.

2. The media used are pure animal, vegetable, and mineral charcoals, free from other ingredients. The process of manufacture requires much skill, time, and judgment, and involves great expense. The object to be attained is the most perfect cohesion of the particles—any adulteration of the charcoal by non-absorbent or other substances not only impairs its cohesiveness, but deteriorates its imperishability. Admixture with other substances is therefore carefully avoided. Specimens of the carbon, which have been in use for many months, are exhibited, showing their perfect freedom from injury. The filters are expressly designed to facilitate cleansing, and to suit the many requirements of domestic and manufacturing establishments. Respirators and sewer ventilators, made of carbon, and which answer excellently, are also exhibited. Patent Hydro-Pneumatic Circulating Fountains are the most novel applications of hydrostatics, hydraulics, and pneumatics ever exhibited. Their utility is paramount to their beauty, being filters as well as fountains—suitable for conservatories, public exhibitions, dining rooms, saloons, &c. They are perpetual in their action, and are made in a portable shape. Designs in various materials and of various sizes are kept on stock.
Class XXXV.—South-East Court, Central Division.

Bevington, Messrs., & Son, Hanley, Staffordshire.—China, porcelain, parian, earthenware, &c.

Parian Vases.
A pair of vases, with ornamental decoration. Likeness of Her Majesty the Queen and His late Royal Highness the Prince Consort in centre. (See Engraving.)
A pair of vases, maroon and turquoise, richly gilt; groups of flowers in centre. A great variety of vases.

Parian Statuettes.
Leda and Swan. (See Engraving.)
Morning and Evening Dew (by Foulere).
Ruth and Esther (Beattie).
Equestrian Figure of Amazon (after Fouchere).
Ariadne and Bacchus (Morrey).
Flora.
Garibaldi.
Mother's Love (Morrey).
Group, representing Agriculture.

Porcelain.
Dessert plates, with border in mazarine blue and raised enamel and gold, groups of flowers in centre. Also, elevated and low comports, in similar style.
Dessert plates with border in puce colour, dead and burnished gold; also, elevated and low comports in similar style. A variety of dessert plates.
Tea service, Queen's shape. Transparent Rose du Barry and gold.
Ditto, canary colour and ditto.
Tea and coffee service, Alhambra border.
Breakfast service, Cambridge shape, Celeste and gold.
Tea and breakfast services in great variety.
The articles exhibited by J. M. Blashfield are made of a mixture of clays from the oolite beds of Northamptonshire and clays from the neighbourhood of Poole, in Dorsetshire, combined with flint, ground glass, sand, felspar, &c.

Moulded brick cornice, from a fragment at Villa Barbarini, Rome.

Moulded brick cornice, from the convent of St. Antonio, Padua.

Pilaster of moulded bricks, after the old Italian manner.

Moulded brick details.

Tracery, designed by Owen Jones.

Old English chimney shaft, 11 feet high.

Large original model of a console, with colossal mask of a river god.

Large console, with mask of Bacchus.

Bracket, designed by Owen Jones.

Crosses for churches, designed by Hine and Evans.

Antefice, acroteria, balusters, trusses, string courses, &c.

Large frieze of acanthus foliage in white terra cotta.

Paving tiles, the same as those used on the footpaths of Westminster Bridge.

Details of mouldings, tracery, &c., of arched windows, made for his Highness the Nizam Nawaub Moorshedud, of Bengal.

Specimen of terra cotta cornice, 4 feet long, in one piece.

Washing trough in terra cotta.

Italian roofing tiles.

Ionic pilaster capital.

Elizabethan tracery for terraces.

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Large frieze of acanthus foliage in white terra cotta.

Paving tiles, the same as those used on the footpaths of Westminster Bridge.

Details of mouldings, tracery, &c., of arched windows, made for his Highness the Nizam Nawaub Moorshedud, of Bengal.

Specimen of terra cotta cornice, 4 feet long, in one piece.

Washing trough in terra cotta.

Italian roofing tiles.

 Ionic pilaster capital.

Elizabethan tracery for terraces.
CLASS XXXV.—South-East Court, Central Division.

Blashfield, John Marriott, continued.
STATUE OF TYCHO WING.

Statue of Tycho Wing, the astronomer of Pickworth, in the county of Leeds, grandson of the famous astronomer, Vincent Wing, of North Luffenham, who published the "Celestial Harmony of the Visible World, 1631," "Astronomica Britannica," and several other works, and died September 20, 1668. An almanac continues to be sold, with his name prefixed as the author, by the Stationers' Company to this day.

An original design for a vase founded on the antique, the principal ornaments of which consist of four festoons, two of fruit and two of flowers, which have been designed, composed, and modelled at once upon the surface of the body, without any previous or after process, such as moulding, casting, or pressing, being used. The modelling by Henry Sibson.

A large tazza (58 inches diameter), after the manner of the antique, ornamented with masks of a river god. An original work, modelled and burnt without the process of moulding.

A tazza (30 inches diameter) with basils, after the antique.

A small fountain group of four boys, in red, supporting a tazza.

A large vase, with allegory of the vintage.

A vase, after the antique, in dark grey colour, with eagles drinking from the rim.

A vase, after the antique, with Greek ornament on the mouldings and modern foliage on the body.

A vase of Corinthian form, ornamented with boys and dolphins.

A wine cooler, in red, adorned with leaves and medallions of Dante and Petrarch.

A variety of vases and amphorae, in red, copied from antique Greek originals.

( 98 )
A large granit bowl, designed by H. A. Darbishire, Esq.,

A square vase, with cymolae at corners, from which are

A variety of flower trays, flower pots, and flower baskets.

Flower pot, with medallion portrait of Her Majesty the

A bust of the Queen, his late Royal Highness the Prince Consurt,

and their Imperial Majesties the Emperor and

An original statue of a Ceres, life size, modelled by Henry

A bust of a statue of a nymph, for a fountain, modelled

by Henry Hale.

Busts of Homer, Virgil, and Washington, heroic size, modelled and burnt; original works, without modelling.

Busts of Her Majesty the Queen, by Weigall.

A statue in red, of a Roman lady reading, in the

Antique fashion, from an original sketch by M. Digby Wyant.

Original busts of Shakespeare, Locke, Newton, and

Selden, modelled by H. Hale.

A very large dog, from life; an original work, modelled

by Mrs. Henry Heathcote, of North Lainham, Rut

bushes.

A pair of greyhounds, modelled by Woolington.

A pair of storks.

A crane; an original work, modelled and burnt without

moulding.

Bust of Ida, after the antique, in white terra cotta, the

property of E. N. Newcombe, Esq., of Stamford.

Statuettes of the Nine Muses and Apollo Musagatm, after

the antique, in red terra cotta.

A cup, after an antique, from Pompeii, with group of

Cupid and Ceres.

A vase modelled by the late Mr. Nixon, with bust relief of

the masque scene in Shakespeare's Tempest.

A large bowl in red terra cotta, from an antique at

Bologna.

A pedestals ornamented at the base with anthemius leaves,

from which ivy branches spring and entwine around

it, after the antique at Villa Albani.

Vases in red terra cotta, from antiques in the British

Museum, from Athens, Nola Valis, and Cosse.

Best of Cyto, in red terra cotta.

Group of Helen and Antigone, designed and modelled

by Sismoni.

Large vase, from a Greek outline in Piranesi.

Bowl in red terra cotta, from a work by Gallini.

A bowl and stand for cressets.

A statuette of Triton, for a fountain.

A jardiniere, with medallion emblems of the Seasons,

by John Bell.

Candelabrum brackets from the Cathedral at Sienna.

