

பாடகாப்பு பிரதி-1

செப்பனிருபவர் பெயர்: ம. அனாபிடுவன்

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22/5/08
செப்பனிருபவர்
முதல் முப்பாள்
கையொப்பம்

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தமிழ்நாடு அரசு

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பொது துறை

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Patents have been granted in all cases in which Abridgments are given, unless otherwise stated. Notification as to the Sealing of Patent or otherwise of these Nos. under opposition, &c., at time of publication will be given at the end of future Nos. of this Journal.

"Abandoned."—Applications thus described are those in respect of which a Complete Specification has not been left at the Patent Office.

"Void."—Applications thus described are those in respect of which the Complete Specification has not been accepted within the prescribed time.

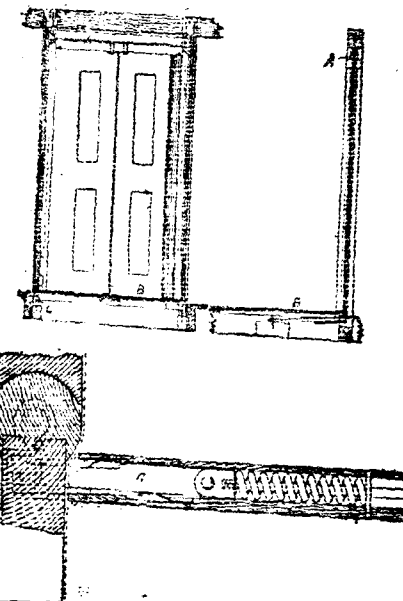
The Abridgments and drawings published in this Journal are merely to be regarded as a key to the contents of the full text of the printed Specifications, which should be consulted for "Claims" and all points of detail.

Specifications of Patented Inventions, as also the other publications of the Patent Office, can be obtained on application to the Comptroller, Patent Office Sale Branch, 38, Cursitor Street, Chancery Lane, E.C. The price including postage of each Specification is stated in brackets at the end of each Abridgment. Sums over 1s. should be remitted by Post Office Order made payable to H. Reader Luck, Esq., Comptroller-General.

The Names and Addresses in italics are those of Communicators of Inventions.

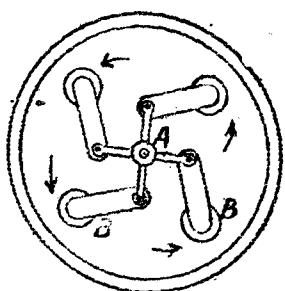
15,609. December 18, 1885. **Automatically opening doors.** D. and E. GLAISTER (Representatives of J. GLAISTER, deceased), 18, St. Mary's Terrace, Ryton, Durham.

In this invention, the object of which is to afford ready exit from public buildings, the doors are fastened by bolts connected by suitable mechanism with a hinged platform forming a portion of the flooring, by the depression of which, upon the approach of a person towards the door, the bolts are withdrawn. In the case of double swing doors, the upper bolts are carried by a heavy bar A, supported in a space in the door-head by a pair of lines, which pass over pulleys and along grooves in the frame and are attached by their free ends to a pair of lifting battens under the movable platform B. The platform is kept raised by the weight of the bar in the door-head. If it is desired to fasten the door at the bottom as well as at the top, the platform may be made to carry a pair of bolts similar to those at the top. The doors preferably have rollers of circular section and turn upon pivots. Under the platform, one on each side, are a pair of sliding spring catches C, which, when the platform is depressed, serve to lock it down, thus leaving the doors free until they are again designedly locked. For effecting this there is a device in connection with the lower pivot. The latch passes close to the latter, and is pressed towards it by a spring. Upon the pivot is an arm D which, when the door is moved in one direction, engages with the end of the latch and prevents it back, allowing the platform to rise and the fastening bolts to be shot, but which, when the door is moved in the opposite direction, merely pushes it out of the way. (S. d.)



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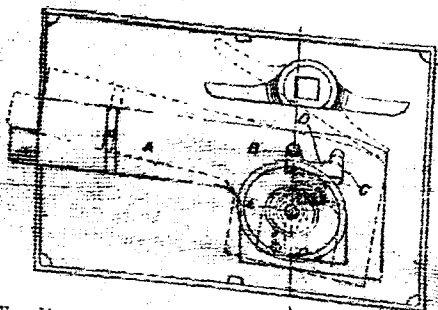
15,610. December 19, 1885. **Washing clothes, or churning.** H. W. WELCH, 68, Blair Street, Poplar, London.



A shaft A carrying hinged beaters B is rotated alternately in each direction in the receptacle for the liquids; at each change of direction the flaps are thrown outward, squeezing the articles against the sides. [64d.]

15,611 & 15,612. Abandoned.

15,613. December 19, 1885. **Combined lock and latch.** T. I. GRAY, 122, Bowes Street, Waterloo, Blyth, Northumberland.

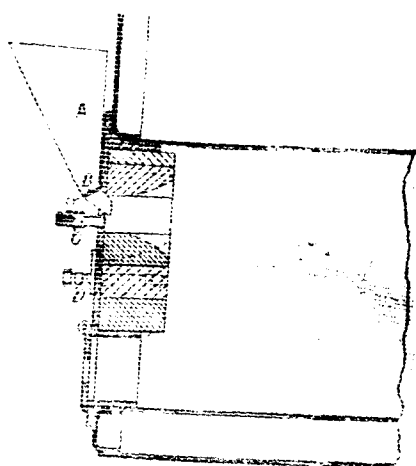


The lifting latch A turning about a pin B is made to act also as a locking bolt by being forced further out so that the pin B supports it by taking into the recess C at the other end of the slot D. This is effected by the circular plate E, turned by the key, and carrying a radial strip by which the bolt is shot and withdrawn. This plate is fitted with rings or wards which work between corresponding rings or wards on the lock case. [64d.]

15,614. December 19, 1885. **Burning liquid and pulverulent fuel together.** W. MENZIES, 17, Osborn Road, Newcastle-on-Tyne.

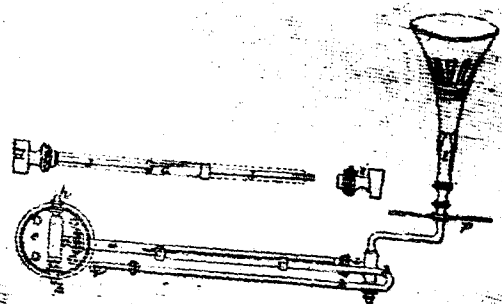
Powdered fuel falls down from the hopper A through the regulating valve B, in front of a steam or air jet issuing from the nozzle C. By this means the dry fuel is blown into the furnace. The liquid fuel is supplied by steam or air injector D.

situated either on the front of the furnace or at a part opposite the dry fuel injector. The front part



of the furnace is lined with firebrick while baffle plates are supplied where necessary. [64d.]

15,615. December 19, 1885. **Curtain bands.** T. KENDRICK, Summer Works, Summer Lane, and W. GIBSON, Royal Works, Legge Street, both in Birmingham.

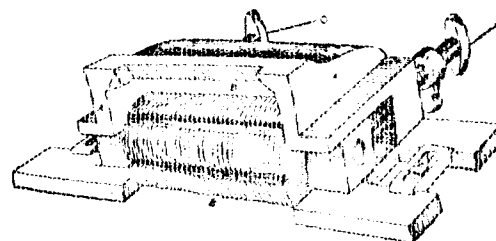


The retaining hook K has fixed to it two eyes C having spring clips shown in Fig. 2 sliding on a rod E and inside the slotted tube A, and serving to keep the hook in any required position. The eye of the hook has a socket fitting between two rings on the sliding tube A, the joint pin screws into the eye and the ornamental screwed knobs H, H, on the upper mount I may have a socket in which fits a hooked bracket having an ornamental plate J, J, a socket I to receive a flower holder or candle. A modification one of the eyes C is fixed and the other which has a spring slides outside the tube A. [64d.]

15,616. December 19, 1885. **Food rest and turning apparatus for hand-lamps.** J. STAINCLIFFE, Lane Mills, Leeds, Yorkshire.

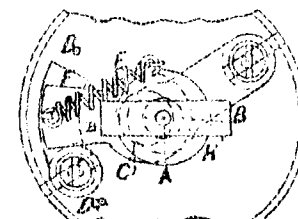
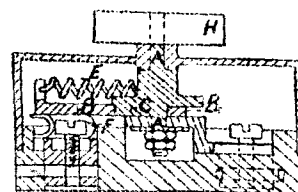
Bolted on the grinding stone is a casing A the upper surface of which serves as a rest; in it is mounted a chilled iron roller B, grooved across

ferentially and longitudinally. This is, by means of the screws C, C set up against the stone and



rotated by contact therewith, grinding its surface at the same time. [64d.]

15,617. December 19, 1885. **Electric switch.** H. B. and H. R. C. BOWKNE, 41, Priory Road, Bedford Park, London W.

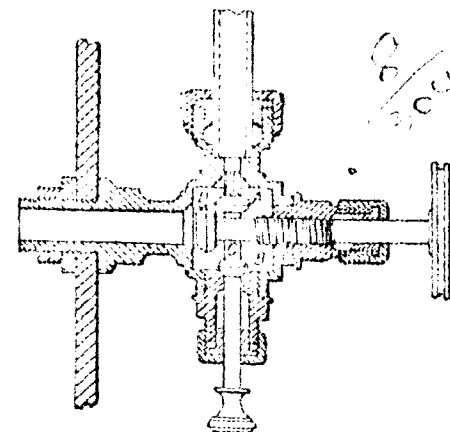


Constructed with pins D on each side of the fixed contact to prevent the free passage of the movable contact piece B, to or from the fixed contact piece E, except under certain conditions. The movable contact piece B turns upon an eccentric upon the axis A. A spring E is connected to the free end of the piece B, and to a projection or disc on the axis A. On turning the handle H, the cam C withdraws the piece B until it passes the pin D; the spring E then causes it to assume its normal open or closed position. The pins D may be made to be moved radially, instead of the contact piece B. [64d.]

15,618. December 19, 1885. **Valve for water-gauges, &c.** W. HARTCLIFFE and W. H. MALKIN, St. Simon Street Brass and Copper Works, Salford, Lancashire.

A, B, are two valves connected by a spindle C, through a loop in which the spindle of the screw-down valve D passes. The upper valve A is of slightly greater area than B, and the two together form a partially-compensated valve. The pressure of the water holds the valve A open so long as the gauge-glass is intact, but if it should break the rush of fluid closes the valve and prevents further escape.

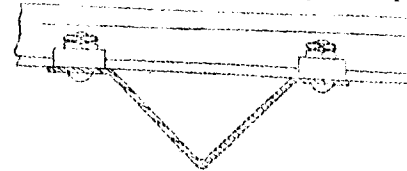
This construction is applicable to combined check and safety valves generally. Three-way valves may



also be made with each outlet closed by a separate valve, the spindle of one passing through that of the other. [84d.]

15,619 to 15,622. Abandoned.

15,623. December 19, 1885. **Sleepers.** B. RATHBONE, Exchange Buildings, Liverpool.



The sleeper is made of the section shown and the rail is secured thereto by clips and bolts or rivets. Bearing pieces may be placed across the sleeper under the rail, or the sleeper may be filled in with a triangular wooden block, which is secured to the sleeper by bolts, and to which the rail is clipped. [64d.]

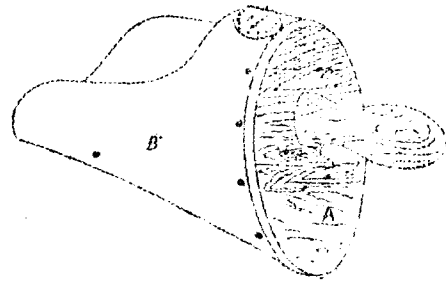
15,624. Abandoned.

15,625. December 19, 1885. **Fastening for double doors, &c.** F. H. COLLINS, 26, Cumberland Street, Birmingham.



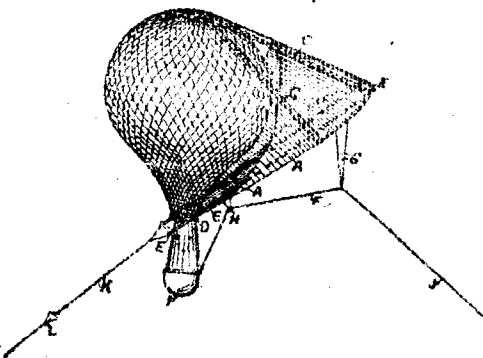
On one door is fixed a sliding bolt A which has a curved slot in it so that it forms a hook. A pin or stud B is fixed on the door frame so that, when the door is closed, it comes in contact with the bevelled point C of the hook and presses forward the bolt. When the door is shut a spring D presses back the bolt and causes the hook to engage with the pin B. The second door when closed comes in contact with the nose of the bolt and securely locks the first door. [64d.]

15,626. December 19, 1885. **Scoop.** W. PARNALL, 108, Victoria Street, Bristol.



The back A is formed of wood and rebated round the edge. Round this is placed the sheet-metal part B, which is fixed with nails or screws, the joint being strengthened by a circle of sheet metal soldered across. Other shapes than circular may be chosen for the back, the method of attaching the parts remaining the same. [C]d.]

15,627. December 19, 1885. **Captive-balloons.** E. D. ARCHIBALD, Grosvenor House, Tunbridge Wells, Kent.



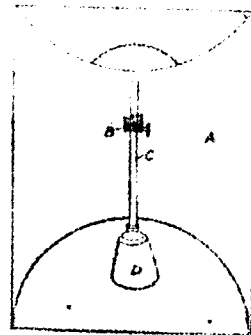
The kite A is secured to a ring D, where the cords of the net converge, and to the top of the balloon by bands, etc. C. The frame-work E of the kite is preferably made of bamboo or steel and has connected to it the cords F, G attached to an electroplated or phosphor-bronze wire J. The cord F is passed over a pulley H and is adjustably fixed to the car I to regulate the slope of the kite. A tail K, provided with silk cones L, rimmed with cane, is suspended from the kite which may have any shape and when made as a toy the kite forms a section of the balloon; the car being dispensed with. A silk covering (as shewn) is provided to protect the balloon from the wind and prevent eddies. [S]d.]

15,628. *Abandoned.*

15,629. December 19, 1885. **Artificial light for photography.** W. J. SAITZINGER, 14, Paradise Place, Leeds, Yorkshire.

Magnesium wire is employed and is burnt in an apparatus fitted with a reflector A, igniter, etc.

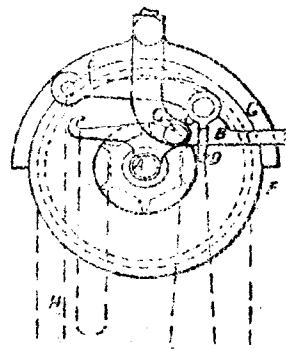
The wire is burnt in a chamber which is held by a clamp B and is connected to a gas supply and a pump.



vertical rod C to any required height so as to be in the focus of the reflector. The wire is held over an inverted funnel D, below which the lighter is introduced. The lighter consists of a metal cup attached to the end of a swinging arm. The arm is pulled to one side for the purpose of igniting the spirit with which the cup is charged, and is held in this position by a latch, which when removed allows the cup to be drawn under the concentrating funnel by a spring or weight, and thus ignite the magnesium wire. [S]d.]

15,630. *Abandoned.*

15,631. December 19, 1885. **Self-sustaining hoists.** J. SWALWELL and J. MORGAN, Acre Street, Battersea, Surrey.



The sheave pin A is carried by the frame B which is centred at C. One end of the lifting chain is attached to the link D hanging from the lever E, which is provided with quadrant teeth gearing with other teeth upon B to serve as a fulcrum. When the load is upon the chain, its tendency is thus to swing the frame B about its centre and so force the sheave F against a fixed block G. When however power is applied to the chain sheave, the frame swings in the opposite direction and takes off the block pressure. To lower, the lever E is depressed by the pull rope H; in so doing its end with the link D comes nearer to the fulcrum C and so the movement of the weight is diminished. The same

arrangement of hook mechanism is changed in combination with the pulley block described in Specification No. 10,000, A. D. 1884, in which case with a slightly different arrangement of parts the pulley has a hook to lock to pass over a smaller diameter of the sheave. To set to work, this lever is depressed applying its small beak but releasing the sleeve from the main one G. [S]d.]

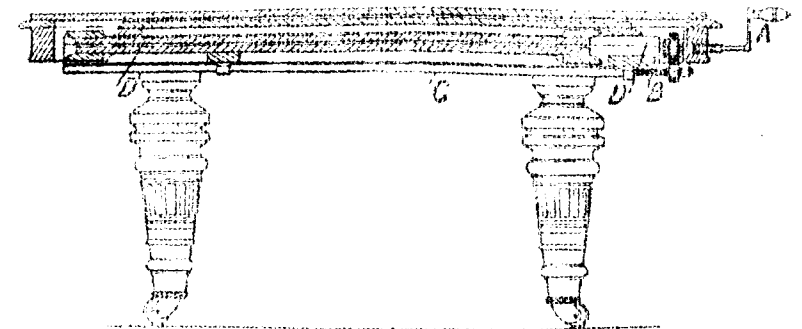
15,632. *Abandoned.*

15,633. December 19, 1885. **Fishing line.** C. H. COOK, 5, Middle Temple Lane, London.

One or more strands of fine phosphor-bronze or other ductile wire are admixed with the silk or other substance composing the exterior of the line, which is then twisted. [S]d.]

15,634. *Abandoned.*

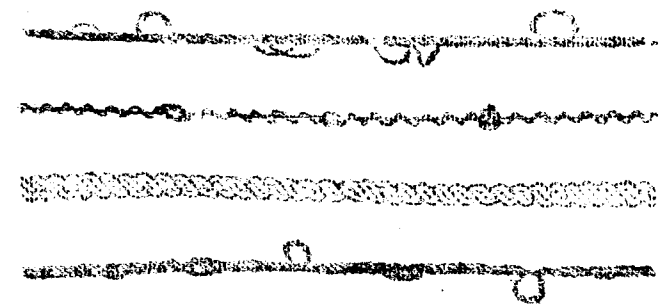
15,636. December 19, 1885. **Telescopic table.** J. FURST, 17, St. Andrew Street, Glasgow.



The two parts are joined by opening the handle which is forced through a hole in the screw B threading into a tube C. The screw B is shown in a hole in the handle, and the tube C, and having stopped at the hole, is supported when raised by parts of the frame which slide side by side when the table is contracted. [S]d.]

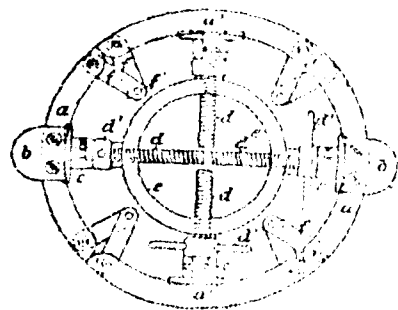
15,637. *Abandoned.*

15,638. December 19, 1885. **Yarn.** R. G. DAVENAW, Hawick, Roxburghshire.



This invention consists in subjecting the classes of yarns known as loop, knot, chenille spot, and spiral yarns, illustrated in the figure to the operation of print-dyeing. The colours may be applied in distinct lengths or graduated, as desired. [S]d.]

15,651. December 19, 1885. **Hat expanders.** J. CALVERT, 135 Kingston Villa, Cockburn Road, London, and J. G. WHITEHEAD, Del. House, Newton Moor, Cheshire.

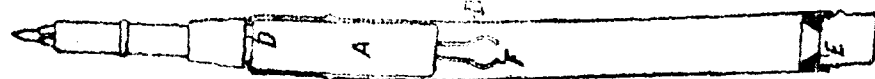


The hat is expanded or stretched by four segmental pieces forced apart by screws. The drawing shows one method of carrying the invention into effect but other methods are described. The segmental pieces *a, a* are each provided with a boss in which one end of a screw *d* is arranged to rotate freely, being kept in the boss by a spring means and rotated by the pin *f*, so that each screw is forced through a hole in a central ring *e* and draws the segments inwards or outwards. To keep the segments in the same plane and prevent them from rotating, they may be connected by four pairs of thin plates *f* pivoted together at *f*. The plates *b* are screwed on to the front and back segments to come up on the edge of the hat and placed loosely inside the hat. Each pair of opposite segments may be actuated by one screw and screw nut, or by one right and left handed screw. [84d.]

15,662. December 19, 1885. **Gas lamp.** W. R. LAKE, Southampton Buildings, London. (A. Wasserman: Philadelphia, U.S.A.)

The improvement consists in heating the air supply and so collecting it upon the flame that a more economical combustion of the gas is effected. The burner *A* is composed of a number of tubes

15,663. December 19, 1885. **Holder for pencils, crayons, &c.** G. F. REDFERN, 4, South Street, Finsbury, Middlesex. (R. Spang: Perth, Germany.)

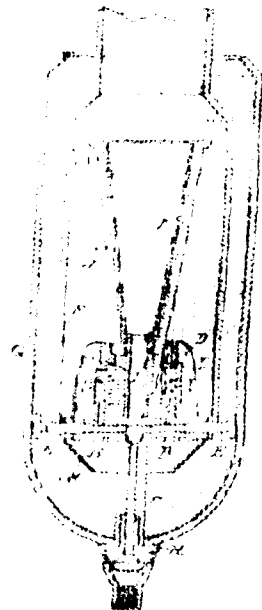


The holder is constructed so that the movement is projected or withdrawn by jerking the case. The drawing shows a pencil case, the movement *A* is weighted, and at *D* is a groove in which the spring tongues of the sheath *B* catch when *A* is jerked forward. The movement is retained when the sheath by the springs *F* which catch in the contracted part *E*. [84d.]

15,654. December 19, 1885. **Calcium phosphate.** T. R. SHILLING, 89, Chancery Lane, London. (E. Hänsch and M. Schroeder: Neumühl-Hausen, Oberhausen, Prussia.)

Relates to a method of separating basic calcium phosphate from impurities, which is based upon

the known property of sulphurous acid of dissolving the phosphate in the cold, and of precipitating it again on heating, the sulphurous acid being liberated thereby; and the object is to reduce the loss of sulphurous acid, and to prevent the formation of waste lye. A solution of sulphurous acid



is used for the process. As some phosphates (e.g. Thomas slag and phosphorite) contain an excess of lime, free or as carbonate, which is also soluble in cold sulphurous acid, and is also precipitated on heating, it is necessary to convert the lime into gypsum by adding sulphuric acid, then forming the mass into blocks, and heating them to a red heat, whereby the water is expelled and any iron and manganese sulphates present are decomposed forming oxides, which are insoluble in sulphurous acid. The blocks are then broken up, and are ready for treatment with sulphurous acid in the same way as bones or any other phosphate poor in lime. The material is charged into a series of air-tight vessels, and systematically fixated with sulphurous acid solution, the strong solution meeting the more nearly exhausted phosphate and vice versa. To obtain a strong solution of sulphurous acid, liquid compressed sulphurous acid is forced by its own pressure to enter a reservoir filled with water or lye from which vessel the solution passes to the extracting vessel. After circulating through these vessels the liquid containing the phosphate in solution is forced to a collecting vessel, and thence passed to air-tight closed lead pans in which it is heated to 60° or 70° C. by the waste heat from the calcining furnace. It is further heated in a precipitating cylinder by blowing in superheated steam, whereby the calcium phosphate is precipitated, and sulphurous acid gas is driven off to be cooled in a worm placed above, and finally led to the absorbing chests. The lye is drawn off to a cooler, and pumped up to wash the residues in the fixating vessels, and thus absorb any remaining sulphurous acid. From these vessels the lye is led back to the absorbing chests so that the sulphurous acid in it may be used over again. The precipitate of basic calcium phosphate, after the lye has been removed, is taken to a calcining furnace, where it is dried and any small amount of sulphite present is oxidized. The lye may be cooled in the precipitating cylinders themselves before filtering off the precipitate, by means of a current of cold air. In this case three precipitating vessels are employed, and steam is led through first one, then through the next, and then to an absorbing chest, while the charge in the third is cooled by blowing in air through the same coil as was used previously for steam. [11d. Drawings to Specification.]

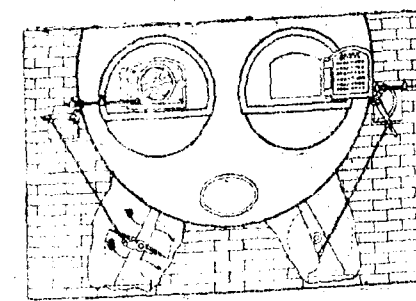
15,665. Abandoned.

15,666. December 21, 1885. **Furnace dampers.** W. HUTCHINSON, Millfield House, Ettingshall, Wolverhampton, and C. THOMPSON, 9, Elmwood Street, Sunderland.

The fire-doors are connected by a system of rods and levers to flue-dampers so that when the doors are opened the corresponding dampers are closed. By these means a sudden inrush of cold air into the flues with the accompanying evils is prevented. One arrangement is shown applied to a two-flued boiler. The right-hand door is open and the damper closed. Modifications are described to suit other boilers. [11d.]

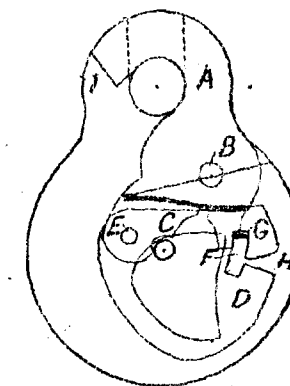
(For Drawing see next column.)

15,666.



(For Abridgment see preceding column.)

15,657. December 21, 1885. **Padlocks.** W. H. SAINT ALBIN, Bloxwich, Staffordshire.



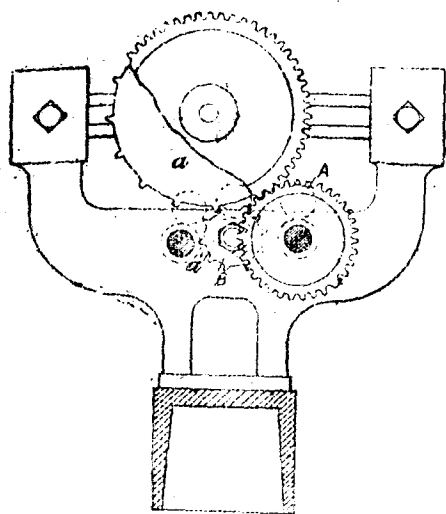
The shackle *A*, pivoted at *B*, is provided with an extension *C* so as to act as a combined shackle and bolt. The spring tumbler *D* is pivoted at *E*, upon *F*, and has a gating *F* engaging with the stud *G* on the lock case. In the unlocked position the stud *G* engages with one edge of the slot *H*; the parts may be restored to the locked position by closing the shackle *A*, the end of which abuts against the cover *I*. [61d.]

15,668. Abandoned.

15,669. December 21, 1885. **Fancy cotton yarns.** J. and H. DICKINSON, Range Lane Mills, Halifax, Yorkshire.

A thick soft yarn having thick and thin parts alternating is twisted along with a finer or harder spun yarn, the latter forming a spiral round the former. The pitch of the spiral being less on the thin parts than on the thick parts an ornamental corkscrew effect is obtained. The uneven soft yarn is produced by imparting intermittent motion to the

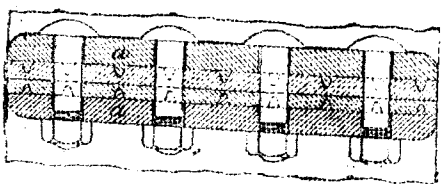
drawing rollers B by means of spaced wheels a, a' actuated from the back rollers A, the remaining



rollers also having a slightly intermittent motion. [84d.]

15,670. Abandoned.

15,671. December 21, 1885. **Driving-belt fastener.** T. H. SMETHURST, Bath Street, Oldham.



The drawing is a section plan of a belt having the invention applied. The inner faces of the belt are brought together and suitably shaped bars a, a', placed as shown, are secured by rivets, bolts, etc., which pass through the belt. The bolts or rivets, etc., may be cast on one of the bars, corresponding holes being formed in the other bar. [84d.]

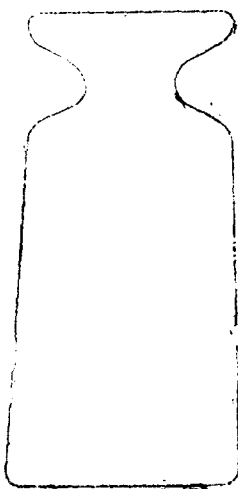
15,672. December 21, 1885. **Rope couplings.** E. TOWNSEND, Broadwell Villa, Broadwell, Oldbury, Worcestershire.

The couplings are cast in steel or iron and rendered malleable, in order to avoid welding. [44d. No Drawings.]

15,673. December 21, 1885. **Weights for scales.** W. PARNALL, 108, Victoria Street, Bristol.

These are made without any sharp edges and of the outline shown. The height is to be at least one third greater than the largest diameter. They are either solid or hollow and may be of metal, glass, or earthenware. The solid ones have a cavity

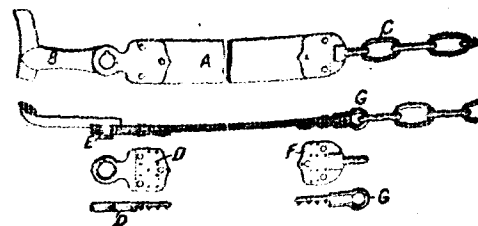
underneath for the insertion of the adjusting material, and the hollow ones an opening for in-



roducing lead. The weight is marked on the top, which may have a depression with a bar across for lifting. [84d.]

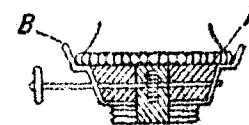
15,674. Abandoned.

15,675. December 21, 1885. **Traces, window straps, &c.** S. OGDEN, West Mosley Street, Manchester, and C. PETERS, 52, Charles Street, Birmingham.



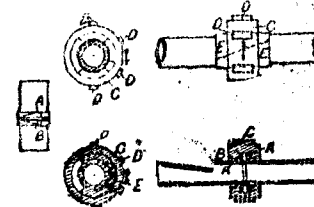
The traces, window straps, etc., are made of woven material with special fastening at the end, of which two modifications are shown in the figure, which represents a trace A attached to a handle B and a draught chain C. The left hand fastening consists of a looped plate D, which is riveted to the ends of the trace and may be provided with teeth to increase the holding power. The loop receives the pin E, which has a lug corresponding with a notch in the plate D, to prevent it being unfastened except when desired. The right hand fastening consists of a toothed plate F riveted to the woven strap and to a loop G. When the strap is required to have a varying length it is divided near one end and one part is burnt with several holes and eyeleted while the other has a stud or hook, etc., fixed to it. Loops are provided to keep the stud within the eyelet. [84d.]

15,676. December 21, 1885. **Porcelain burner for lamps.** W. H. and J. WATKIN, 259, Bishop Street, Birmingham.



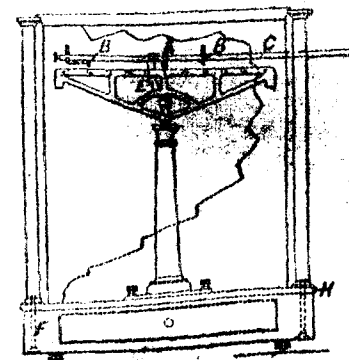
The object is to attach porcelain burners to the metal sockets which screw into the lamp reservoir. The bead A is made upon the porcelain burner and the piece B of the metal socket is then bent over it. This method of attachment ensures that the parts will not become loose after being continually attached and detached from the lamp reservoir. Patent refused. [64d.]

15,677. December 21, 1885. **Joint for pipes or shafting.** R. BARKER, 12, Catherine Street, Whitehaven, Cumberland.



The pipe ends are provided with lugs A, B, having inclined surfaces and are placed inside the ring C, which is cut away in places to receive them. The portion of the ring which is not cut away is shaped to fit the lugs. A packing ring is placed between the pipe ends and the ring C rotated by the external lugs D, the pipe ends being thus forced together. Wooden wedges E are then driven in between the collar and the pipes. The same principle is applicable to coupling lengths of shafting together. [84d.]

15,678. December 21, 1885. **Chemical balance.** W. E. HEYS, New Bridge Street, Manchester. (C Becker; New York, U.S.A.)



The beam is graduated from end to end so that the rider may be used on either side. This rider,

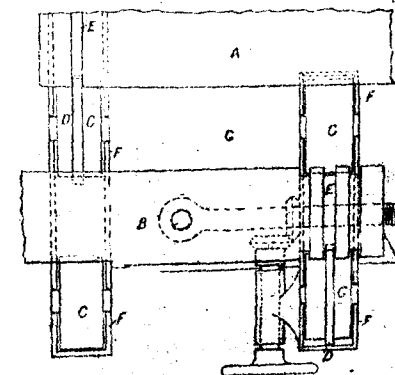
shown at A, is moved by one of the two lifters B on the rod C which slides in bearings in the case and arm E respectively. Instead of having a glass plate inside only, it is now made to support the case, the bolts F passing through the glass and uniting case, glass plate, and box beneath. [64d.]

15,679. December 21, 1885. **Woven driving bands.** S. OGDEN, West Mosley Street, Manchester.

The edges are impregnated with composition of shellac, resin, fallow, etc., combined with powdered mica, talc, steatite, etc. [64d. No Drawings.]

15,680 to 15,682. Abandoned.

15,683. December 21, 1885. **Yarn sizing machines.** P. BRIMLOW, 54, Shepherd Street, Bury, Lancashire.



The figure represents a part plan of the apparatus, the yarn beam being removed. Three presser rollers are employed, the central one A being rather shorter than the length between the flanges of the yarn beam, while the remaining ones B (one only shown) overlap the same. The rollers are carried in anti-friction runners C, some of which are made with flanges D entering grooves E in the rollers, thereby preventing lateral movement of the latter while not interfering with their rotation. Certain of the frames F carrying the runners may be adjusted along the table G by means of a screw and hand wheel or equivalent arrangement, so as to bring the outer ends of the rollers B close to the inner faces of the yarn beam flanges. [1s. 2d.]

15,684. Abandoned.

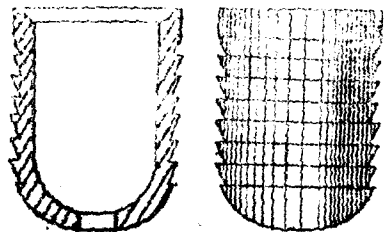
15,685. December 21, 1885. **Pattern makers' cup dowels.** J. and T. E. JENNENS, Villa Street, Aston Manor, Birmingham.

Instead of forming cup dowels as shown, by casting or by drilling as usually done, they are made by a stamping or pressing process either from a thin or a thick metal disc or from a metal tube. When a thin disc is used, it is first pressed into a shallow cup and then drawn out to a tube with one end closed. The barbed rings on the

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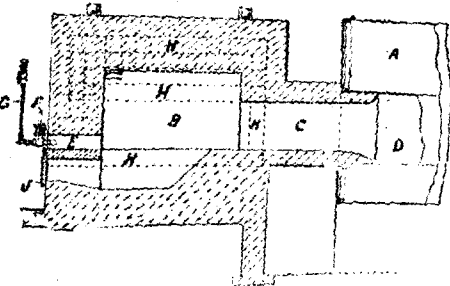
ILLUSTRATED JOURNAL OF THE PATENT OFFICE.

outer surface may be made during the stamping or pressing by employing suitable dies. The hole



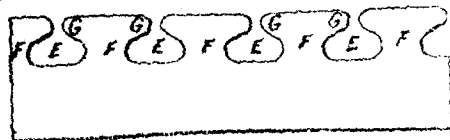
in the bottom may be stamped or drilled. When a thick disc or cylinder of metal is used, the metal near the centre is forced out by a suitable punch. When a tube is used, it is nearly closed at one end by pressing or by spinning, the bars being formed as before. [64d.]

15,686. December 21, 1885. **Liquid fuel steam-boiler furnace.** W. M. FRASER, Howden House, Mid Calder, Mid Lothian.



The furnace, of which a vertical longitudinal section is shown, is constructed of brickwork and placed externally to the boiler A. A combustion chamber B is formed within it communicating by short flues C with the boiler flues D. An injector E is supplied with compressed air by the pipe F, and with steam and fuel by the pipe G. Besides the air which is admitted to the furnace round the injector, air is also admitted in a heated condition from passages H in the side walls. Combustion oil can be extracted through the door J. An inspection door is also fitted in the front wall. [64d.]

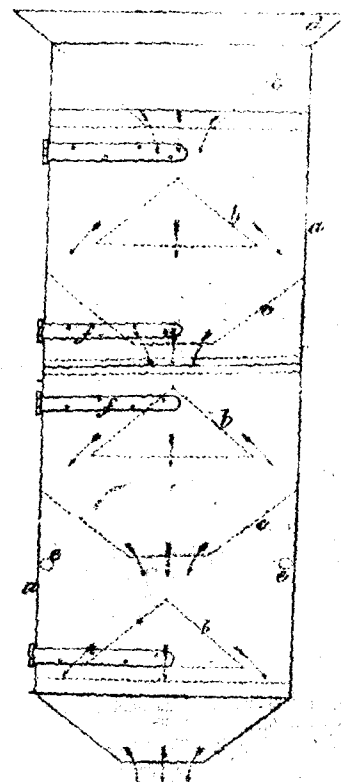
15,687. December 21, 1885. **Hot-plate bars for gas cooking-ranges.** T. FLITCHER, Thynne Street, Warrington, Lancashire.



Hot-plate bars formed with a series of openings E, E, and projections F, F, expanded laterally at G, G. The object is to give a practically continuous level upper surface, while diminishing cooling of flame, and preventing bending of bars. [64d.]

15,688. Abandoned.