Angels supporting tuns, remodelled by Woolington.

Bust of his late Royal Highness Prince Albert, by Pitts.

Busts of children, small life, by Schelizze.

Bust relief, after the antique at Villa Borghesi.

"Bacchanalian festival."

All relief of a chair of angels, life size. — "She is in

vain."

Statuette of Victory, after Rausch.

Statuette of History, after Ernzen.


and the "Boys' Own Book."

Large vase in red terra cotta, supported by four dol

phins in black terra cotta.

A copy of the Medici vase.

A tazza in red, supported by four Egyptian figures in

black terra cotta.

A statuette of Psyche, by Hale.

A variety of Corinthian, bell-shaped, and other vases,

amphorae, cups, jugs, water bottles, flower pots,

flower trays, &c.

Pendant vases for orchidaceous plants.
## Class XXXV.—Pottery.

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Riowx-Westhead, T. C., Moore, & Co., Cauldon Place, Hanley.—Parian, china, earthenware, sanitary, and druggist ware manufacturers.

No. 6. Parian bust of Apollo, from the original. Life size.

7. Parian busts of the Queen, by Durham, and the Prince Consort, by Marochetti; and group, Venus and Cupid, by Gibson.

8. Earthenware table services.

9. Earthenware teat services.

No. 2. Parian figure of Cupid, after Michael Angelo. Height 3 ft.

10. Parian figure, Crouching Venus, from the antique. Height 2 ft. 2 in.
Mr. Wm. Brownfield, of Cobridge, Staffordshire Potteries, exhibits many choice specimens of dinner, dessert, and toilet services, jugs, and other useful and ornamental articles in earthenware. His attention has been directed to the improvement of the quality, form, and style of decoration of this portion of the ceramic art, and he has been so successful that his earthenware is superior to a great deal of the porcelain exhibited, and has the advantage of being within the reach of all purchasers.

1. This jug is very graceful in form; it is decorated with the fern leaf, between which hang in a pleasing manner the wheat-head and leaves; has a rope handle, terminating with the Staffordshire knot.

2. The form of this jug is taken from the antique, the ornamentation being in the "Renaissance" style.

3. The outline of this jug is pleasing, and the decoration is very good; the ornaments are pretty and graceful; the four figures represented in compartments are—"Art," "Music," "Science," and "Commerce."

4. This flower pot and stand is useful in form and elegant in design; the decoration is easy and graceful. The trellis work, with the passion flower and foliage running through it, has a pleasing effect.
The tureen and vegetable dish here represented are of new design, and are not only elegant in form, but great care has been exercised to make them useful.

The ornamentation is very chaste; the colours are turquoise and maroon, relieved with gold.

The dinner service, of which the engraved plate is a sample, is of beauty. The drawings are by H. R. Brown, Esq., better known as "Phil," who is so

celebrated for his amusing sketches. The subjects in the centre of this dinner-service are of great variety, and the engravings are executed in the best style.
The designs will illustrate Industry, Science, and Art. Some Cartoons have been already prepared by Mr. Cole, R.A., Mr. J. G. Hook, R.A., and Mr. Godfrey Sykes, and Mr. Towne; two of these will be executed in Morae as soon as the funds are provided.

The ornamental borders will be designed and the Morae worked out under the superintendence of Mr. Godfrey Sykes and his assistants.

When two panels have been done, and all the necessary arrangements have been made after the close of the Exhibitions of 1862, for filling the others, designs for other subjects will be sought from the artists named.

The following are the principal subjects which, at present, it is proposed should be executed, and the artists named are those who have already kindly consented to moderate to make designs for them, when the proper period arrives:

MATERIALS.

7. Pottery. Mr. Michael Mcbride.
10. Vining. F. P. Pickering, R.A.


LAMPS.

8. Metal Casting. A. Runciman, R.A.
10. Straw Flooring. G. W. Cope, R.A.


The designs before they are accepted will be approved by a Committee of the Artists.

The Marquess of Salisbury, Esq., Mr. Layard, M.P., and Mr. Cole, C.B., sit as a Committee of Management for carrying out the experiments; and all communications should be addressed to G. F. Duncombe, Esq., Secretary, South Kensington, London, W.

The following Noblemen and Gentlemen have subscribed to aid of the experiment. Further sums may be sent to the

The Secretary—

The Society of Arts.
The East Greenwich, K.C., Lord President of the Council, and Chairman of the Committee for the Exhibition of 1862.
The Committee for the Exhibition of 1862.
The Committee for the Exhibition of 1862.
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The Society of Arts,
The East Greenwich, K.C., Lord President of the Council, and Chairman of the Committee for the Exhibition of 1862.

The Committee for the Exhibition of 1862.
Doulton & Watts, Lambeth Pottery, London.—Articles in glazed stoneware, chemical apparatus, filters, &c.

Dunlop, James, Hanley.—Improved ironstone jugs and teapots with metal tops, stone candlesticks, ornamental china figures.

Duke, Sir James, & Neuberth, Hill Pottery, Burdlem.—Parian and china dessert service; china dinner, dessert, breakfast, and tea specimens; china and parian vases; parian groups and statuettes; Limoges enameled; Majolica and Pearlware; jet and terracotta vases; decorated and printed earthenware, dinner, and toilette ware; parian and stone jugs, &c., &c. (See pages 105 to 106.)

Full, Thomas, & Co., Newcastle-upon-Tyne.—Dinner ware, vase, table top, lamps, chamber ware.

Goode, Thomas, & Co., 10 South Audley Street, Grosvenor Square, W.—Fine porcelain dessert service, &c. (See page 104.)

Godfrey, R., & Son, Saint Clement's, Ipswich.—Common clay pipes of superior workmanship.

Gore, William Henry, Stoke-upon-Trent.—Statuettes, vases, tazzis, &c., in parian and other ceramic bodies. (See page 110.)

Grainor, George, & Co., Worcester.—China, chemical porcelain, dinner and dessert services, pierced parian, and busts.

Specimens are exhibited of Worcester china tea services; the pure chemical porcelain (equipped for economy and durability), for dinner and dessert services, chemical apparatus, telegraph insulators, &c. The exhibitors are also manufacturers of parian busts, perforated vases, toilette, and every variety of ornaments.

Grenville, Thomas, Oxford.—Sepulchral monuments in terracotta, for churchyards.

Holland, William Thomas, South Wales Pottery, Llanelli.—Specimens of printed earthenware, table, tea, jug, and toilette.

Hyams, Michael, Bath Street, London.—Registered designs and patent improvements in the manufacture of smoking pipes.

Made under Letters Patent, 2116. They possess the following advantages over other clay pipes—Increase sweetness, pessibility, colouring propriety, &c.; they are also impregnated with aromatic qualities, which prevents the unpleasant taste and smell attending the smoking of ordinary washed clay pipes. A prize medal was awarded to this firm at the Exhibition of 1851. N.B. Tobaccoists and shippers supplied.

Indenworth, J., 58, Princes Street, Soho.—Tobacco pipes. (See page 111.)

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The above illustrations represent a portion of a dessert service, designed by Messrs. Goode, with a view of introducing a more artistic style than hitherto produced. The service has been finished by Messrs. Minton, in the very best manner, and of their finest plate kensé porce-

The pure white china figures, baskets, &c., for the dessert table are all of English design, in the old Dresden style. All the china exhibited by Messrs. Goode has been made for them by Messrs. Minton, of whose manufac-

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Class XXXV.—South-East Court, Central Division.