15,689. December 21, 1885. **Concrete mixer.** H. STOCKMAN, 2, Queen's Villas, Hampton, Middlesex.



In the vertical casing a are arranged alternately the pyramids b and the hoppers c. The materials to be mixed are fed into the hopper d, from which they fall upon the apex of the pyramid b and slide down its sides into the hopper c. Water inlets e may be arranged to wet the ingredients as they descend, or a flap-hopper may be used and a portion of the material fed into it in the form of "groat." Doors f, f are provided so that the interior may be examined. Cones may be used in place of pyramids, the casing being shaped to correspond. [84d.]

15,690 to 15,692. Abandoned.

15,693. December 21, 1885. **Cigars, cheroots and the like.** F. TAYLOR, High Street, Whitchurch, Shropshire.

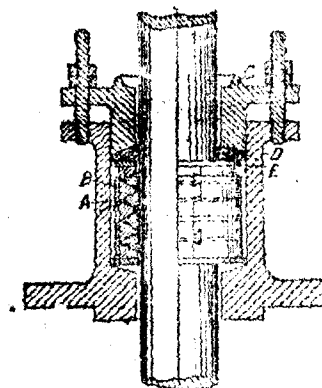
The end of the cigar is tipped with an igniting composition similar to that employed in the manufacture of fuses, and each cigar is wrapped in an inflammable or difficultly-inflammable material such as thin metal. [44d. No Drawings.]

15,694. December 21, 1885. **Blasting cartridge and detonator.** The PATENT OXONITE CO., and R. PENSION, 12, Buckingham Street, Strand, London.

The explosive consists of a mixture of picric acid and nitric acid which are kept apart in separate vessels until they are required. A cylinder, made of plaster of Paris mixed with an aqueous solution of picric acid, and closed at one end, is taken and covered with paper or waterproof material. Into this cylinder is inserted a perforated paper cylinder of less diameter but greater length, the paper cylinder being kept rigid by a wooden plug which fits within it. The outer space between the cylinders is then packed with picric acid and the top closed over. The nitric acid is kept in glass bottles, and when a cartridge is required for use, the wooden plug is replaced by a bottle of acid, the mixture being made by withdrawing the bottle, leaving the acids in combination. The detonator consists of a thin copper tube charged with a plug of compressed gunpowder and leading to an explosion chamber of larger diameter containing fine grained powder. The stem of the detonator may have a thin layer of gun-cotton wrapped around it. [64d. No Drawings.]

15,695 to 15,697. Abandoned.

15,698. December 21, 1885. **Stuffing-box packing.** A. A. RUCKABY, Bloomfield Engine Works, Sunderland.

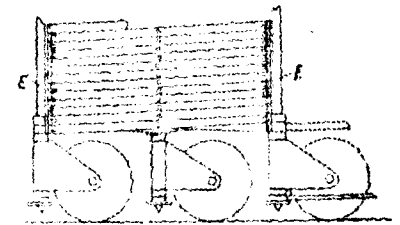


A series of superposed wedge rings A are fitted into a cylinder B which bores y fits the stuffing-box. Pressure is applied by the nut C acting through the soft packing D and washer E. The faces of the rings that are against the rod are preferably perforated to facilitate lubrication. [84d.]

15,699. December 21, 1885. **Fire-escape, observatory tower, &c.** G. BROWNE, Whitby Lodge, Thornton Heath, Surrey.

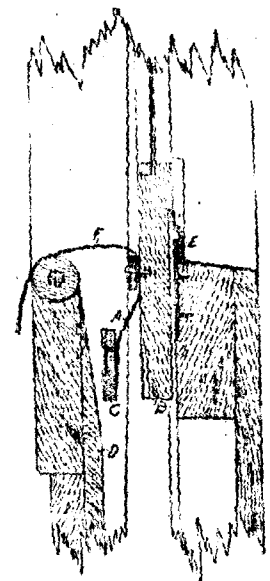
Lazy-tongs frames are combined together in any suitable number to make a firm tower, being connected at their sides by angle pieces to suit the various transverse shapes. The whole is mounted on castors for transit, and may be provided with means for tilting. The lowest slots are guided by

ends B, one of which is screwed to serve as a nut for expanding the frames. In some cases



this may be effected by a rope passing from side to side, uniting or posita slots and passing round a barrel at the foot; or by means of compressed air admitted to telescopic tubes situated within the tower, the air being compressed during the transport to the place of action. When used for military purposes, the upper portion is fitted with a bullet-proof cage. [144d.]

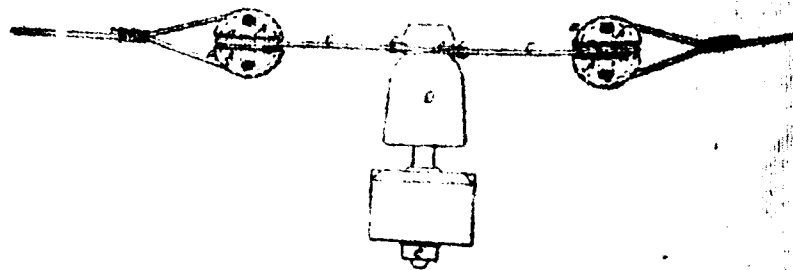
15,700. December 21, 1885. **Carriage and other windows.** J. YOUNG, 12, Chapter Road, Willesden Green, Middlesex.—(W. S. GILSON; Rotterdam, Netherlands.)



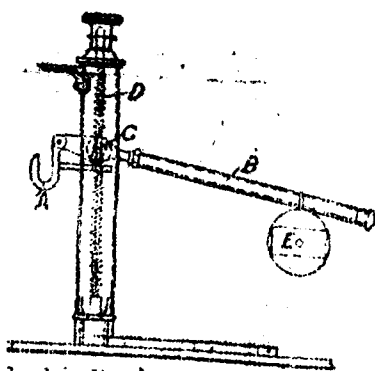
Carriage or other sliding windows are supported at any desired height by spring catches of any kind pressed against the inner surface of the casing or chamber in which the sash slides, or by pawls on the sash engaging ricks on the said chamber, or by eccentrics or rollers or other devices fixed to the sash and pressed against the chamber. The figure shows one modification in which a spring A is fixed to the bottom of the sash B and carries a leather or other block C, which is pressed against the chamber D when the sash is raised off the rail E. E is a strap for raising the window, but this may be dispensed with. A lever acted on by a spring may be substituted for the spring A. [84d.]

15,701. December 21, 1885. **Electric insulator.** A. E. GILBERT, Rotherhithe Cottage, Grosvenor Street, Liverpool.

Insulator for terminal wires, consisting of a block of insulating material A, with grooves a, a, in planes at right angles to each other. In the arrangement shown in the Fig. the insulator is attached to a post insulator D by a shackle C. Holes o may be formed through the block A for the purpose of lightening it and facilitating its manufacture when made of clay, etc. [64d.]



15,702. December 21, 1885. **Dandy-rolls.** T. A. MARSHALL, Campbell Works, Stoke Newington, London.



The dandy-roll is suspended in a bearing A, at one end of each of two weighted levers B, which swivel upon the nuts C. These nuts can be adjusted vertically by means of the screws D, and the pressure of the dandy-roll can be regulated by shifting the weights E. The roll may also be suspended at one end of each of two chains, etc., passing over pulleys and carrying weights at their other ends. [84d.]

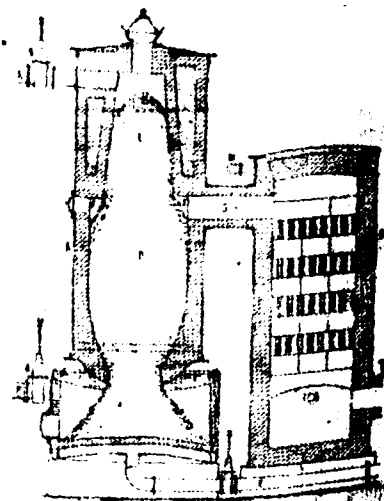
15,703 to 15,705. Abandoned.

15,706. December 21, 1885. **Water-gas.** E. BLASS, Essen-on-the-Ruhr, Germany.

The volatile constituents of the coal are driven off previous to the production of the water-gas. Air, heated or cold, is led to the furnace D by the pipe K, while superheated steam enters through S from the regenerator B, the gas produced being led off through the pipe P. The regenerator is heated by passing the hot gases through after cutting off the supply of steam. The upper part is of smaller diameter than the body of the furnace in order that an annular space F may be formed around the fuel. When fresh fuel is supplied the valve G is closed and superheated steam is forced through, carrying off the volatile constituents through the pipe K. The water, ammonia, etc., are condensed, and the gas led to the regenerator to be passed in with the steam and be formed into water-gas. [84d.]

(For Drawing see next column.)

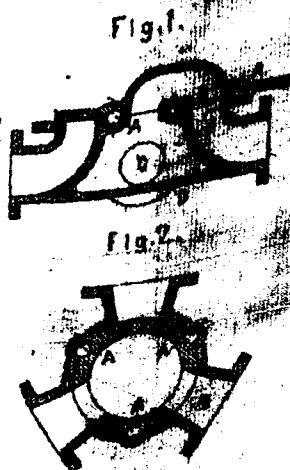
15,706.



(For Abridgment see preceding column.)

15,707. December 21, 1885. **Slide-valves and cocks.** E. BLASS, Essen-on-the-Ruhr, Germany.

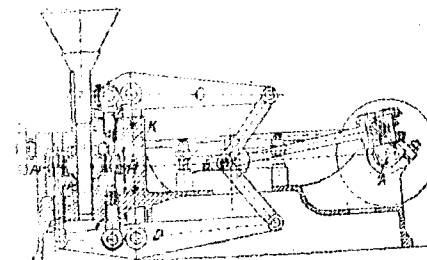
The improvement consists in providing slide valves and cocks with passages A for the purpose of discharging any fluid which would otherwise leak from one part to another. Fig. 1 shows the application to a slide-valve, Fig. 2 to a three-way-plug cock. [64d.]



15,708. Abandoned.

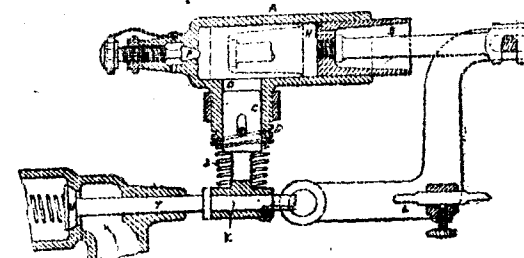
15,709. December 21, 1885. **Press for gunpowder, lime, tea, coffee, &c.** A. ATTWOOD, Canal Head Foundry, Ulverston, Lancashire.

The machine is driven by a line shaft which has a crank A connected to the crosshead B. C, D are two levers, each of which is connected by double links to the crosshead B, forming a toggle-joint. The levers C, D carry plungers E, F. The die block H is rotated horizontally by a pawl and ratchet feed motion derived from a gear on the driving shaft. Each die contains a loose plug K, which, in its lowest position, rests upon a collar on the inside of the die. A plunger L attached to the lower lever is used for ejecting the cartridges from the die. The hopper and measuring device is on



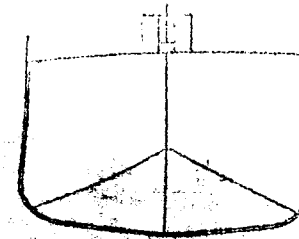
one side of the die block H, so that the dies are successively charged with the material, which is then brought into position for compressing between the plungers E, F, the cartridge being finally ejected by the plunger L, and it is then received between rubber rollers and carried to the packing bench. [84d.]

15,710. December 21, 1885. **Governor for gas and other engines.** J. H. JOHNSON, 47, Lincoln's Inn Fields, London.—(E. D. Deboutville and L. Malandin; Fontaine-le-Bourg, Seine Inférieure, France.)



A piston B is reciprocated in the cylinder A by some suitable part of the engine. Another cylinder D is in communication with the cylinder A and contains a piston C which carries a bolt K that communicates the motion of the tappet L to the supply valve spindle T. On the outstroke of the piston B air is drawn into the cylinder A through the valve H and escapes on the instroke when the speed is normal through an aperture which is adjustable by the plug P. But if the speed of the engine and consequently through the piston C against the action of the spring S of the piston B is excessive, the imprisoned air depresses the piston C against the action of the spring S and removes the bolt K from the path of the tappet L thereby preventing the valve U from admitting motive fluid to the engine. The apparatus may work by rarifying the air instead of compressing it. [84d.]

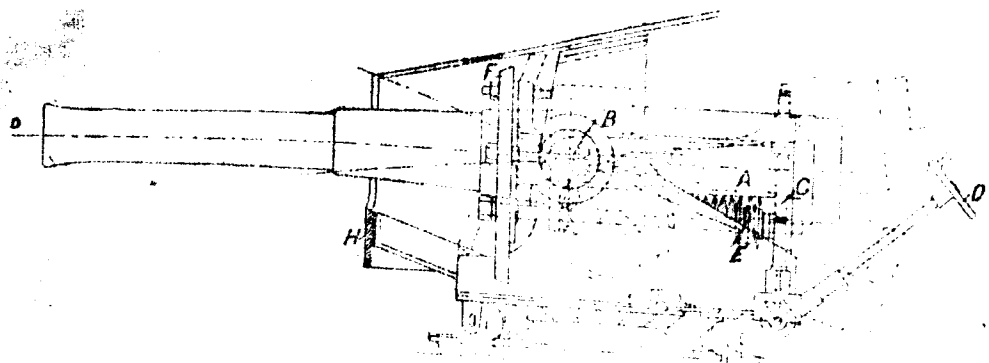
15,711. December 21, 1885. **Liquid carrying vessel.** H. F. SWAN, North Jesmond, Newcastle-on-Tyne.



This is especially designed to carry volatile cargoes, such as petroleum, turpentine, etc., in bulk, and is divided by longitudinal and transverse bulkheads

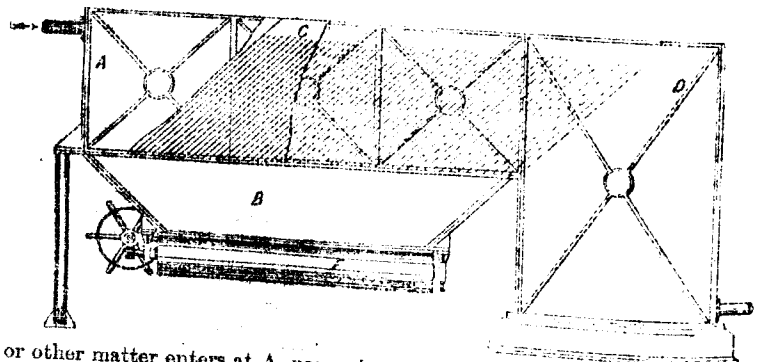
into a number of watertight compartments of such a size that the emptying of one while loaded, or the filling of one while light, shall not endanger the vessel's stability. Each compartment has a trunkway on top, to keep it full, and allow of the escape of the gases generated; the trunkways being fitted with washplates to control the motion of the liquid in a sea-way, and with some form of indicator to show its height. The cells are emptied and filled through main and branch pipes by pumps carried on board, while wells are arranged fore and aft, into which any leakage from the cells finds its way, and from which it can be pumped as desired. Under the cargo cells are water ballast tanks, the tops being inclined, as in the midship section shown, from the bilge to the centre, or vice versa, in order to raise the centre of gravity, and make the vessel thoroughly seaworthy. [84d.]

15,712. December 21, 1885. **Gun carriage.** J. VAYASSEUR, London Ordnance Works, Southwark, Surrey.



The gun recoils axially in a frame A, which is carried by trunnions B B, the frame being elevated and depressed by screws C C, operated by the hand wheel D, through wheel gearing. When the gun is forward strong enough to return the gun to its firing position after each discharge. A belt passes round the gun and is connected on either side to blocks which slide in the frame. A belt passes round the gun of or are screwed to the sliding blocks. An armature plate E is affixed to the front of the frame, and a circular shield H protects the sides of the mount. The whole mounting is carried on training rollers in the usual manner. [8d.]

15,713. December 21, 1885. **Subsidence apparatus.** S. H. JOHNSON and C. C. HUTCHINSON, Engineering Works, Stratford, Essex.



The sewage or other matter enters at A, passes into the hopper B and up the inclined parallel plates C, the solid matter being deposited and the liquid flowing into the tank D. The plates are inclined sufficiently to cause the sediment to slide down into the trough. At the bottom of the trough is a receiving cylinder E with a slit through which the mud falls, being discharged by rotating the cylinder until the slit is at the bottom. A chamber with sliding valves, or cocks, may be substituted for the rotating cylinder. [3d.]

15,714 & 15,715. Abandoned.

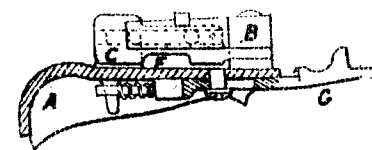
15,716. December 21, 1885. **Colouring matters.** C. RUDOLPH, Höchst, and O. GÖRKE, Elberfeld, both in Germany.

Relates to the preparation of naphthalene trisulphonic acid; its conversion into naphthol disulphonic acid; and the production of azo colouring matters by combining the latter with various amines or amidosulphonic acids. The sulphonation of naphthalene is effected by gradually introducing it into nearly double the quantity of sulphuric anhydride, preferably dissolved in sulphuric acid, at

from 80° to 180° C. The mass is then neutralised with slaked lime and the trisulphonic acid obtained is converted into its sodium or other salt. Instead of naphthalene, its naphthol or disulphonic acid may be used; and instead of sulphuric anhydride other sulphonating agents, such as sulphuric monochlorohydrin, or sulphuric acid and metaphosphoric acid may be employed. The sodium salt is distinguished by its solubility in alcohol of 80° F. and, by means of which or by fractional crystallization from water it is purified. If insufficient

15,717. December 21, 1885. **Textile fabric.** W. R. LAKE, Southampton Buildings, London.—(F. E. J. Dubar; Oisy-le-Verger (Pas de Calais), France.)
The fabric is formed by weaving coarse and long wools which have not been previously subjected to fulling, dyeing or similar treatment. [4d. No Drawings.]

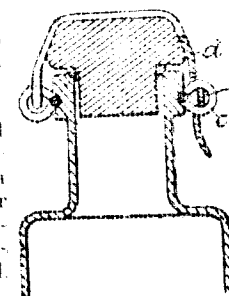
15,718. December 21, 1885. **Burglar alarm.** J. C. FELL, 1, Queen Victoria Street, London.—(A. Buckingham; 46, Rue de Terre Neuve, Brussels.)



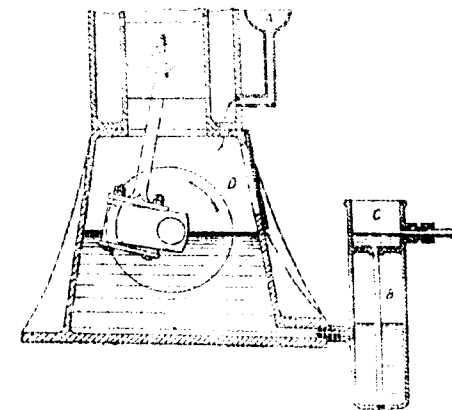
Pivoted to the frame A is an arm C which is forced towards the stop F by a strong spring B but held away from it by a catch on the spring slide G. To set the apparatus it is placed on the floor behind the door and a cap fixed either on C or F, the arm C being held back by the catch. On attempted opening the arm C is released and cap fired whilst the apparatus acts as a wedge and prevents the door from being further opened. [8d.]

15,719. December 21, 1885. **Bottle-stoppers.** H. GRAPPEL, Budapest, Austria.

The ring of soft metal d is secured to the stopper by enlarging the ends of a soft metal pin g by a pair of pincers having under mark, etc. on jaws. Various modifications are described. [8d.]



15,720. November 3, 1885. **Gauge and separator for oil and water in crank chamber.** P. W. WILLIAMS, Thames Ditton, Surrey.



Oil and cold water pass through the channel A into the closed crank chamber D of the high speed engine. The current of water passes in the closed receiver B containing air, and is forced up the vertical pipe into the cup or gauge C, and out by the overflow pipe, thus keeping the crank chamber cool. The gauge may be of glass, or open at the top, the height of the liquid in it indicating the height in the crank chamber. To remove oil from the receiver, the plug at the bottom is unscrewed. [8d.]

15,721. Abandoned.

15,722. December 21, 1885. **Cartridge cases and powder flasks.** E. MARTIN, Paris, France.
Consists in coating the case or flask with platinum silver or nickel. [6d. No Drawings.]

15,723. Abandoned.

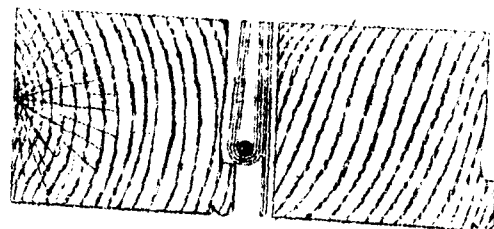
15,724. December 21, 1885. **Umbrellas.** O. JONES, 18, Southampton Street, Bloomsbury, Middlesex.



The notched flange A of the top-notch B has an annular groove to enclose a ring C, threaded through the ribs D, which is held in position by a grooved ring E secured by a cap F which screws on the end of

the slit tube G. The tube G, ring C and cap F, may be attached to the stick by pins, and the cap F and ring C may be made in one piece. The same means of attachment are used for connecting the stretchers H to the runner K. Recesses I are formed in the runner to allow the ribs to fit closely to the stick and prevent them from twisting. To hold the umbrella closed the ribs are passed through notches in the rib-holder M, and are held at equal distances apart in recesses N in the handle O on turning the holder M, which may be held by a screw P fitting a slot, or by a spring. The rib-holder may be recessed, instead of the handle, for the ribs, and may slide or turn or both to hold the latter. [84d.]

15,725. December 21, 1885. **Jointing material.** G. J. TAGE, Island Boat Building Works, East Molesey, Surrey.



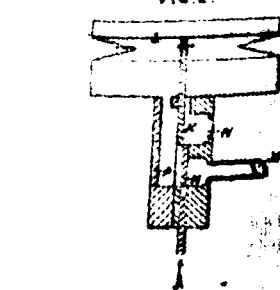
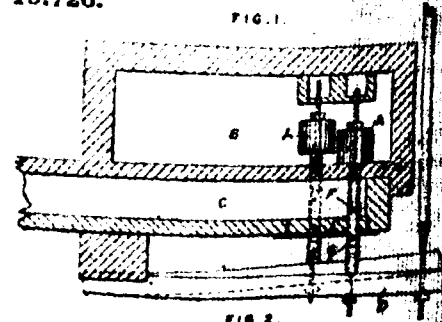
An air and watertight joint is made between the adjacent edges of materials used in the construction of floors, partitions, boats, etc., by inserting between them woven cotton or similar fibrous material previously soaked in varnish, or preferably in the dregs from foreign vegetable gums. One form of the jointing is shown, having a core of cotton wick or yarn. When existing joints are to be filled up, a wheel with a serrated edge is used to press the material in. [84d.]

15,726. December 22, 1885. **Organs.** E. H. SUGGATE, 250, Marylebone Road, London.

Relates to valve mechanism in connection with pneumatic levers. Fig. 1 shows an arrangement for exhausting. The valves A, admitting air from the wind chest B through the channel C to the pneumatic lever, are actuated from the keys through levers D and tubes E. Each of the tubes E has holes F and G, which in the normal state are situated one inside and the other outside C, so that air can escape freely through them from the pneumatic lever. But when the key is depressed to open the valve, the lower hole also passes within C, and further escape is prevented. Fig. 2 shows an arrangement of compound slide valve controlling both admission and exhaust. H and K are the two slides, H being operated through the usual mechanism from the hand or foot of the performer, and K being connected to the pneumatic lever L. M is the supply port and N the exhaust port. On lifting H, air is admitted through the channel P to L, till its inflation produces a sufficient movement of K to close the supply again. A depression of H produces a similar effect for exhaustion. The flat slides H and K may be replaced by valves one within the other. [84d.]

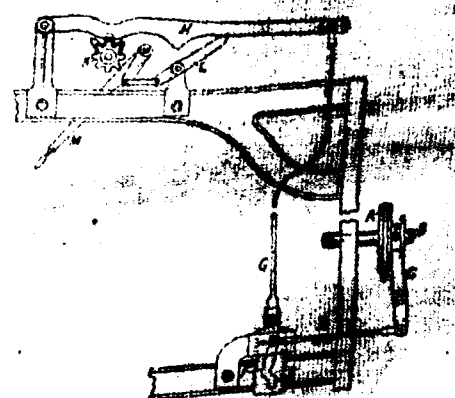
(For Drawing see next column.)

15,726.



(For Abridgment see preceding column.)

15,727. December 22, 1885. **Drop-box motions of looms.** H. E. MARLEMOSE, C. H. CROWTHER, and R. RAMSDEN, Commercial Mills, Milnsbridge, Huddersfield.

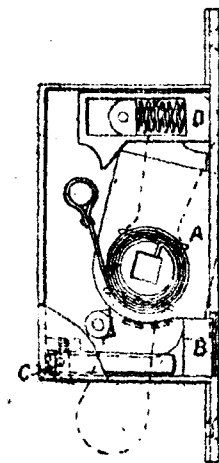


On each side of the loom the box-tappet A is shifted on the crank shaft B, so as to determine which shuttle box shall next be operated, by means of a lever C connected by a rod D with a bowl of a lever E in the cam groove F of a plate G. This plate is raised and lowered by a rod H and lever I, the latter being acted on by the pattern surface K. For "lagging back" the lever H is lifted from the pattern surface by a lever J, operated by a drop lever M. In order to allow the lever J to drop gradually and quietly a weighted lever N, passing over suitable pulleys is connected with the bottom box lever. [84d.]

15,728 to 15,730. Abandoned.

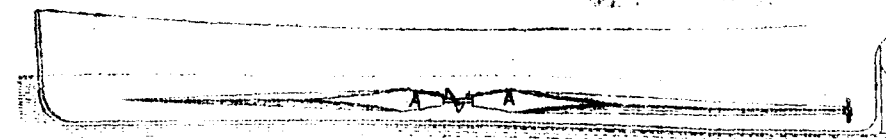
15,731. December 22, 1885. **Locks for railway carriages, &c.** J. MAXWELL, 8, Craigie Terrace, Dundee.

The spring bolt A is held in the withdrawn position by a spring lever B pivoted at C, which, on closing the door, is moved from the supporting position by a projection on the striking plate, allowing the bolt to shoot. An additional spring bolt D is also provided, which is withdrawn by the main bolt. [84d.]



15,732 & 15,733. Abandoned.

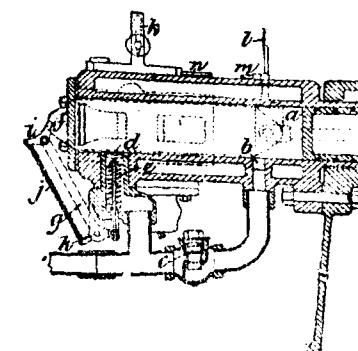
15,734. December 22, 1885. **Screw vessel.** H. J. ALLISON, 52, Chancery Lane, London, W.C. (E. H. Hall, Brooklyn, New York, U.S.A.)



Each vessel is propelled by four screws, two at stern, and two at sides, amidships. The latter are carried between hollow plate gun guards A, A, secured to the vessel's side, rectangular in section in the centre, and triangular towards the ends. Each screw has one blade making a complete revolution, and is entirely clear of shaft except at each end where it is attached. [84d.]

15,735 & 15,736. Abandoned.

15,737. December 22, 1885. **Gas-engine.** J. E. ROGERS, Poplar Street, Smithwick, Staffordshire.



A cycle is completed in two revolutions. One object is to entirely expel the exhausted gases. The piston a near the end of the explosion outstroke by uncovering an exhaust port b, which opens into a pipe fitted with a non return valve c, allows the pressure in the cylinder to sink to that of the atmosphere; and in returning expels some more products through this port until it re-covers

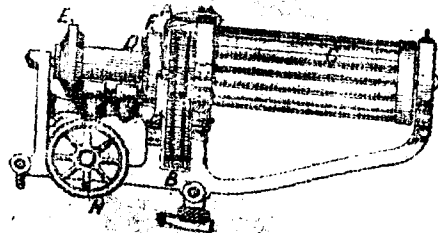
it, when another valve d is immediately opened through which the remaining products are forced. The valve d is closed by the spring e and is opened through trip gear by a pin f on the admission and ignition slide. The trip gear consists of a bell crank g pivoted at h; to the top of its long arm is pivoted another bell crank i, the horizontal arm of which is held against a stop by the spring j. In its backward movement the pin pressing the crank i against the stop, causes the crank g to turn about h and open the exhaust valve; at a certain point the pin passes over the crank i and releases it. On the forward stroke of the pin the bell crank i turns about its own pivot and allows the pin to pass. To mix the gas and air the gas pipe passes down the centre of and opens into the air pipe k and the mixture enters the cylinder through a number of perforations. The governor consists of a plate l on the vertical arm of a bell crank, the horizontal arm m of which presses open the gas valve. If the speed is excessive the resistance of the air will retard the plate and cause the horizontal arm to rise and miss the gas valve spindle n. In the igniter, the compressed gases are admitted at top and bottom to the cavity in the slide in which is the ignited jet, to prevent the latter being blown out by a rush of gas in one direction. [84d.]

15,738. Abandoned.

15,766. December 22, 1885. **Ointment.**
R. E. R. JAMES, Woodland Villa, Birkbeck Road,
Enfield, Middlesex.

This ointment is composed of the following ingredients:—One pound of suet or deer fat, two ounces of yellow resin, one ounce of beeswax, two drachms of "Venice turpentine," and half a pint of sweet oil. It is used for the cure of diseases of the breast, boils, fistula, etc. [4d.]

15,767. December 22, 1885. **Machine gun.**
A. J. BOULT, 323, High Holborn, London.—(C. H. Palmer; New York, U.S.A.)

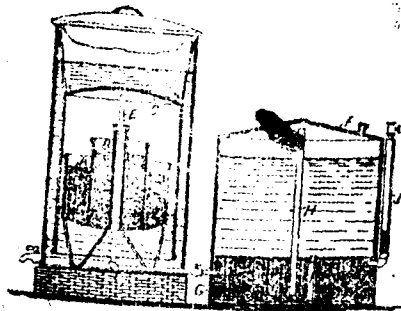


The cartridges are strung together by a flexible connection to enable them to be passed between two rotating wheels A, B, which are made with a series of semi-cylindrical grooves on the outside, so that each cartridge upon reaching the mid position between the wheels is held firmly and completely surrounded by the metal of the wheels. The upper wheel A is connected with the series of barrels C and with the sleeve D, which carries the motion upon a spherical part of the sleeve D. The rotation of the hand wheel H imparts motion through bevel wheels to two vertical spindles with and drive the wheels E, F. The action of the rollers is to keep the lower part of the wheel F which is pressed against the end of the cartridge motion through the sleeve D to the wheel A and chambered to receive the barrel C. The wheel F is effect the flow and is drawn back by a spring to the position of a short back by the engagement of a short back with a fixed track which is constructed to follow the path of the firing point. [8d.]

15,768. December 22, 1885. **Gas-making.**
A. M. CLARK, 53, Chancery Lane, London.—(J. S. Leng; 4, Fletcher Street, New York, U.S.A.)

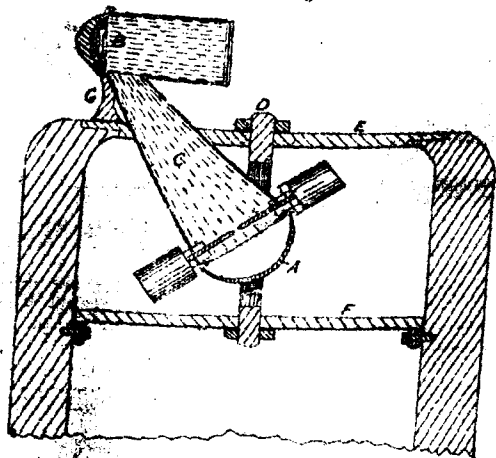
Relates to a process for obtaining illuminating gases by subjecting a mixture of metal scrap and limestone to the action of dilute acid and subsequently carburetting the same. The drawing shows suitable apparatus. A tank A and marble dust B are contained in a perforated tray supported within the bell C, which is fixed in the tank containing acidulated water, the gases given off passing out through the pipe E to the

carburetter F. They enter the loosely-packed chamber G in communication with the oil chamber



above by the two pipes H, I; the carburetted gases pass out through the pipe J. [8d.]

15,769. December 22, 1885. **Reflecting, search, and signalling lights.** R. PAULSON, Boon Hills, Langwith, Nottinghamshire.

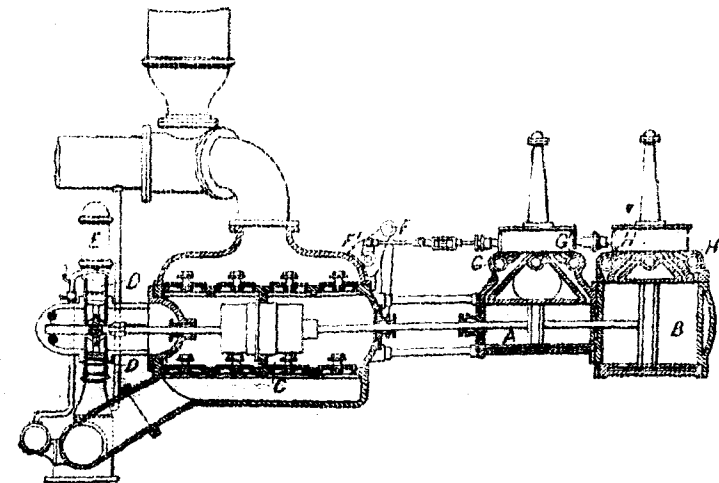


The electric or other light is focussed by a reflector A, of any suitable form, on to a reflecting lens or lens B, or combination of both, which reflect the light in the required direction without excessive diffusion. A cone C furnished inside assists in concentrating the light on to the reflector B. The apparatus may be held in a ring D between two plates E, K, rotated by suitable means in a protecting turret, etc. G of a battery or ship. [8d.]

15,770. December 22, 1885. **Direct-acting engines.** H. E. NEWTON, 6, Bream's Buildings, Chancery Lane, London.—(C. C. Worthington; Irvington, New York, U.S.A.)

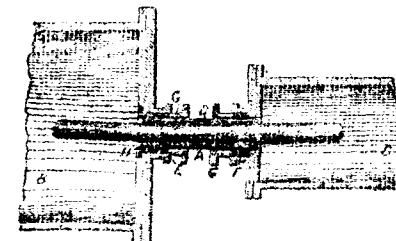
Relates to engines fitted with compound steam pumps as described in Specifications No. 16,858, A.D. 1884, though the improvements are applicable to other engines. The improvements are described as follows:—A duplex compound steam pump, of which a section through one engine is shown,

A and B are the steam and C the water cylinders, and D, D are the compensating cylinders, which oscillate in trunnions and have their piston rods connected to prolongations of the main piston rod



beyond the pump cylinder. They oppose the motion of the main pistons during the first part of the stroke, and assist it during the latter half. In place of using the pressure of steam or compressed gas direct in these cylinders, as described in the above-mentioned Specifications, a liquid is interposed. The compressed air or gas acts on the surface of this liquid in a vessel E, and the pressure is maintained by a pump driven from the oscillation of one of the cylinders D or otherwise. To control the action of the compensating cylinders when the load on the engine is light, a valve is provided, which cuts off the liquid supply to them from the vessel E, but allows its passage from them to the vessel. This valve is operated by a piston subjected to the pressure of the pump delivery, and is closed when this pressure is reduced, or in ordinary engines it may be operated by the governor. Several modifications of this controlling apparatus are described. The rocking shafts F, F by which the main steam valves of each engine are worked from the piston rod of the other, are operated through links connected to the respective piston rods where the latter are joined to the piston rods of the cylinders D, D. By these means, if either main piston rod breaks between the steam and water cylinders, the valves are arrested. Oscillating cut-off valves are fitted in the steam ports at G, G, H, H. They are operated through suitable levers and links from a rod attached to the low-pressure piston, or from any suitable moving part of the engine. Provision is made to allow a certain lost motion in the mechanism, so that the valves may remain open or closed for the required periods, or this may be effected by suitably arranging the valves and the disposition of the links and levers. Means are also provided for adjusting the period of cut-off. [1s. 2d.]

15,771. January 22, 1885. **Packing piston rods, &c.** H. E. NEWTON, 6, Bream's Buildings, Chancery Lane, London.—(C. C. Worthington; Irvington, New York, U.S.A.)



This form of packing, which is particularly suitable for the piston rods of compound tandem engines, minimizes the friction of the packing on the enclosed rods. The rod A connecting the pistons of the compound cylinders B, C is enclosed by a well-fitting sleeve D which enters both the stuffing-boxes E, F. The sleeve D is packed by

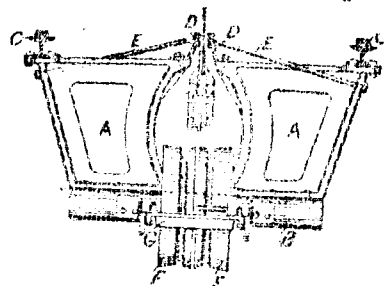
glands in the ordinary manner. To prevent the escape of steam from one cylinder to the other along the sleeve, annular recesses G are formed in which steam condenses making water joints. End-to-end movement of the sleeve is prevented by the collar H. The glands loosely fit the sleeve so that the sleeve is capable of slightly moving laterally. In a modified construction the sleeve at one end forms the gland while the other end is similar to the above. [8d.]

15,772. Abandoned.

15,773. December 22, 1885. **Cable railways.** D. L. MILLER, New York, U.S.A.