Duke, Sir James, & Nephews, Hill Pottery, Burslem.—Parian and china dessert service; china dinner, dessert, breakfast, and tea specimens; china and parian vases; parian groups and statuettes; Limoges enamels; Majolica and Palissy wares; jet and terra cotta vases; decorated and printed earthenware, dinner, and toilet ware; parian and stone jugs, &c., &c.

DEATH OF MABEDON.

DESSERT SERVICE, &c.
Porcelain Vases, Tazza, Inkwells, Card-Cases &c.

1. Pair of large vases, 20 inches high, of Grecian form, with antique subjects, representing departure of Achilles for Troy.

2. Pair of Grecian vases, representing the departure of Minos for Crete.

3. Pair of large vases, royal blue ground, Greek tetraskelion figures and borders, filleted enamelled laurel wreath round the neck, and burnished gold.

4. Pair of Chinese pitchers, one with blue, one with black ground, representing the battle between the Greeks and Amazons.

5. Series of vases, in 8 pairs, different sizes, black, blue, and Rose de Hue, grounds respectively, similarly decorated with Greek figures and ornaments.

6. Variety of vases, royal blue and other grounds, with tinctured antique subjects, illustrative of Greek art.

7. Vases with perforated neck, with painted birds, pale Celeste blue ground and burnished gold.

8. Specimens of tazza, different forms and sizes, blue and black ground, Greek figures and gold.

9. Pair of china flower pots, green ground, and painted marine views and fruits, in compartments.

10. Pair of ewers designed after the antique, royal blue ground.

11. Pair of ewers, Grecian tetraskelion subjects, upon blue ground and gold.

12. Candlesticks with marble, Celeste, and blue grounds, with antique figures, and finished in burnished gold.

13. Pair of turquoise vases, flowers and fruits.

14. Pair of cigar cups, enamelled figures upon blue ground, and gilt.

15. Small inkstands, various Grecian designs, on black and blue ground.

16. Pair of bedroom candlesticks, black ground, with figures from the antique.

17. Series of small vases, 5 sizes, blue ground, ornamented with enamelled figures and gold.

18. Series of small vases, 5 sizes, black ground, similarly ornamented.

19. Two large stands, one with rich landscape and broad band of burnished gold, two Grecian style, in royal blue, and gilt.

20. Large vase, Limoges enamel, with compartments on either side, containing subjects figurative of Peace and War.


22. Tazza, Limoges enamel, representation of Neptune and Amphitrite.


24. Pair of pot-pourri jars, with perforated covers, painted wreaths of flowers, and gilt.

25. Pair of ewers, rose natural size, on more ground.

26. Vase, white blue ground, with large painted Venetian subject on one side, and landscape on the reverse, each in chased and raised gold panels.

27. Flattish burner, turquoise, painted flowers and gold ornaments, geometrically arranged.
CLASS XXXV.—South-East Court, Central Division.

Duke, Sir James, & Nephews, continued.
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<td>63. Small vases in pairs, jet, antique figures, with ornaments of burnished gold.</td>
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<td>64. Tobacco boxes, terracotta, coloured in enamel and gilt.</td>
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<td>65. Teapots, sugar box, and cream ewer, jet, cancelled and gilt.</td>
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<td>66. Assortments of jugs, various shapes, jet, coloured and gilt, in different designs.</td>
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<td>67. Various terra cotta spill pots, enamelled enamelled.</td>
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<td>68. A variety of candlesticks, jet, Greek figures and gold.</td>
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<td>69. Pair of vases, black bisque ground, with Greek subjects, in bright black.</td>
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<td>70. Pair of small scent jars, jet, enamelled, with gold ornaments.</td>
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<td>71. Pair of jet vases, the details of decoration in enamelled and gold.</td>
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<td>72. Small vases in pairs, in terra cotta, Saxon enamels.</td>
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<td>73. Pair of jet vases, with rich burnished gold ornamentation.</td>
</tr>
<tr>
<td>74. Bedroom candlesticks, jet, gilt and enamelled.</td>
</tr>
<tr>
<td>75. Water basks and stands, decorated in a variety of designs.</td>
</tr>
<tr>
<td>76. Various specimens of porcelain and earthenware, decorated by the process of printing in gold.</td>
</tr>
<tr>
<td>PARIS STAFFET, VASES, &amp;c., &amp;c.</td>
</tr>
<tr>
<td>77. Large group, &quot;Cupid Captive,&quot; by W. C. Marshall, J.A.</td>
</tr>
<tr>
<td>78. Group, &quot;Death of Marmal,&quot; by Bayley.</td>
</tr>
<tr>
<td>80. Group of two dogs, setter and pointer, by Bayley.</td>
</tr>
<tr>
<td>81. Group, &quot;Leo and Beecham,&quot; by Hoti.</td>
</tr>
<tr>
<td>82. Bust, &quot;Young Augustus,&quot; from the antique.</td>
</tr>
<tr>
<td>83. Statuettes, Venetian beardless: Medosky, Vansly, Terpinthero, Coro, Pompeii, by Moli.</td>
</tr>
<tr>
<td>84. Group, &quot;Peace Congress,&quot; by J. Hawling, after a design by J. Crowquill.</td>
</tr>
<tr>
<td>86. &quot;The Hop-girl.&quot;</td>
</tr>
<tr>
<td>87. Statuette, Lord Elcho, by Bertini.</td>
</tr>
<tr>
<td>89. Statuette, &quot;Flora,&quot; finished in imitation of ivory, and enameled.</td>
</tr>
<tr>
<td>91. Variety of small groups, dogs, &amp;c.</td>
</tr>
<tr>
<td>92. Pair of large vases, ornamented with raised flowers.</td>
</tr>
<tr>
<td>93. Pair of large vases, ornamented with pot-pourri and roses.</td>
</tr>
<tr>
<td>94. Pair of large vases, raised roses.</td>
</tr>
<tr>
<td>95. Pair of pot-pourri jars, ornamented covers, one with pink ground, raised flowers on each.</td>
</tr>
<tr>
<td>96. Pair of vases, with covers and ring handles, bouquet of flowers.</td>
</tr>
<tr>
<td>97. Pair of vases, a group of raised flowers on either side.</td>
</tr>
<tr>
<td>98. Pair of vases, with flowers in porcelain, bisque body.</td>
</tr>
<tr>
<td>99. Variety of other parian vases and ewers.</td>
</tr>
<tr>
<td>100. Parian flower pots, one pair with Celestial ground.</td>
</tr>
</tbody>
</table>

**Porcelain Dessert and Tea Services, Table Plates, Cups and Saucers, &c.**

| 101. Dessert service, comprising:— |
| Center-piece, 30 inches high. |
| Two corner-pieces, 18 do. |
| Four compotes, 12 do. |
| Two cream-bowls, 10 do.; porcelain base and perforated bases, with parian figure supports, that of the center-piece being a group of Greek attendants in marriage; of the corner-pieces, groups figures representing Peace, Commerce, and Charity. The porcelain portions of each article decorated in wemyser gold, painted groups of flowers and fruits. Twenty-four dessert plates, perforated porcelain, with borders in wemyser gold, and groups of flowers, with painted views in centre, from Cooper's "Theme." |

| 102. Specimens of dessert plates, with borders in raised, chased, and burnished gold, with different grounds, painted, enamelled and gilt, in various designs. |
| 103. Centre piece, elevated and low compotes, each of two shapes. |
| 104. Tea service, rose colour body, with elaborately chased gold borders. |
| 105. Variety of cups and saucers, of diversified patterns, gilt, chased, and painted. |
| 106. Cups and saucers, silver form and style of decoration. |
| 107. Series of cups and saucers, each with different ground, burnished gold on base, &c. |
| 108. Specimens of cups and saucers for more general use, diversified shapes and patterns. |
| 109. Porcelain table plates, variously enamelled and chased gold borders, with elaborate centers and coats of arms in centre. |
| 110. Numerous porcelain table service samples, painted, gilt, and enamelled, in different styles of ornament. |
| 111. Breakfast cups and saucers, various shapes, ground. |
| 112. Porcelain soup tureen and other covered pieces. |
| 113. Porcelain teapot service, painted wreaths of flowers, and gilt. |
| 114. Porcelain flower pots, finished in a variety of designs in enamel and gold. |
| 115. Specimens of painted and flowing painted table services in a variety of shapes, colours, and patterns. |
| 116. Variety of samples of enamelled and gilt table services, different designs and style of finish. |
| 117. Table service-patterns, painted and flowing painted, on several shapes. |
| 118. Various specimens of enamelled and gilt teapot ware. |
| 119. Assortment of stoves and other jugs. |
| 120. Loaf plates, butter tines, &c. |
| 121. Complete assortment of chemical and apothecaries' articles. |
CLASS XXXV.—South-East Court, Central Division.

Duke, Sir James, & Neveus, continued.

VASES AND STATUETTES,

VASES AND ORNAMENTS.

(109)
Class XXXV.—Pottery.

Goss, William Henry, St Helen's-on-Trent.—Statuettes, vases, tazzii, &c., in parian and other ceramic bodies.
The exhibitors are importers and manufacturers of meerschaum pipes, cigar cases, snuff boxes, cigar tubes, and every article requisite to the smoker.

The following are exhibited, viz.:—

Inderwick's Patent Silician Pipe, upon an entirely new construction.

Inderwick's Patent Ventilating Pipe, in meerschaum, briar-root, or clay, through which a stream of pure air is conveyed with the smoke, producing a deliciously cooling effect.

Inderwick's Patent Cigar Desideratum, an article that should be used by every smoker.

J. I. & Co. import and supply Latakia, Djbail, and all the finest Eastern tobaccos.


Jennings, George, Holland Street, Blackfriars.—Jars and bottles with patent capsules.


Specimens of the Worcester Raphaelesque porcelain, consisting of vases, brackets, figures, busts, tazza, &c.

Specimens of the Worcester ivory porcelain, consisting of dessert patterns, dinner sets, vases, &c.

Specimens of porcelain dinner services.

Specimens of porcelain tea and coffee services.

Specimens of porcelain toilette services.

Specimens of the Worcester vitreous stoneware, in dinner services, &c., &c.

Key & Higgs, Stoke-upon-Trent.—Parian, majolica, mosaic, jet, and porous ware.

Korsch, F., Hanley.—China and earthenware, printed by new process in gold and colours.

Liddle, Elloit, & Son, Bicknall Pottery, Longport, Staffordshire.—Earthenware dinner tea, and toilette ware; photograph goods, and parian.
LIVELY, Powell, & Co., Manufacturers, Hanley.—China and earthenware, printed in gold and colours; parian, &c.

LOCKETT, John, Longton.—China and earthenware of all kinds; chemical earthenware and stone ware; gold lustre and black Egyptian wares.

Lockett, John, Longton.—China and earthenware of all kinds; chemical earthenware and stone ware; gold lustre and black Egyptian wares.

MelIj Giovanni, Stoke-upon-Trent.—Parian statuettes, vases, ornaments, jugs, butter-tubs, dessert pieces, &c.

MelIj Giovanni, Stoke-upon-Trent.—Parian statuettes, vases, ornaments, jugs, butter-tubs, dessert pieces, &c.

Mid-Lothian Pottery Company, Portobello, near Edinburgh.—Bottles, filters, jars, foot-warmers, jugs, picklers, oases, jelly-cans, &c.
MILLAR, J., & Co., 5 St. Andrew's Street, Edinburgh.—Ornamental pottery, &c.

MILLICAN, Henry, Prince's Street, Lambeth.—Terra cotta vases, flower pots, chimney shafts, &c. (See page 120.)

MINTON & Co., Stoke-upon-Trent.—China, earthenware, majolica, parian, tiles, &c. (See pages 114 to 117.)

NORTHES, William, Union Pottery, Vauxhall, London.—Various specimens of earthenware.

OLD HALL EARTHENWARE COMPANY, THE (Limited), Hanley, Staffordshire.—Parian, plain and ornamental earthenware of every description.

[Obtained a Prize Medal & a Silver Medal at the Great Exhibition; second award of the Society of Arts Medals.]

Specimens of earthenware:—Dinner, dessert, tea, breakfast, and table services, from the most costly to the cheapest kind, both for home and foreign markets; candlesticks, jugs, and flower pots.

Porcelain and terra cotta clocks, vases, figures, fountains, and wine coolers.

Large vase—History of Bacchus.

Group—Prometheus bound.

Vases and Cupid, after Franklin.

PELLATT & Co., 59 Baker Street, Fortman Square, W.—Specimens of ceramic manufacture.

PHELPS, W. P., & G., Designers and Producers, 950 Oxford Street, and 155 New Bond Street.—China dessert services, vases, &c. (See pages 120 and 121.)

POWELL, WILLIAM, & SONS, Temple Gate Pottery, Bristol.—Various articles in stoneware.

PRICE, CHARLES, & JOSEPH R., Potteries, Bristol.—Stoneware vases, filters, &c.

ROBERTS, Joes, Upper Rochester, Kent.—Coolers, filters, stoves, grates, made of terra cotta and fire clay.

ROSE & Co., DANIEL & Co., Coalport, Shropshire; Wigmore Street and New Bond Street, London.—China manufactures.

SHELBY, BROTHERS, Staffords, Burton-on-Trent.—Patent closet basins and specimens of Derbyshire cane and Rockingham wares.

SHELBY, Thomas, & CULLUM, William, 13 Cockspur Street, Pall Mall.—Unique china dessert service and other elegant designs.
Minton & Co., Stoke-upon-Trent.—China, earthenware, majolica, parian, tiles, &c.
CLASS XXXV.—South-East Court, Central Division.

MINTON & Co., continued.
Every inscribed the summit as it alone, attained and divided oak basin ness'. May success,' "Thus one required. after — The The top leaf, the 26. of no of the it would imitation the Perosnalia fountain, the late Mr. Thomas, under the personal supervision of his Royal Highness the late honored Prince Consort. The outer basin of the St. George's fountain, which is the largest, and encircles the whole work, is ornamented with an oak leaf, alternating with the Rose of England, and is divided by eight lower vases. The whole management of the heraldic colouring is considered very perfect, and the isolation of the steel arms on the arcs and legs of the column figure is especially deserving of notice. This work was designed and modelled by the late Mr. John Thomas, sculptor, of London, a self-taught artist, a man of genius and sterling merit, and who had attained to great eminence, when death removed him from the scene of his useful labours.

"The Parian masterpiece of the Exhibition. If there were no other object in the building but this grand work alone, it would be well worth a visiting entrance fee to see it."—Daily News, May 22.

"This magnificent triumph of the Potter's Art."— Standard, May 10.

"The triumph and the plus alize of the Potter's Art. Every one 5ch, and (Continued on page 116)

The Magnifico Fountain erected under the Eastern Dome.