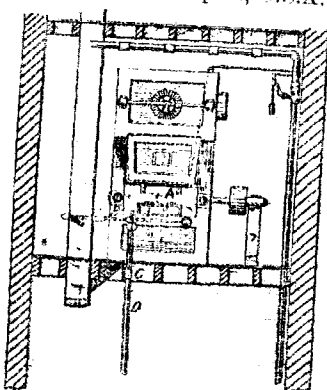
The conduit is preferably formed of concrete and supported at intervals by pairs of brackets A, A resting on transverse beams B and carrying the rails C and slot irons D. The slot irons are preferably rounded off at the top edges, and supported by ties E connected to the brackets as shown. The grooved supporting sheaves F for the cable are

pivoted in longitudinal rectangular framings G bolted to the tie beams. The framings are sup-



ported on soft beds to deaden the sound produced by the cable. Where two cables are used two sheaves F are supported on parallel axes in each frame G as in the drawing. Instead of placing the sheaves F in fixed frames they may be placed in rocking frames supported between the beams B. These rocking frames are nearly balanced and normally stand under the pressure of the cable with the latter in position to be gripped, but are rocked laterally by the cable grip or other attachment of the car acting through lever mechanism, etc., to carry the supporting pulleys out of the path of the grip. The cables can also be brought out of the range of grip by levers connected with the rocking frames and projecting up into slots in the roadway. Switch tongues are placed in the slots at junctions and operated simultaneously with the ordinary switch tongue, to cut off one slot and render the other continuous. The ends of the slot rails at junctions form boxes for the slot tongues and are supported on pillars. Fixed pillars are provided to discharge the cable from the grip when the car is run on to a branch track, etc. [1s. 2d.]

15,774. December 22, 1885. **Extinguishing fires in grain mills.** C. J. HEXAMER, 2313, Green Street, Philadelphia, U.S.A.



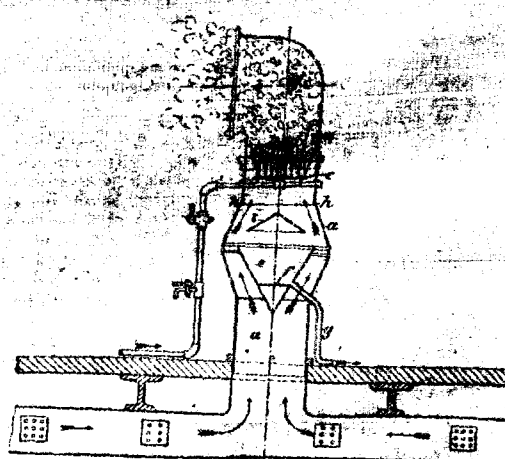
The object is to extinguish fires resulting from dust explosion in mill or grain mills. One side A of the mill box is suspended so that it is blown open by the force of the explosion. The explosion releases a trigger at B, which by allowing a weight C to fall opens the valve of the steam pipe D. This steam pipe discharges into the mill

box, and the elevator foot. In case the explosion should pass up through the hopper, a rope soaked in inflammable substance is fastened inside. The rope may also be made in two sections which are soldered together. This rope is severed by the flame and thereby opens a valve in the water supply and floods the room through sprinkling pipes. [8d.]

15,775. December 22, 1885. **Colouring matters.** H. H. LAKE, Southampton Buildings, London.—(The Schoellkopf Aniline and Chemical Co.; Buffalo, New York, U.S.A.)

(1.) Preparation of α -naphthol disulphonic acid. Alpha naphthalene mono sulphonic acid is treated successively with sulphuric acid of 66 B ϵ and nitric acid of 40 B ϵ ; the two resulting α -naphthalene mononitro monosulpho acids are reduced to a naphthylamine monosulpho acid and the diazo compound of one of these, viz., that which yields a sodium salt difficultly soluble in water, is added to boiling water containing sulphuric acid whereby an α -naphthol monosulpho acid is obtained. This acid is dissolved in sulphuric acid of suitable strength and temperature, e.g., 66° B ϵ and 80° to 90° C., in order to produce a new disulpho acid of α -naphthol which differ in its reactions from the known disulphonic acids of α -naphthol; for example, it forms with nitric acid a yellow dye which is an α -naphthol mononitro monosulphonic acid, whereas the known α -naphthol disulpho acids form naphthalene yellow with nitric acid. (2.) Preparation of colouring matters. The yellow dye before referred to is prepared by the action of nitric acid on the α -naphthol disulpho acid obtained as above described. Yellow scarlets to intense red scarlet and Bordeaux dyes are obtained by combining the α -naphthol disulpho acid with the diazo compounds of aniline, toluidine, xylydine, amidoazobenzol, amidoazobenzol and naphthylamine. [6d.]

15,776. December 22, 1885. **Steam ventilating apparatus.** C. McWHIRTER, East India Dock Road, Middlesex.

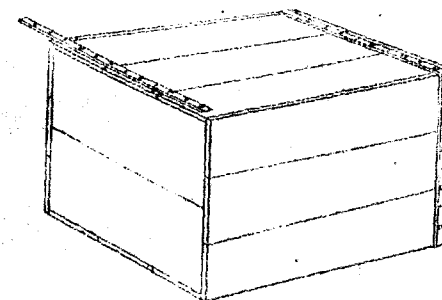


The ventilating pipe α is provided with a cone β at its upper end, and below the steam jets γ is

made in the form of a double truncated cone as shown. Inside the chamber so formed is a funnel-shaped vessel ϵ , having a false bottom f and a discharge pipe g . The lower end h of the upper portion of the pipe α enters the chamber, so that any condensed steam from the jets on the pipe drops into the funnel ϵ , the top of which is of slightly larger diameter than the pipe α . Above the funnel is arranged an inverted cone i , from the edges of which condensed steam also drops into it. [8d.]

15,777. Abandoned.

15,778. December 22, 1885. **Metal bands for securing boxes and the like.** H. FRANK, 132, Elm Street, and A. F. HOCHSTADT, 506, Broadway, both in New York, U.S.A.

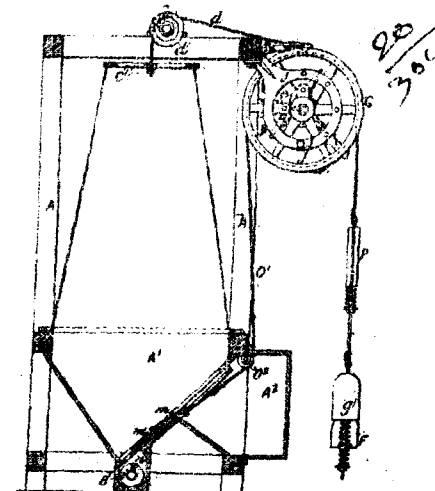


The band is formed with projecting longitudinal stiffening ridges, having a depression along the centre which is perforated to receive the nails. The extreme ends of the bands are also turned under. In the figure is a box tied with a band of this description. [8d.]

15,779. December 22, 1885. **Separating dust from air.** H. H. LAKE, Southampton Buildings, London.—(C. H. Morgan; Buffalo, New York, U.S.A.)

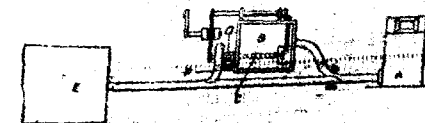
Drawing shows vertical cross section of the apparatus. The dust laden air passes along the channel A^2 through the valve m into the hopper A^1 and flannel (or other material) bag C , which is lifted by the mechanism and counterbalance weights q^1 P . When the bag is filled the valve m is closed by the band O^1 which passes over a guide pulley O^2 and is actuated by the mechanism I . The valve n , which allows the collected dust to pass from the hopper A^1 into the worm conveyor B^1 , is connected with the valve m by a sliding contact at m^1 , so that the valve m is partially closed before the valve n is opened. The bag after being filled, and the valve m closed, is allowed to descend a certain distance, controlled by the mechanism, when it is again raised by the balance weights, a partial vacuum being formed which causes the outer to pass through the bag and clean the pores from any deposited dust. The bag is again allowed to descend, when the valve n is closed and m opened, to allow the dust laden air to enter as before. The mechanism consists of an arrangement of pulleys

loose upon the strap ϵ , and two brackets fastened upon the same shaft. To the circumference of one



of these pulleys is fastened the end of the band d which passes over the pulley d^1 and is fastened to the open frame C^1 of the bag C ; when this pulley is rotated the bag is lifted. The weight F is also fixed to this pulley. To the framework A , two rings J are fixed concentric with the pulleys, having catches j fixed to them. The pulleys derive their rotary motion, at the requisite time, from the brackets fixed to the shaft ϵ , by an arrangement of pawls, cams, and detents. The weight P is fixed to the pulley which gives motion to the valves m and n . A second form of bag is described, having an inner auxiliary bag to increase the filtering surface; also an arrangement for shaking or jarring the bag, to dislodge the dust, in which the rim of one of the pulleys has alternating projections and depressions, which oscillate a lever the opposite end of which presses upon the band d . [8d.]

15,780. December 22, 1885. **Feeding pulverized fuel to furnaces.** H. H. LAKE, Southampton Buildings, London.—(H. K. Flagler; Boston, Massachusetts, U.S.A.)



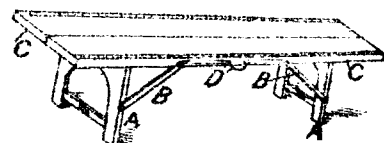
Fuel from a pulverizing apparatus A is passed to the chamber B from which it is fed to the rotating fan F by the screw C , operated by the wheel work shown. The fan draws in air through the valve D , and delivers it along with the fuel to the furnace E . [8d.]

15,781. December 22, 1885. **Colouring matters.** H. H. LAKE, Southampton Buildings, London.—(The Schoellkopf Aniline and Chemical Co.; Buffalo, New York, U.S.A.)

(1.) Preparation of a new naphthol monosulphonic acid. α -naphthalene monosulpho acid is treated

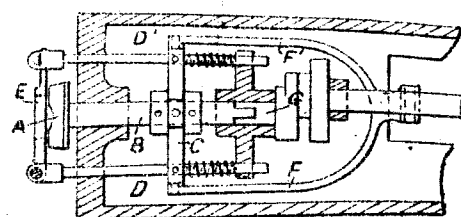
successively with sulphuric acid of 66 B ϕ and an acid of 49 B ϕ ; the two resulting α -naphthylamine monosulpho acids are reduced to α -naphthylamine monosulpho acids, and the diazo compound of one of these, viz. that which yields a sodium salt easily soluble in water, is boiled with water whereby the new α -naphthol monosulpho acid is obtained. This acid differs from other naphthol monosulpho acids in its reactions with diazo compounds of the benzol series; for example, it yields an intensely red scarlet with diazotoluid instead of reddish orange. (2.) Preparation of colouring matters. Colouring matters, varying from yellow scarlet to intensely red scarlet are obtained by combining in the usual manner the sodium salt of the naphthol monosulpho acid, prepared as above, with diazo compounds of aniline, toluidine, xylydine, α and β naphthylamine and their sulpha acids, and with the diazo compounds of the sulpha acids of amidoazobenzol. [4d.]

15,782. December 23, 1885. **Folding table.** H. and T. RIMINGTON, Crosshills, Yorkshire.



The top and the leg frames A, A are in two longitudinal sections hinged together. The legs are held extended by diagonal struts B, which have pins working in slots in the rim C. The struts may be hinged to the rim C, and the slots formed in them may work on pins fixed to the legs. When folded the legs and struts fit inside the shallow box formed by the top and the rim, and the whole may be carried by the handles D. [8d.]

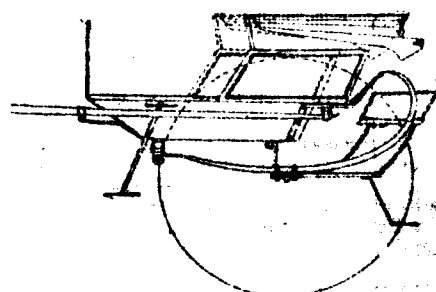
15,783. December 23, 1885. **Zig-zag sewing machines.** W. PENNINGTON, 2A, GE. Victoria Street, Belfast.



Relates to machines in which the needle zig-zags for hem stitching or other purposes, and consists in combining the main features of a "Wholer and Wilson" machine with those of a "McGlashan" style of hem stitching machine. The needle and the rotating hooks are made to reciprocate together by suitable cams. To effect the reciprocation of the rotating hook A, the hook shaft B carries a bar C which is attached to two rods D, D'. These rods carry the hinge and the catch of the cover ring E, which retains the spool in the hook A. The ends of the bar C are mounted in the arms F, F' of a

sliding fork reciprocated by the cam, which also reciprocates the needle slide. The shaft B has a tongue fitting in the end of the shaft G, from which the fork A receives its rotary motion. [9d.]

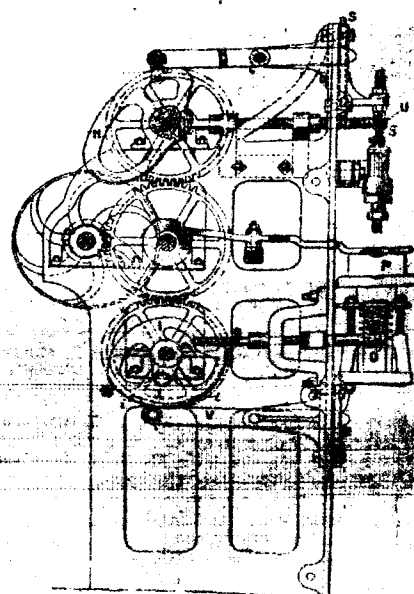
15,784. December 23, 1885. **Adjusting balance of vehicles.** O. F. WINDOVER, Sandford House, George Street, Huntingdon.



The upper part of the buggy or other two-wheeled vehicle carrying the seat slides on the lower part as shown by the dotted lines. [6d.]

15,785. Abandoned.

15,786. December 23, 1885. **Bottling machine.** T. H. HAYES, 71, Cranworth Street, Chorlton-on-Medlock, Lancashire.



The main shaft A drives the three cams H, K, I through the gearing shown. The cam H actuates the corking plunger S, and the cam shaft E actuates the filling valve by means of a cam on the shaft U. The cam K throws the bottle off the bottle rest

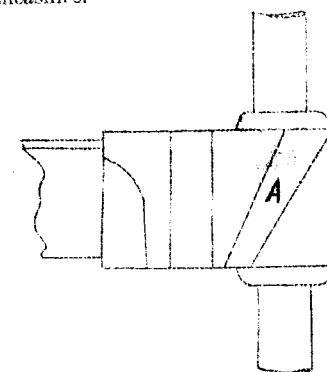
into a trough. The cam I actuates the bottle rest P through the lever V and slide M, a spring and clip O allowing for varying lengths of bottles; two notches Z in the cam I, filled with yielding substance, allow the pressure to force the bottle a little way from the filling nozzle to shift it. The cam I also works the rod Q, releasing the clip O when the bottle is filled. [11d.]

15,787. December 23, 1885. **Parcel carrier.** J. CALVERT, Great Hampton Street, and J. G. ROLLASON, Spencer Street, both in Birmingham.

The handle a is made from sheet metal, which is bent into the form of a cylinder with hemispherical ends. It is pierced at the centre of its length near the lower side to receive the ring of the spring hook b. [8d.]



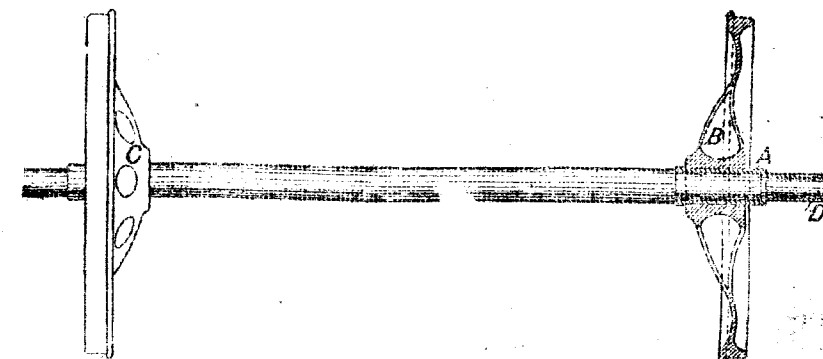
15,788. December 23, 1885. **Bedsteads.** G. and E. WOODS, Longford Wire Works, Warrington, Lancashire.



Woven wire mattresses are connected by brackets to the end and side rails of bedsteads, the end rails being connected to the sides by diagonal projection and recesses A, which lock them together and prevent the ends from rising when the mattress is stretched. [6d.]

15,789. Abandoned.

15,790. December 23, 1885. **Railway and tramway axles and wheels.** J. HODGKINS, 26, Coten End, Warwick.



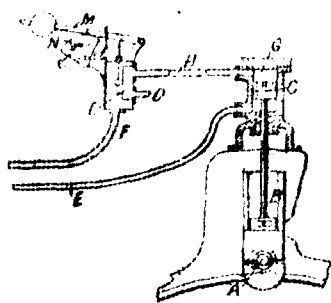
One end of each axle is turned down for a sleeve A which runs loosely on it and to which the wheel B is fixed, the other wheel C being fixed in the ordinary way. The projecting end D of the sleeve works in the axle-box as usual. A sleeve may, if desired, be fitted to the other end of the axle. [8d.]

15,791. December 23, 1885. **Embossing or printing machinery.** S. STANSFIELD, 7, Norwood Street, Chorlton-on-Medlock, Lancashire, and E. J. HOMAN, Bowdon, Cheshire.

Consists in apparatus for facilitating the motion of the engraved rollers in and out of contact with the material, to produce a variety of combinations of patterns and designs. To each end of the axis A of the engraved rollers, or to the bearings carry up the same, is attached the hydraulic ram C by means of the connecting rod B. The valve D regulates the admission of fluid to the cylinder G, and is actuated by the lever M and cam N. When the valve D is in its lower position, fluid is admitted

by the pipes E and F to both sides of the ram or piston C, which forces it downwards, the area of the upper side being greater than the area of the lower side by the area of the rod B. When the valve D is in its upper position, shown on the drawing, the piston will be raised, the fluid from its upper side flowing to the exhaust O through the pipe H and valve D. The cam N is formed of two equal segments e and d, in which are slots to regulate the extent of its acting surface. Two modifications of the mechanism for actuating the valves are described, in one of which a cam and tumbling lever are employed, and in the other a pattern-chain, the tappets upon which lift the lever connected to the valve. Single acting cylinders

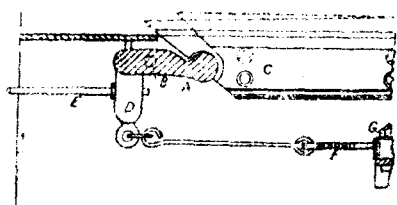
and pistons may be employed in combination with springs or counterweights to effect the return



stroke. The cylinders are preferably arranged radially, inside or outside a circle passing through the centres of the spindles carrying the rollers, whose centre is at the centre of the machine bowl or bed roller. [84d.]

15,792. *Abandoned.*

15,793. December 23, 1885. **Furnace fire-bars.** D. JONES, Lichfield Street, and J. BRUNT, 137, High Street, both in Burton-on-Trent.

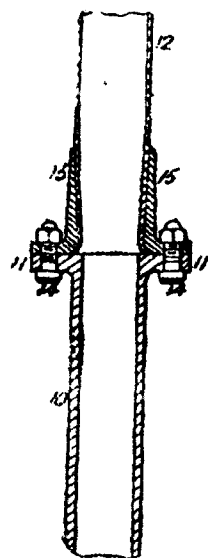


The bars at each end rest upon and are raised by a bell crank lever. A portion of a bar and dead plate are shown with the actuating mechanism. One arm A of the bell crank lever pivotted at B enters the front ends of the bars C, while the other arm D is operated by a push-rod E. The motion is conveyed to a similar lever, engaging the back ends of the bars, by means of a horizontally moving lever F, pivotted at G, and connected to the bell crank levers. As shown the arm A enters more deeply into the bar than the arm of the rear bell crank lever, so that, as the levers move, the front end of the bar is securely held, and compelled to follow the movement of the front lever, while the rear end is loosely guided by the back lever. The bars are so placed that the hooked ends are alternately in the front and rear. The bars are preferably formed such that the upper surfaces, in cross section, appear higher at the centre than at the edges. [84d.]

15,794. December 23, 1885. **Telegraph, &c. post.** A. EADIE and J. TANNAHILL, Clydesdale Tube Works, Rutherglen, Lanarkshire.

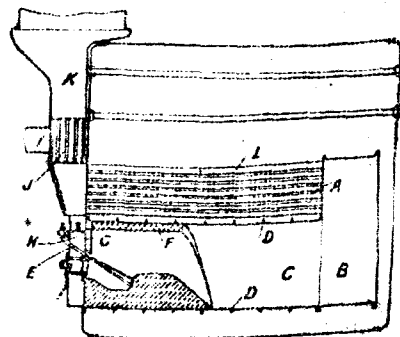
Tubular posts constructed with a pile 10 to be driven into the ground, and a post 12 to be attached to the pile. Methods of attaching the post to the

pile are described. The figure showing one form in which the tubular post 12 is flared into a tubular



flanged plate 15 secured by bolts 14 to a flange 11 on the pile. [84d.]

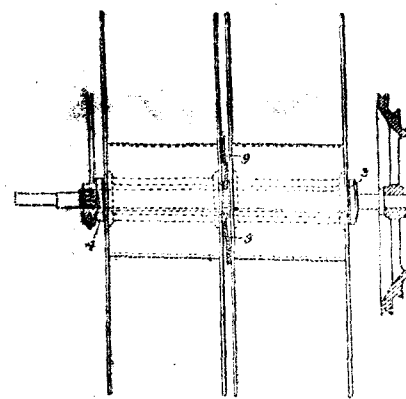
15,795. December 23, 1885. **Steam generators.** J. HOWDEN, 8, Scotland Street, Glasgow.



The furnace flues are made up of short sections united by "Adamson's" flanged joints. The tube-plate A of the combustion chamber B is extended downwards and around the furnace-flue C to which it is rivetted. For heavy pressures or when desirable, circumferential rings D are secured by their edges to the furnace flue. In order to easily remove the flues for repairs, etc., flanges are secured to their ends, which flanges are rivetted to the boiler shell and combustion chamber respectively. Liquid fuel and heated air under pressure are supplied to the furnaces by means of nozzles E. The front ends of the furnaces are lined with firebrick F, of which a portion is raised for the fuel spray to strike against. Air is also supplied to each furnace from the front through a perforated plate G which forms a portion of the back of a hollow chamber H to which atmospheric air passes after having entered the pipe I and circulated around the smoke

tubes J in the smoke box K. If the return tubes L are of ordinary size, helical or zig-zag strips of metal are placed within them to compel the furnace gases to take a tortuous path before escaping. [114d.]

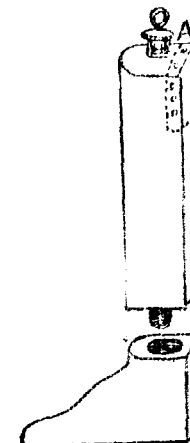
15,796. December 23, 1885. **Friction clutch.** R. ROGERS, 55, Morton Road, Islington, Middlesex.



Method for attaching frictionally one or more pulleys, drums, etc. to shafts, especially applicable to drums used for winding. In the drawing the invention is shown as applied to two winding drums. They are mounted loosely on the shaft between a fixed collar 3 and an adjustable collar 4, and have between them a collar, provided with a number of friction arms 9, 9, which slides on a feather. By screwing up the collar 4 the drums are locked to the shaft. A friction disc may be substituted for the collar. [84d.]

15,797 to 15,801. *Abandoned.*

15,802. December 23, 1885. **Boot and shoe warmers.** R. G. OWEN, 49, Warwick Road, South Kensington, Middlesex.



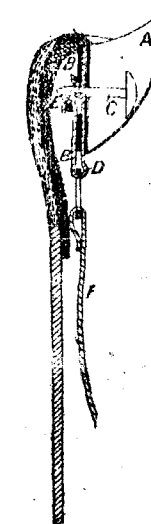
The warmer is a casing of metal, earthenware, or other material, approximately of the shape of the foot, which may be covered with flannel or felt. For long boots, the leg portion of the warmer may be separate from the foot portion and fitted to it by a screw or slide joint; the back is flat, so that the warmer may lie horizontally. Hot water is introduced by the nozzle A, or the apparatus may be constructed with a steam escape pipe and a recess B for the reception of a flat lamp by which water placed in the warmer may be heated. The water may otherwise be heated by the passage of an electric current through a coil of platinum wire in the warmer; or, without using water, the warmer and boot may be inverted over a lamp, to admit hot air to the warmer. [84d.]

15,803. *Abandoned.*

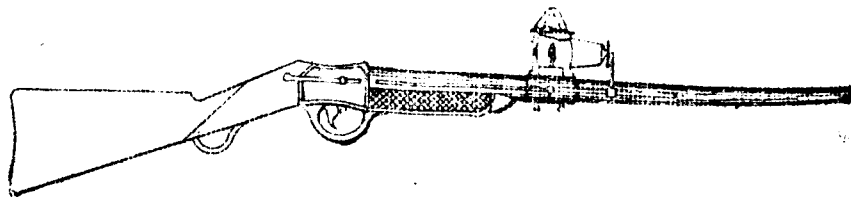
15,804. December 23, 1885. **Necktie retainer.** W. P. THOMPSON, 6, Lord Street, Liverpool. (R. B. Halliwell, Venango Street, Harrogate, Philadelphia, U.S.A.)

The neckband of the tie is dispensed with and to one side of the stiffener A is affixed a metal plate B with a hole through which the head of the collar stud C is passed, the same being retained by a spring catch D preferably made of a strip of thin steel bent in two so as to clip both sides of the plate A, one end engaging with the stud and the other with a small rubber or metallic spring E. A small tag F when pulled down withdraws the catch and releases the stud from the necktie. The stiffener is preferably made of celluloid indented in the middle and varied in shape according to the kind of collar with which it is to be worn. [84d.]

15,805. *Abandoned.*



15,806. December 23, 1885. **Sighting guns at night.** J. N. PERKINS, 3, Station Road, Upper Walmer, Kent.



Consists in fitting a lamp with a condensing lens to the gun (as shown), so that the rays of light are parallel to the line of sight. [6½d.]

15,807. December 23, 1885. **Educational appliance.** L. A. GROTH, 59, FINSBURY Pavement, London.—(C. D. H. THORON; 11, Rue Berthollet, Paris, France.)

The apparatus is designed to facilitate the teaching of letters, musical characters, etc., and consists of a board of suitable material with grooves or rods and movable "type," or pieces, carrying letters, etc., which are placed in, or hung on the board. For teaching music, the grooves or rods are arranged in groups of five. In some cases the types may be provided with pointed pins which can be pushed into the board. [6½d. No Drawings.]

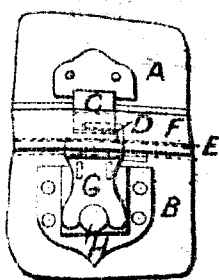
15,808. Abandoned.

15,809. December 23, 1885. **Treating flax, &c. to obtain fibres.** T. R. SHILLITO, 89, Chancery Lane, London.—(R. Baur; Stuttgart, Germany.)

Materials such as flax, hemp, or China grass are placed in a lead-lined vessel and covered with dilute sulphuric or other acid or a solution of a sulphate. The contents are then heated to 90° C. After some time the acid is drawn off and replaced by a solution of soda, the whole being again heated to 90° C. After some hours the lye is drawn off and the mass thoroughly washed and slowly dried. [6½d. No Drawings.]

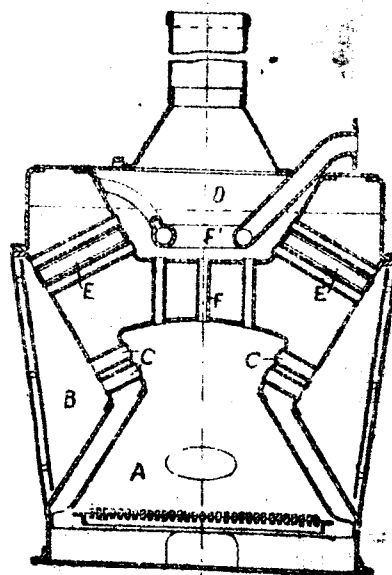
15,810. December 23, 1885. **Fastening for trunks, &c.** J. MARSTON, Paul Street Works, Wolverhampton, and G. COOCH, Viaduct Chambers, Holborn Viaduct, London.

The fastening is particularly designed for sheet iron travelling trunks but is also applicable to other boxes. The lid A of the trunk is provided with staples C with which hooks D on the bar E engage. The bar E is preferably of sheet-metal of L section and is carried by suitable guides on the body B of the box or in the moulding F. A hasp G is hinged to the bar, and, after the hooks have been moved by it into engagement with their staples, is locked by the fixed lock H or a padlock. [8½d.]



15,811. Abandoned.

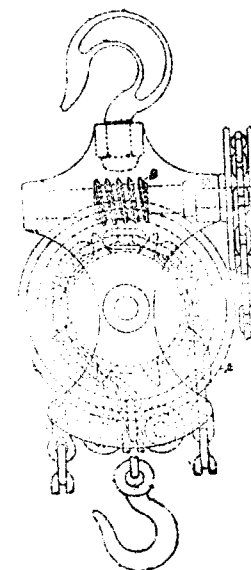
15,812. December 23, 1885. **Steam generator.** J. W. RESTLER, Water Works, Nunhead, Surrey.



The fire-box A opens by means of tubes C into an annular combustion chamber B communicating with the smoke-box D by tubes E. The crown of the fire-box may be stayed by tubes F. The steam produced is superheated by passing it through a coil F' in the smoke-box. In a modification the upper portion of the chamber B is dispensed with while the tubes C are made to ascend from the sides of the fire-box which in this case is formed with a regular domed top. Slightly inclined tubes connect the roof of the combustion chamber to the smoke-box. Plates on edge may be secured to the combustion chamber within the water space to promote water circulation. In a second modification the fire-box is of a shape similar to that shown but the combustion chamber is similar to that in the first modification. [11½d.]

15,813 & 15,814. Abandoned.

15,815. December 23, 1885. **Pulley-blocks.** E. P. WRIGHT, Woodville, Handsworth, Staffordshire.



The main lifting sheave A is deeply grooved, and its flanges are pitched to be driven by the worm B on the spindle of the hand-chain sheave C. The strains are thus in the same vertical plane. [8½d.]

15,816 to 15,818. Abandoned.

15,819. December 23, 1885. **Tramway points.** F. H. LLOYD, Wood Green, Wednesbury, and T. W. ARNALL, 181, Victoria Road, Aston, Birmingham.



The tongue is made shorter than usual, and supported at each end on hemispherical bearings, the bearing a at the heel being higher than at the toe b, so that the heel remains approximately stationary when the tongue is moved over by the passage of a train. A weighted lever, shown in section at c, by the friction on the tongue maintains it in the position to which it is thrown, or a weighted lever, attached to the tongue, causes it to return to its original position. [8½d.]

15,820. December 23, 1885. **Finger-plates.** E. E. PITHER, 38, Mortimer Street, Cavendish Square, London.

The finger-plate is made of brass or other metal bent round to fit the door and secured to it by screws. The finger-plate thus protects both sides of the door and also the edge. [4½d. No Drawings.]

15,821. Abandoned.

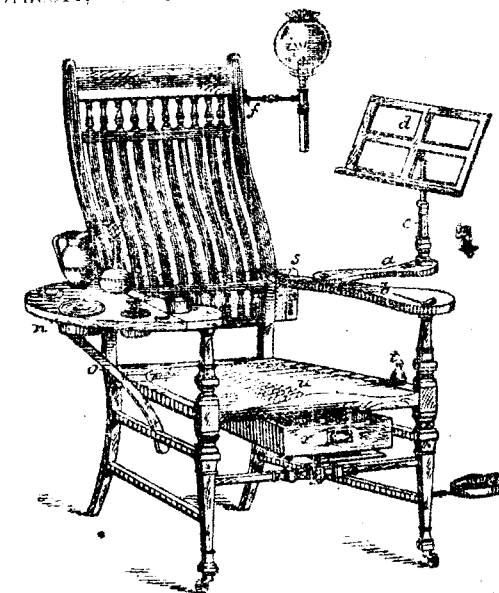
15,822. December 23, 1885. **Lighthouse illumination.** J. R. WRIGHT, Albany House, Monkstown, Dublin.

By the use of annular lenses A placed in tiers one above the other the simultaneous illumination of every part of the horizon is ensured without revolving the lenses. An oblong or polygonal burner B may be used, either with the above arrangement of lenses, or with that described in Specification No. 6195, A.D. 1882. For revolving lights, three or more circular burners are used in combination with annular lenses. [8½d.]



15,823 & 15,824. Abandoned.

15,825. December 23, 1885. **Chair.** J. SORRETT, 65, City Road, Middlesex.



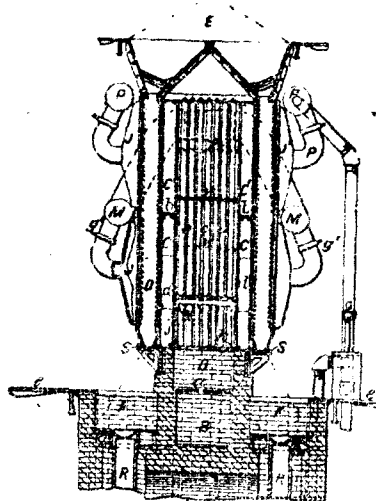
An adjustable reading desk d with telescopic stem e is carried by a bracket a pivoted to the arm b. On the other arm a similar bracket carries a work box which, when the lids are closed, serves as a table. Instead of the work box a flap n is supported by the stay o is fitted. A lamp i is carried by a bracket f on the back. A newspaper rack s, call bell t, spittoon r, and drawer may be also fitted. [8½d.]

15,826 & 15,827. Abandoned.

15,828. December 23, 1885. **Drying bone black.** S. M. LILLIE, Philadelphia, Pennsylvania, U.S.A.

The black to be revived is fed to the rotors in columns between perforated walls, and is dried in

its way first by a cross current of hot air which has been heated in a special surface heater, and after-

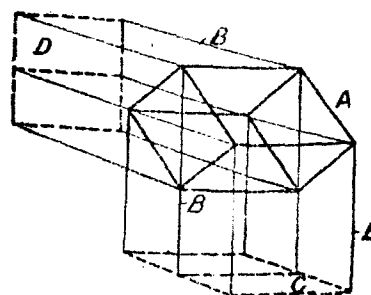


wards lower down by merely warm air drawn from around the kilns. A is the furnace which heats the retort R. The products of combustion pass into the flue B, which is divided by a perforated plate a for the purpose of equalizing the flow, then up the tubes c, c of the surface heater, into the horizontal flue I, passing along the hopper E. The sloping walls of this flue can be turned back on hinges to give access to the tubes. Down the centres of the tubes hang rods threaded with spiked rings of heat radiating material such as cast iron or earthenware. The surface heater is divided by partial horizontal partitions v into zig-zag passages, the lowest of which communicates by an opening k with a vertical chamber separated from the heater by the partition j (removed to shew the tubes). Outside the walls of the heater are spaces c, c' separated by plates b, and next to these are chambers D divided vertically into several parts, each of which is covered by two hoods J and J'. The sides of the chambers D are full of horizontal slits, breaking spaces with slits in the opposite sides, and over all the slits are small shelves. These chambers are filled with the wet black from the hopper E, the small shelves preventing its passing through the slits. By means of slides S at the bottom they communicate with chambers F which open to the retorts by funnels. The warm air from around the furnace comes through the floor e (by pipes d at the back) into the spaces c, passes through the lower half of the black in D into the hoods J', and thence by the mains M into the heater above the top partition v. Having traversed the zig-zags of the heater it reaches the vertical chamber in front and passes by side apertures into the spaces c'. From these it goes through the black in the upper half of D into the hoods J' and mains P. These two mains join in front. The furnace gases in the flue I are either allowed to mix with the heated air or are directed into the juncture of the mains P. This is effected by a flap which closes either the pipe to the juncture of

mains or the top of the chamber in front of the heater. Dampers g' in the tubes connecting the hoods J with the mains M regulate the proportion of air and furnace gases. The hot air and gases are further utilized for heating water or syrup before reaching a chimney stack or other exhaust. The heated vapors from the retorts are similarly employed. [81d.]

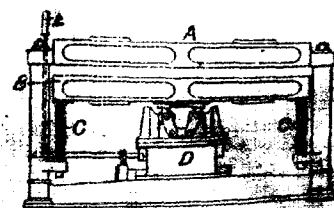
15,829. Abandoned.

15,830. December 24, 1885. Geometrical drawing. J. H. RUSSELL, 4, Kinglake Street, Liverpool.



Relates to models for use in teaching, and consists in a combination, by means of suitable ties, of diagrams representing plans, elevations, etc. with a model of the object. The drawing is a perspective view of a cube A connected by ties B to diagrams C and D representing a plan and elevation respectively. [84d.]

15,831. December 24, 1885. Steam press for hostery, &c. A. J. GIMSON, Vulcan Works, Vulcan Street, Leicester.

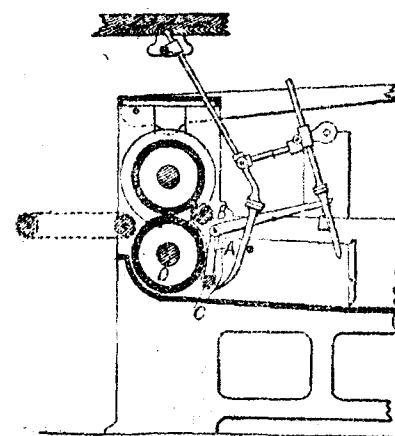


The articles to be pressed are put upon suitable flat wooden shapes placed between two hollow steam-heated iron beds A, B. The upper bed is fixed to the framework while the lower bed rests on springs C and is pressed upwards by the piston of a steam cylinder D. By means of a lever E the passage of steam to and from the cylinder may be regulated. [84d.]