Subjected is a brief description of this magnificent work, which is 36 feet high by 36 in diameter — at the summit there is a group, happier than life size, of St. George and the Dragon; four-winged figures of Victory, holding crowns of laurel, outside a central pinnacle, on the top of which the group rests, and round which is inscribed the motto, "For England and for Victory". underneath is a series of smaller figures of varied shapes and sizes, which receive the water, and spread it as required. One of these, that supported by a horse, is after the model of the fountain designed for the Queen's dairy, at Windsor, by the late Mr. Thomas, under the personal superintendence of his Royal Highness the late honored Prince Consort. The outer basin of the St. George's fountain, which is the largest, and encircles the whole work, is ornamented with an oak leaf, alternating with the Rose of England, and is divided by eight lower vases. The whole management of the heraldic colouring is considered very perfect, and the isolation of the steel arms on the arcs and legs of the column figure is especially deserving of notice. This work was designed and modelled by the late Mr. John Thomas, sculptor, of London, a self-taught artist, a man of genius and sterling merit, and who had attained to great eminence, when death removed him from the scene of his useful labours.

"The Magnifico masterpiece of the Exhibition. If there were no other object in the building but this grand work alone, it would be well worth a visiting entrance fee to see it."—Daily News, May 17.

"This magnificent triumph of the Potter's Art."— Standard, May 10.

"The triumph and the plus alize of the Potter's Art. Every one 5ch, and (Continued on page 116)
A 47. Thebes, No. 254.
A 58. Cain and Abel, No. 327.
A 52. Prince Alfred and Queen, No. 357.
A 60. Prince Arthur, No. 369.
A 61. Princess Beatrice, No. 364.
A 64. St. Bavon—King of Sardinia, No. 358.
A 65. Dancers with shell, No. 365.
A 66. Flight into Egypt, No. 223.
A 67. Unline, No. 341.
A 68. Bachelors, No. 353.
A 69. Lapidus, No. 381.
A 70. St. Matthew, after Clodion, No. 362.
A 71. Venus and Cupid, No. 366.
A 72. Daniel Saved, No. 263.
A 73. Clodion vase, No. 617.
A 74. Roger’s vase, No. 618, cast from the antique.
A 75. American Sioux, No. 377.
A 76. Kaffir Girl, No. 370.
A 77. Water Nymph, No. 380.
A 78. Lady Godiva, No. 383.
A 81. Prince Leopold, No. 383.
A 82. Princess Helena, No. 382.
A 83. Princess Louise, No. 383.
A 84. Lady Constance Grosvenor, No. 325.
A 85. Prince of Wales, No. 206.
A 86. Princess Alice, No. 384.
A 84. Skippring Girl, No. 371.
A 85. Fanmy Elhager, No. 162.
A 88. Tanza Shell Top, No. 1005, supported by Cupid, &c.

CHINA.

B 2. Pair of vases, No. 974, blue ground, painted on gold ground, with allegorical figures of Love and Spring, &c.
B 3. Pair of jars, No. 975, painted orchidaceous and gold.
B 4. Pair of bottles (Allahambo), No. 624, painted roses.
B 5. Pair of vases, No. 977, painted wreath and pendants of passion flower and flowers.
B 6. Pair of vases, No. 985, French green ground, painted Cupids and landscapes and trophies.
B 7. Pair of vases, No. 407, painted festoons of various flowers and masses, in the old Sévres style.
B 9. Pair of vases, coral and polychrome (Queen’s), No. 626, Sévres blue ground, painted pastoral subjects, after Bochart, and trophies.
B 10. Vase No. 808, pale luster, turquoise ground, painted landscapes and birds.
B 11. Pair of vases, No. 650, Sévres green ground, painted landscapes, birds and fruit.
B 14. Pair of vases, No. 804, small size, rose du Barry ground, painted white flowers on blue medallions.
B 15. Pair of vases, No. 827, Sévres blue ground, painted subjects, Apollo and the Muses on one side, and the "composition between Apollo and Marsyas," from Bartsch, on the other.
B 17. Pair of vases, No. 389, painted small bunches of roses hanging from purple ribbon, and bouquets of roses, with leaves of cornflowers.
B 18. Pair of bottles, pilgrims, No. 609, painted Cupid and trophies.
B 19. Pair of vases, No. 689, turquoise ground, painted cornucopias and trophies, festoons and pendants of various flowers.
B 22. Pair of vases, No. 669, turquoise ground, painted figures of the Seasons.
B 23. Pair of flower pots, No. 979, painted wreaths of poppies, corn, bluebells, &c., mounted in cumbos.
B 25. Comport Sévres, No. 526, rose du Barry ground, gold wreath and bows of blue ribbon, painted group of fruit and flowers in centre.
B 30. Pair of vases, No. 662 (Barthélemy), perforated, turquoise ground, painted subjects after Bochart.
B 31. A single vase, in the Chinese style, fluted, with a wreath of fruit in gold.
B 33. Pair of vases, No. 393, blue ground, painted Cypresses in Cosmos.
B 34. Vase, No. 840, pale luster, turquoise ground and cornice on purple ground.
B 42. Pair of vases, No. 867, Sévres blue ground, painted pastoral subjects after Bochart, and trophies between.
B 43. Pair of bottles (Harwood), No. 299, Sévres green, barks and gold ribbon.
B 44. Oval lighter, set, rose embossed, coloured pink.
B 50. Pair of candlesticks, No. 918, parian figures of Apollo and MasSTANCE, Sévres green ground richly gilt.
B 51. Pair of vases, No. 669, pale luster, rose du Barry ground, painted carnations, trophies, and festoons of flowers in the old Sévres style.
B 54. Flower holder, No. 928, bamboo, pink ribbon and bow, and painted small groups.
B 63. Cupid candlestick, No. 604, turquoise and gold.
B 64. Twelve candlesticks, No. 359, rose du Barry, flowers and gold.
B 69. Piano candlestick, No. 714, turquoise, roses and gold.
B 70. Chinese tripod, No. 906, painted flying birds.
B 71. Pair of bottles, No. 741, hexagon pierced, painted clusters of flowers.
B 73. Pair of match pots, blue ground, painted flowers.
B 74. Pair of match pots, blue band, painted festoons of flowers.
B 75. Tray, No. 781, turquoise band and ribbon, with painted subjects in centres.
B 76. Tray, No. 781, green band and ribbon, painted fruit, and flowers in centre.
B 77. Tray, No. 7811, rose du Barry and gold, twist and painted trophy.
B 78. Black crested, coloured green.
B 79. Clock cases, No. 906, green ground, Cypresses holding garlands of flowers, mounted with a Cupid holding a tryst.
B 80. Tanza, No. 897, stark support, parian, gold cord edge.
B 80. Pair of tanza, No. 897, stark support, gold cord edge.
B 80. Pair of bottles, No. 688, oriental ornaments in turquoise and gold.
B 81. Pair of bottles, No. 984, turquoise ground, Persian coloured borders.
B 82. Pair of indented bottles, No. 743, blue ground, Chinese sculls.
B 83. Pair of small vases, No. 988, three handles, white Greek border on red ground.
B 84. Pair of vase, square-handled, No. 470, Sévres blue ground and richly gilt.
B 87. Oval basket and pot, and No. 980, perforated flower-de-lis, turquoise and gold.
B 88. Chinese single深度of sun, dated in turquoise, painted birds on branches of hawthorn.
B 89. Oval centre piece, No. 704, Sévres blue ground, finely perfumed and richly gilt.
B 90. Pair of bottles, No. 797, pale ivory ground, gold Indian ornaments all over.

CLASS XXXV.—South-East Court, Central Division.

*MINTON & CO., continued.*
CLASS XXXV.—Pottery.

MILLCHEMF, HENRY, Prince's Street, Lambeth.—Terra cotta vases, flower pots, chimney shafts, &c.