15,832. Abandoned.

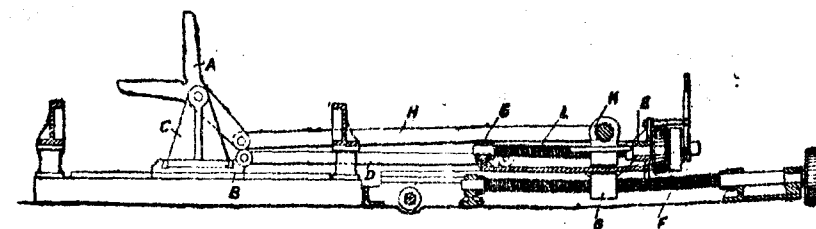
15,833. December 24, 1885. Wool washing. W. ROBERTSLAW, and E. COCKCROFT, Allerton Mills, Allerton, Bradford, Yorkshire.

In order to regulate the supply of wool to the squeezing rollers, it is fed between the lower roller D and an apron A in contact therewith. The apron travels over a roller B, near the upper squeezing roller, and under a stretching beam C



pressed towards the lower roller by weighted angle levers. [84d.]

15,835. December 24, 1885. Manipulating ingots, &c. in rolling mills. J. SPENCER, and C. ROBERTSON, Phoenix Iron Works, Coatbridge, Lanarkshire.

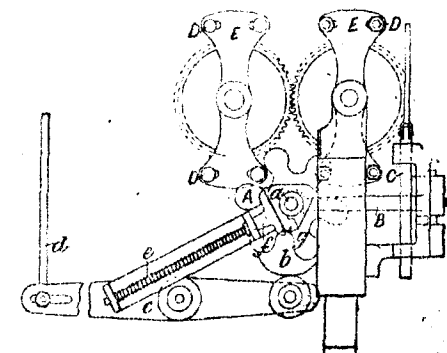


The ingot, etc., supported on the ordinary feed rollers, is turned over or traversed by forked levers A working in between the feed rollers. The slides B, which carry the brackets C to which the levers are pivoted, are connected by links D to a slide E. These slides B and E are traversed to move the ingot transversely across the rolls by the screw F and nut block G fitting between projections on the slide E. The levers A are connected by links H to a crosshead K, which can be traversed, so as to tilt the levers and ingot, in the slide E by a screw L. The screws F and L are driven from a first motion shaft by gearing the wheels on the screws being provided with clutch mechanism. Racks and pinions may be used instead of the screws or the levers may be tilted by racks or screws acting on toothed sectors on the levers, the slide E being then unnecessary. [84d.]

15,836. December 24, 1885. Distilling ammoniacal liquors. N. M. HENDERSON, Broxburn, Linlithgowshire.

Distilling column for producing ammonia from ammoniacal liquors, in which the liquors pass downwards, and steam upwards, the ammonia escaping from the top of the column, and the residual liquors from the bottom. The liquor is charged in through the pipe 8, and flowing round the annular open topped channel 10a, escapes by the overflow pipe 12 to the annular channel 10b, and

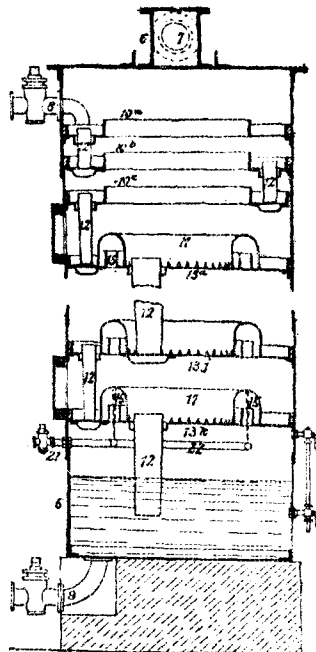
15,834. December 24, 1885. Drop-box motion for looms. D. and W. A. CRABTREE, 11, Wrose Brow Road, Windhill, Shipley, Yorkshire.



On the shaft a carrying the tappet b operating the lever c and box lever d is provided a star-wheel A. By means of a lever B and slotted bar C operated by pattern mechanism, the wheel A is made to slide on a feather on its shaft so as to gear with projections D on one or other of two arms E revolving in opposite directions. The drop-box is held stationary during picking by a spring e pressing a bar f against a stop g on the shaft a. [84d.]

so on to 10c. From here the liquid passes successively over a number of similar diaphragms to the bottom of the column. Each diaphragm consists of an outer channel, and a removable circular inner disc (13a to 13k), both being provided with flanges so as to form an open annular passage 15 which is covered by an inverted channel 17, having lower serrated edges for the passage of vapour upwards, reaching to within half an inch of the level of the liquid. The annular passage 15 does not completely form a circle, a small portion being bridged over, which supports a low partition, whereby the liquid,

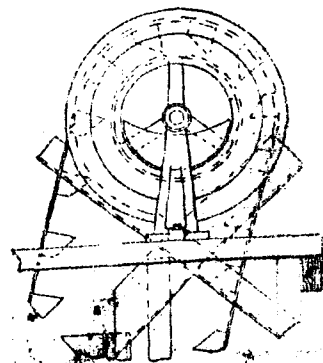
supposing it falls from above on the outer channel, is caused to travel all round that channel before



entering on the central disc, from which it can overflow by the pipe 12 to the next lower discharging, when it must circulate all over the central disc and then round the outer channel before arriving at the next overflow pipe. The steam for distilling is

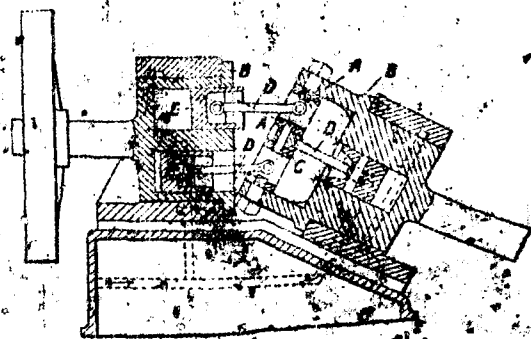
introduced at the bottom from a pipe 21, to the ring 22, provided with perforations on its upper surface which direct the steam into the annular passage 15 above. The evolved ammonia escapes through the outlet 7 in the dome 6, while the exhausted liquid escapes through the discharge pipe 9. The complete still is about 22 feet in height. [84d.]

15,837. December 24, 1885. **Elevators and screens for stone-breaking and like machinery.** W. H. BAXTER, 12, Albion Street, Leeds.



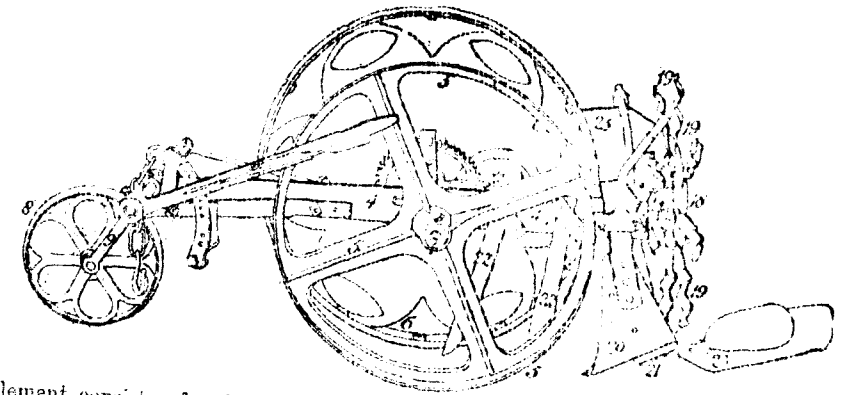
The elevator buckets are placed upon the inside of the band and are sufficiently narrower than it to allow of margins which bear upon pairs of supporting pulleys. The screens are made of two different pieces, the one at the narrow end being the steeper. [14d.]

15,838. December 24, 1885. **Rotary engine, meter, or pump.** J. BLAKE, Britannia Foundry, Newton Heath, Manchester.



This is upon the principle of the universal joint. The stirrups are presented by legs A carried by heads B which rotate in bearings inclined to one another as shown. The cross is represented by the piece C which has pins serving as thrust-pivots for the connecting rods D hinged to pistons E. These work in cylinders bored out in the blocks B and as they reciprocate give the usual rolling vibratory motion to the cross and so rotate the heads. The steam or other motive fluid is admitted through the channels in the bearings of the heads which act as valves to their own cylinders; but in some cases separate valves may be employed. As a modification, the heads may be mounted back to back upon the same shaft each provided with a cross that rotates in bearings inclined at a fixed angle to the said shaft. [84d.]

15,839. December 21, 1885. **Cultivating heavy land.** J. BROWN, North View, Freetown, Perthshire.



The implement consists of a frame 4 carried on three wheels. The main furrow wheel 6 is made larger than the opposite wheel 5, in order that the main axle 7 shall always be horizontal. A small wheel 8 mounted at the end of an adjustable crank lever 9 runs on the same track as the main furrow wheel. At the back of the machine is placed a counter 20 of ordinary form in conjunction with a curved sole plate 21 and a fixed mould board 23. Several auxiliary counters 22 may also be employed to cut up the furrow slice. A disc 18 fixed at the end of a shaft 17, rotated by spur gearing driven by the main furrow wheel, carries a series of bent pulverizing knives 19. A shield plate 25 is placed at the side of the machine, against which the clods are thrown. [14d.]

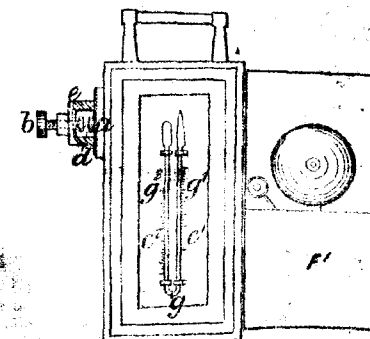
15,840. Abandoned.

15,841. December 24, 1885. **System of lighting by oil.** F. BISHOP, Grove Road, Leighton Buzzard, Bedfordshire.

Consists in feeding a number of burners from a common reservoir upon what is known as the "hid fountain" principle. The reservoir is placed upon the same level as the burners to be supplied, and pipes lead from it to the various burners which are fitted with ordinary wicks, and are furnished with taps to regulate the oil supply. [64d. Drawing to Specification.]

15,842. Abandoned.

15,843. December 24, 1885. **Automatic alarm thermometer.** C. LINDLEY, 34, Eaglefield Road, London, N., and F. J. MEDFORD, The Arrow Electrical Works, Jackson Road, Holloway, Middlesex.

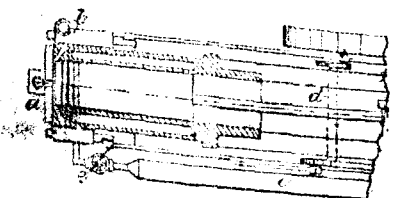


the instrument the contact d, enclosed in a proof case e, is made by screwing in

spindle b. On the temperature rising the mercury rises in tube C making contact at g, and completing the circuit, the points g' and a being connected through the bell mechanism F and the cell. The mercury at g is permanently connected with the case e. When attention has been called the contact at d may be broken and the bell stopped ringing. The instrument will indicate similarly a lowering of temperature since this produces a rise of mercury in C and the point g' is connected with a. [84d.]

15,844. Abandoned.

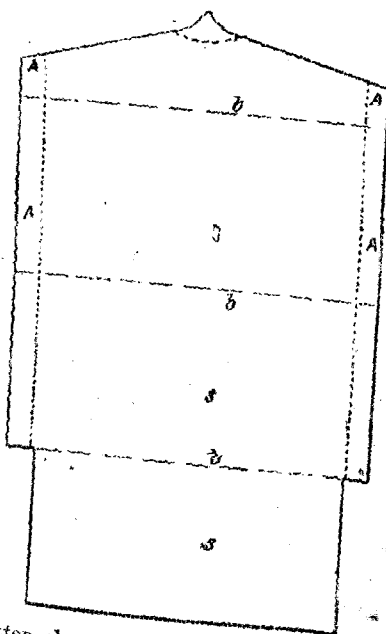
15,845. December 24, 1885. **Gas-engines.** H. N. BICKERTON, Richmond Street, Ashton under Lyne, Lancashire.



The object is to expel all the combustion products from the cylinder previous to the introduction of the fresh charge. The engine is of the two revolution cycle type, and all clearance in the cylinder is dispensed with, so that the piston in performing its instroke after an explosion expels the whole of the products through the exhaust valve. On the next outstroke a charge is drawn into the cylinder through an ordinary admission valve b, and on the instroke it is compressed into a reservoir c; during a sixth of the following outstroke the cylinder is open to the reservoir and directly the

communication is cut off the gas that has re-entered the cylinder is ignited. The valves are driven from a secondary shaft *d* revolving at half the speed of the engine. The final charge compressed into the reservoir before stopping the engine is retained therein by the hand valve *e* for starting. [8*d*.]

15,846. December 24, 1885. **Letter sheet.** A. J. BOULT, 323, High Holborn, London.—(A. C. Campbell; Toronto, Canada.)



A letter sheet *a*, having gummed perforated margins *A*, and folded along the lines *b*, forms an envelope which is opened by tearing off the margins *A*. An alternative form consists of a sheet, with margins *A* which lap over the folded sheet. [6*d*.]

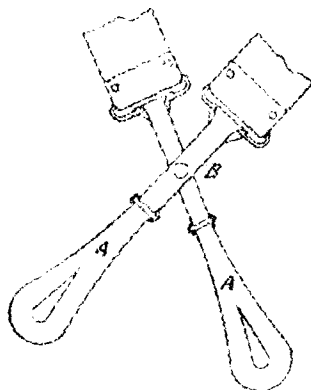
15,847 & 15,848. Abandoned.

15,849. December 24, 1885. **Tobacco pipe.** W. B. HAAS, 6, Castle Street, Falmouth, London.



The pipe is provided with projecting lugs *A* of various kinds, fixed to different parts of the stem *C* so that when placed upon a table, etc., it will stand with the bowl upright and in such a position that the nicotine, etc., in the stem will flow towards the bowl. [6*d*.]

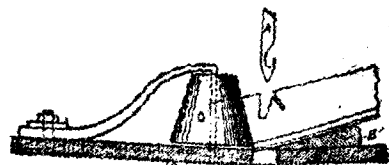
15,850. December 24, 1885. **Braces or trouser suspenders.** F. COOPER, 149, Aldersgate Street, London.



The tabs *A* at back and front are pivoted together by a pin *B*, eyelet or other suitable means, so as to allow of the braces rapidly accommodating themselves to movements of the body. The buckle at the front ends of the webs is provided with a spring which forces the teeth of the buckle against the web of the braces. [6*d*.]

15,851 to 15,853. Abandoned.

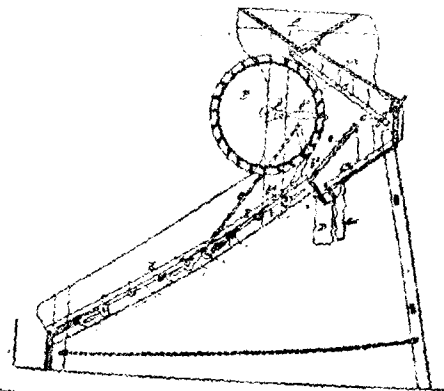
15,854. December 24, 1885. **Boot sewing machines.** H. E. NEWTON, 6, Breau's Buildings, Chancery Lane, London.—(T. Coombs; Mödling, Vienna, Austria.)



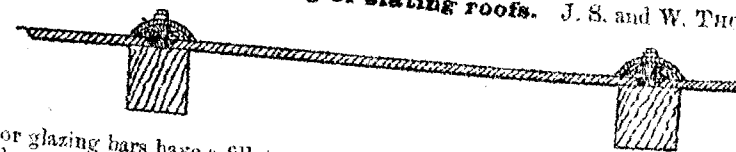
Relates to means for employing two or more separate threads as the needle or shuttle threads, thus obtaining greater elasticity, and a faster and broader stitch; and also to means for maintaining the sole in an inclined position, so that the sewing may take place at an angle. The figure shows part of a machine for stitching round the edges of soles. The hooked needle *A* is formed with a broad flat bottom to the barb, to allow the threads to lie side by side in the hook. The looper, and the pusher for placing the thread in the hook of the needle, have separate holes or guides for the separate threads. The shuttle may carry a single or multiple thread, and when it carries a single thread the needle may carry one. When the stitches are not intended to be made to the upper, the needle plate guide face *B*, and roller *C*, is

15,855. December 24, 1885. **Corn screen.** D. HEARN, Bury St. Edmunds, Suffolk.

The screen is on the principle of "Boby's screen" (Specification No. 676, A.D. 1871). *A* is the hopper, underneath which a coarse screen *C*, with means for adjusting its inclination, is placed to remove the stones and other large impurities, which roll down the screen *C* into the bags *D*, *D'* placed at the side of the machine. The grain falls through the screen *C* into the bucket wheel *B*, which deposits it upon the slanting board *e*, and thence upon the screen *E*. Cleaning devices, as in an ordinary "Boby's screen," are provided, and are driven from the bucket wheel *B* by means of the crank *b* and links *b'*, *b''*, *b'''*. The weight of the falling grain causes the bucket wheel to rotate. [8*d*.]

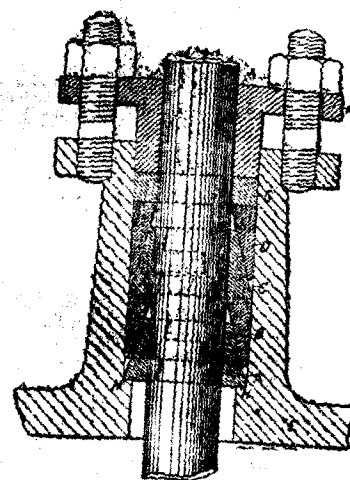


15,856. December 24, 1885. **Glazing or slating roofs.** J. S. and W. THOMPSON, Wexford.



The rafters or glazing bars have a fillet running along the centre, forming a rebate on each side. This fillet is soaped or smeared with some substance which will prevent cement from adhering, and the sheets of glass or slates, with their lower corners cut off, are laid in position. Cement is then applied in the same manner as putty is usually, thus forming the plates into shallow troughs. The joint is then covered by a capping which is fastened by screws or nails. [8*d*.]

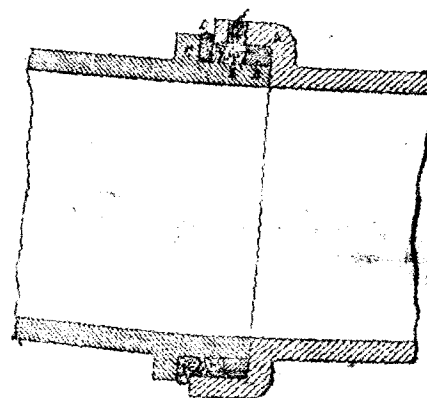
15,857. December 24, 1885. **Stuffing-box packing.** T. ANDREWS, Hilton Street, Birkenhead, Cheshire, and T. GRANT, Kingsley Road, Liverpool.



Wedge-shaped split packing rings *A*, *B*, *C*, *D*, are arranged within a stuffing-box *E* as shown. They are held in place by the gland *F*, which bears upon a layer of soft packing *G*. The lowest ring *A* is supported by a ledge at *H*. The pressure of steam on the lower broad edges of the internal rings tends to force those rings into the outer ones, and so make a tighter joint. [8*d*.]

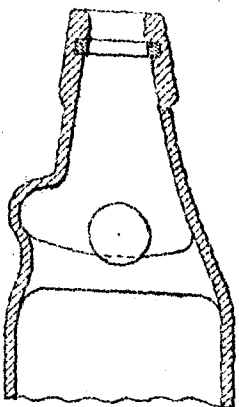
15,858 & 15,859. Abandoned.

15,860. December 24, 1885. **Joint for stoneware pipes.** H. L. DOULTON, High Street, Lambeth.



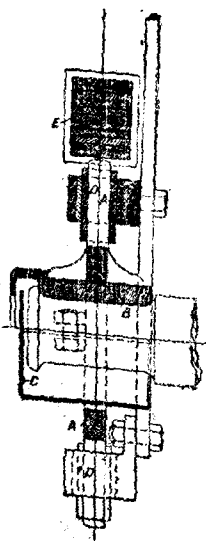
The socket is lined at *A* with composition for a short distance, the end of the spigot being tipped with the same substance as shown at *B*. The spigot is also made with a flange *C*. The pipes are laid with a ring *D* of gasket between the flange *C* and the mouth of the socket. The space *E* is then filled up with cement introduced through the opening *F* in the socket. [8*d*.]

15,861. December 24, 1885. Bottles.
J. DEEKS, 15, Grove Road, Brixton, Surrey.



The bottle is contracted at the base of the neck so that the stopper cannot fall into the bottle and a hemispherical recess is formed at one end of this contraction only instead of at both ends as described in Specification No. 2212, A.D. 1871. [34]

15,862. December 24,
1885. **Axle bearing for
railway vehicles, &c.**—
S. PITT, Sutton, Surrey.—
(J. Strachan & F. Watkins,
Jumalporc, Bengal, India.).



An oval bracket A with circular pins at top and bottom working in guides D, D, carries the bearing brass B. The upper guide pin abuts on the spring E; the lubricant is retained by the vessel C. [64d.]

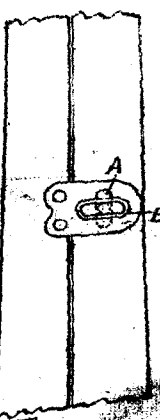
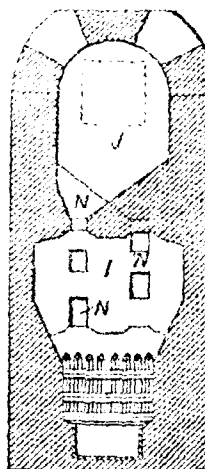
15,883. Abandoned.

15,864. December 24, 1895. **Solution for the purification of water, destruction of vermin, &c., and disinfecting, &c.** F. R. CONDER, Guildford, Surrey.

To prevent the rapid oxidation and precipitation of the salt from a solution of sulphate of iron, a small quantity of solid or liquid organic matter, as cheese, meat, etc., is added. The solution thus obtained is utilised for the purification of sewage and other foul waters by placing it in a perforated tank through which the water to be acted upon flows. Fresh sulphate of iron and organic matter is added as required. In the case of water charged

with sulphuric acid, iron or steel flings are placed in the tank and the sulphate of iron is thus formed as required. The solution is also applicable for use as a disinfectant and in the destruction of insects and vermin infesting plants and animals: in the latter case it may also be administered internally.

15,865. December 24, 1885. **Furnace for gas-retorts, &c.** W. R. JONES, Gas Works, Rome, Italy.



15,866. December 24, 1885.
Stay and corset fastenings. J. W. RUSSELL, 2, Surrey Place, Cumberwell, Surrey.

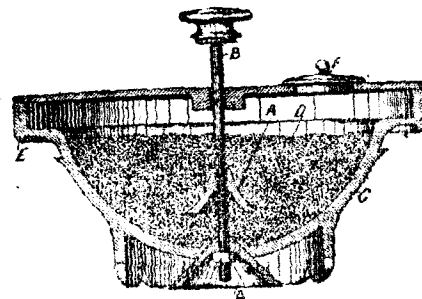
A pivoted T-shaped pillar A is attached to one bush and an eyelet plate with an oblong eyelet B to receive the pillar is attached to the other. The fastening is secured by rotating the pillar through a quarter turn. [64d.]

15,867. Abandoned.

15,968. December 24, 1885. **Disinfecting apparatus.** F. CANDY, 6, Leigh Road, Highbury, Middlesex, and N. FRÈRE, 22, Southampton Buildings, London.

A pair of valves A, A are adjustable on the spindle B with a handle at the top by which the

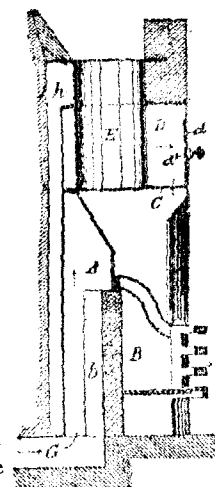
container C is carried. When the apparatus rests on the ground or is carried by the handle, the lower



valve closes the orifice at the bottom and prevents the escape of the disinfectant D. When the rim E is placed on the closet seat and the handle released, the valves descend and the disinfectant escapes until the upper valve closes the orifice, thus allowing a definite discharge. A charging hole with a cover F is provided. [84d.]

15,869. *Abandoned.*

15,870. December 24, 1885. **Fireplaces.**
W. J. LEA, 9, Adam Street, Adelphi, Middlesex.



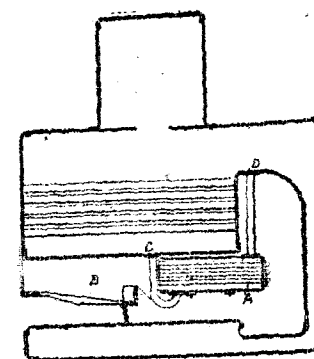
An arrangement whereby fresh air is admitted to a room and warmed in its course thereto. The drawing is a vertical section through a fireplace constructed according to the invention. Immediately behind the firebrick grate-back B and extending to the front of the stove on either side is a chamber Δ on either side is a chamber Δ into which fire-brick gills *c* project from the grate-back. This chamber communicates below through the pipe G with the external air, and above through the perforated iron plate C with a second chamber D surrounding the flue-pipe E and opening into the room, through a "hit-and-miss" valve *d*. The capacity of D is made greater than that of Δ so that the velocity of the air current may be diminished in passing from Δ to D. By this means a steady flow of fresh warm air takes place into the room. The second chamber D in stead of being placed above the grate may be placed at the side, in which case the perforated plate C is replaced by a plain one. The various parts are so fitted together that the plate C and all below it can be taken out of its setting for repairs without disturbing the remaining parts. [8½d.]

15,871. *Abandoned.*

15,872. December 21, 1885. **Bats and racquets.**
J. DAVENPORT, Finsbury Pavement,
London.

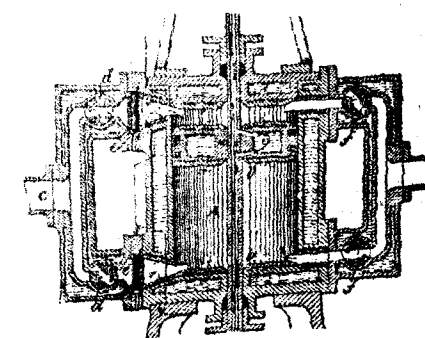
Consists in constructing the handles with a sheath, or one or more inserted strips, of "Spongolite." [8¹/₂d. Drawings to Specification.].

15,873. December 24, 1885. **Steam generators.** F. BRUGGEMANS and L. DONKERS, Antwerp, Belgium.



A small auxiliary tubular boiler is supported in the main flue of the generator and connected to it at different levels to ensure complete water circulation. The arrangement is shown in section and applied to a marine boiler. The auxiliary boiler A is supported in the flue B and connected to the water space by the circulating pipes C, D. [64d.]

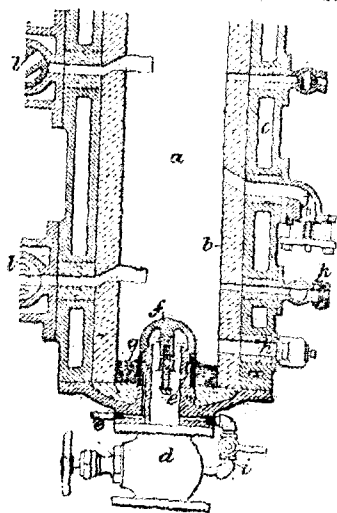
15,874. December 24, 1885. **Gas-engines.**
S. WILCOX, Brooklyn, New York, U.S.A.



The improvements are described in connection with a double acting engine fitted with link-motion and "Corliss valve-gear." The drawing shows a section through the power cylinder A above which is supported the air pump. The cylinder is water jacketed, the piston also being supplied with water through its rod, the arrows showing the circulation of the water on each side of a diaphragm in the latter; the non sliding parts of the cylinder and piston are provided with non-conducting coatings b. The air is forced by a pump into a reservoir, through tubes in which the exhaust is conducted; the air

passes thence to the cylinder by the pipe *c*, being admitted by the cylindrical oscillating valves *d*. Two pumps are driven by the disc which drives the valves; one supplies a small portion of the inflammable liquid to the gauze chamber *e* during the beginning of the admission of air, the other forces the remainder through a tube in the admission port on the cylinder side of the chamber *e* just as the valve *c* is closing. The charge is ignited by a flame carried in a reciprocating cylinder which enters the admission port through *r*, the flame being rekindled by an outside light at every stroke. The exhaust escapes by exhaust valves *f*. The valves *d* and *f* have loose pieces which are forced against their seats by any excessive pressure. For starting, the air reservoir is charged by a hand pump. A hand pump also supplies the gauze chamber *e* with inflammable liquid which is ignited by a torch inserted through the port *w*. The air pump is provided with three-way valves which will deliver the air into the atmosphere, the air reservoir, or the other end of the pump; there is also a valve on the exhaust pipe to stop the draught through the engine till it is fairly started that the temporary ignition flame may not be blown out. The governor acts on a throttle valve in the air pump suction pipe and on the "Corliss" admission valve-gear. The air supplied to the pump passes through a chamber into which water is sprayed. [11*d*.]

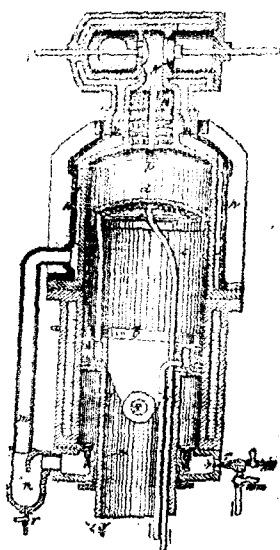
15,875. December 24, 1885. **Gas-engines.**
S. WILCOX, Brooklyn, New York, U.S.A.



The combustion chamber *a* is separate from the cylinder; it is lined with refractory material *b* and is provided with a water jacket *c*. Air is admitted by the pipe *d* and inflammable liquid by the pipe *e* and port *f*; the inflammable liquid on passing the valve *f* is absorbed by material *g* in the bottom of the chamber. The vapour arising from the liquid is ignited by inserting a torch through the port *h*, the flame being supported when the engine is not running or during the heating of the chamber at starting by air admitted through the by-pass *i*. The

chamber is provided with apertures *k* for viewing its interior, there is also a safety valve *j*, and a slide valve at the top of the chamber which may open it to the atmosphere. The products are admitted to the cylinder through the valves *l*. The non-sliding portions of the cylinder and piston are covered by hollow metal plates. A modification is described in which there is one small combustion chamber at each end of the cylinder. [8*d*.]

15,876. December 24, 1885. **Gas-engines.**
S. WILCOX, Brooklyn, New York, U.S.A.



The piston *b* has a hollow end *c* containing a coil of pipes *s* through which water circulates; its lower side forms with the lower end of the cylinder an air pump. The cylinder *a* is water-jacketed and the combustion chamber *d* is provided with external gills *e* round which fits tightly a wrought iron casing *h* which is sufficiently thin to allow it to straighten between the gills as the cylinder expands. The air as it enters the pump is moistened by water from the injector *r*; on leaving it passes through the pipe *m* and casing *h* to the valve chest *K*, and thence to the cylinder through the regenerator *W* composed of metal plates above porcelain partitions which have been heated by the exhaust; the inflammable liquid is supplied by the pipe *p*. The charge is ignited by a flame blown by a jet of air along a pipe entering the cylinder by the side of the pipe *p*. A trap *n* is provided to catch any excessive moisture that may be carried over by the air. [8*d*.]

15,877. December 24, 1885. **Grinding stone, &c.** J. DEJAFFE, 41, Rue du Marteau, Brussels, Belgium.

The stone, etc. to be dressed, squared and polished is adjustably held in suitable holders *S* attached to a frame *U*, actuated by disc-cranks *M*, above a horizontally rotating table *P* made of metal, stone, emery or other grinding material. Several forms of holders are used of which the holder *S* is hinged

to the frame *E* and provided with a fixed jaw *a* and a movable jaw *b*; the height of the slab *S* above the

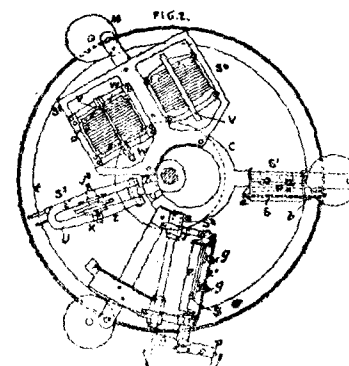
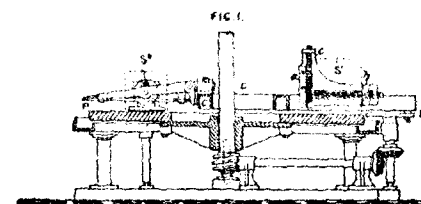
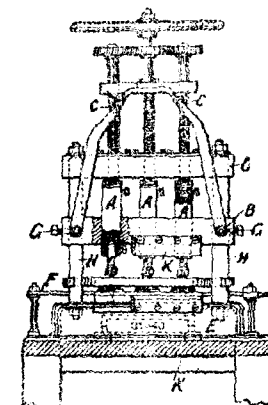


table is regulated by a screw *C*. The holder *S*² is journaled in brackets *f* and has a counterpoise *p* so that the slab *S* which is held against a half-roller *e* by screws *g* can be turned over and worked on opposite edges. The holder *S*² has a U-shaped frame *U* jointed to the frame *C* and adjusted above the table by a screw *t*; the slab is clamped by two pivots *J*, *K*, one of which carries a graduated disc *l*. The holders *S*¹, *S*² are arranged to hold several slabs *S* between a bridge *V*; the height of the holder *S*¹ is regulated by set screws *p* and that of the holder *S*² by two plates *W*, similar in shape to the finished slabs, resting on brackets of a frame *r*. Instead of mounting the holders in the frame *C* they may be mounted on a truck running on rails above the table or be supported by a vertically pivoted bracket. [8*d*.]

15,878. December 24, 1885. **Multiple punching, stamping, &c. machines.**
M. and C. BERGER, Merseburg, Germany.

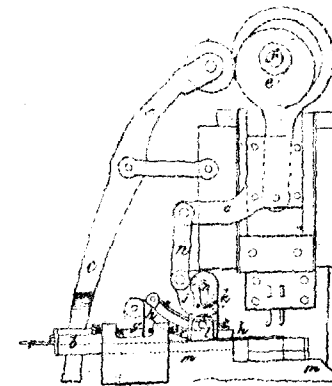
The punches, stamps, etc. are fitted in the end of the bars or carriers *A* which slide in the crossbar *B* and which are raised and lowered by the screws *C* working in nuts in the crossbar *D*. The middle screw is provided with a handwheel by which it is rotated, the outer screws of opposite threads being driven from it by gearing. The metal strips, etc. to be punched, etc. are supported on springs between guides on the matrix plate *E*; these springs raise the strips, etc. and allow the finished work to be removed by pushers on the lever *F*. The strips, etc. are fixed in a cross rail which is fed forward by hands coiled up on a shaft rotated by hand. After the strips, etc. have been fed forward, they are pressed down on the plate *E* against the springs. To use the machine for shearing, the cross bar *B* is

bolted to the carriers *A* and the screws *G* are loosened to allow the bar *B* to slide on the pillars *H*,



the shear blades *K* being fixed to the crossbar and the table *E*. [8*d*.]

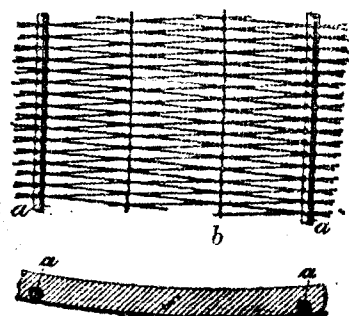
15,879. December 24, 1885. **Cutting nail blanks.** G. M. CRUIKSHANK, 62, Saint Vincent Street, Glasgow.—(J. O. J. and A. B. J. Kollen; Rönnefors, Frenckfors, Sweden.)



The machine, shown in side elevation, is for cutting from a length of plate or rod, blanks to be used for making horse or other animal shoe nails. The improvements relate to the feeding device which consists of a table *b* reciprocated by a lever *c* worked by a cam *e* on the shaft *f* carrying the punch mechanism. The table *b* carries on brackets *g* the serrated grasper *h* which has a spring *s* fixed above it and is operated vertically by the cam shaped lever *j* mounted on an adjustable pivot between the links *k* carried in brackets *l* secured to the fixed table *m*. The lever *j* is operated by the arm *o* from the punch and the link *n*. When the punch descends and grips the nail plate the pressure on the grasper is released and it moves back to take a fresh grasp of the nail plate ready to feed it forwards when the punch ascends. [8*d*.]

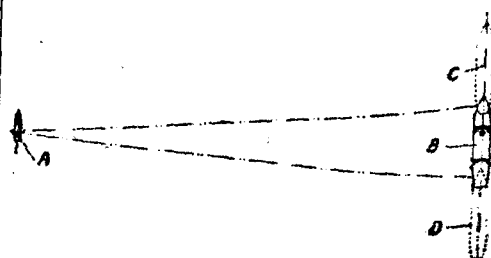
15,880 & 15,881. Abandoned.

15,882. December 24, 1885. **Silo.** C. RABITZ,
7, Scharnhorst Strasse, Berlin, N.W. Germany.



For storing grain or ensilage, and formed of an iron framework consisting of uprights *a* fastened together at intervals with horizontal frames, and then surrounded by a net or trellis-work of wires *b*. The whole is lined with a suitable thickness of cement, plaster, tiles, or other suitable lining *f*. The silos may be of any shape and may be built either singly or in a series. When a number of such silos are placed together they are covered by a single roof. [8*d.*]

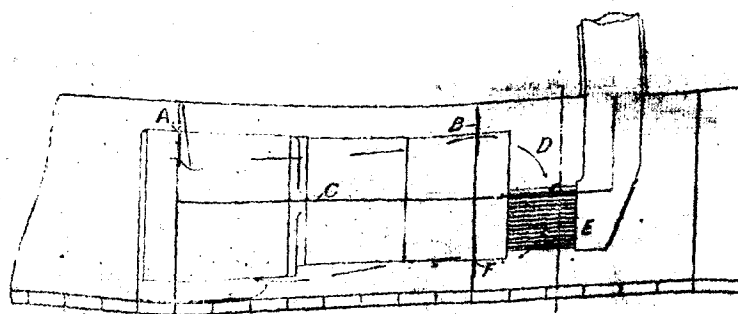
15,883. December 24, 1885. **Torpedoes.**
A. F. YARROW, Isle of Dogs, Poplar.



Two or more are fired simultaneously from the same boat, the axes of the firing tubes being inclined from each other, so that the torpedoes have diverging paths, to enable them to cover a large area. As will be seen in the diagram, if a boat *A* discharges two torpedoes at the ship *B*, the latter will be struck by one torpedo if in either of the positions *C*, *D*, or in any intermediate position. [6*d.*]

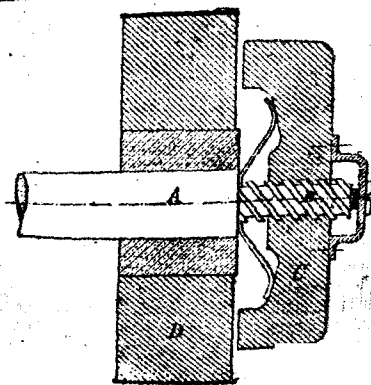
15,884. December 24, 1885. **Supplying air to steam-boiler furnaces.** A. F. YARROW,
Isle of Dogs, Poplar.

The arrangement is for use with steam-boilers of torpedo boats and vessels of a similar nature. Openings *A*, *B* are made on each side of the boiler in the bulkheads and are fitted with flap valves. Longitudinal chambers are also formed by the partitions *C*. The smoke tubes are prolonged as at *D* to meet the smoke box *E*. Air is forced in through the openings *A* and passes onwards, circulating among the heated tubes on its descent to the lower chambers, where it passes through the apertures *F* and enters the ash-pit of the furnace. [8*d.*]



15,885. December 24, 1885. **Brake for hoisting, &c. machinery.** J. H. JOHNSON,
47, Lincoln's Inn Fields, London.—(E. V. V. de P. Desdouts; Tours, France.)

The disc *C* rides upon a screw *B* which forms a continuation of the shaft *A* rotating with the hoisting gear. Its weight is such that upon any sudden accession of speed, its *vis viva* is sufficient to cause it to move upon the screw and jam against the fixed frame *D*. In some cases the disc is controlled by a lever pressing upon it to render it more sensitive. This lever may also be arranged to apply an ordinary band brake by means of a pull rope; when doing so it is released from its contact with the automatic one. [8*d.*]



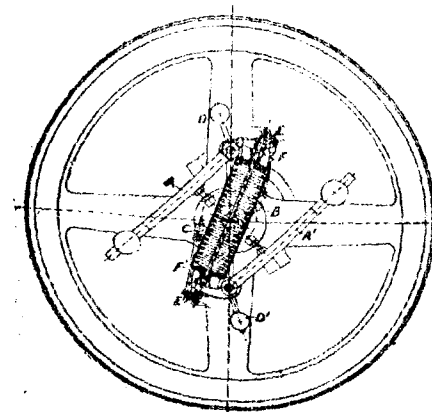
15,886. December 24, 1885. **Advertising.**
J. F. PEASLEY, 79, Bromwich Street, Fitzroy,
Victoria.



The advertisements are arranged on a dial as shown, and are pointed to in succession by the hand and eyes of a clockwork figure placed in the centre. The whole is enclosed in a suitable case having a glass front, and, if required, a recess below the dial for advertisement slides. [8*d.*]

15,887. Abandoned.

15,888. December 25, 1885. **Expansion gear for steam-engines.** H. KÜHN, 34,
Great St. Helens, London.—(R. Prohl; Dresden,
Germany.)

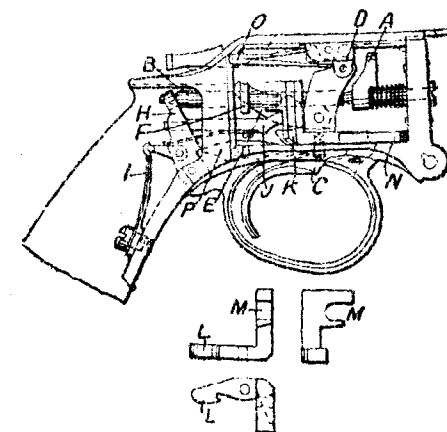


The eccentric is made in two parts, the inner of which is firmly attached to the shaft. The outer part envelopes the inner, and is movable around it by the governor to vary the eccentricity of the combination. The governor is preferably mounted on the flywheel, as shown above, the arms *A*, *A'* flying out against the action of a spring *B* in a casing *C* pivoted at the centre of the shaft. Auxiliary weights *B*, *B'* are rigidly connected to the arms in such a way as to assist the centrifugal action during the first part of the movement and

oppose it during the latter part. The movement of the governor arms is communicated to the outer part of the eccentric through arms *E*, *E'*, and links *F*, *F'*. [6*d.*]

15,889 & 15,890. Abandoned.

15,891. December 24, 1885. **Breech-loading small-arms.** W. H. BECK, 115, Cannon
Street, London.—(A. Francotte; Liège, Belgium.)

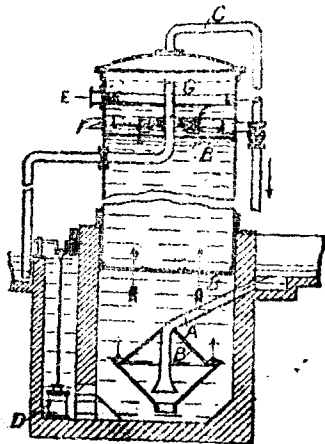


The invention is shown applied to a drop-down four-barrelled pistol. The hammer *A* is carried upon a rotating firing bolt *B*, which also reciprocates longitudinally. The trigger *C* is pivoted at its upper end *D*, and carries a plate *E* on its side, so that upon moving the trigger the plate rises, coming in contact with the ratchet *F* on the firing bolt *B*, and turning the bolt through a quarter of a revolution, thus bringing the hammer *A* successively opposite the four firing pins. The bolt *B* is operated by the lever *H*, which is pivoted at its lower end and is connected by a swivel to the mainspring *I*. A lever *J* is pivoted at its forward end to the trigger, while its rear end has a shoulder which engages with the lever *H*. The piece *K* (shown separately) is formed with a hook *L* at its lower part, which hook moves horizontally on a pivot and holds back the trigger when the arm is cocked. The upper part of the piece *K* is bifurcated at *M*, to allow the bolt *B* to pass within it. The action is as follows:—Upon pulling the trigger, the lever *J* pushes back the lever *H* and bolt *B* against the action of the mainspring *I*, while the hook *L* on the piece *K* is forced by a spring *N* in front of the trigger and the weapon is cocked. Upon pulling the trigger still further, the shoulder on the lever *J* is forced out of engagement with the lever *H*, and the bolt *B* flies forward to fire the arm. During the forward movement of the bolt *B* the ratchet *F* presses against the arms of the piece *K* and turns the hook *L* on its lower end out of the way of the trigger. When the trigger is now released it is forced by the spring *O* back to its original position, and, in doing so, presses the end of the rebounding lever *P*, which pushes back the lever *H* a short distance and with it the bolt *B* to permit of its free rotation. [6*d.*]

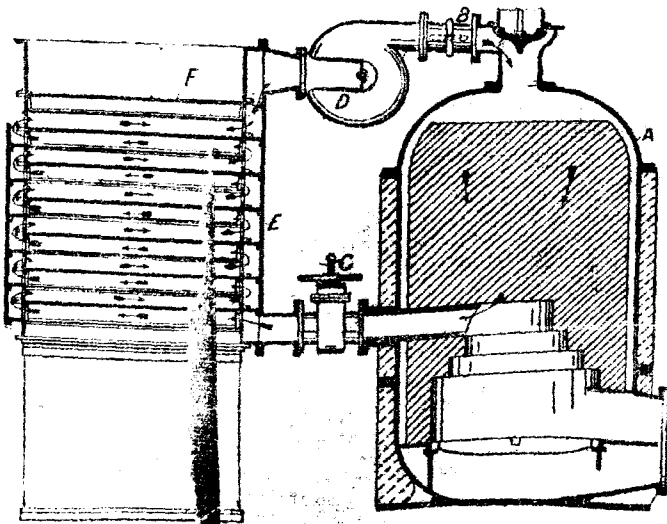
15,892 to 15,894. Abandoned.

15,895. December 24, 1885. **Apparatus for purifying liquids.** C. D. ABEL, 28, Southampton Buildings, London.—(M. M. Rotten; 97, Königgrätzer-strasse, Berlin, Germany.)

The sewage or other liquid enters by the pipe A and slowly passes upward through perforated plates B which prevent currents. Air is drawn from the top of the chamber through a pipe C by an air pump, the exhaustion being regulated by a valve in the pipe, which opens inwardly against the force of a spring when the pressure is too low. The sediment is deposited at the bottom of the vessel and is removed by the pump D or a chain of buckets. The lighter solid matter is removed through the pipe E at the surface, and the purified liquid passes through the concentric troughs F, F and radial passages into the perforated pipe G. Instead of exhausting the upper part, the surface of the feeding water may be slightly higher than the surface in the chamber. [1s. 4d.]

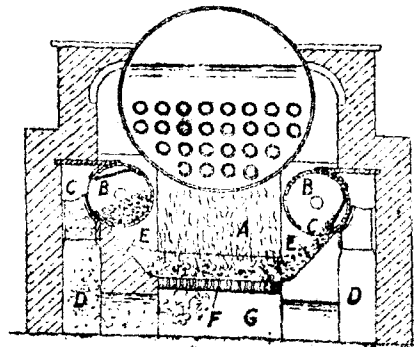
**15,896. Abandoned.**

15,897. December 24, 1885. **Revivifying spent charcoal.** M. P. W. BOULTON, Tew Park, Oxfordshire, B. E. R. NEWLANDS, Clyde Wharf, Victoria Docks, Essex, and E. PERRETT, 8, Victoria Chambers, Westminster.



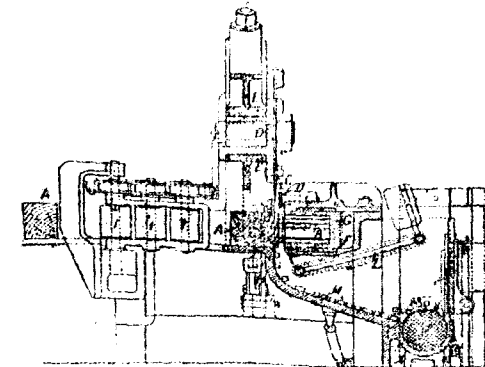
The charcoal is subjected, as it depends in a distributed condition through a vessel, to the action of air, gas, or steam previously treated by passing through a heater such as that described in Specification No. 1788, A.D. 1882. This heater is shown at A. It contains blocks of refractory material and is first heated by lighting a fire within it, the valves B and C being closed. These valves are then opened and the chimney valve closed. Circulation of air, gas, or steam is now set up by means of a fan D through the vessel E and the heater. The charcoal falls down a series of trays F, which are either fixed V-shaped bars or consist of pivoted plates normally horizontal and contiguous, but periodically tipped. This tipping is effected by connecting rods that work small cranks on their axes, the rods being actuated by bell cranks which are swung at intervals by an endless chain fitted with suitable rollers. In this case the feeding hopper has a floor consisting of revolving star wheels actuated by the above endless chain. In some cases the charcoal vessel may be divided into two zones, the hot fluid passing first to the upper zone and then through the lower one on its way back to the heater. If the action is required to be continuous, two sets of apparatus must be used. [8s. 4d.]

15,898. December 24, 1885. **Steam-boiler furnaces.** J. T. GRIFFIN, 36, Worship Street, Finsbury, London.—(J. W. Hatch; North Water Street, Rochester, New York, U.S.A.)



On one or both sides of the furnace A is placed a fuel retort B which is capable of rotation, by means of which its mouth C can be brought either opposite the entrance to the side flue D or over an incline E at the side of the firegrate F. Fuel is fed to the retort from a door at the front. By the heat of the furnace the volatile products are driven off and the fuel partially coked. The gases, etc. descend the flue D and pass to the ashpit G, from which they rise through the incandescent fuel upon the grate. The coked fuel is thrown upon the grate by rotating the retort so that its mouth comes over the furnace. [8s. 4d.]

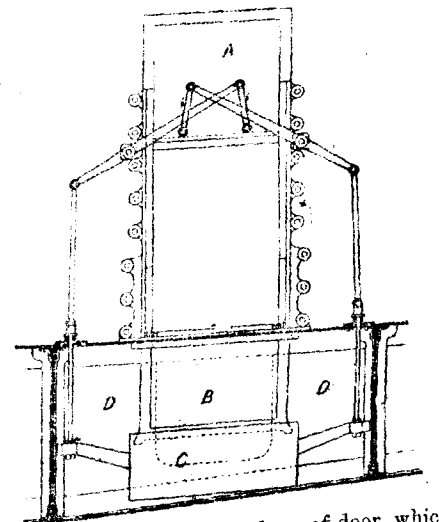
15,899. December 24, 1885. **Cutting and bundling fire wood.** F. KINGSTON, 9, Bolden Street, St. John's, Kent.



The machine is fed with blocks of wood A, A, which are cut by a number of horizontal knives B and by a vertical knife C, the pieces being carried to suitable apparatus for bundling them. The knife C is carried by a block D, which slides in inclined guides E, E, and is reciprocated by a crank. The same crank reciprocates the slide, or box F horizontally, within which the frame G carrying the knives B can slide transversely. This transverse movement of the frame G, by which the knives B are forced into the wood, is caused by inclined planes at the back of the frame which press against fixed inclines. The wood is held by

serrated jaws which are caused to grip it by a lever H operated by a cam plate on the sliding block D. The wood is fed forward by rollers I, I, I, one or more of which may be pressed against by springs. The rollers receive an intermittent motion from the block D by means of ratchet gear. If the sticks do not fall immediately they are cut a pusher K presses them down during the return stroke of the knife C. A continuous travelling chain L prevents the sticks from lodging at the top of the incline M down which they slide to the bundling mechanism. [11s. 4d.]

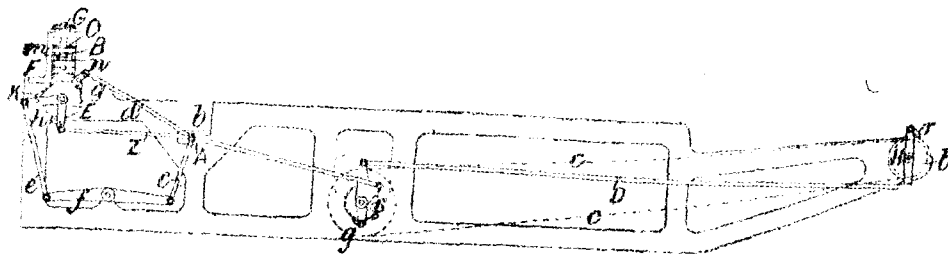
15,900. December 28, 1885. **Ships' bulk-head doors.** F. BAPT, 65, Blackheath Road, Greenwich, Kent.—(W. H. Campbell; Habarovka, Russia.)



A front elevation of this form of door, which is self-closing in event of leakage, is shown. An upper A and lower section B slide in wedge guides at the sides, the lower section being secured to a pair of floats, one of which is seen at C, while the upper is operated by a series of links and levers, so that when the one half is raised by the floats, the other is depressed. The floats are situated in a cell D in the bottom of the vessel, to which water is admitted through ball valves from the bilges when more is present than usual. A testing sea cock is fitted to the tank and also a connection to the bilge pumps. A modified arrangement may be used to operate doors not in a vertical plane. [8s. 4d.]

15,901. December 28, 1885. **Multiplex tin-plates or other coated sheets.** J. B. TURNOCK, Yspitty Works, Loughor, South Wales. Two or more unfinished tin-plates (or other coated sheets) are laid evenly together and passed through the finishing rolls as one plate. Finished plates may also be connected by placing them evenly together and subjecting to heat and pressure. In some cases hollow spaces may be left between the plates and afterwards filled in as desired. [4s. 4d. No Drawings.]

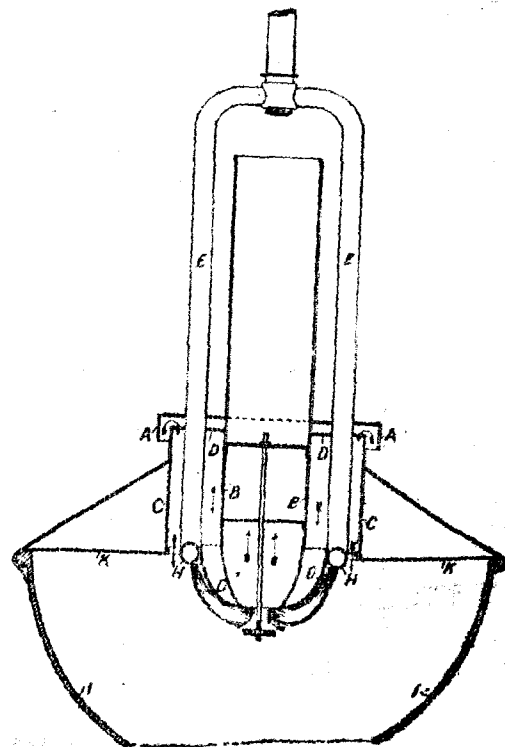
15,902. December 28, 1885. **Rolling dough and panning biscuits.** J., T., and J. VICARS, 29, Seel Street, Liverpool.



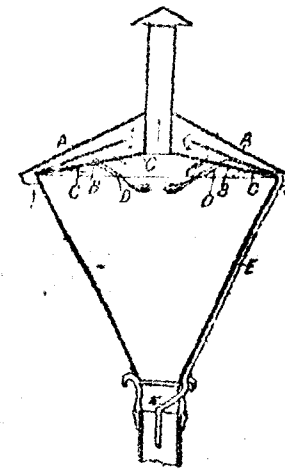
Consists in improvements in the method of driving the dough rollers, in bearings for the same, and in the means of actuating the chains carrying the pans. In the block A upon the end of the driving shaft former of which actuate the pawls g and h directly, while the third rod c actuates the pawl k through continuous rotary motion to the dough rollers. Between the bearing F, carrying the upper roller, and lower part and the roller are raised with it by means of the spring B. Upon the chain shaft is fixed a ratchet wheel S which drives the chain C with a regular motion by means of the pawl g. To give additional motion to the chain C, at certain times, a ratchet wheel with few teeth is fixed upon the shaft H and driven by the rod D and pawl z. Or placed upon the chain shaft behind the ratchet wheel S with a pinion carried by an arm loose upon the same shaft; the pinion also gears with a spur wheel fixed upon the chain shaft. The ratchet wheel, by means of its internal teeth, actuates the pinion, which gives motion to the shaft through the spur wheel fixed upon it. The end of the arm carrying the pinion is formed into a quadrant, into the teeth of which works a worm; this regulates the time and extent of the ratchet wheel. [83d.]

15,903. December 28, 1885. **Regenerative gas lamp.** J. ROORS, 25, The Avenue, Tottenham, Middlesex.

The air supply enters under the cover A and is heated by descending between the central chimney B and the outer casing C, the supply being equally distributed by the baffle-plates D, D. The gas descends by the arms E, E to the argand burner H, whence the flame converges towards the mouth of the chimney. The bowl I is supported by the reflector K. [63d.]



15,904. December 28, 1885. **Street lamp.** J. ROORS, 25, The Avenue, Tottenham, Middlesex.



The air supply enters between the top casing A and the reflector B, and is heated by contact with the chimney and reflector before descending through the perforations C, C to the flame. The flat-flamed burners D, D project through the reflector and are supplied by the pipe E. Modifications applicable to shop front and other out door lamps are described, in which the air supply is heated by passing down tubes around which the products circulate. An argand lamp, in which heated air is supplied to the burner by a T-shaped tube, may be used for heating purposes. [83d.]

15,905. Abandoned.

15,906. December 28, 1885. **Waterproofing.** T. F. WILEY, 41, Moss Street, Manchester Road, Bradford, Yorkshire.

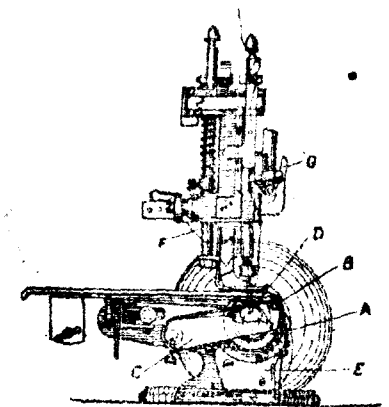
The fabrics are first impregnated with a waterproofing agent, such as sugar of lead, alum, or soap, soluble in water, and afterwards coated with india-rubber, paraffin wax, etc., applied by means of a suitable solvent. The following method of performing the operations is described. Two pounds of hard white soap dissolved in six gallons of water is heated to 100° F., and used as a bath through which the cloth is passed several times and is squeezed between each saturation. It is then treated in similar manner with a solution of 2 lbs. of alum in four gallons of water, and dried by steam drying cylinders. After passing through water at 200° F., and again drying, it is treated with a solution of four ounces of india-rubber and four ounces of paraffin wax in one gallon of benzoline, which is preferably sprayed on to it. [43d. No Drawings.]

15,907. Abandoned.

15,908. December 28, 1885. **Sewing machines.** W. E. HEYS, New Bridge Street, Manchester.—(B. Rudolph; Berlin, Germany.)

Relates to double chain stitch mechanism and utting appliances for sewing knitted and woven

fabrics. To produce the double chain stitch, a semicircular hook A is mounted on a pivot half way

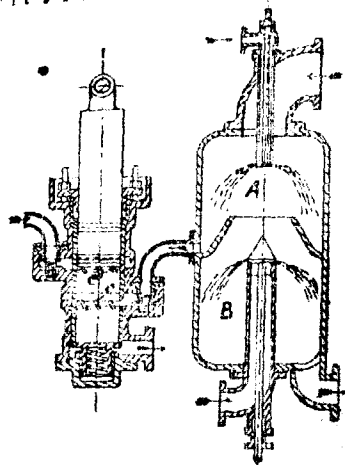


which is carried by a collar loose on the driving shaft. This collar also carries a pin B taking into a slot in the lever C which has a cam-shaped part acted on by the eccentric pin D on the driving shaft. By this means the hook A is vibrated in a vertical plane. A lateral motion is given to it by a bowl mounted on its lower end working in a suitable guide slot in the piece E. The hook A is supplied with the lower thread, and it and the needle each alternately traverses the loop formed by the other, to produce a double chain stitch. For the cutting appliance, the shearing cutter is mounted on the lower arm of the bell-crank F whose other arm carries the inclined piece G. A bowl on the needle operating arm striking against the piece G operates the cutter. By mounting the knife on the bell-crank, which is pivoted above, it receives a horizontal as well as a vertical movement and so by a drawing action effectually cuts off the rough edges. An appliance for turning over the edges in front of the needle is described. [83d.]

15,909. December 28, 1885. **Returning exhaust steam to the boiler.** A. B. WILSON, Holywood, Belfast.

The exhaust is led into a condenser shown in section in the figure, divided into two portions, in the first of which A the steam is partly condensed by pure injection water, while in the second B the remainder is wholly condensed by water which may not be suitable for feed purposes. The contents of the first chamber are returned to the boiler by a special form of pump, while the contents of the second portion are removed by an ordinary air pump. The feed pump is of the ram or plunger type, and is capable of drawing from several places, such as the cylinder jackets, the intermediate receiver and the condenser at one time. The ram works tight in the barrel and at each instroke touches the pump bottom which is backed by a spiral spring and thus forms the delivery or foot valve. This latter arrangement enables the pump to completely discharge the contents of the barrel at each stroke. At various distances along the barrel are rings of ports C, C communicating with the various sources supplying the pump, which are so arranged that the supply of least pressure enters at the lowest row of ports. When more than one

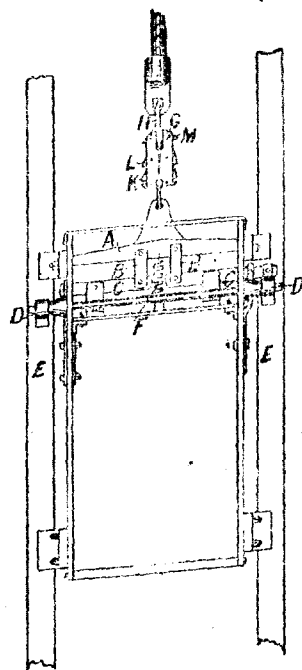
row of ports are used, non-return valves are placed in the supply pipes, and to prevent leakage between



them the packing rings on the ram are so spaced that one is always between each pair of rings. [8d.]

15,910 to 15,922. *Abandoned.*

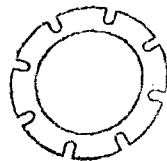
15,923. December 28, 1885. **Safety apparatus for mine and lift cages.** W. WATSON, 52, Balme Road, Southgate Road, London, N.



Part of the invention relates to mechanism for arresting the descent of the cage should the lifting rope break and part to mechanism for preventing

over winding. The cross-bar A, to which the lifting rope is attached, is connected by the links B to levers C. These by means of other links lift gripping levers D out of contact with the guides E so long as the weight is upon the rope. Should, however, this break, the weight of A assisted by the spring F depresses the levers C and so brings the gripping levers against the guides. There is a lever within the cage to work the grippers by hand if required. The lifting rope is connected to A through the medium of a slip connexion G. The slip link H is held by two pincer jaws, the lower part of which are seen at K. These are pressed out by a wedge hung from bell-cranks shown at L. At the top of the pit shaft is a cross-beam having an opening just a little larger than G. When this reaches it, the levers L are swung on their centres, thus raising the wedge and allowing the lower ends of K to be pressed inwards, so opening their upper ones to release H. The cage then hangs by the catches M. [8d.]

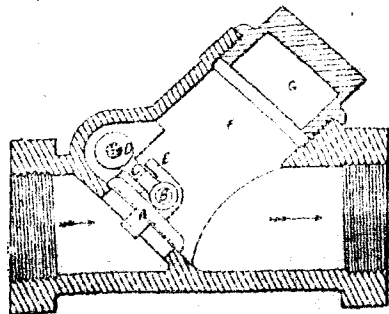
15,924. December 28, 1885. **Bottle-stoppers.** T. HILL, 4, Regent's Terrace, Cave Lane, Kingston-upon-Hull.



The washers are grooved or perforated to facilitate opening. The figure shows one form of the invention. [6d.]

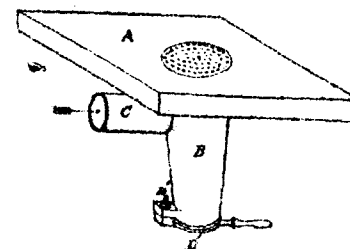
15,925 & 15,926. *Abandoned.*

15,927. December 28, 1885. **Check valve.** T. WITTER, 190, Blackburn Road, Bolton, Lancashire.



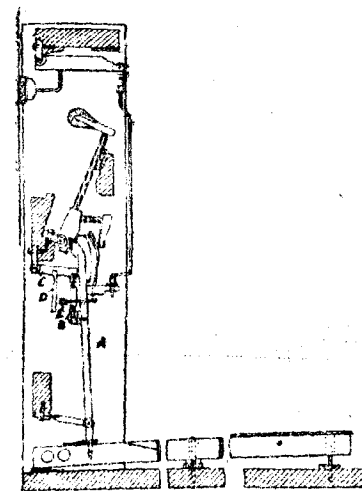
The valve A is pivoted at B to an arm C which is in turn pivoted to the casing by the pin D. A projection E comes in contact with the arm C and limits the motion of the valve round the pivot B and prevents jamming. The valve seating is inclined so as to give a straight through passage, and can be reached for grinding through the opening F, which is closed by the screw plug G. [8d.]

15,928. December 28, 1885. **Tuyere.** G. M. CRUIKSHANK, 62, St. Vincent Street, Glasgow.—(A. and G. Roth; Aschaffenburg, Germany.)



With plate A, perforated with conical holes at or near the centre, at the top of a conical tube B. A pipe C conveys air to the tuyere, and at the bottom of the tube B is a cleaning door D pivoted at D' so as to move horizontally. [8d.]

15,929. December 28, 1885. **Pianoforte actions.** W. H. SQUIRE, 94, Camden Street, Camden Town, Middlesex.



Relates to means for guiding the sticker. In the drawing A is the sticker which carries a vertical link B whose upper end is hinged to C. The latter link is pivoted to the hammer rail and carries an arm D against which the button E strikes to throw the end of the sticker out of the notch in the hammer butt. The rest of the action is of ordinary construction. Patent opposed. Case not yet decided. [6d.]

15,930. *Abandoned.*

15,931. December 28, 1885. **Blower.** R. J. WHITE, 156A, Blackstock Road, Finsbury Park, London, N.

The blower, which is fixed in the opening to the flue, is adjusted by a telescoping or folding arrangement. For a register stove it has the form of a lobster cowl when drawn down over the fire, but in the

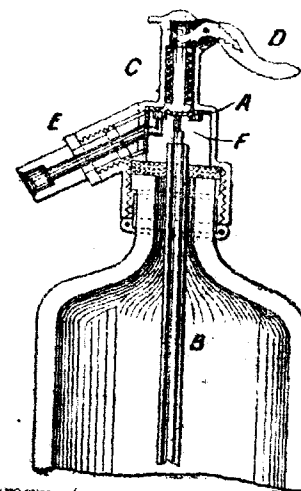
case of square lined stoves it is made three or four sided. When the flue is directly over the fire as in an open kitchen grate the blower, which is made either square or round, telescopes vertically. It is constructed of any suitable material of asbestos, but in the latter case is made to fold instead of telescope. [1d. No Drawings.]

15,932. *Abandoned.*

15,933. December 28, 1885. **Liniment.** R. CLAYTON, Providence Place, Felling Gate, Durham.

To make a quart of the liniment 5 drachms of sulphuric acid and 7 drachms of spirits of turpentine are mixed with cedar oil. The liniment is used for the cure of sores, bruises, sprains, &c. [4d. No Drawings.]

15,934. December 28, 1885. **Syphon bottles.** F. J. B. RAKEN, 222, Spinaal, Amsterdam.



A diaphragm A of rubber or like material is pressed against the hollow cylinder F holding the tube B, which reaches to the bottom of the syphon. Egress of fluid is thus prevented unless the rod C is raised by the lever D against the pressure of the spiral spring round C, the liquid can then pass to the spout E through the space between the hollow cylinder F and the diaphragm A; both F and E are non-metallic to avoid contamination. [8d.]

15,935. *Abandoned.*

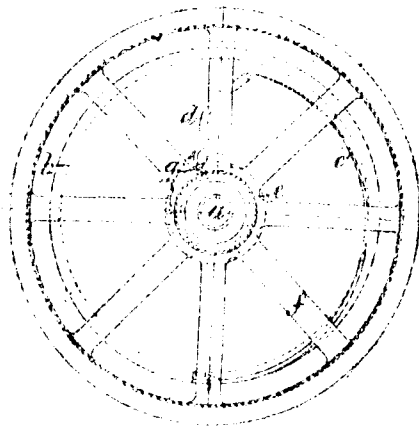
15,936. December 28, 1885. **Fly-wheel.** H. W. WIMSHURST, 16, Thicket Road, Anerley, Surrey.

The object is to render uniform the speed of machinery which is driven by an engine running irregularly. A wheel b is keyed on the crank shaft a and has one end of the spring c fixed to it; the other end is attached to a lever d which is connected to two discs e running loosely on boss of the wheel f which is loose on the shaft, and from

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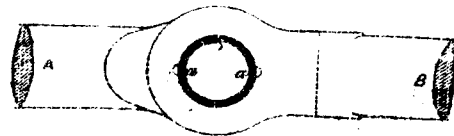
which the machinery is driven. A ratchet is fixed on the nose of *f* and motion is communicated to it



from the discs by a pawl *g* pivoted on the latter. When the speed of the engine increases the increased tension in the spring causes it to draw the end of the lever *d* nearer to the centre of the shaft and diminish its effective length. If the machine should outrun the engine the lever *d* will be forced back and will lift the pawl out of the ratchet. [8*d.*]

15,937. *Abandoned.*

15,938. December 28, 1885. **Axles, pins, &c.** A. GATTIER and S. POZZY, Paris, France.



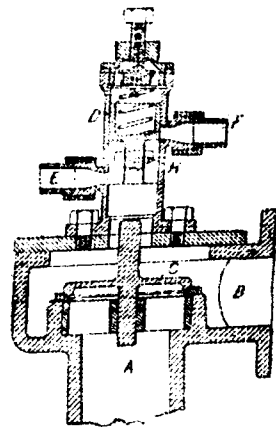
The figure shows the pin used for jointing two rods A and B. It is formed of a steel or other elastic metal strip *a* spirally coiled. In some cases a central pin may be secured within the coil. [6*d.*]

15,939 & 15,940. *Abandoned.*

15,941. December 28, 1885. **Condensing and feed-heating apparatus for tramway and other engines.** F. J. BURRELL, St. Nicholas Works, Thetford, Norfolk.

The feed water is used to condense the exhaust steam in a surface condenser through which it is passed on its way to the boiler, becoming thereby heated. The feed pump draws from a hot or a cold tank or from both, the amount taken from each being regulated to vary the temperature of the water passing into the condenser according to the pressure in the exhaust pipe, or in compound engines according to the pressure in the receiver. The hot tank is fed by the condensed steam. A section through the regulating apparatus is shown above. A is in connection with the exhaust pipe, and B with the condenser. C is a valve which

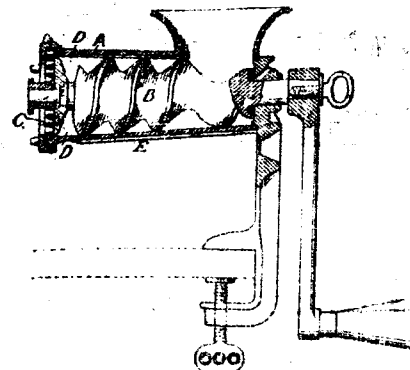
opens only when the pressure rises in the exhaust pipe, and which in doing lifts the piston valve D.



The water from the hot tank passes in at E, and that from the cold tank at F, while H leads to the suction of the feed pump. As the pressure rises in the exhaust pipe, the valve D is raised, and cold water is admitted at F, while the supply of hot water is reduced. A pipe is provided to return the excess of heated water to the hot tank. When a jet condenser is used the same valve is employed to regulate the supply of cold injection water, but a separate pump is required to feed the boiler. An extra valve loaded with a stronger spring may be placed in the exhaust pipe to control an independent cold water supply for use in starting, etc. A modification of the regulating apparatus is described for controlling the supply of cold water from an elevated cistern. [8*d.*]

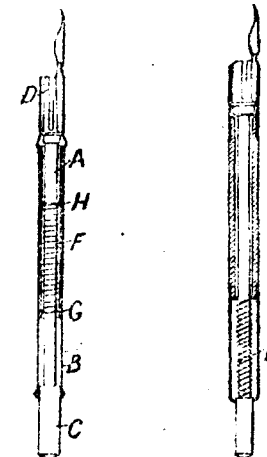
15,942 & 15,943. *Abandoned.*

15,944. December 28, 1885. **Cutting plastic materials.** J. G. BAKER, 1922, North Seventh Street, Philadelphia, U.S.A.



This is an improvement on the invention described in Specification No. 510, A.D. 1883. The casing A is corrugated longitudinally and provided

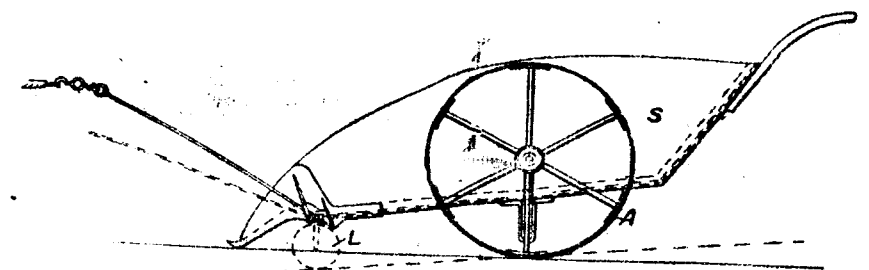
with a hopper. Within it works a forcing screw B supported in bearings in the end covers of the casing. The end of the screw upon which the thrust comes is provided with a plate of soft anti-friction metal. The cover C at the opposite end is perforated, and against it works a knife D fixed to the rotating screw, for cutting up the material as it is being forced out. [6*d.*]



15,945. December 28, 1885. **Pen-holders.** W. E. GEDGE, 11, Wellington Street, Strand, London.—(P. O'Kelly and Co., Boulogne-Sur-Mer.)