Terra cotta vases, flower pots, pedestals, flowers, trusses, brackets, tracery, balusters, finials, chimney shafts, pots, &c.

GARDEN VASE.

RUSTIC GARDEN SEAT.

( 118 )

GARDEN VASE.
Class XXXV.—South-East Court, Central Division.

[6885]
Sheerin, Henry, Wolstanton, Stoke-on-Trent.—Dinner plates of patterns constructed of the parsley leaf, &c.

[6886]
Southorn, Edwin, Broseley, Salop.—The Broseley patent glazed tobacco-pipes, unequalled in purity of material.

[6887]
Southorn, William, & Co., Broseley, Shropshire.—The celebrated Broseley glazed tobacco-pipes.

[6888]
Stiff, James, London Pottery, High Street, Lambeth.—Water filters, chemical apparatus, terra cotta drain pipes, jars, bottles, &c. (See page 122.)

[6889]
Storey & Son, 19 King William Street, City of London.—Specimens of china, porcelain, and earthenware. (See page 123.)

[6890]
Temple, Emily, 184 Regent Street, and Brighton.—Dessert service, ceramic statuary figure, supporting pierced comports, richly decorated. (See page 124.)

[6891]
Tenny, Bromley, & Hassall, Stoke-upon-Trent.—Parian groups, statuettes, vases, &c.

[6892]
Wathen & Rickhuss, Hanley, Staffordshire.—China tea, breakfast, and dessert ware, parian vases, jugs, &c.

[6893]
Wedgwood, Josiah, & Sons, Etruria, Staffordshire.—Jasper, blue and white bas-relief ware; parian statuary, stone, chemical, and photographic wares; earthenware in all its branches, enamelled, printed, pearl, cream colour, green glaze, Rockingham, majolica, porous, and terra cotta. (See pages 125 to 127.)

[6894]
Wilkinson & Rickhuss, Hanley, Staffordshire.—China tea, breakfast, and dessert ware, parian vases, jugs, &c.

[6895]
Ynesmedew Brick and Pipe Company, Pontardawe, Swansea.—Sewerage pipes, vases, tazzas, chimney pots, and faced bricks.

[6896]
Robertson, Mrs. J.—Service of tartan-plaid pattern.

[6897]
Grove, R. H., Barlaston, near Stone, Staffordshire.—Lustre ware.
Class XXXV.—Pottery.


Desert service of original design, perforated border, richly gilt, consisting of centre-piece (see fig. 3), group of figures in parian, surmounted by a basket for flowers, mounted on an ornamental plinth, with elegant shields for armorial bearings, and supported on either side by a shell-shaped comporte for fruit; centrepieces montés (see fig. 4), comportiers with figures representing the Four Seasons, dîner for cæsars, and cream-soup and covers en suite, with plate of porcelain variously.

Porcelain Yases.

Pair of vases, Queen's shape, "bleu de roi" ground, finely painted subjects after Boucher, finished in the old Sevres style.

Pair of vases, "bleu de roi" gilt, and finely painted landscape.

Pair of vases, oviform, turquoise ground, rich chased gold festoons, with beautifully painted subjects after Watteau.

Pair of vases, finished in the old Sevres style.

Porcelain Cups, Trays, &c.

Large tray, turquoise ground, rich raised gold borders, with very finely painted landscape in centre.

Large tray, turquoise ground, rich raised gold borders, and finely painted cameo subjects in centre, in the old Vienna style.

Chalice cup, turquoise ground, richly gilt, with finely painted medallion of the Amazon.

Dishne cups with two handles, green ground, richly gilt, with finely painted medallions.

Bonnet, turquoise ground, richly gilt, and finely painted groups of flowers and fruit.

Porcelain Cups and Saucers, Plates, &c.

A variety of cups and saucers, dinner and dessert plates, China toilet service, green ground, and gold Greek border complete with every requisite for the dressing-table.

Various samples, dîner, dîno.

Enamels.

Pair of pilgrims' bottles.

A tazza with masks, &c.

A coupe and cover.

Modern Majolica Ware.

Pair of large vases, with painted Cupids in compartments, after Boucher.

A magnificent dish, with ribbon handles, black ground, with subject of "Orithya, daughter of Erectheus, King of Athens, being carried away by Boreas, King of Thrace, while crossing the Ilissus," in white enamel.

Various samples of earthenware.
PHILLIPS, W. P., & G., continued.
Barrels, round and oval shape, specially adapted for spirit-merchants' use. Being vitrified, they do not absorb, thereby preserving the article contained, for any length of time. Gilded and Ingramed to order.

Stiff and Sons are manufacturers also of damp-proof course, drip bands, wall copings, facing blocks, &c., according to the patents of John Taylor, Jun., Architect.
Specimens of breakfast, dessert, and tea services in porcelain, painted and decorated with raised and burnished gold; dessert comporters, with parian supports. In these the china and parian is combined, the glazed portion being decorated to match with low comporters and plates of the dessert services, déjeuner, and luncheon sets.

Dinner and toilet services in earthenware, in a variety of colours and designs, and decoupled with burnished gold.

Parian acanthus vase, with festoons of mixed flowers.

In china, green ground, with two compartments, one painted rich groups of flowers—reverse side a landscape.

Triple violet bottle, Chinese vase and cover.

Tazzas and inkstands, flower pots, painted and gilt.
Temple, Emily, 184 Regent Street, and Brighton.—Dessert service, ceramic statuary figures, supporting pierced comports, richly decorated.

Dessert service, consisting of centre piece with figures and raised comports in statuary porcelain, elaborately ornamented in mai and chased gold, the drapery of the figures enriched with tinted borders.

The plates of fine porcelain with perforated border, and beautifully-painted festoons, baskets, and wreaths of flowers, and rich gold borders and star.

The following is a description of centre-piece and raised comports, which have been modelled by W. Beattie, of London, under the direction and from the designs suggested by Madame Temple, expressly for the Exhibition:

Upon a base of great richness arises a column worked with ivy and scrolls, the cup are composed of rich acanthus foliage, out of which springs an elaborate perforated tazza, lined with a ruby glass, to hold fruit or flowers. Upon the base, and dancing round the column are three female figures, with various insignia, expressive of joyfulness, gratitude, and abundance. Among the foliage of the acanthus are three genii of the dance, hovering over and admiring the spirit and grace of the joyous, happy trio.

The figures of each of the different size groups are varied in composition, although emblematical of joyfulness and abundance.

The service has been manufactured exclusively for Madame Temple, by W. T. Copeland.
Wedgwood, Josiah, & Sons, Etruria, Staffordshire.—Jasper, blue and white bas-relief ware; parian statuary, stone, chemical, and photographic wares; earthenware in all its branches, enamelled, printed, pearl, cream colour, green glaze, Rockingham majolica, porce, and terra cotta.

[Received the Prize Medal in 1851, and the Medaille de 1re Classe at Paris, in 1855.]