The holder is constructed so that the pen may be easily ejected. The rod A slides within the casing B and is provided at one end C with a cap, and at the other with a split tubular part D for clipping the pen between it and the casing. A spring E is fitted between two collars G and H, the former of which is fixed to A while the latter is preferably fixed to the casing. On pressing C, the part D moves forward and the pen falls out. Several modifications are described in which the position of the spring and collars are altered as shown at F'. [8*d.*]

15,946. December 28, 1885. **Agricultural rake.** J. A. CARLÈS, Pins-Verts Leguevin (Haute Garonne), France.



The rake is drawn by animal power, and is provided with a barrow-shaped receptacle S to hold all the material collected. The collecting teeth are placed in front, and each tooth is mounted loosely on a transverse bar, and rests upon a second bar, against which it is pressed by a spring, sufficient play being given to allow the tooth to pass over any obstacle on the ground. The rake is mounted on a pivot fixed wheel L, so that it can follow the irregularities of the ground. A small wheel M can be readily fastened by pins underneath the collecting teeth, when it is required to transport the rake. [8*d.*]

15,947. December 28, 1885. **Fuller's earth.** F. CANDY, 6, Leigh Road, Middlesex.

Relates to the treatment of fuller's earth in order to render unobjectionable in the manufactures in which the earth is used the presence of hard and gritty matters such as calcareous matter and silicates. The natural earth is ground by passing it under edge runners, with or without previously passing it through rollers, whereby the hard and gritty matters are disintegrated. It is then passed through a pugmill and formed into blocks which are piled under cover so as to permit a free circulation of air, or in a chamber supplied with a current of warm or dry air. When "bone dry" the lumps are reduced to powder or to pieces of the required size. If water is added in the process of grinding excess is avoided in order to

prevent any loss of alkali by the draining away of the excess. The pugging and moulding operations are not essential, but may be dispensed with. *Patent opposed. Case not yet decided.* [6*d.* No Drawings.]

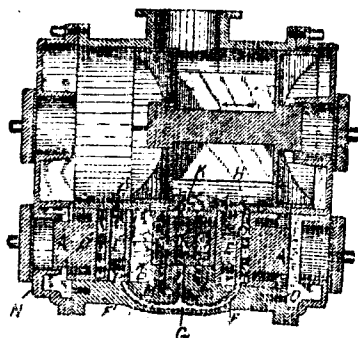
15,948. December 28, 1885. **Utilising a certain kind of clay.** F. CANDY, 6, Leigh Road, Middlesex.

The dark coloured, carbonaceous clay found near the beds of potters' clay in the district of Marlton, near Torrington, Devonshire, is pulverised, dried and carbonised either alone or admixed with chalk or ordinary limestone. The products thus obtained are used, alone or in conjunction with other substances, for purifying and

softening water, for decolorising liquids, for the manufacture of paint, for purifying gas, as a filtering medium and disinfectant, as a substitute for the carbon in electric batteries and in lieu of ordinary black chalk, crayons or charcoal for marking, drawing or writing purposes. [6*d.* No Drawings.]

15,949 & 15,950. *Abandoned.*

15,951. December 29, 1885. **Liquid meter.** H. J. ALLISON, 52, Chancery Lane, London.—(H. M. Bartlett; Somerville, and W. H. Brown; Cambridge, both in Massachusetts, U.S.A.)



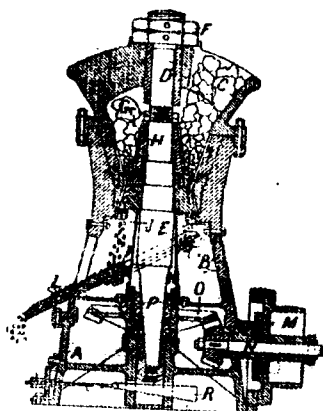
The working valve is operated by an auxiliary valve reciprocated by direct impact of a double piston. A shows the main valve, semi-cylindrical in form and hollowed out centrally to envelope a projecting piece B of the casing. Its face is on the line C. It has two inlet ports D, D' and two exhaust ones E, E'. These latter communicate alternately with passages F, F' leading to the exhaust G. There are corresponding ports H, H' in the casing leading to the backs of the pistons. The piece B has three passages, the central one leading to the exhaust. On its face works the small valve K which is reciprocated by impact of one or other of the pistons. This serves to direct the liquid by means of the ports L and M and passages N and O to one or other end of the main valve for reversing it. The water is admitted to the central space P of the valve, and supposing the position of the latter to be that shown, it passes by ducts in the body of the valve to the port D and thence through H behind the right hand piston. This moves in the direction of the arrow and when near the end of its stroke strikes against K. This is reversed and the water passes by the port L and the passage N behind the left hand end of the main valve which is thereby moved to the right. The port H is then opposite the exhaust duct E and the port H' opposite the inlet duct D. The pistons are now brought back to their original position, again actuating the valve K and so on. Any suitable means may be adopted for transmitting the motion of the piston to the registering mechanism, which is situated above the opening Q. [8*d.*]

15,952. *Abandoned.*

15,953. December 29, 1885. **Size for textile materials, fabrics, string, &c.** A. HIERONIMUS, 15, Brandgasse, Strasburg, Alsace.

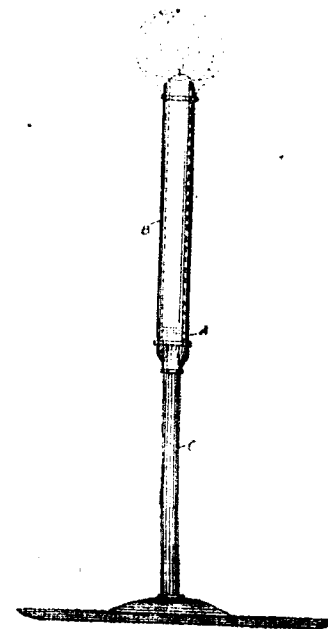
Meal that has been used with eggs in tawing skins is made into a paste with about four times its weight of water, and mixed with the liquid obtained by boiling an equal weight of scraps or parings of kid, etc. with six parts by weight of water. [6*d.*]

15,954. December 29, 1885. **Stone and ore crushing apparatus.** G. LOWRY, Armley Leeds.



Relates to improvements in machines consisting of a conical crushing head revolving in a crushing chamber. The body of the machine is made in three castings A, B, and C. Of these A, the lowermost, carries the driving-gear, etc. B contains the crushing chamber and discharge shoot, and is arranged so that the latter may be set at any angle with the driving-gear; the uppermost C forms the feed hopper and carries the bearing for the upper end of the crusher shaft: it is formed with a flange fitting over a ring on the part B. The lower end of the crusher shaft E fits in an eccentric eye in the bush P which is rotated by the bevel wheel O placed between bearings in the lower and middle sections. The bush is adjusted vertically by the wedge R. The upper end of the shaft fits in a bush D, the bore of which is largest at the upper end to allow for the motion of the shaft. This bush is adjusted vertically by the nuts F. The corrugated or toothed crushing head H is made in rings fitting together between a shoulder on the shaft and the nuts G. The crushing chamber is also formed with removable rings I fitting together and clamped in the casing B by the upper section C. Dust is excluded from the lower bearing by the tube K extending from the bearing to the underside of the crushing head. This tube also supports the discharge shoot L. A perforated ring J fixed at the bottom of the crushing chamber prevents the escape of insufficiently reduced pieces. The driving pulley M is coupled to the shaft N by a special device which allows the shaft to slip when anything beyond the power of the machine is introduced. [8*d.*]

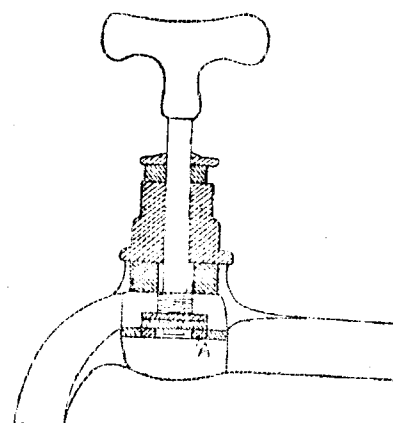
15,955. December 29, 1885. **Candlestick.** H. ROBERTS, Clynnog, Carnarvon.



Designed to prevent the grease from running over. The candle is supported by a disc A, and is enclosed in a case B which sinks as the candle burns. The case is guided in its descent by the rod C. [8*d.*]

15,956. *Abandoned.*

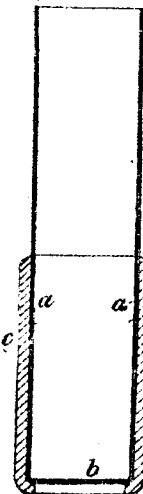
15,957. December 29, 1885. **Seating for valves.** J. EASBY, 161, Spring Vale Road, Sheffield.



The washer A is made of vulcanized fibre or other flexible material, and has a hexagonal or other appropriately shaped opening through it by which it is screwed in flush with the seating. [6*d.*]

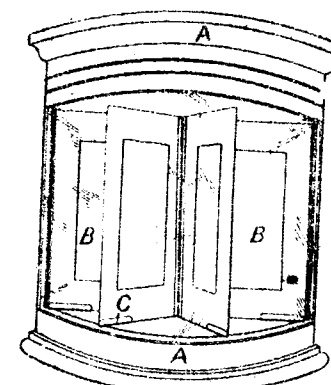
15,958. December 29, 1885. **Detonators.** G. BLOEM, Dusseldorf, Germany.

The improvements consist in making the bottom *b* of the case *a* weaker than the sides in order to concentrate the effect of the explosion. The bottom may be cut into a diamond so that it will readily yield, or formed into a hollow hemisphere. The sides may be reinforced by one or more sleeves *c* or bands which extend as far as the fulminating compound. [6*d.*]



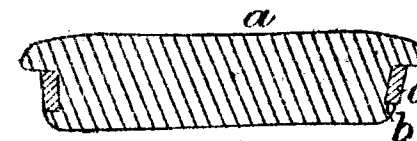
15,959 & 15,960. *Abandoned.*

15,961. December 29, 1885. **Combined album and show-case.** T. A. MORYSON, Ellieville, Dumfries.



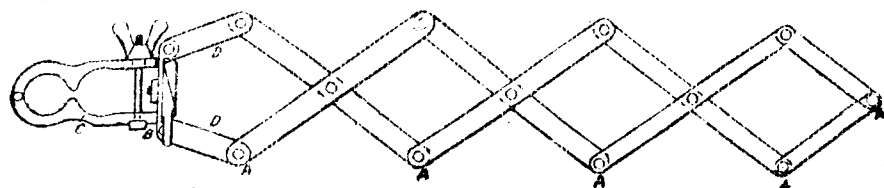
An album is enclosed within a show-case and means are provided whereby the leaves may be turned from the outside. The drawing shows one form of combination. A semi-circular case A with a glass front contains an album B mounted on a vertical rod or spindle. To each leaf is attached a clip C with a pin projecting through a slot in the bottom (or top) of the case, by which the leaves may be turned. The case may be so constructed that the album may lie in an inclined or horizontal position. [8*d.*]

15,962. December 29, 1885. **Bottle-stoppers.** J. HOLMES, 18, High Street, Keighley, Yorkshire.



The stopper *a* has a groove *b* into which is cemented, screwed, or nailed the cork or other washer *c*. [6*d.*]

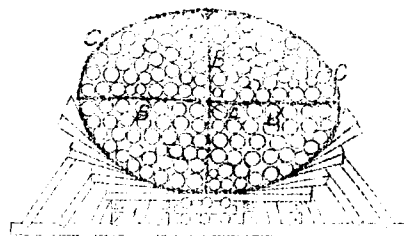
15,963. December 29, 1885. **Expanding bracket.** W. H. COBBINGTON, 11, Montpellier Terrace, Brighton.



The sides consist of two lazy tongs arrangements connected by rods A, A, A, A shown in end elevation, the inner bars D are jointed to a back plate B provided with two clamps C for attaching to a tricycle frame or to any vehicle or fixture. The frame is fixed in its expanded, collapsed, or in any other position by two locking arrangements B, parts of which bear against the heels of the inner bars D. [6½d.]

15,964. December 29, 1885. **Rafting timber.** H. R. ROBERTSON, St. John, New Brunswick, Canada.

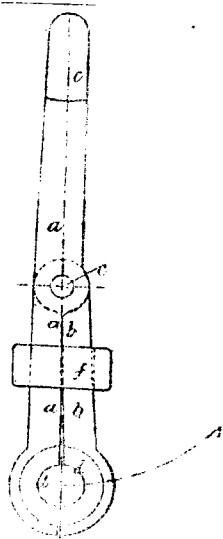
In place of being lashed together, logs are usually built into a somewhat cylindrical structure, preferably tapered towards the ends. They are made to break joint, the outer layer being preferably scarfed, and are lashed together by longitudinal, radial, and circumferential chains, the latter being preferably laid in grooves cut in the outer layer of logs. A cross section of a raft is shown, resting in the cradle on which it has been built, and on which it is launched in the method commonly employed in launching vessels. A central chain A runs the whole length, to each end of which rings for towing or mooring are attached. At intervals radial chains B, B are stretched from this to the binding chains C, C surrounding the outer layer of logs. A false bow may be built on if necessary to facilitate the raft's passage through the water. [8½d.]



15,965 & 15,968. Abandoned.

15,969. December 29, 1885. **Rope clips.** J. ARCHBOLD, Bean Vale, Newthorpe, Nottinghamshire.

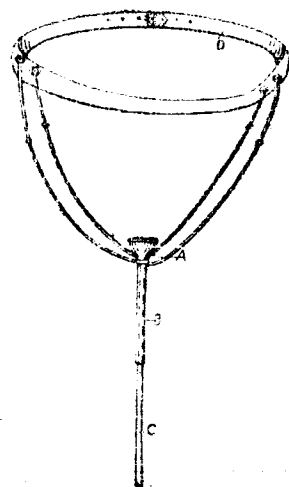
A pair of jaws, with taper shanks a, b, hinged together at c, or linked together by the ring of the connecting hook, are grooved at d to receive the haulage rope which is gripped by sliding the link or strap f to the lower and wider part of the shanks. [8½d.]



15,970. December 29, 1885. **Personal sanitary convenience.** W. F. THORPE, 27, Maiden Lane, Covent Garden, Middlesex.

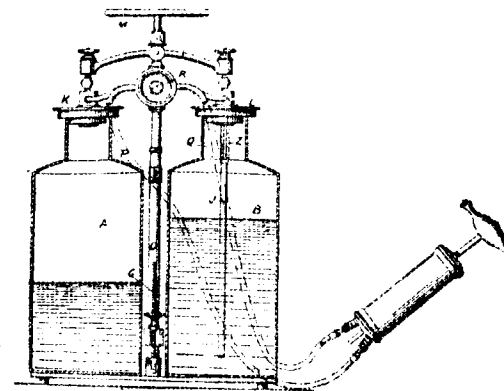
Specially designed for female travellers and invalids. The convenience is made with a flexible

elliptically shaped cup A which is placed within the body of the user. The cup is connected by a rigid



tube B to a flexible tube C which, in the modification adapted for invalids, conducts the urine to a receptacle placed by the side of the bed. In the modification adapted for travellers an ordinary flexible receptacle is attached to the cup A. The appliance is held in position by a waist-belt D. [8½d.]

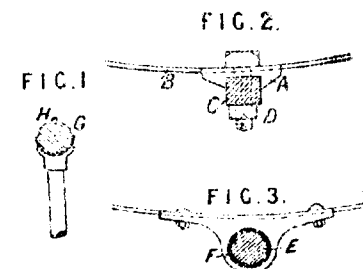
15,971. December 29, 1885. **Surgical exhauster and injector.** A. B. A. REAULT, 1, Boulevard St. Denis, Paris, France.



The apparatus enables the operator to exhaust or inject any cavity as desired, and is designed with a view to compactness and certainty of action. It consists of two glass bottles which can be put into connection with a single-acting air pump, and with the cavity by means of a multiple stop-cock. A is the exhausting bottle, graduated from bottom to top, and B is the injecting bottle, graduated from top to bottom. The bottles can be firmly closed by stoppers K, L, jointed to a beam I hinged on a rod E which can be moved up and down in a column D by a nut and screw G. R is the stop-cock which controls all the connections. The tubes P, Q lead to the air pump, two tubes from each stopper lead to the stop-cock, and a flexible tube leading from the cavity to be exhausted or injected is secured to the end of the stop-cock. The stop-cock can assume four positions, corresponding respectively to exhaustion of the air in the vessel A, to suction from the cavity, to compression of air in the vessel B, and to injection into the cavity through the tube J. Z is a cotton-wool filter for rendering the air entering the vessel B aseptic. [8½d.]

15,972 to 15,977. Abandoned.

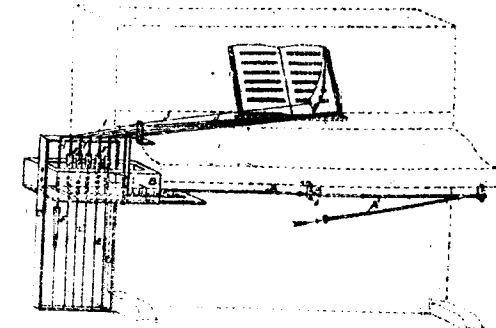
15,978. December 29, 1885. **Perambulators.** J. SIMPSON and S. T. FAWCETT, Black Bull Street, Leeds.



ist, Firstly,—in interposing
le and springs for firmly

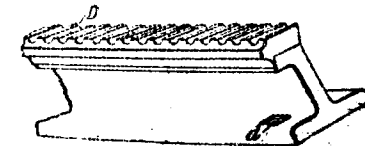
locking the two together, and Secondly,—in grooving the periphery of the rubber tyre, when such is used, for the reception of a metallic ring to secure the tyre. Fig. 2 shows the saddle A grooved to fit the spring B and the square axle C, the three being secured by a bolt D. Fig. 3 shows a modification suitable for a round axle E. The saddle is bored to tightly fit over a tubular bearing F surrounding the axle, and is grooved to fit the spring as before. Fig. 1 shows the rubber tyre G secured by the wire H. [6½d.]

15,979. December 29, 1885. **Leaf-turner.** O. CANIER-REYS, 86, Rue Royale, Brussels, Belgium.



Threads I are attached by clips to the corners of the leaves and to weights F sliding on guides E fixed in a frame D which also carries a box B having a sliding bottom C with a central slot and a rack with ratchet teeth. When the performer wishes to turn a leaf he presses the knee piece A. This causes the rod A, which engages the ratchet teeth, and the sliding bottom to move to the right, one of the weights is released and falling pulls over a leaf. A spring causes the rod A to move back again and its turned up end slips over and engages another tooth. The rod A may be operated by the foot. [8½d.]

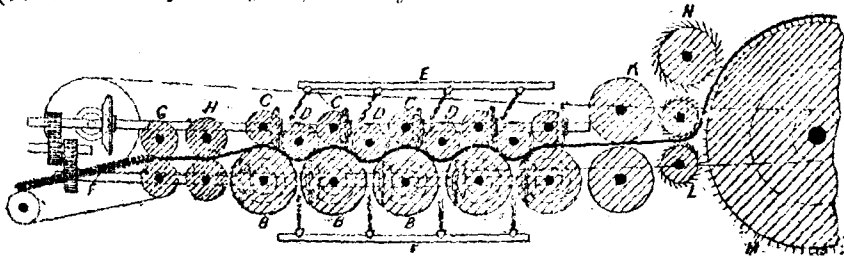
15,980. December 29, 1885. **Slot iron for cable railways.** E. D. DOUGHERTY, Philadelphia, U.S.A.



The slot iron is provided with a removable wearing face D, and elongated bolt holes d to allow adjustment of the width of the slot. The holes d may be covered by the bolt heads or by washers beneath the bolt heads to exclude dirt. [6½d.]

15,981. Abandoned.

15,982. December 29, 1885. **Fibre-rubbing machines.** A. M. CLARK, 53, Chancery Lane, London.—(The Acme Manufacturing Co.; Wilmington, North Carolina, U.S.A.)



Pine needles and other fibrous substances are prepared for spinning or upholstery purposes by being passed between a series of spirally grooved rubbing rollers. The grooves of the lower rollers B are partly right hand and partly left hand. The grooves of the upper and smaller rollers C are similar, but closer. The grooves of the intermediate rollers D are all inclined in the same direction, and a traversing motion is imparted by suitable eccentrics. Streams of hot water issuing from pipes E soften and wash the material. The machine is provided with a feed apron F and plain and fluted feed rollers G and H. The material from the grooved rollers is passed between wringing rollers K and toothed feed rollers L to a picker drum M. A roller N is arranged to clean the upper feed roller. [8d.]

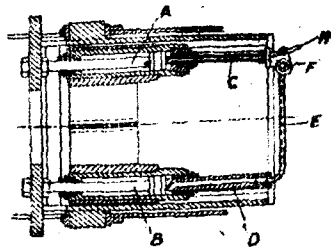
15,983. Abandoned.

15,984. December 29, 1885. **Medical compound.** A. M. CLARK, 53, Chancery Lane, London.—(C. J. Ulrici; 103, San Miguel Street, Havana, Cuba.)

The basis of this compound is vegetable pitch, which is subjected to a process to remove noxious ingredients. The pitch is first heated in a water bath and strained. It is then triturated with sugar and sodium bicarbonate, mixed with water, heated, and filtered. The mixture is next dialysed through vegetable parchment, the water being changed as often as required. The colloidal matter is concentrated by heat, mixed with coarse sand, and again partially dried. The mixture is finally lixiviated with a mixture of alcohol and glycerine. The solution thus obtained contains chiefly the heavy resinous ingredients of the pitch, and is administered internally or applied externally for the cure of various diseases. [6d.]

15,985. Abandoned.

15,986. December 29, 1885. **Hydraulic compressors for gun mountings.** J. VAVASSEUR, London Ordnance Works, Southwark, Surrey.



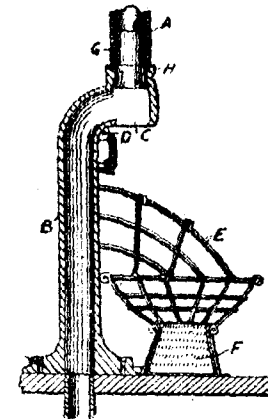
Consists in apparatus for attending and regulating the return of the gun, in those mountings in

which the gun after recoil is returned to the firing position by gravity or under the action of compressed springs. The invention is shown as applied to the mounting described in Specification No. 15,712, A.D. 1885. The compressor cylinders A, B, which recoil with the gun, have trunks or plungers C, D, attached to the pistons on the sides opposite to the piston rods. The combined sectional area of the plungers equals that of the piston rods, one plunger displacing more and the other less liquid than its corresponding piston rod. A passage is made through each plunger, the plungers being connected by a pipe E which is fitted with a valve F to allow the liquid to pass through it in one direction only. As the gun recoils, liquid is forced from the cylinder B through the pipe E to the cylinder A, and the gun cannot run out to the firing position until the liquid is allowed to return to the cylinder B through the passage E, by means of a bye pass H. In a modification only one piston is fitted with a plunger. [8d.]

15,987. December 29, 1885. **Pneumatic cash carrying system.** W. G. DAVIS and W. M. HINMAN, 34, School Street, Boston, Massachusetts, U.S.A.

A series of glass tubes lead from the various counters to the cashier's desk, along which the carriers are forced pneumatically in either direction by pressing a pair of bellows at the proper end. The cashier's bellows are connected to the glass tubes A by a series of pipes B with valves at their lower ends under the control of push rods, so that only that pipe is opened along which a blast is to be directed. The carrier is put in through the orifice C and the door D shut. A wire basket E, with a bag F full of lead shot, is placed below C to receive the carriers returning from the counters. At the other ends of the tubes are pivoted two short tubes, one for receiving the carrier and directing it into a curved chute to break its force, the other for discharging, being connected directly to the bellows. Either of these tubes may be turned into position as required.

The carrier G is made cylindrical, with oval ends, and has an apron H round its lower part, which



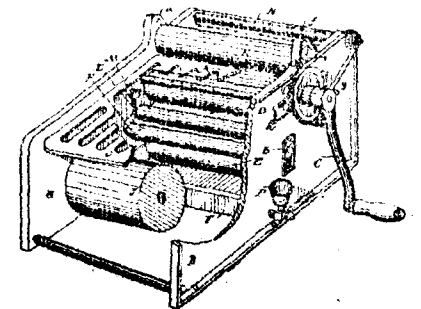
flares out with the air pressure and tightens against the sides of the tube. [8d.]

15,988. December 29, 1885. **Treating complex ores.** W. and A. S. ELMORE, 359, Clapham Road, and H. BARRETT, Mineval, Dulwich, both in Surrey.

The object is to extract and refine the metals and to manufacture sulphuric acid by electrolytic action. The finely ground ore is roasted in a reverberatory furnace and while hot stirred in a tank with water or other suitable solvent for dissolving zinc and copper. The solution is removed to a tank containing zinc to precipitate the copper and any silver present, the precipitate is fused to form an anode in a subsequent operation. The zinc left in solution is deposited by electrolysis and the acid liquor obtained is passed over fresh ore. The residue which may contain lead, gold, silver, etc., is smelted for lead which alloys with the gold and silver and may then be treated in any suitable manner. The copper-silver alloy or other like alloy is refined as follows:—The alloy is made the anode of an electrolytic apparatus consisting of a tank divided by a porous partition. Both cells are partially filled with a solution of cupreous chloride; the liquid in the cell containing the anode is kept at a lower level by means of an adjustable overflow. On passing a current through, part of the copper is deposited at the cathode while the remainder, together with the silver is dissolved. The solution is treated with an iodide to separate the silver and then passed back to the tank to be recharged. The sulphureous fumes given off in calcining are, together with steam, passed into a chamber through which electric discharges pass between conductors preferably of platinum combs; sulphuric acid is formed and condensed. [6d. No Drawings.]

15,989. Abandoned.

15,990. December 29, 1885. **Copying documents, &c.** A. J. BOULT, 323, High Holborn.—(J. F. Lash; Toronto, Canada.)

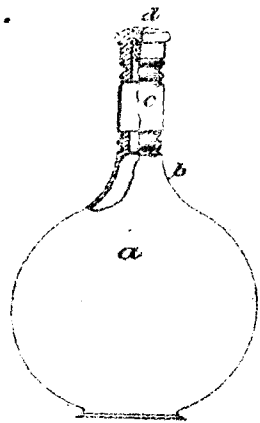


A continuous copying web is fed from the paper roll J, over the guide roller K and between the rollers L and E, being kept upon the circumference of the damping roller E, which dips into the pan of water F, until it passes between E and the wringing roller D, then passes between D and the roller A, the combined action of these rollers pressing out any surplus water. The letter or manuscript is placed upon the table O and fed between the pressing rollers H and A, face downwards upon the web, which then passes over the roller N having bristles or rubber projections upon its circumference, and is cut off in sheets or collected in a basket. One roller in each pair that are in contact, is made of any hard unyielding material, as nickel-plated metal, and the other of soft rubber or some other yielding material. The spindles upon which the rollers E, D, A, and H are fastened, work in journal boxes as shown at b, placed in slotted passage ways in the frame B, and are adjusted by elastic packing as shown at a. The paper roll J and the roller N are also journaled in the frame B. The rollers K and L are journaled in the arm M, which is pivoted at e to the frame B. The rollers A, D, E, H, are either geared together or arranged in contact as indicated, so that the rotation of the roller A, to which the handle C is fastened, gives motion to the other rollers with which it is in contact, and to the roller N by means of the band g. P is a cup which communicates with and shows the height of the water in the pan F. [8d.]

15,991. December 29, 1885. **Hand grenade for fire-extinguishing.** A. J. BOULT, 323, High Holborn, London.—(J. L. Ely; Jersey, U.S.A.)

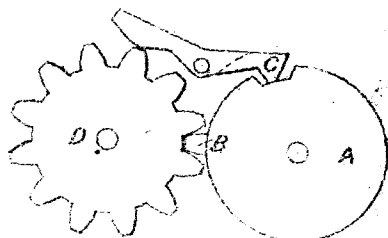
The object is to make the discharge of fire grenades automatic under the influence of high temperatures. A cylindrical metallic shell c is screwed, cemented, or otherwise fixed to the upper end b of the neck of the vessel a. The upper end of this metallic shell is also provided with screw threads to receive a glass stopper d; or the stopper threads to receive a glass stopper d. The metallic cylindrical may be cemented therein. The metallic cylindrical will shell is composed of a metal or an alloy which will fuse at a suitable temperature. The grenades are to be placed on shelves, or under counters. [6d.] (For Drawing see next page.)

15,991.



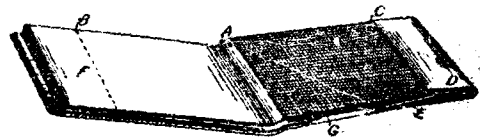
(For Abridgment see preceding page.)

15,992. December 29, 1885. **Stop mechanism applicable to watches, clocks, billiard counters, &c.** A. J. BOULT, 323, High Holborn, London.—(Messrs. Ash and Landry; Mandrelsch, near Bonn.)



The disc A carries one tooth B which is cut away to pass under the pawl C. It has also a notch which lets one end of the pawl C fall to release the pinion D when the tooth B gears with it. As soon as the tooth B leaves the pinion D, an incline in the notch raises the pawl C so that its other end detains the pinion D till the tooth B comes round again. [6½d.]

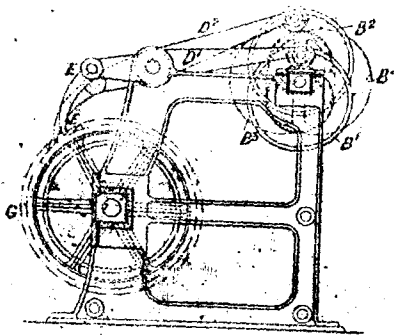
15,993. December 29, 1885. **Sales books.** J. R. CARTER, Niagara Falls, New York, U.S.A.



The covers contain a pad of writing sheets perforated at A, B, and C. At D is a tablet attached to the cover and kept pressing against the sheets by the spring E, preferably a single wire with its ends fixed in the cover. A transfer sheet may be held by the clamp or tablet, hence when a leaf is turned on to the transfer paper G the writing on the check F is not transferred, while a duplicate is formed of the remainder. [6½d.]

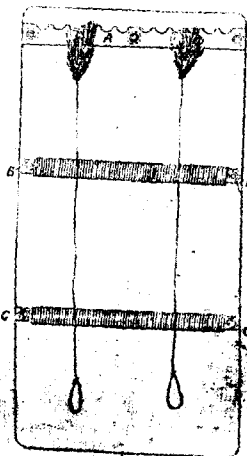
15,994. Abandoned.

15,995. December 29, 1885. **Ratchet gear-ing.** W. R. LAKE, Southampton Buildings, London.—(S. Fossati; Genoa, Italy.)



This apparatus is intended for the transmission of power in cases where a high velocity ratio is desired, such as cranes, etc. The driving shaft A carries a series of cams B¹, B², B³, B⁴ arranged to operate in turn corresponding levers D¹, etc. Each lever bears at its short end a pawl E engaging with a ratchet drum G on the driven shaft H. [6½d.]

15,996. December 29, 1885. **Fishing fly-book.** W. R. LAKE, Southampton Buildings, London.—(M. Bray; Newton, Massachusetts, U.S.A.)

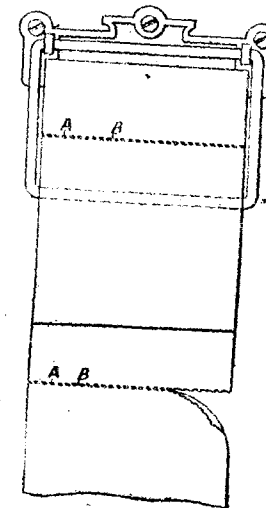


Relates to a method of fixing artificial flies in cases so that the attached gut is kept in a straight position. The leaf of the fly-book is made preferably of waterproofed pressed board fitted with cross pieces A, B, and C, which are secured by eyelets. The cross piece A is fixed in a slightly raised position with respect to the leaf and is scalloped as shewn to receive the hooks. To the cross pieces B, C are fixed spiral springs, between the coils of which the gut is inserted and held in position. [8½d.]

15,997. December 29, 1885. **Ornamenting varnished surfaces.** E. LAPORTE, 9, Rue Payenne, Paris, France.

Any required design is engraved on a steel plate, which is subsequently grained. This plate is then, by means of a press, and with or without the application of heat, gently pressed on the varnished fabric, paper, or other material, whereby a dull representation of the design is marked thereupon, and forms the ornamentation. [4½d. No Drawings.]

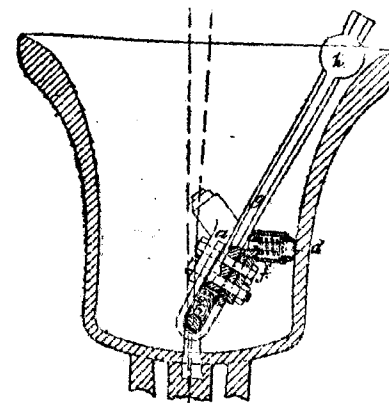
15,998. December 29, 1885. **Perforating paper.** W. R. LAKE, Southampton Buildings, London.—(S. Wheeler; Albany, New York, U.S.A.)



The perforations A are made of the form of a rhombus or other similar shape, so that the bars B are inclined to the line of perforation. [8½d.]

15,999 to 16,001. Abandoned.

16,002. December 30, 1885. **Church bells.** A. W. L. PARKHOUSE, 64, Ditchling Rise, Brighton, Sussex.

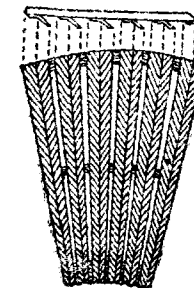


Spring buffers a are attached one on each side of the shank g, they are so situated that the springs

are compressed just before the clapper h strikes the bell, and they thus cause a quick return of the clapper, allowing free vibration and improving the tone. The buffer may be made as shewn, or with a hollow head d enclosing the spring, in which case the guide f is omitted. They are placed as near the crown of the bell as possible to avoid interference with the vibration. [6½d.]

16,003. Abandoned.

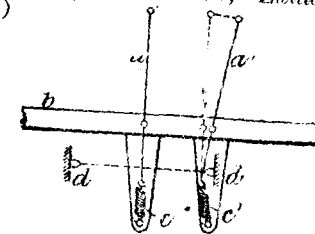
16,004. December 30, 1885. **Marine and aerial propellers, sails, turbines, &c.** B. W. MAUGHAN, 59, Queen Victoria Street, London, and S. D. WADLEY, Finsbury Park, Middlesex.



In Specifications No. 4585, A.D. 1882, and No. 5051, A.D. 1883, by the same applicants, propellers, etc. are described in which the working faces are formed of pairs of surfaces inclined to one another. The present improvement consists in having a number of such faces as shown in the figure, which is an elevation of one blade of a screw-propeller, in which openings are formed between each pair of inclined faces. These openings are not an essential part of the invention, the blades being solid if desired. Or the working faces may be chequered with pyramidal projections separated by corresponding cavities. In the case of metal work it may be cast or rolled into shape or may have the ridges or projections secured in any manner on a plain surface, and in the case of sailcloth it is woven with the required surface. [8½d.]

16,005 to 16,007. Abandoned.

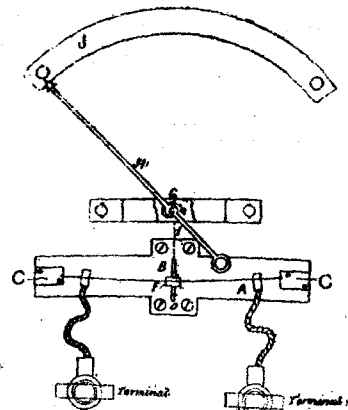
16,008. December 30, 1885. **Yarn winding machinery.** W. E. HEYS, New Bridge Street, Manchester.—(F. Roszkotten; Zwettau, Russian Poland.)



To prevent shocks by the sudden reversal of the guiding mechanism, the motion of the heavy reciprocating parts is arranged to be reduced when nearing the extremes of the traverse. To allow of this the thread is guided by a curl on the upper end of a light lever a pivoted on the traversing rail b and controlled by a spring c. The motion of the curl is maintained uniform throughout the traverse by stops d acting on the levers e as shown on the right of the figure. In a modification the lower end of the lever a is controlled by a rod actuated by a suitable cam. Another arrangement consists of a sliding guide block actuated by a lever with

three prongs. The central one is arranged to traverse the block, escaping when near the extremes of the traverse. The blocks acted on by compressed springs are suddenly reversed and returned; each of the side prongs acting in turn as a temporary stop. [8½d.]

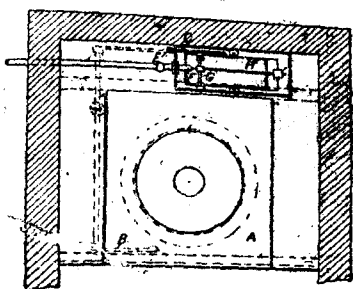
16,005. December 30, 1885. **Electric current meter.** R. D. SMILLIE, 139, West Bridge End, Dumbarton.



Consists of a metal rod or ribbon A, having a slight initial curvature, fixed between two rigid supports C, C. When a current passes through the strip, it becomes heated and expands; this results in an increase of its curvature which, by means of an insulated stud F and a light chain I connected with a drum G, causes a movement of an index H over a graduated dial J. To compensate for variation in the length of the strip with variation of the atmospheric temperature, the supports C, C are fixed upon a bed plate B having the same coefficient of expansion as the conductor A. The meter can be used for alternating continuous or intermittent currents. [8½d.]

16,010 & 16,011. Abandoned.

16,012. December 30, 1885. **Water-closet flushing apparatus.** J. H. KENYON, 170, Montague Street; and J. CONLONG, Hollin Bank, both in Blackburn, Lancashire.

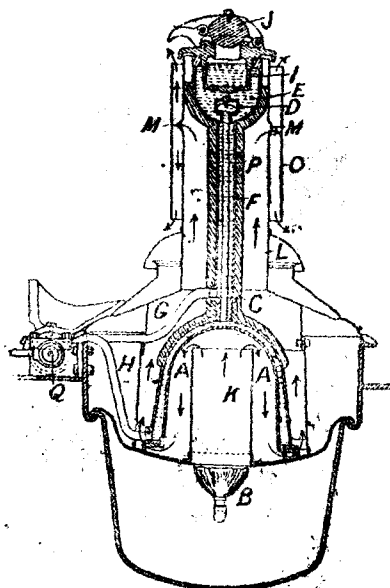


The figure is a plan of the apparatus. The hinged seat A rests on an arm B of the shaft, which is

connected with a lever C by a vertical rod or chain at E. At F is a valve actuated by the weighted lever on the shaft G. H is the tipping pan, which is rotated by the lever C. When the seat is depressed, the shaft G is rotated by the levers and the valve at F opened, allowing a supply of water to pass into the tipping pan. On releasing the seat, the valve closes and the pan is tipped down again, flushing the closet. [8½d.]

16,013 & 16,014. Abandoned.

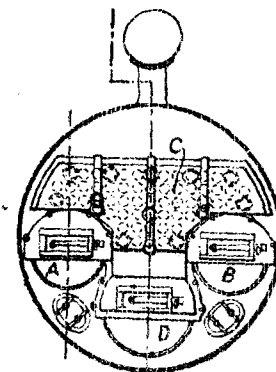
16,015. December 30, 1885. **Heating railway carriages and other structures.** W. FOULIS, 42, Virginia Street, Glasgow.



The invention is described as applied to the heating of a railway carriage, but it is applicable for heating other structures. The water heater consists of a coiled pipe or of an annular dome-shaped vessel A supported over a lamp B. In this case that used for lighting the carriage. The water space communicates at the top with a tube C fitted at its upper end with a valve D, which opens into the chamber E, forming the upper part of the annular chamber F to which the flow pipe G is attached; H is the return pipe. To increase the effect of the water in opening the valve D, within the tube C may be fitted a jet pointing upwards. The chamber E may be fitted with a perforated box I closed by a hinged lid J. The products of combustion pass upwards through the cylinder or chimney K, then, as indicated by the arrows, over both the interior and the exterior of the heater, and passing upwards through the surrounding casing L, escape through apertures M into an outer casing O open to the atmosphere. The upper part of the heater and of the casing F may be covered with non-conducting material P. The pipes G, H are fitted with a special hinge joint Q so that the heater may be turned aside to give access to the interior of the lamp for

cleaning, lighting, etc. The heater is connected to suitable apparatus for heating the air admitted to the apartment to be warmed. In the Specification two forms are described in which the air is made to pass along one or both sides of an annular water space. In the case of a railway carriage the air heating apparatus is partially let into the floor below the seats. [11½d.]

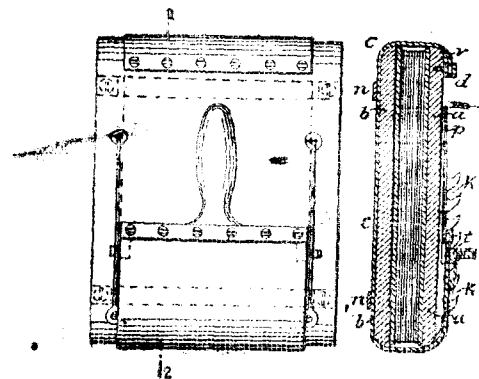
16,016. December 30, 1885. **Steam generator.** T. HINSON, Coatdyke, Lanarkshire.



The complete combustion of the furnace gases is obtained by passing them over a furnace in an auxiliary flue. The combustion products from the furnace flues A, B pass to the front of the boiler by the return tubes C, from which they descend and pass over the fire in the flue D on their way to the uptake. [8½d.]

16,017 to 16,022. Abandoned.

16,023. December 30, 1885. **Copying-press.** A. C. HENDERSON, 46, Southampton Buildings, London.—(A. C. Rolland and E. Lachniet, Paris, France.)

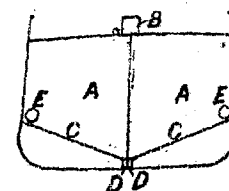


Fixed to the plate A, by means of the metal strip d and screws e, is the flexible band c, which passes around the plate b and has fastened to its extremity the metal handle p, at each end of which are two knobs or projections t which gear with the

teeth of the two racks K, K', fixed one at either side of the plate a. When the copying book containing the letter, etc. has been placed between the plates a, b, the band c is tightened and the knobs at the ends of the handle are geared with the racks. The handle is then pressed down upon the plate a which further tightens the band c and presses the plates together. Cross strips n are fixed to the lower plate b to keep the band c in position. [8½d.]

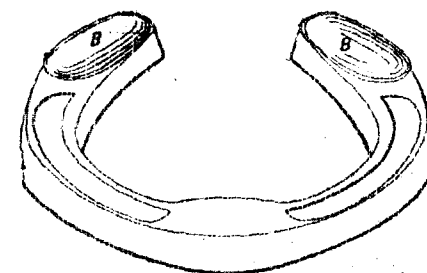
16,024. Abandoned.

16,025. December 30, 1885. **Sewage vessel.** J. CASEY, 10, Philpot Lane, London, and H. F. SWAN, North Jesmond, Newcastle-on-Tyne.



The figure shows a midship section of the vessel, which is divided by longitudinal and transverse bulkheads into air-tight compartments A, A, into which the cargo is loaded through trunkways, one of which, common to two compartments, is shown at B. In cases where the draft of water does not allow of a considerable rise of floor, the cells have false bottoms C, C, which slope downwards towards the keel line, where are situated the openings D, D, through which the cargo is discharged by means of compressed air supplied by compressors through mains fitted with a branch to each compartment. By this arrangement a cargo specifically lighter than water can be discharged below the surface, which ensures its being thoroughly disintegrated and rendered innocuous. Pipes E are carried along the sides of the cells, by which water may be supplied to flush them. [6½d.]

16,026. December 30, 1885. **Horse-shoes.** G. F. REDFERN, 4, South Street, Finsbury, London.—(A. Delay, Brussels, Belgium.)

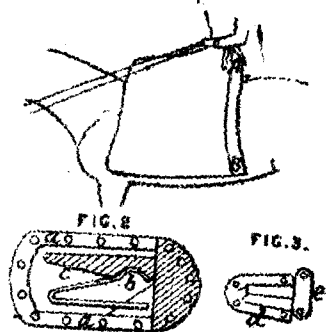


Projecting pieces of rubber B are placed in recesses in the heels of the shoe to prevent slipping and to lessen shocks. [6½d.]

either to the shuttle or the driver. The figure shows an arrangement in which the springs are attached to the driver. A is the shuttle and B the driver or carrier. To the carrier B a spring plate C is attached. The spring plate has bent arms D projecting up between the nose of the shuttle and the horns of the carrier, and a spring arm E which bears against the heel of the shuttle. In the modification, flat springs are attached to the nose and back part of the shuttle to bear against the horns and heel of the carrier. [64d.]

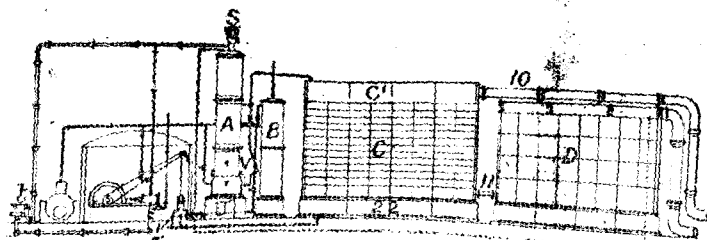
16,044 & 16,045. *Abandoned.*

16,046. December 31, 1885. **Riding habits.** H. NICOLL, 45, Warwick Street, Regent Street, London.



Skirt with seam or seams A, B running downwards from the waist connected by spring fastenings which disengage when the wearer is thrown and the skirt catches on the pommels. One form of spring fastening Fig. 2, consists of a metal case with flange a having holes for sewing on to the skirt, and containing a steel spring with bulbous part c. A notched bar of steel e sewn on to the skirt is pushed into

16,052. December 31, 1885. **Purifying gas and preparing caustic ammonia.** W. YOUNG, Priorsford, Peebles.

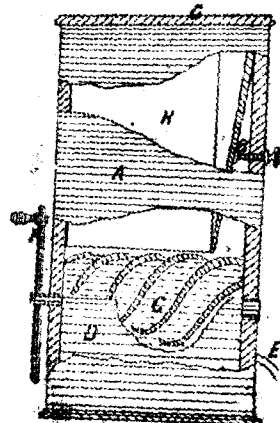


Consists in a method and apparatus for dissociating the ammonium carbonate and sulphides in ammoniacal liquor into carbonic acid, sulphuretted hydrogen, and caustic ammonia, and for employing the latter when concentrated for removing carbonic acid and sulphuretted hydrogen from unpurified gas. The caustic ammonia may be concentrated and used for ordinary purposes. The chief feature of this invention consists in conducting the dissociation under pressure (about 30 to 50 lbs.) and at a temperature somewhat below the boiling point of water. The apparatus for conducting the dissociation may be of any suitable form, but that described is preferred. In employing the caustic ammonia for purifying gas the solution and the gas are passed through the purifier in the same direction whereby most of the ammonia volatilized at first is re-absorbed before the purified gas escapes. Ammoniacal liquor from coal

the case until the bulbous part of the spring enters the notch. A weaker spring Fig. 3 is used between and supplements when necessary the fastening shown in Fig. 2. The metal case d is sewn on the skirt, and a bent steel spring e also sewn on the skirt, is pushed into the case until a notch on the free end of the spring engages with a projection on the lower side of the mouth of the case. [64d.]

16,047 to 16,050. *Abandoned.*

16,051. December 31, 1885. **Powdering salt for domestic use.** C. GODSOLT, 22, Foreign Street, Camberwell, Surrey.



The apparatus consists of a box A in which is placed, secured by the screw press B, the block of salt H which rests upon and is cut by the screw cutters C when rotated by the handle F. The powdered salt is collected in the concave receptacle D, and is discharged by the screw through the shoot E. [64d.]

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gas condensate and free from tar, or the ammoniacal liquor which collects in the tank 22 during this process, is discharged by the pump I, on to a perforated tray over the top of the dissociating chamber A: this chamber has a number of perforated shelves, each perforation in the form of a conical nozzle over which is a light cap, so that the ascending heated gases pass up through the nozzles and in descending under the caps thereof pass through the liquor on the shelf; each shelf empties into the next below by an overflow pipe at one side. The pressure in the vessel A is regulated by the valve t, through which the carbonic acid and sulphuretted hydrogen evolved escapes, and a weighted valve s acts as a safety valve. The bottom of the vessel A has a steam jacket, and serves as a tank for the caustic ammonia liberated by this pipe passes into the vessel A near its middle and forms several successive coils lying on unperforated trays therein, for the purpose of giving up its heat to the descending liquor, and passing out at a higher level leads to a coil in the cooling tank C. The other branch empties on to the perforated trays in the still B, up which a current of steam ascends to carry off the ammonia; the outlet pipe from the still also leads to the coil in C. After cooling in the latter the caustic ammonia passes over a series of shelves in the purifier C, passing alternately forward and backward. The gas to be purified enters by the pipe 10 and travels in the same direction as the caustic ammonia, but in passing down from shelf to shelf is compelled to pass through the liquor, whereby its carbonic acid and sulphuretted hydrogen are removed. The liquor containing ammoniacal salts collects in the tank 22, and the gas is passed on by the pipe 11 to the scrubber D in order to remove from it any ammonia volatilised in the purifier C. [154d.]

16,053 & 16,054. *Abandoned.*

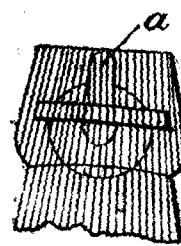
16,055. December 31, 1885. **Securing papers.** S. R. VANN, Giles Gate, Durham.



Papers are filed by passing through them the needle A with attached cord and suspended by the loop B. The needle is provided with a suitable eye at C and is preferably shanked at D. [154d.]

16,056. *Abandoned.*

16,057. December 31, 1885. **Internally stoppered bottles.** J. M. DAY, 52, Merrion Square, Dublin.



A groove is formed in the side of the neck in which a pin a fits which passes through the washer. The pressure is released by moving the top of the pin towards the centre of the neck and thus displacing the washer. [84d.]

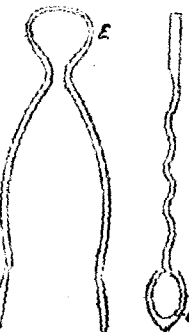
16,058 & 16,059. *Abandoned.*

16,060. December 31, 1885. **Purifying sewage.** J. H. KINN, Wrexham, Denbighshire.

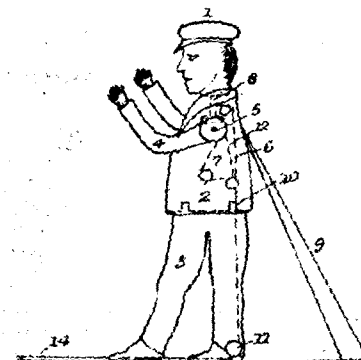
The sewage is run into tanks in which the solid matter is allowed to settle down and the supernatant liquid is then treated with a mixture of ferrous sulphate, quicklime or iron ore, and refuse or spoilt soap. Before the effluent water is run away it is further treated with sodium permanganate or sodium bichromate and sulphuric acid or a solution of chromic acid. [44d. No Drawings.]

16,061. Dec. 31, 1885. **Sugar, &c. tongs.** C. PRIESTLAND, 136, Wotton Lane, Aston, Warwickshire, and F. W. GREEN, 201, Nechells Park Road, Nechells, Birmingham.

The tongs are made of a piece of wire bent at the centre to form a spring F, which may be flattened, and at the ends to form loops G, which may be roughened, to assist in gripping the sugar, etc. [64d.]



16,062. December 31, 1885. **Mechanical figure game.** H. GESS, 24, Wardley Street, Garratt Lane, Wandsworth.



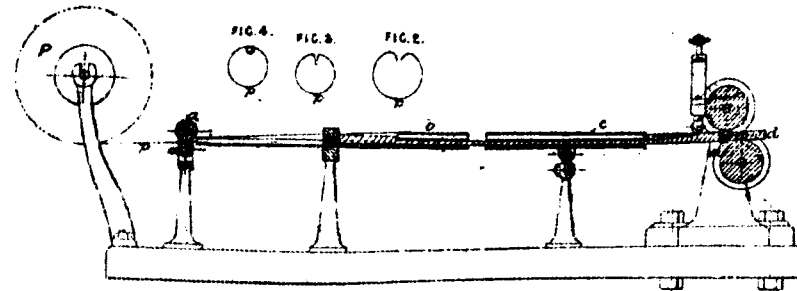
Consists of a life-size figure, with mechanism actuated from a distance, and so arranged as to prevent a nut, etc. placed upon its head being knocked off when thrown at from a distance as would be done at fairs, etc. The head 1 is pivoted to the body 2 on the tube 3, which is connected by a mitre wheel to a drum 5, to which are also attached the two arms 4. Cords 6, 7, 12 pass round 3 R.

this drum, one to work the head (which is restored to its position by a rubber spring), another the right arm, and another the left. The latter cord is diverted by pulleys to the right side of the body, and the three cords pass out through the right leg round the pulley 11, and away (as 14) to a platform

provided with hand and foot levers for working the figure. The body 2 is fixed on studs 10 to the legs 3, and is held erect by the ropes 9. [6½d.]

16,063 to 16,067. *Abandoned.*

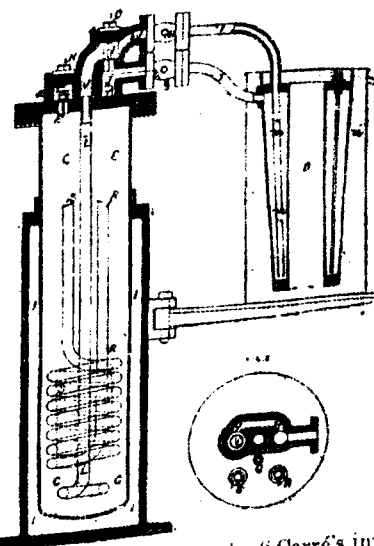
16,068. December 31, 1885. **Unpasted cigarette tubes.** W. H. BECK, 115, Cannon Street, London.—(A. E. Decourtyé; Paris, France.)



The edges of the cigarette tubes, instead of being held together by adhesive material, are folded over and interlocked within each other. The paper *p*, wound upon a roller *P*, is first fed between two guide rollers *a*, *a'*, the upper having a convex contour and the lower concave. From these rollers the paper enters a curved, converging channel *b*, which causes the edges of the paper band to rise gradually and then to be bent down inwardly at the extreme end of the channel, thus assuming in section the shape shown in Fig. 2. The second part *c* of the channel is entirely closed and provided with a vertical partition *c'*, which causes the paper, in its passage along the same, to assume the shape shown in Fig. 3. The tube thus prepared is supported axially by a rod *d* and then enters a conical funnel *e*, which may be formed spirally, and the edges of the tube are rolled together so as to form a spiral as shown in Fig. 4. Beyond the funnel the spiral roll is flattened by the passage of the tube between suitable rolls *h*, *m*, this being the final operation, and the application of steam or gas to the tube. Scissors for automatically cutting the tubes to suitable lengths are provided at the end of the apparatus. [4½d.]

16,069 to 16,073. *Abandoned.*

16,074. December 31, 1885. **Ice-making.** F. SCHMIDT, Nordhausen a/d Harz, Germany.



Consists of improvements in "Carré's intermittent apparatus." Two passages *J*, *T* are provided

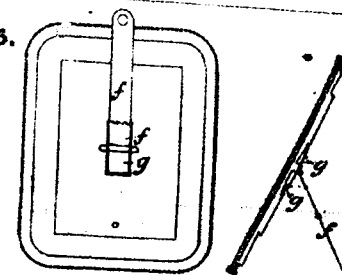
leading from the boiler *C* to the ice-producing vessel *D*. Both have screw-down valves *H*, *G*, and the latter has a back-pressure valve *E*. A back-pressure valve *F* also establishes a communication between the two passages. The valves *E*, *F* are accessible through holes closed by the screw plugs *N*, *O*. The boiler may be provided with a jacket *I* or a coil *R*, *S* for steam or cold water as required. On heating the liquor ammonia in the boiler the gas is driven through the passage *J* and is condensed in the ice-producing vessel. On cooling the gas passes back through the valve *F* and pipe *L* to the bottom of the boiler, where it is re-absorbed by the liquor ammonia. The ice now formed in the surrounding vessel *U* is detached by closing *G* and thus allowing the gas driven off by again heating the liquor ammonia to pass through *H* and the pipe *M* to the bottom of the vessel *D*. [8½d.]

16,075. December 31, 1885. **Frames for pictures, &c.** F. SERVUS, Berlin, Germany.

A metal strip *f* is fitted to the back of the frame so as to form a suspender or back stay at will. It is shown hinged, and with a spring *g* acting on a heel and holding it in either of its positions, but it may be arranged to slide in two sockets, or to rotate about a central pivot. In both these cases suitable stops hold it in either of its two positions. [6½d.]

(For Drawing see next page.)

16,075.



(For Abridgment see preceding page.)

16,076. *Abandoned.*

16,077. December 31, 1885. **Gloves.** J. WHITBY, Yeovil, Somersetshire, and W. WILLIAMSON, 21, Cromwell Street, Nottingham.

Glove linings with a cotton back and a fleecy front of silk and wool or cotton and wool in alternate stripes. [4½d. No Drawings.]

16,078. December 31, 1885. **Elastic printing surfaces.** D. C. DALLAS, 12, Crane Court, Fleet Street, London.

Of rubber, etc., produced from "clichés" or originals engraved or prepared by photographic means. [4½d. No Drawings.]

16,079. *Abandoned.*

16,080. December 31, 1885. **Fireplaces.** E. JOHNSON, Tower House, Newport Road, West Cowes, Isle of Wight.

A hollow cone or pyramid of fire-resisting material, provided with slots for the admission of air into the fire from below, is placed on the grate-bottom. A loose plug may be fitted into the top carrying a trivet for cooking purposes. [4½d.]

16,081 to 16,085. *Abandoned.*

16,086. December 31, 1885. **Bituminous felt.** W. B. RITCHIE, Belfast, Antrim.

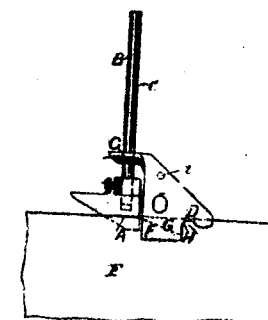
To prevent the adhesion of the contact surfaces of the felt when made up into rolls or packages it is first dusted over with finely ground peat or peat moss. [4½d. No Drawings.]

16,087. December 31, 1885. **Calendars.** G. A. WILKINS, 11, Fenchurch Avenue, Middlesex.—(Messrs. Thurber, Whyland & Co.; New York, U.S.A.)



The numbers indicating the days of the month are printed upon, or by the side of, circles shaded or coloured to show the phases of the moon. [8½d.]

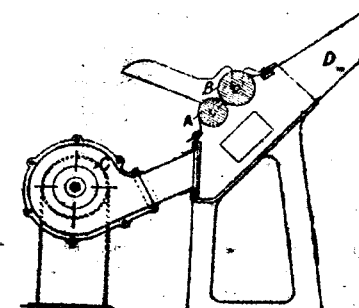
16,088. December 31, 1885. **Carpet sewing machine.** A. ANDERSON, Kilbowie, Dumbartonshire.—(The Singer Manufacturing Co.; New York, U.S.A.)



Consists in applying a pile-deflector to a machine, such as described in Specification No. 7431, A.D. 1884, which traverses the edges of the fabric. The deflector is fitted in front of a turning-in guide in such a manner that long pile fabrics and those which are formed with different lengths of pile are conveniently operated upon. It consists of a triangular block *A*, tapering rearwardly and downwardly, and is reciprocated by means of the rod *B* which passes through a lug *C* upon the turning-in guide *D* and may be attached to an arm extending from the hub of the rocking needle bar. The turning-in guide embraces the fabric *E* by means of flanges *F*, and is formed with a central downwardly inclined web *G* immediately in front of the needle recess *H*. [8½d.]

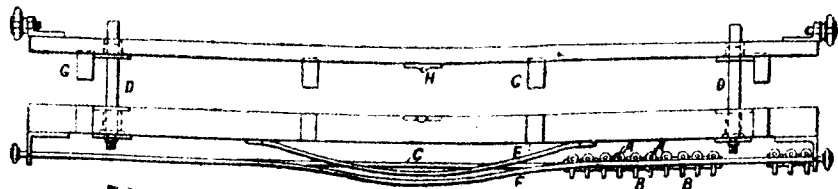
16,089 & 16,090. *Abandoned.*

16,091. December 31, 1885. **Transporting and drying raw cotton.** E. LAMY, Evreux, Eure, France.



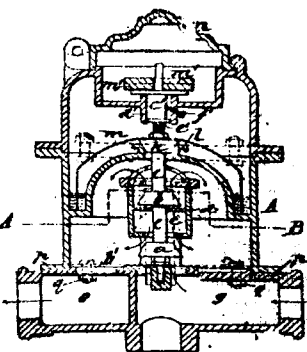
The material is fed, by hand or otherwise, between the rollers *A*, *B* covered with leather, and is carried, by means of a current of hot air drawn by the blower *C* from the boiler or engine houses, along the tube *D* and deposited where required. The operation effects the cleaning, opening, drying, and mixing of cotton, removes the surplus heat from the boiler and engine houses and utilizes it for heating purposes in the factory. [8½d.]

16,092. December 31, 1885. **Leaf turner and holder.** C. WAYTE, 7, Gladstone Cottages, Epsom, Surrey.



The drawing shews a plan of the apparatus. Arms A, having thumb pieces B, are placed between the leaves, and may slide on a rod C fixed to a ledge adjustable to or from the back by bolts D so as to suit books of different thickness. The arms are guided between a fixed bowed rod E and a movable one F. The music, etc. rests on the lips G, and is clipped at the centre by a spring rod H. The whole may be applied to an ordinary music stand, or it may be used alone on a table; in this case hinged stays or supports are fitted. [8½d.]

16,093. December 31, 1885. **Gas-regulator.** G. PORTER, 23, Culham Street, London.

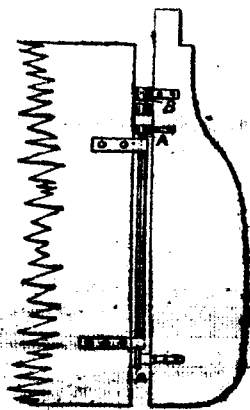


Relates to mercurial gas regulators, and consists in improving the equilibrium action of the valves, in preventing escape of gas in case of loss of mercury, and in arranging the equilibrating weights so not to throw the valve spindle out of the perpendicular. The valve chamber is divided into two compartments, c and d, each connected with the supply pipe y and containing one of the valves a, b of the equilibrium valve: by this means the pressure upon the two valves is more perfectly equalised. Upon the valve spindle e is fitted a valve k fitting on a seating l in the roof of the chamber A, and serving to shut off the gas from the diaphragm m when the latter ceases to float through loss of mercury. The valve spindle is divided into two parts c and c', the latter carrying the balance weights n, m', and capable of sliding in a sleeve d', but prevented from falling out, when the regulator is inverted, by the screw f' and plate e'. A cover u gives access to the weights. The body of the regulator is constructed in several parts, the base plate p carrying the valves and inlet and outlet pipes q, o. [8½d.]

16,094. December 31, 1885. **Attaching rudders.** C. N. NIXON, 57, Chancery Lane, Middlesex.

The figure is a side elevation of a boat's stern to which the rudder is hung in this method. A long

rod or pintle A, attached to the rudder in the usual way by straps, slides between two parallel bars, one



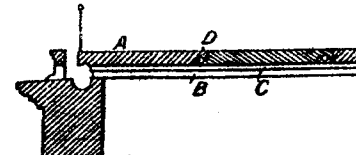
of which only is seen, on the sternpost. A pin B on the top of the rudder fits a ring on the sternpost, which can fold or slide out of the way to allow the rudder to be shipped or unshipped. This fitting holds the rudder in place, but the same result may be attained by having the point on the pintle to rest in a fixed ring near the bottom of the post; or both may be employed. This method of attachment facilitates shipping and unshipping, and at the same time allows the rudder to rise without becoming unshipped should it meet with any obstruction on the bottom. In the case of a boat with a curved stern, the same arrangement of bars is employed, while two or more short pintles which fit between them are secured on the rudder. [6½d.]

16,095. Abandoned.

16,096. December 31, 1885. **Flat roofs and terraces.** H. J. HADDAN, 67, Strand, London.—(J. Darnès; Boulevard Henri IV., Paris, France.)

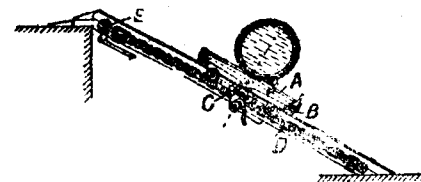
The object is to obviate the inconvenience due to the infiltration of water, the expansion of the parts, and the settling of the walls. The roof or terrace consists of flags or plates A supported on rolled joists B. These are placed side by side in pairs,

and are connected by a plate riveted to the lower flange, and between them, resting upon their upper.



flanges, are placed gutters C made from channel iron. The flags are laid upon fillets or packing pieces, running along the joists, so that their contiguous edges are just over the gutters. The transverse joints D are half-lapped joints and in them grooves are made sloping in each direction towards the channel-irons. The latter terminate at each end in gutters on the top of the wall, upon which also is a low parapet serving to mask the flags, and having apertures for enabling the channel-irons to be withdrawn for cleaning. The joints may all of them be wholly or partially filled in with any cement which when set is softer than the flags. [8½d.]

16,097. December 31, 1885. **Loading vehicles, &c.** W. R. STEGMANN, Leipzig, Saxony.

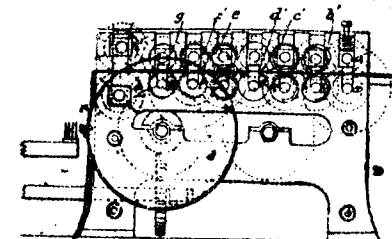


A small carriage worked by a screw lifts the goods to be loaded up an inclined ladder. This carriage may consist of two parts as in the drawing. The upper, A, is detachable from the lower, B, and serves to bring the barrel or other article on to the ladder; the under one is then lowered beneath it and by now connecting them by means of a pin as seen at C, the whole may be lifted. There is a nut upon B which is threaded upon the longitudinal screw D, by the rotation of which it is advanced. In order to lower rapidly, this nut is in halves which can be separated by means of a screw or by

eccentric slots in oscillating discs. The screw is turned by double-acting ratchet gear or by bevil gear worked by an endless chain and winch handle. The ladder may have a hinged extension at the lower end up which the upper carriage travels to lessen the gradient. In some cases the two parts of the carriage are hinged together and so arranged as to assist in bringing the barrel on to and delivering it from the ladder. The shaft E that gives motion to the screw has upon it pulleys for chains used to haul the upper carriage. [1s. 2d.]

16,098 to 16,100. Abandoned.

16,101. December 31, 1885. **Treating fibre yielding plants.** W. A. BARLOW, 6, St. Paul's Churchyard, London.—(L. G. de Landtsheer; 15, Rue de Richelieu, Paris, France.)



The leaves, stalks, etc. are passed between plain rollers a, a' and between rollers b, b', c, c' provided with teeth or blades to split or divide the stalks, etc. The latter rollers may be entirely covered with teeth or may have toothed and grooved or plain sections alternating, the toothed and grooved sections working against grooved and toothed sections respectively. The material is then operated upon by crushing rollers d, d', pointed rollers e, e', breaking rollers f, f', g, g', and beating rollers h, h'. The end portions unacted on by the beaters are cleaned by a slowly rotating comb. The rollers have a suitable motion imparted by gearing from the main shaft. In a modified arrangement a reciprocating rotary motion is imparted to the rollers to cause the material to be returned to the feeding end of the machine. The axes of the rollers may be variously arranged to operate on the material passing in various directions. [8½d.]

PATENTS sealed or otherwise disposed of since publication of ABBRIDGMENT in ILLUSTRATED JOURNAL.

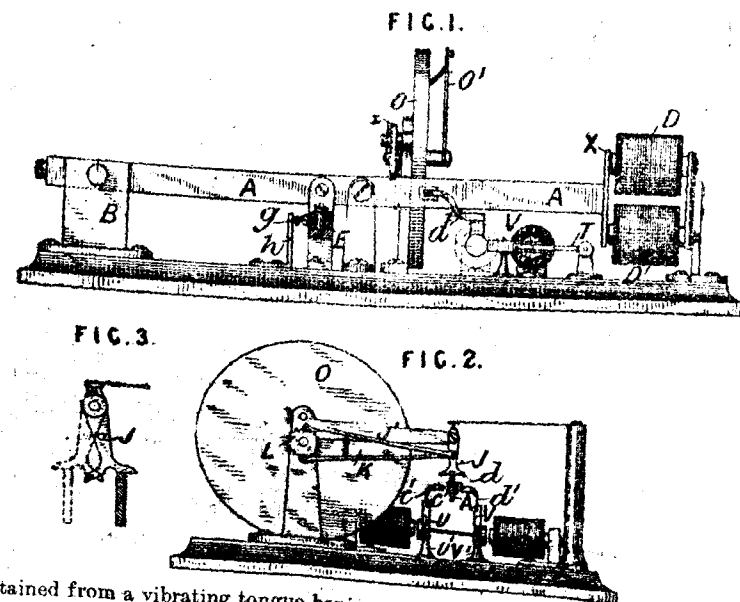
Journal No. 48, No. 3303, A.D. 1884.	Patent sealed.
" No. 76, No. 15, A.D. 1885.	Patent sealed.
" No. 85, No. 6039, A.D. 1885.	Patent refused.
" No. 92, No. 8438, A.D. 1885.	Patent refused.
" No. 102, No. 11,436, A.D. 1885.	Patent refused.
" No. 113, No. 15,255, A.D. 1885.	Patent sealed.

APPENDIX.

Abridgments of Accepted Complete Specifications filed in the Year 1886, but ante-dated as of the Year 1885, in accordance with Patents Rule 23, and International Convention.

The Names and Addresses in italics are those of Communicators of Inventions.

3587. 1886 [Dated August 11, 1885, under PATENTS RULE 23]. **Electromotors.** A. L. PARCELLE, Boston, Massachusetts, U.S.A.



Motion is obtained from a vibrating tongue having on its free end an armature alternately attracted by two electromagnets. The motors are especially adapted for use in telegraphy where synchronous motion is required, but are of general application. Figs. 1 and 2 show an elevation and a transverse section of such a motor. A is the vibrating spring adjustably mounted on a block B. On its end is fixed an armature X and carries platinum contacts c, d (Fig. 2), which may touch springs e, d' when the apparatus is in action. The pointed arms U, V carrying these springs are linked by a cross arm, and controlled by a spring tongue T. One end of the coil of the magnet D is connected to d'. The other end is connected to a spring g on a sliding frame E which rubs against a standard h, the metal part of which is connected to the other pole of the battery. The connections of the magnet corresponding to D are similar. The vibrator works an escapement J shown enlarged in Fig. 3, which drives a ratchet wheel L by means of pitmen K carrying pawls. An arm O' carrying a brush travelling over a series of contacts on a disc O is of D is completed at d and g. When the vibration is started by deflecting A, say towards d, the circuit is broken; the same occurs on the other side when the vibrator returns, no current passing when A is at the middle or extremities of its swing. The magnets shown at the lower parts of Figs. 1, 2 are for starting the vibration from a distant station by acting on armatures attached to the contact arms U, V. [8½d.]

4231. 1886 [Dated August 15, 1885, under PATENTS RULE 23]. **Telephone systems.** A. M. ROSEBROUGH, 121, Church Street, Toronto, Canada.

Several methods of working telephonic exchanges with multiplex systems and a combination of grounded and metallic circuits are described. For multiplex working a metallic circuit containing two sets of instruments, one wound differentially, is employed in combination with a branch line grounded at each station and also containing telephonic instruments. [8½d. Drawings to Specification.]

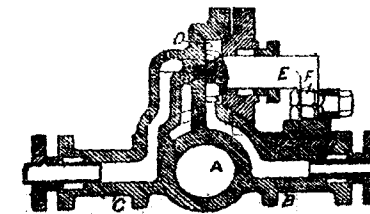
4349. 1886 [Dated December 16, 1885, under PATENTS RULE 23]. **Nitro-cellulose.** W. VON RUCKTECHELL, St. Petersburg.

Wood fibre is boiled with potash, and with dilute nitric acid, and is afterwards treated with a mixture of equal parts of sulphuric and nitric acids. The compound is chiefly for use in actuating the gas engine described in Specification No. 15,475, A.D. 1885. [8½d. No Drawings.]

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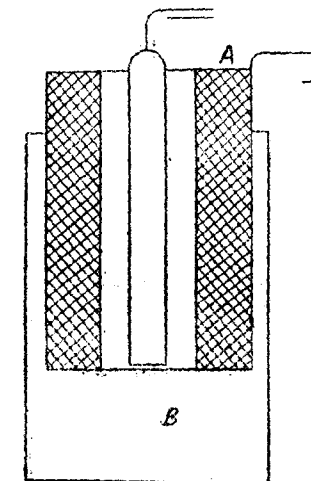
67/204 ii

4930. 1886 [Dated July 9, 1885, under PATENTS RULE 23]. **Oscillating engines.** S. BUTLER, 127, Bute Road, Cardiff.



Relates more particularly to a special form of oscillating disc valve, which is worked by the motion of the cylinder to which it is applied. A transverse section through the cylinder of a water motor fitted with this valve is shown above. A is the cylinder, B and C the trunnions, and D the valve. Water passes through B to the valve chamber, and escapes through C. The valve spindle E is made large to relieve the valve of pressure; it carries an arm F which is linked to a fixed point in the frame. Two cylinders may be placed side by side or opposite to work on separate cranks, or they may both work on one crank, in which case they must themselves be set at right angles. The last arrangement is described and illustrated in the Specification as applied to work a capstan, the shaft being vertical. Although described in connection with water motors, the valve may be used with steam or other motive fluids. [8½d.]

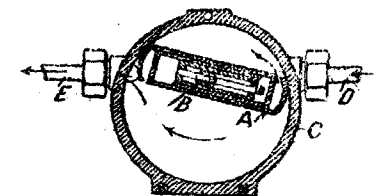
6945. 1886 [Dated November 6, 1885, under INTERNATIONAL CONVENTION]. **Voltaic batteries.** P. BAILLY, Erment (Seine and Oise), France.



Electrodes for primary or secondary batteries are formed of lead plates cut into filaments and interwoven with fine lead wool. When the circuit is open the plates (one or both) are removed from the action of the liquid; this may be done, as shewn in the drawing, by using porous cells A surrounded by leaden felt as above, which may be

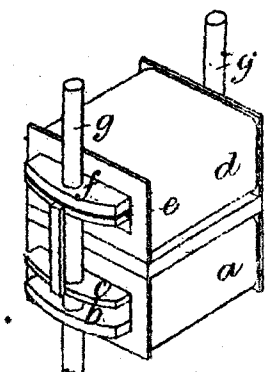
lifted out of the liquid B; or the lower part of the outer cell may be made collapsible, or other arrangements may be employed. [8½d.]