A. Solid jasper, that is the material now exclusively called Old Wedgwood Ware, the perfection of which depends on the smoothness of the surface and the delicacy and sharpness of the bas-reliefs. Invented by Josiah Wedgwood, P.R.S., about 1770.
1. Various vases, flower stands, &c., pale blue ground and white bas-reliefs, in the style of Louis XVI, as introduced into pottery in this material.
2. Black basaltic and jasper, pale blue and white bas-reliefs, with cameos of various colours.
3. Various vases, black and white bas-reliefs.
B. Blue and white bas-reliefs, not solid jasper. The process of covering an inferior but moremanageable material than jasper, with a slip of coloured jasper, was introduced about 1785.
4. Pair of large vases, three feet high, on pedestals, in the style of Louis XIV., bear-handled handles and bas-reliefs, representing sacrifices.
5. Vases in dark blue, with flowers white, in alto-reliefs.
6. Various vases in dark blue and white bas-reliefs, with coloured cameos.
7. The Portland and other vases, blue and white bas-reliefs.
C. Black basalt: invented by Josiah Wedgwood, P.R.S., 1786.
8. Various vases on old and new models, and slab bearing bas-reliefs representing a Roman procession and the death of a warrior.
D. Black, with red cameos painted; invented and patented by Josiah Wedgwood, P.R.S., 1786.
9. Pair of large vases, Greek form. Leda handles; subjects from Plautus's "Homer."
10. Various other vases, of the Greek and Campanian style in form and painting.
11. Vases in the same style, painted in cameos colours on red, buff, and other grounds.
E. Carvers or parian and terra cotta.
12. Oval vase, supported on a pedestal, consisting of two basaltic cameos and two navies, by A. Carrick, of Paris.
14. Faun and Bacchus, loaded with fruit and grapes, running, by Cholton.
15. Oberson and Titania, by Wyon.
17. Gamblers, raising figures, by Cholton.
18. Various other statuettes, after the antique and from models by modern artists.
F. Works of art, painted by Mr. Leesear.
21. One large vase in Norses blue; allegorical sub-
jects, Her Majesty, supported by the Prince of Wales; the coronation of the Prince Consort.
22. Pair of vases, three feet high, on pedestals, in the style of Louis XIV., from a model at Versailles.
23. Pair of Greek vases, figures after Raphael.
24. Three Greek vases, figures after Raphael.
28. Various vases: subjects from the Stanes by Ra-
phael, "Battle of the Amazons;" after Rubens, "Rape of the Sabines," after Caravaggio; domestic subjects.
29. Tazza; "Bacchus and Ariadne," "The Covenant-
ers," interiors, after Fragonart.
30. Tray, vases, &c., decorated with landscapes, pastoral and other light and pleasing subjects.
G. Majolica, dark blue, and other ornamental glasses and cameos.
31. Pair of vases on pedestals, style of Louis XIV.,
32. Various other vases in blue and gold.
33. Various vases in malachite.
34. Various vases, lankids, decors, and similar ware, in majolica.
H. Green glaze, invented by Josiah Wedgwood,
P.R.S., 1754; dessert ware, flower pots, &c.
I. Rockingham teapots, &c.
CLASS XXXV.—Pottery.

Wedgwood, Josiah, & Sons, continued.
CLASS XXXV.—South-East Court, Central Division.

WEDGWOOD, Josiah, & Sons, continued.

J Inlaid ware, tea and toilet ware, in red, black, drab, sage, white, and brown.

K Stoneware. Drab, sage, red, black, and white, teapots, jugs, candlesticks, &c., both plain and with bas-reliefs.

L Plumbers' ware, enamelled, printed, pearl, and cream colour.

M Chemical and photographic wares; mortars, evaporating pans, cruets, basins, and basins.

N Porous ware. Water-jugs, orange, black, white, and blue, plain and ornamented; battery-sets of all shapes.

O Enamelled dinner, dessert, and toilet ware.

P Patterns of ware printed in various colours by a new process, which obtains the effects of chromolithography, and with durable enamel colours and gold.

Q Plateau dinner, dessert, and toilet ware, scale-plates and weights.

R Pearl-white dinner and toilet ware.

S Cream-colour, invented by Josiah Wedgwood, F.R.S., about 1750, brought into use in 1763; the first dinner-set being presented to Queen Charlotte, on her accession, 1761, and called Queen's Ware.

Dinner, tea, and toilet ware; milk pans, kitchen pans, and ware for domestic use.
Sub-Class A.—Dressing Cases and Toilet Articles.

[6926] Asprey, C., 168 Bond Street & 22 Albermarle Street.—Dressing cases, travelling bags, and despatch boxes. See pages 2, 3, 4, and 5.

[6927] Austin, T. & G., 39 Westmoreland Street, Dublin.—Dressing cases, despatch boxes, carriage bags.

[6928] Betjemann, G. & Sons, 36 Pentonville Road, London.—Dressing cases, writing sets, and book slides.

[6929] Bourn, E., College Street, Bristol.—Russia leather travelling desks, stationery, writing and dressing cases.

[6930] Gerhardy, Rottmann, & Co., 24 Lawrence Lane, Cheapside.—Dressing cases and bags, writing desks, and photograph albums.

[6931] Howell, James, & Co., 9 Regent Street, Pall Mall.—Dressing cases, travelling bags, &c.

[6932] Jenner & Kewstub, 33 St. James’s Street.—Dressing cases, travelling bags, and despatch boxes.

[6934] Leuchars, W., 38 Piccadilly.—Dressing and writing case, travelling bag, &c.

[6935] Mappin Bros., 222 Regent Street.—Dressing cases and bags.

(1)
Class XXXVI.—Toilet, Travelling, and Miscellaneous Articles.

Asprey, C., 166 Bond Street & 22 Albermarle Street.—Dressing cases, travelling bags, and despatch boxes.

An Adelaide Writing Desk, in Coromandel wood, with pierced, gilt, and engraved mounts, with china medallions, and fitted with every requisite for correspondence.

A Suite of things for the Writing Table, in plain ormolu, set with corals, and producing a very elegant and pleasing effect.

(2)
An elegant gilt and engraved Metal Tray, with Oriental Agate Centre and Inkstand, raised on elegant scroll at the back.

A Travelling Bag, with ornate Silver Fittings, richly engraved, and with Silver Locks, etc., containing everything necessary for the tube, together with writing materials, and numerous other arrangements conducive to the comfort of travellers.
Mr. Asprey exhibits several dressing cases and travelling bags he has had the honour of making to order, one bearing the coat and monogram of the Venetian Lioness is a specimen of rare workmanship. The exterior is of the utmost simplicity, being the plain dead leaf rusted leather, surrounded with a gold coat and monogram. The interior fittings are very bountiful, all the tops being mounted in silver gilt of exquisite design, and finely pierced in the Moorish style, after one of the courts of the Alhambra, and over this pierced work is a crystal tablet, surrounded by a gold star-like plate, formed by two intersecting squares similar to those seen on some of the old Moorish brasses; on each plate is a coat and monogram in blue enamel. The looking-glass (being the full size of the lid of the box) has a richly pierced silver-gilt frame, and there is also an elegant set of instruments all as suits. Another, bearing the coat and monogram of the Lady Harriet Ashley, is a splendid specimen of cabinet work, composed of fine rosewood, with kingwood cross bands with bone inlays. The whole of the beautiful fittings are in massive silver gilt, with fine gold corners embroidered with inlaid, all the elegant instruments being as suits with graduated stones, giving a very pretty effect. Another, bearing the name of Mrs. K. R. Woodhouse, is of rosewood of a very beautiful colour, and having the appearance of tortoiseshell. This is mounted outside with solid silver pierced work in very correct and tasteful Alhambra style; the interior is fitted in the same pure style, and the case has essentially the appearance of a bridal present. Another, made for Sir Alfred Thomson, Bart., not so elaborate in the workmanship, is beautifully finished and in excellent taste.
Asprey, C., 166 Bond Street & 22 Albermarle Street—continued.

It is covered in green morocco leather, with Mr. Asprey’s improved patent handle, and his improved patent English brass lock. The fittings are of solid silver gilt, plain and massive, with gold centres, each having on it a clever monogram in green enamel. There is also a smaller sized walnut-wood case, having the name of Miss Aytoun, very prettily mounted outside, having a patent handle in the centre, and the fittings having silver-gilt mounts with gold centres. Also a morocco travelling bag, having engine-turned silver Bramah locks and fasteners, the interior fittings being of the same material, with writing top, is suitable for a lady’s writing table, it being both ornamental and useful. The sets of things for the writing table are plain ormulu mounted with coral drops, in very nice taste. It consists of envelope case, blotting book,acted, slate box, cigarette box, match box, &c.

These sets, either larger or smaller in number of useful things, are kept in every kind of fashionable wood and other materials, elegantly mounted in the medieval and other styles.

The beautiful intarsia in the engraving represents a style peculiar to Mr. Asprey’s establishment, and which is very recherché. It is in richly engraved ormolu work, mounted with Oriental stones, the bottom of the large tray being a beautiful plaque of Oriental agate.

A visit to Mr. Asprey’s extensive establishment would amply repay any one, where may be seen not only a splendid stock of exquisitely-finished articles, but, what is more rare, such articles in process of manufacture on the premises.
CLASS XXXVI.—Toilet, Travelling, and Miscellaneous Articles.

[ 6936 ]
MAPPIN & COMPANY, 77 and 78 Oxford Street, opposite the Pantheon.—Dressing cases and bags.
Mappin & Co.'s Dressing and Travelling Bags and Cases are celebrated for the quality of the fittings, and their admirable arrangement to suit the many wants of modern luxury.

MAPPIN AND CO.'S REGISTERED "OXFORD" DRESSING AND TRAVELLING BAG.

[ 6937 ]
MECHI & BAZIN, 4 Leadenhall Street.—Travelling dressing bags and cases, despatch boxes, &c.

[ 6938 ]
PARKINS & GOTTO, 25 Oxford Street.—Writing and dressing cases, bags, despatch boxes, &c.

[ 6939 ]
TOULMIN & GALE, 7 New Bond Street.—Despatch boxes, writing desks, and dressing cases.

[ 6940 ]
WEST, F., 1 St. James's Street, Pall Mall.—Dressing and writing cases, travelling bags.
Class XXXVI.—Gallery, North-Central Court.

Sub-Class B.—Trunks and Travelling Apparatus.

[6951]

Allen, J. W., 31 Strand.—Portmanteaus, trunks, dressing cases, &c.

[6952]

Barrett, B. Bros., 184 Oxford Street.—Travelling goods.—See page 8.

[6954]

Cave, H. Jane, 1 Edward Street, Portman Square.—Waterproof dress and bonnet baskets.

[6955]

Day, W. & Son, 353 & 378 Strand.—Portmanteaus and travelling requisites generally.
—See pages 9, 10, and 11.

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12
Class XXXVI.—Toilet, Travelling, and Miscellaneous Articles.

Barrett, B. Bros., 184 Oxford Street.—Travelling goods.

Illustrated catalogues of trunks, portmanteaus, and general travelling equipage, manufactured by Barrett Brothers may be obtained, post free on application.

[ 6956 ]

Fisher, S., 211 Strand.—Dressing cases, and portmanteaus.

[ 6957 ]

Harrow & Son, 38 Old Bond Street.—Light travelling basket, and imperial trunk.

[ 6958 ]

Kane, G., 70 Dame Street, Dublin.—Portmanteaus, &c.

[ 6959 ]

Last, J., 30 Haymarket.—Trunks, hat boxes, bags, portmanteaus, and imperials.

[ 6960 ]

Last, S., 256 Oxford Street.—Solid and other portmanteaus; new invented leather bag, &c.

[ 6961 ]

Pratt, H., Chester Terrace, Eaton Square.—Travelling wardrobe, and compendium portmanteau.

[ 6962 ]

Silver, S. W. & Co., 4 Bishopsgate Within.—Portmanteaus, bags, &c.

[ 6963 ]

Southgate, J., 76 Watling Street.—Solid leather portmanteau, travelling trunks and bags.

( S )
DAY, W. & Son, 353 & 378 Strand.—Portmanteaus and travelling requisites generally.

**Solid Leather Quadruple or Wardrobe Portmanteau.**
Contains four separate compartments, greatly facilitating the arrangement of a wardrobe, and keeping each article of dress distinct; Bramah lock, with duplicate key, &c.

**Solid Leather Folding Portmanteau.**
Regulation size for the Continental Mails Poste. Contains three distinct compartments, is fitted with portfolio for papers, patent lock, with duplicate key, flush handles, &c.

**Day's "Eclipse" Portmanteau. By Royal Letters Patent.**

There is no hand-portmanteau superior to this. It possesses the capacity and solidity of the ordinary portmanteau, and is only half its weight, and one-fifth its size. It is made in solid and ordinary leather, black or brown, and of five different sizes.

The "Eclipse" contains three distinct compartments, (one for shirts), each lying perfectly flat, and readily accessible, adapting itself to size to its contents, unaided by machinery or complication; thus inserting freedom from crossing and disarrangement, so it is always full, whether packed for a day's trip or a month's tour, to either of which the same portmanteau is applicable.

**Carriluge or Hand Bag.**
Carriages or hand bags, of various sizes, in morocco or enamelled hide leather, with self-acting locks, &c.

**Tourist's or Courier Bag.**
Tourist's or courier bags, in morocco and other leathers, from 7s. 6d.

**Square-mouthed Bag.**
Square-mouthed travelling bags, of enamelled waterproof hide leather, in various sizes.

The exhibitors manufacture ladies' dress trunks and imperials, air-tight overland trunks for India, cabin portmanteaus, hat cases, haversacks, tourist's knapsacks, and travelling requisites of every known description. Illustrated catalogues will be forwarded on application.
Day, W. & Son—continued.

Improve Dispatch Box.

Of Russian or morocco leather, with Bramah's patent lock; fitted with stationery, blotting-book, &c.

Improved Dispatch Box.

Of Russian leather, with patent lock; fitted with ink, pen-tray, &c. in all sizes.

Travelling Writing Desk.

Made of imitative and of real Russian or morocco leather, of various sizes, commencing at 10½ guineas.

Writing and Dressing Case Combined.

Recommended for use where economy of space is desirable. The dressing fittings are contained in a tray, removable at pleasure, allowing the case to be used as dispatch box and writing-desk only, if desired.

Of Russian leather, with Bramah lock and best quality fittings. Illustrated catalogues forwarded on application.

(10)
DAY, W. & Sos.—continued.

The contrivances for securing portable inkstands have hitherto been confined to three: a top to pull off, a top to screw on, and a lid to close with a spring. Each of these methods is subject to objection; the pull-off top soon becomes loose and insecure; the screw-on top is troublesome and uncertain; the lid closing with a spring quickly gets out of order, and burns the ink from the force with which it flies open.

Day's Patent Revolving-top Inkstand is submitted to the public as the simplest and most perfect inkstand that has yet appeared. It closes instantaneously, by one movement, without screw or spring; cannot corrode, or get out of order by wear; and is guaranteed to retain the ink perfectly secure, in whatever position it may be carried.

Price 3s. 6d.

Watson, C. J., 162 Piccadilly.—Portmanteau, with collapsing fittings for a hat.

Wilks, E., Cheltenham.—Portmanteaus, &c.

Browne, E., 4 St. Augustine's Parade, Bristol.—Dressing cases, tourists' cases, portfolios, &c.
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ILLUSTRATED CATALOGUE OF THE INDUSTRIAL DEPARTMENT.

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**Summary:**

This index page is from a catalog listing various names and associated catalog numbers, possibly related to a product or service.
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INDEX.

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