10,666. 1886 [Dated December 15, 1885, under PATENTS RULE 23]. **Rotary motor.** W. L. WISE, 46, Lincoln's Inn Fields, London.—(V. Popp; 10, Rue St. Forgeau, Paris, France).



The piston A, composed of two parts sliding one over the other, works upon the eccentric shaft B while touching at both its ends the internal surface of the cylinder C. The inlet D and outlet E are at the extremities of the shortest chord passing through B, so that when the piston extends directly between the two there is a dead point. In every other position the length of the piston is divided into unequal portions by the shaft and rotation ensues. There is an outlet in the shaft for any steam or compressed air that may be entrapped in the interior of the piston. When compressed air is the motive fluid employed, it is previously heated in a vessel having baffle-plates, the source of heat being a gas-burner, whose regulating cock is connected to governor mechanism. The exhaust air passes into a casing having two perforated walls, between which is packed deadening material, so that the air may escape into the atmosphere without noise. The engine is made reversible. [11½d.]

11,863. 1886 [Dated December 17, 1885, under PATENTS RULE 23]. **Electric arc lamps.** J. SWINBURNE, 34, Holford Square, Middlesex.



The regulating is effected by means of the mutual repulsion of the similarly polarized cores of an electro-magnet. In the form shown a series coil a and a shunt coil d each have a fixed soft iron core b f and a moveable core e c, the two latter being rigidly connected together; the two cores of each coil

becoming similarly polarized repulsion ensues, the fixed cores tending to move the moveable cores in opposite directions. The moveable cores are attached to ring clutches acting upon the carbon holders *g. g.* a spring being interposed between the core and clutch to prevent the latter quite losing grip of the holder and thus ensure a steady motion of the carbon. To cause one carbon to feed before the other, one clutch is set to slip before the other; the weight of the cores, etc. is partly counter-balanced by springs; and to prevent the formation

of too long an arc when the weight has been diminished by the burning of one of the carbons the main current through the first pair of carbons is made to pass through extra coils on the electro-magnet. In modifications a single differentially wound magnet may be used; the clutch may be placed inside a tubular carbon holder and a double dash pot formed by two pistons, one attached to the clutch rod and the other to a rod fixed to the framework of the lamp, the hollow holder being filled with glycerine. [847.]

ILLUSTRATED JOURNAL OF PATENTED INVENTIONS FOR THE YEAR 1884.

The following PATENT has been sealed since publication of ABRIDGMENT in JOURNAL No. 43, No. 10,686

ILLUSTRATED JOURNAL OF THE PATENT OFFICE FOR THE YEAR 1885.

The following PATENTS were sealed after the publication of the ABRIDGMENTS in the JOURNAL—
Nos. 17, 112, 358, 612, 706, 1063, 1357, 1438, 1450, 1604, 1840, 1844, 1847, 2138, 2204, 2801, 3136, 3267, 3306, 3436, 3803, 4347, 5025, 6832, 6845, 8690, 9579, 10,343, 10,601, 10,952, 10,997, 12,015, 12,372, 12,575, 12,776, 12,777, 13,878, 15,255.

PATENTS were refused for the following INVENTIONS:—Nos. 1820, 1941, 3590, 6039, 8346, 8488, 11,436, 15,076.

The GRANT of PATENT was opposed for the following INVENTIONS, the cases of which are not yet decided:—287, 739, 2112, 2734, 2772, 3018, 4584, 5150, 5745, 6183, 6844, 7213, 8178, 8550, 9286, 9293, 10,397, 10,659, 10,004, 10,199, 10,306, 10,652, 11,217, 11,929, 12,312, 12,467, 13,089, 13,568, 13,614, 14,021, 14,119, 14,137, 14,216, 14,539, 14,547, 14,574, 14,649, 14,693, 14,802, 14,975, 15,046, 15,929, 15,947.

Notification as to the Sealing of these Nos. or otherwise will be given at the end of the current Nos. of the JOURNAL, as soon as the cases are decided.

The GRANT of PATENT being opposed for the following INVENTION, the APPLICANT desired not to proceed:—No. 2624.

The SEALING of the PATENT for the following No. is still pending through decease of Applicant:—No. 15,465.

ERRATA [Vol. IV.]

No. 7505.—Title should read "Driving-belts, harness traces, rigging, &c."
In line 1 add "etc." after "driving-belts" and in line 3 add "and" after "warp."

No. 8080.—After "relief" in ABRIDGMENT add "valve."

No. 4105.—For July 2 read July 4.

No. 4139.—Add after "fireproof" in title "for packing safes, cash-boxes, &c."

No. 5196.—For "pump" in line 1 of ABRIDGMENT read "sump."

No. 12,061.—For FARRAN read FARRAR.

No. 12,202.—For W. Mc J. read W. Mc I. CRANSTON.

No. 10,829.—For W. I. read D. I. EMERY.

No. 10,832.—For H. L. OLLIVIER, read H. L'OLLIVER.

No. 14,006.—Insert after ABRIDGMENT "Patent opposed. Case not yet decided."

No. 15,465.—Insert after ABRIDGMENT "Sealing of Patent pending through decease of Applicant."

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ILLUSTRATED JOURNAL OF THE PATENT OFFICE.

No. 115.

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REPORTS

OF

PATENT, DESIGN, AND TRADE MARK CASES

DECIDED BY

COURTS OF LAW IN THE UNITED KINGDOM.

EDITED BY JOHN CUTLER, BARRISTER-AT-LAW.

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IN THE FIRST DIVISION OF THE COURT OF SESSION IN SCOTLAND.

Before LORD KINNEAR.

February 2nd and 4th, and March 11th, 1886.

THE UNITED HORSENAIL COMPANY v. STEWART AND CO.

Action by transferee of patents for damages for infringement.—Date from which such damages should be assessed.—Principles of assessment where articles complained of are produced by a machine part of which only is covered by the patent infringed.

The United Horseshoe Company v. Stewart and Co.

Under an agreement the Pursuers took over a business and certain patents on the 27th of June 1883, but the assignment to them of the patents was not registered until the 11th of September 1884. The Pursuers brought an action for infringement of their patents against S. and Co., and obtained interdict in respect of two of such patents on the 20th of March 1885, but the other patents were held to be invalid. The Pursuers then commenced another action against S. and Co. for compensation for the infringements of the patents in respect of which interdict had been granted. The Defenders admitted the sale of certain articles made by machines which were contraventions of their last-mentioned patents, but submitted that the Pursuers were only entitled to nominal damages, because the main portions of the machines by which their nails were made were not covered by the patents admitted to be infringed, but consisted of mechanism open to the public. The Defenders also contended that it must not be here assumed that had they not interfered all sales made by them would necessarily have been made by the Pursuers; and that the Pursuers were not entitled to compensation for anything done before the assignments of the patents to them were registered, or, at any rate, before the date of the assignment. The Pursuers contended that they were entitled to the whole of the profits which they would have made had they sold the nails admitted to be infringements, and that, for the purpose of estimating such profits, the prices must be taken to be those at which they sold nails prior to the Defenders' infringements, such infringements having, as they contended, compelled them to bring down their prices.

Held, that the Pursuers were entitled to compensation for all infringing articles sold subsequent to their taking over the business, and that the measure of the damages must be the amount of the profits they would have earned by selling the same amount of goods at the rates at which they obtained at the time when the infringements actually took place.

The Pursuers in this action, who are a company carrying on business in London, and having a manufactory in Sweden, became the owners of the patents herein-after mentioned, under an agreement dated the 27th of June 1883, whereby they took over a business and the patents in question. The assignment of the patents to them was executed on the 23rd of May 1884, but was not registered until the 11th of September 1884. They brought an action against the Defenders to obtain interdict against them from selling horse-shoe nails manufactured by machines alleged to be infringements of such patents. The patents in question were the following:—(1) A patent (No. 950 of 1872) for the invention of "Improvements in the manufacture of horse-shoe nails, and in the machinery for that purpose, applicable also to other articles," granted to *William Morgan Brown*. (2) A patent (No. 2432 of 1872) for an invention of "Improvements in machinery for the manufacture of horse-shoe nails," also granted to *William Morgan Brown*. (3) A patent (No. 4078 of 1878) for the invention of "Improvements in mechanism for and in the method of manufacturing blanks for animal shoe nails," granted to *Gerald Clarence Hopper*. (4) A patent (No. 4365 of 1878) for the invention of "Improvements in machines for punching nails for shoeing horses and other animals," also granted to *William Morgan Brown*. This action was tried before Lord *Kinnear*, with the late Professor *Fleeming Jenkin* as assessor, and resulted in a judgment that the patents 950 of 1872 and 4365 of 1878 were invalid, but that the patents 2432 of 1872 and 4078 of 1878 were valid and had been infringed, and interdict was granted in respect of the last-mentioned patents on the 20th of March 1885.*

The Pursuers then commenced another action against the Defenders for compensation for their infringements of the two last-mentioned patents. After issues had been adjusted for trial before a jury, the court appointed the evidence to be taken before

* See report of the trial, ante, Vol. II., p. 122.

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the Lord Ordinary without a jury, which was done on the 2nd and 4th of February and the 11th of March 1886.

Guthrie Smith and *Shaw* (instructed by *Gill* and *Pringle*) appeared for the Pursuers, and the Solicitor-General and *Ure* (instructed by *Macconochie* and *Hare*) appeared for the Defenders.

By the minute of admissions for the purposes of this action the Defenders admitted that all the horse-shoe nails imported by the Defenders from Sweden prior to the 20th March 1885, consisting of 6,215 boxes of 25 lbs. each, and all the horse-shoe nails sold by them prior to the 20th March 1885, consisting of 5,752 boxes of 25 lbs. each (of which 1,390 boxes were made entirely without the use of the interceptor forming part of the subject of the Letters Patent 2432), were made by machines not differing from the machines belonging to Messrs. *Kollen*, and in contravention of claim 2 of the Letters Patent No. 2432 of 1872, and claim 6 of No. 4078 of 1878, in respect of which interdict was granted, and that of said 5,752 boxes 2,481 boxes were made and sold prior to the 23rd May 1884, 200 of which were made without the use of the interceptor; the remaining boxes being made between that date and the 20th March 1885, of which 1,159 boxes were made without the use of the said interceptor. The Pursuers, on the other hand, only for the purposes of the action, did not maintain that said nails were made by mechanism constructed in contravention of claim 1 of No. 2432, nor of the claims of No. 4078 other than the sixth.

It was argued on behalf of the Defenders (among other things) that the Pursuers not having acquired the right to the patents in question until the 23rd of May 1884, and the assignments of such patents to them not having been registered until the 11th of September 1884, they were not entitled to compensation for anything done prior to the date of registration or, at any rate, prior to the date of assignment. The Defenders tendered 200*l.* compensation to the Pursuers.

The LORD ORDINARY (Lord *Kinnear*) delivered the following judgment:—I think it is clear from the evidence which has now been adduced that, from the date of the agreements, the United Horse Nail Company, the Pursuers, were in right of the patents which were subsequently formally assigned to them by the assignation founded upon. They were bound by the agreement to take over the pending contracts and liabilities of the former company as from its date; and the evidence shows that they did in fact take over the business on the 28th of June, or, at all events, in the beginning of July 1883, and I think it follows that any infringement of the patent right after the 28th of June or the beginning of July was an injury to the Pursuers, for which they are entitled to compensation.

Now, that leaves only one question—the question of the amount of damages—and I do not think it is in general necessary or desirable to give reasons in detail for fixing damages, because, although the elements which ought to be taken into account may be capable of more or less exact definition, still, in most cases, the estimate of the particular sum which the Pursuer may be entitled to as compensation must be made upon somewhat vague and conjectural considerations. It is really a jury question. But there are one or two points in this case as to which I think it is due to the parties that I should say how far I take them into consideration.

In the first place, the Defenders say, and I think rightly, that the Pursuers can only recover compensation for the actual loss which they have sustained; and, on the other hand, it is said, with equal justice, that every sale of a patented article is an injury to the patentee or to the assignees of the patent, and, *prima facie* therefore, it would appear to me that the true measure of damage should be the amount of profit which the assignees of the patent would have made if they had themselves carried through those sales, because the loss which they have sustained is simply the loss of profit upon sales which it may be presumed they would have made were it not for the wrongful intervention

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of the Defenders. But then it is said—and there is force in the consideration—that it is rather an assumption than a matter of certain inference to say that if the infringers had not interfered the sales made by them must necessarily have been made by the Pursuers, because there are other considerations which go to the effecting of sales, such as connexion in trade, and energy and skill in the conduct of business, and therefore it does not necessarily follow that the Pursuers would have made every sale which the Defenders succeeded in making if the Defenders had not interfered at all. There is another consideration which the Defenders have urged, and perhaps a more formidable one, because they say that the patents have only been infringed in so far as they apply to two separate parts of the process of the manufacture of shoe nails, and that those two parts are in themselves of subordinate importance; and therefore they say that they have derived no material advantage from the infringement, because the real merit of the nails they have sold is not attributable to the patented mechanism or to any process or mechanism that is not open to the public. And therefore they say, that since no considerable portion of the profit they have made upon the sales in question can be traced to their use of the patented machinery, the Pursuers are entitled only to nominal damages if they are entitled to damages at all. Now, as to the matter of fact upon which that argument was founded, I think that if I were to proceed merely upon the evidence which has been adduced in this case, and which was not adduced in the former action, as to the value and utility of the particular part of the punching machine which is covered by the claim which the Defenders are said to have infringed, there might have been considerable force in the Defenders' argument. But then the argument goes too far, because the purpose of the device in question is to save waste, and the evidence, according to their view of it, is that so far from saving waste it really involves greater waste than the former process of manufacture; or, in other words, that the supposed invention is perfectly worthless, and therefore that the patent is void from inutility. But it is an admission in the case that the patent No. 4078 has been infringed by the Defenders in the particular respect set forth in their minute. Now, that means that there is a good patent, which necessarily means that there is a patent for a useful and meritorious invention, which the Defenders have infringed; and that is the admission upon which I am asked to proceed in considering the question of damages, and therefore I cannot assume anything contrary to that, but must, on the contrary, assume that the particular piece of mechanism which is covered by this part of the patent is a useful and meritorious part of the invention,—that the value of the patent is what the patentee alleges,—that it saves waste, and therefore saves cost of manufacture. I should not, however, have thought the matter of very much importance, in so far as the argument rests upon this patent alone, if the Pursuers had been in a position to say that all the sales of which they complain involved an infringement of the other patent No. 2432, because, in order to the production of the manufactured article which forms the subject of this complaint it is necessary to use not only the machine which is covered by the patent No. 4078—the punching machine—but also the finishing machine which is covered by No. 2432; and, according to the opinion of the late Professor *Fleeming Jenkin*, and according to the evidence in the former case, the finishing machine is certainly an exceedingly ingenious and useful invention. It is covered by three separate patents—the Pursuers, at least, maintained it was covered by three separate patents—but of these there is only one that I was able in the former action to sustain as valid; but still, the mechanism covered by that single patent, No. 2432, is undoubtedly very ingenious and useful; and, therefore, if every nail that has been sold by the Defenders involved in its production an infringement of that patent, I should not have thought it very material to consider, for the purposes of this question, whether it involved the infringement of any part of patent No. 4078.

But then, the admission that the Defenders, by importing and selling the nails in question, have infringed the patent for the finishing machine, is qualified by the counter-admission that the infringement of that machine arises only with reference to the sale of a certain portion of the cases of nails imported and sold by the Defenders. I think something like 1,800 odd out of 5,000 odd cases of nails have been produced according to the admission, without infringing that patent. As to the question of

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that was suggested as arising upon that admission, all I think it necessary to say is that it is a misapprehension to suppose that it was decided in the former case that there could be no infringement of the patent without taking the interceptor as well as the movable gate which is patented as in combination with the interceptor. That was not decided. It was a question that did not arise and was not necessary to be considered, because there was no question in the former case that the Defenders had imitated the interceptor, nor that they had imitated the combination, if I was right in the view I took of the evidence as to the similarity of their machine to the Pursuers' machine. Therefore it is a misapprehension to suppose that there was any decision as to the possibility of infringing No. 2432 without taking both the moveable gate, which is a material part of that invention, and the interceptor, which is also a material part of it. Of course, I say nothing for the purpose of deciding it now, because for the purposes of this action the parties are agreed as to what is to be taken as the condition of the infringement,—the admitted fact as to the infringement is that the Defenders are to be held as having infringed No. 2432 by the importation and sale of those cases of shoe nails, but of those cases alone, which were produced by the use of the interceptor.

Now, that being the state of facts upon which this argument for reducing the damages to nominal damages is founded, the question is whether the Defenders are well founded in maintaining that, by reason of the infringement being applicable only to those portions of the patented machine which I have described, the Pursuers are precluded from saying that the loss which they have sustained by the infringement is the loss of the profit they would have made upon the sale of the nails if they had sold them themselves; and there certainly is a great deal of authority for saying that where only a part of a complex machine is protected by a patent, the infringer cannot be made liable for the aggregate profit derived from the entire machine, as if that were the profit he had made by the use of the patent. But then the cases cited by the Solicitor-General, in which that consideration was thought to be material, were not actions of damages for infringement. They were suits in equity for ascertaining the profits obtained by the infringers, charging them as trustees for the patentee, and in such cases it would be exceedingly material to show that a part of the profit for which they were asked to account was really attributable to processes which were not covered by the patent at all. For the only question in these cases is what advantage the infringer has derived from the use of the patent over and above what he would have got from the use of processes open to the public; and this is very clearly explained in the American case of *Mowray v. Whitney* quoted by the Solicitor-General. The question as to the patentee's loss does not enter into the consideration at all, because as the law was stated in the House of Lords, in *Betts v. De Vitre*,* the basis of the claim for profits is that the patentee condones the infringement, and does not complain of it, but seeks to recover the whole profit made by the infringer as if it had been made as trustee for him. But this is an action of damages for infringement; and the question is not what profit the infringer has made, but what loss the patentee has sustained, and what the Pursuer complains of is, that he, having a sale for articles of common use, which was of great value to him, by the use of his patented machine the Defenders have infringed his patent right by interfering with his business and depriving him of the sales which he alone would have made if the Defenders had not pirated his machine. Now, if the Pursuers have lost the profit they would have made upon these sales by reason of the Defenders' infringement, it does not appear to me to be of very much importance whether you can trace the profit which they would have made, or how much you can trace, to the use of a particular portion of their machine. What they have lost is the sale. The great value of all machines of that kind consists not merely in their producing a superior article, but in their producing that article at a cost which enables the patentee to put it upon the market so as to command large sales, and that is what they lose by an infringement which enables others to compete with them.

Therefore it appears to me to be a fair enough ground for estimating their damages to take the whole profits which they would have made upon the sales actually made

* L. R. 6, House of Lords, 219.

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have infringed, and have admitted upon their admissions a very substantial infringement of a really valuable patent, and therefore the suggestion that this is a case for mere nominal damages is entirely without foundation.

His Lordship granted expenses to the Pursuers.

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[June 11, 1886.]

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by the Defenders, if the Defenders had not interfered so as to prevent the Pursuers effecting those sales themselves. That would mean the difference between the cost of manufacture and the prices at which they were selling at the time to their own agent. No doubt there are the considerations to which I have adverted which ought to be taken into account. I cannot hold it as absolutely certain that they would have made the whole of these sales. That is a consideration, however, which I think is not capable of being estimated very exactly in money; and before determining as to the weight which is to be given to it, there is another point to be taken into view,—a ground upon which the Pursuers maintain that the profit upon their sales—I mean the profit upon the Defenders' sales at the actual rate at which the Pursuers are selling for the time—is by no means sufficient to compensate them for the loss which they have actually sustained; because they say that they have been compelled by the wrongful competition of the Defenders to lower their prices to their own agent in Scotland, and, therefore, that to give them full compensation, the profits of which they have been deprived by the Defenders are not to be estimated at the rates at which they were selling at the dates when the actual infringement took place, but at the higher rate at which they were enabled to sell before the Defenders began to compete with them, or before the competition of the Defenders had brought down their prices so considerably as they say it in fact succeeded in doing; and for the same reason they say it follows that they must also have the difference between the prices which they actually earned on their own sales to their agent in Scotland and the rates they would have earned if there had been no competition. Now, I think this additional claim would not be reasonable if the grounds in fact upon which it rests could be satisfactorily established; for, if they have the sole right of manufacturing and selling horse-shoe nails produced by their machine, they might well be entitled to damages for interference with their business over and above loss of profit on the actual sales of nails imported by the Defenders. But, then, I think they have failed to prove damage on this account, at least, to such an extent as would enable me to make any satisfactory estimate of the amount which they have lost in this way, because, though it is true there has been a considerable fall in prices since the beginning of 1883, when the Defenders first began to sell nails made by the machines which have been found to infringe the Pursuers' patent, I do not think it is proved that the competition of the Defenders' nails may be, there we fall. There is evidence that however excellent the Pursuers' nails may be, there are other nails in the market with which they had to compete, and, independently of competition, there are other causes for the fluctuation of prices which do not appear to be excluded by the evidence. Therefore I am not able to give any precise pecuniary value to this element of loss which the Pursuers allege. The result is that there are considerations tending on the one hand to increase, and on the other to diminish the compensation to which the Pursuers would be entitled if their loss of the profits which they might have earned upon the sale of the same number of cases of nails as the Defenders have sold in violation of their patent were to be taken as the true measure of damage. But they are neither of them capable of any precise pecuniary estimation, and I think the fair result is that these considerations on either side, which can be estimated with precision, should be allowed to neutralise one another; and that the measure of damage should be the difference between the cost of manufacture and the profit which they would have obtained upon the sale to their own agent in Scotland of as many cases of nails as are admitted to have been sold by the Defenders in violation of the patents, taking the rates which they obtained at the time when the infringement actually took place. The evidence as to that is, that if the whole 5,752 cases were in question, the amount of damage would be £117; but the Pursuers are not in right of the patents until the 1st of June 1883, and I think, therefore, that the sum of £117, brought out in the Pursuers' evidence must be deducted to the extent of 100 pounds. The result of that is, that I think a fair compensation to the Pursuers will be £17. I do not know that that is the exact amount, but it is within a few pounds of the profit which I think they might have obtained if the Defenders had not interfered. It is right to add, though I daresay I have said it already, with reference to the argument which the Defenders urged upon the extent of the infringement of the Pursuers' patent that in my opinion the Defenders

IN THE CHANCERY OF THE COUNTY PALATINE OF LANCASTER—
MANCHESTER DISTRICT.

Before VICE-CHANCELLOR BRISTOWE.

March 29, 1886.

ROWCLIFFE v. MORRIS.

Action for infringement of patent.—Action dismissed with costs.—No certificate that the Defendant had proved his particulars of objections asked for at the trial.—Subsequent application for such a certificate.—Patents, &c. Act, 1883, s. 29 (6).
R. brought an action against M. for infringing his patent. M. denied the alleged infringement, and put in issue the validity of the patent on the grounds stated in his particulars of objections. The Judge at the trial on the 12th of November 1885 held that the patent was invalid, and dismissed the action with costs. The Defendant did not apply for a certificate of the grounds of his objections, but on the 20th of March 1886 he moved for such a certificate. The Judge refused to grant it, and held that the Defendant was entitled to apply within a reasonable time after trial for the certificate, and that as he had applied within a reasonable time it should be given, but as he might have asked for it at the trial he was not entitled to the costs of the motion, and that if the Plaintiff had not opposed the motion he would have been entitled to his costs, but having opposed no costs would be given to him.

J. B. Rowcliffe brought an action against J. Morris for infringement of his patent (No. 1651 of 1878). The Defendant denied the alleged infringement, and put in issue the validity of the patent on the various grounds stated in his particulars of objections. The action was tried before V. C. Bristowe, who on the 12th of November 1885 decided that the patent was invalid, and dismissed the action with costs.* No certificate that the Defendant had proved his particulars of objections was applied for at the trial, but on the 20th of March 1886 a motion was made on behalf of the Defendant for such a certificate, which was opposed on behalf of the Plaintiff.

Hopkinson (instructed by C. H. Simpson of Manchester) appeared for the Defendant, and Maberly (instructed by Hinde, Milne, and Co. of Manchester) for the Plaintiff. Maberly referred to 15 & 16 Vict., ch. 83, and also to 3 & 4 Vict., c. 42, s. 2, as to which *Gillett v. Green* (7 M. and W. 347), and *Thompson v. Gibson* (8 M. and W. 281) were cited.

BRISTOWE, V.C.—This is an application on the part of the Defendant Morris in the action of *Rowcliffe v. Morris* that particulars delivered by the Defendant, being practically Nos. 3, 8, 9, 10, and 11 in the original particulars, and certain further particulars also delivered may be certified by the Court to have been proven, or to have been reasonable and proper, having regard to the particular statute in question. Two objections are taken by Mr. Maberly to the application. In the first place, it is stated that there is a taxation going on under the order made on the 12th November last.

* For the report of the trial, see ante p. 17.

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by which the action was simply dismissed with costs; and that by reason of what is going on in the Registrar's office the Defendant is stopped from now bringing this motion before the Court. It is said that he is so stopped by reason of his having raised some contention before the Registrar, upon which the Registrar has not yet decided, that a certificate is unnecessary. I do not think that any such estoppel could preclude the Defendant, if he is otherwise entitled to do so, from now asking the Court to give the certificate required.

Then comes the question whether the time that has elapsed since the date when the judgment was pronounced is fatal to the Defendant in respect of the relief which he now seeks by virtue of this motion. It is quite true, as Mr. *Maberly* has said, that the action was disposed of on the 13th November 1885, and that the action in the result was simply dismissed with costs. I see I said, "I must dismiss the action with costs." But it must be borne in mind that the judgment so given was not a judgment like the mere finding of a jury of a fact, and thereupon an action being dismissed with costs, or the Plaintiff being non-suited; but that there was a judgment which went into matters in detail with reference to the questions that were raised, and the different particulars of objections upon which reliance was placed, and in respect of which the Defendant succeeded. Under the Act of 1883, section 29, sub-section 6, it is provided that "On taxation of costs regard shall be had to the particulars delivered by the Plaintiff and by the Defendant; and they respectively shall not be allowed any costs in respect of any particular delivered by them unless the same is certified by the Court or a Judge to have been proven, or to have been reasonable and proper, without regard to the general costs of the case." I think that it is desirable to remember that that sub-section differs materially from the corresponding section of the older Act,—section 43 of the Act 15 & 16 Victoria, cap. 83, which says, "In taxing the costs, &c., regard shall be had to the particulars delivered in such action, and the Plaintiff and Defendant respectively shall not be allowed any costs in respect of any particular unless certified by the Judge before whom the trial was had to have been proved by such Plaintiff or Defendant respectively, without regard to the general costs of the case." So that there are words in the sixth sub-section of section 29 of the Act of 1883 which are larger than the words in section 43 of the 15 & 16 Victoria, cap. 83. In the one case, namely, the Act 15 & 16 Victoria, it is simply "unless certified by the Judge before whom the trial was had to have been proved." In the later Act, apparently, I must assume, with a view of giving an enlargement to the words of the old Act, it says, "certified by the Court or a Judge to have been proven." Both those Acts are larger than the Act of Parliament to which Mr. *Maberly* referred me. That Act deals with the certificate of the Judge in respect of the costs of certain matters where the statute says that the Judge must certify immediately after the trial of the action. There you have the words "immediately afterwards," and it was the stringency of those words that made the Judges take the view in one case that the certificate must be given instantaneously after the trial, and in another case before the next cause was called on for hearing. As I have already said, that was because the Act of Parliament said "immediately."

We have now, I think, simply to consider the operation of the Act of 1883. I find nothing to say that the certificate must be given immediately; I find nothing to limit the period within which it must be delivered; but I am disposed to accede to the argument that it must be a reasonable time. The question is here,—Is there anything unreasonable? In the month of November last the Court that heard this particular action gave judgment in such action. The Court went through the details, and gave judgment upon the particulars themselves. That being so, is there anything unreasonable in the Court stating by certificate that those particulars have been proven before the Court? In my judgment there is nothing at all unreasonable in the view taken, that a certificate should be granted; and if the argument be correct, as I think it is, that under the Act of 1883 a Judge who is not the Judge who tried the action may give a certificate, *a fortiori* the Judge himself who tried the action can within a reasonably limited time grant a certificate that such and such particulars were proven. Of course that is only my impression expressed upon the wording of the Act of Parliament.

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In my judgment the particulars were proven, and I am of opinion that I am entitled to give, and I do give, the certificate asked for in the notice of motion. But I think the prudence of the Defendant would have been exemplified if he had asked for that at the time of the trial. I do not see why he should not have asked for the certificate then, and I do not see why the Plaintiff should be put to any costs by the certificate being now asked for; therefore I give the certificate, but I do not give any costs in respect of this motion.

Maberly.—I ask your Honour to give me the costs of this motion as the other side come here for an indulgence.

The Vice-Chancellor.—If you had not resisted I should have made them pay several guineas for costs; but you have argued it adversely, therefore you have brought upon them more expense than they would otherwise have incurred. I think you should have assented at once to the notice of motion without any costs. I do not think it is a case in which I can give you any costs, seeing that you have opposed the motion.

IN THE COURT OF APPEAL.

Before THE MASTER OF THE ROLLS, LORD JUSTICE BOWEN, AND LORD JUSTICE FRY.

May 10th, 20th, and 21st, 1886.

WATLING v. STEVENS.

Patent for a combination.—Action for alleged infringement.—Validity of patent.—Sufficiency of specification.—Variance between provisional and complete specifications.—Novelty of patented invention.—Admission of fresh evidence on appeal.

In 1879 a patent was granted to the Plaintiff for improvements in spring tip vans. He brought an action against S. and B. for infringement of this patent, alleging that S. had used certain vans which were an infringement of his patent, and that B. had manufactured these vans and sold them to S. The Defendant B. alone defended the action. He denied infringement, and put in issue the novelty of the Plaintiff's invention and the sufficiency of his specification. Held at the trial, (1) that the invention being a combination of old details for a new and useful purpose, that combination was properly claimed by the specification; (2) that the complete specification did not go beyond the provisional specification, and (3) that the invention had not been anticipated. Judgment was accordingly given for the Plaintiff. B. appealed.

Held, that the specification sufficiently described the invention, and there had been no anticipation, and the appeal was dismissed with costs. B. applied for leave to adduce fresh evidence on the hearing of the appeal, but was not allowed to do so.

A patent, dated the 16th of July 1879, and numbered 2886, was granted to John Watling for "Improvements in spring tip vans." The Provisional Specification was as follows: "This invention relates to the construction of tip vans or waggons, by which means vans or waggons may be made to tip their loads with the same facility as at present obtains in the case of two-wheeled tip carts. For this purpose the tip van or waggon consists of two main parts, the one being the horizontal under frame borne by the wheels, either through the medium of springs or otherwise, the other being the upper body which holds the load. To the upper surface of the under frame I fit so as to revolve freely within suitable bearings any desired number of friction rollers having their axes at right angles to the length of such frame. The friction rollers may each extend right across the under frame, or instead of this

"arrangement they may be shorter friction rollers at either side of the said frame.
 "The friction rollers are fitted so that their peripheries project a little above the
 "upper surface of the under frame. Upon the under frame thus fitted is laid the upper
 "body of the van or waggon so as to slide freely backward and forward on the friction
 "rollers. A pin or pivot, which I will call pin 1, is fitted on each side of the van or
 "waggon to the outside of the under frame so as to project outwards therefrom, a
 "somewhat similar pin, which I will call pin 2, being fitted at each side to the lower
 "part of the superincumbent body, the two sets of pins (and thereby the two parts)
 "being connected by means of a slotted link or lever, one end of which turns or
 "oscillates on one of the pins, whilst the slotted portion may slide on the other pin.
 "In addition to the pin before mentioned projecting from each side of the body of the
 "van or waggon, another similar projecting pin or pivot, which I will call pin 3, is
 "provided in the same horizontal plane and nearer the back end of the van or waggon,
 "the under frame being provided on each side at the back end with bearings or recesses
 "in which, when the body is run back on the friction rollers, the pin 3 is stopped,
 "and pivots or oscillates in the bearings or recesses on the van or waggon being
 "tipped, at which time the pins 1 and 2 and slotted levers or links operate auto-
 "matically to prevent the van or waggon tipping up beyond a certain inclined plane.
 "Instead of the slotted levers or links before described, modifications of the same may
 "be employed, as, for instance, the lever may be made with a solid end to slide in a
 "parallel groove or slot, or other kinds of mechanism for controlling the angle of tip
 "may be employed. Any suitable catch to operate automatically or otherwise may
 "be employed to keep the body and under frame together in a fixed and normal
 "position, and prevent sliding of the upper body on the friction rollers."
 "The Complete Specification was as follows:—"This invention relates to the con-
 "struction of tip vans or waggons, by which means vans or waggons may be made to
 "tip their loads with the same facility as at present obtains in the case of two-wheeled
 "tip carts. For this purpose the tip van or waggon consists of two main parts, the
 "one being the horizontal under frame A borne by the wheels, either through the
 "medium of springs or otherwise, the other being the upper body, which holds
 "the load B. To the upper surface of the under frame A, I fit, so as to revolve freely
 "within suitable bearings, any desired number of friction rollers C, having their axes
 "at right angles to the length of such frame. The friction rollers may each extend
 "right across the under frame, or, instead of this arrangement, there may be shorter
 "friction rollers at either side of the said frame. The friction rollers are fitted
 "so that their peripheries project a little above the upper surface of the under frame.
 "Upon the under frame thus fitted is laid the upper body of the van or waggon so as
 "to slide freely backward and forward on the friction rollers. A pin or pivot D,
 "Figure 1, is fitted in any suitable manner on each side of the van or waggon to the
 "outside of the under frame so as to project outwards therefrom, a somewhat similar
 "pin E being fitted at each side to the lowest part of the superincumbent body, the
 "two sets of pins D and E being connected by means of a slotted link or lever F, one
 "end of which turns or oscillates in the pin E whilst the slotted portion may slide in
 "the other pin D. In addition to the pin D projecting from each side of the body of
 "the van or waggon, another similar projecting pin or pivot G is provided in the same
 "horizontal plane and nearer the back end of the van or waggon. The under frame is
 "provided (on each side) at the back end with bearings or recesses H, which, when
 "the body is run back on the friction rollers, the pin G is stopped, and as pivots or
 "oscillates in the bearing or recesses H on the van or waggon being tipped, at which

"times the pins D and G and the slotted levers or links F operate automatically to
 "prevent the van or waggon tipping up beyond a certain inclined plane. Instead of
 "the slotted levers or links before described modifications of the mechanism for
 "tilting the van or waggon may be employed, which I consider to be preferable, that
 "is, to do away with the before-mentioned levers or links on the outer sides of the
 "before-mentioned under frame A, Figure 2, I bolt, or otherwise, a metal parallel slot
 "or groove-guard I of any suitable length, such slot or groove-guard to project
 "upwards to the frame of the superincumbent body of the van or waggon. On each
 "side of this frame I fix a pivot or pin J to project through and to slide into the said
 "metal slot or groove-guard. On the van or waggon being pushed back for the
 "purpose of tilting the same, the pivots or pins J slide to the end of the slot or groove-
 "guard to turn or oscillate. Any suitable catch to operate automatically or otherwise
 "may be employed to keep the body and under frame together in a fixed and normal
 "position, and prevent the sliding of the upper body in the friction rollers. Having
 "now described and ascertained the nature of my invention, and the manner in
 "which the same is or may be performed, I would observe, in conclusion, that I do not
 "limit myself to the precise details herein given and shown in the accompanying
 "Drawings, as various modifications may be made therein while retaining the
 "essential features of my invention; but what I claim as new and desire to be
 "secured to me by the herein-before in part recited letters patent is,—first, the
 "application of a four or two-wheeled van or waggon to act as a tip van or waggon,
 "with the slotted links or levers, with parts herein-before described and illustrated by
 "Figure 1 and letters A, B, C, D, E, F, G, and H, or any modification thereof;
 "second, the application of a tip van or waggon on two or four wheels by means of the
 "side slot or groove-guards with parts herein-before described and illustrated by
 "Figure 2 and letters A, B, C, I, and J, or any modification thereof."

The Patentee commenced in 1884 an action against *William E. Stevens* and *Edward Hodgson Bayley* for infringement of this patent, claiming the usual relief. The Plaintiff alleged that the Defendant *Stevens* had used certain vans which were an infringement of his patent, and that the Defendant *Bayley* had manufactured these vans, and sold them to the Defendant *Stevens*. On the 13th of June 1884 an order was made staying proceedings in the action against the Defendant *Stevens* on his undertaking not to use the vans in question until the trial of the action, and to consent to a perpetual injunction if the Plaintiff succeeded in obtaining a judgment against the Defendant *Bayley*. *Bayley* put in a defence denying infringement, and putting in issue the novelty of the Plaintiff's invention and the sufficiency of his specification. By his particulars of objections, *Bayley*, amongst other things, stated that the Plaintiff's invention was, previous to the date of the patent, published by (1) the provisional specification of *Henry Williamson*, No. 1869 of 1871, (2) the provisional specification of *Reuben Cooper*, No. 3401 of 1871, and (3) the specification of *George Greig*, No. 4284 of 1874.

The last-named specification states as follows: "This invention has for its object
 "improvements in wagons and in apparatus for distributing manure. In order that
 "the body of a wagon may be capable of tipping to discharge the load more con-
 "veniently than heretofore, I form the body separate from the bed frame of the
 "wagon, and arrange it to run upon rails and friction wheels in a transverse direction.
 "In this way the body can be moved on the bed frame until the centre of gravity
 "overhangs, and it will then tip and discharge the load to one side or end, as the case
 "may be. Suitable guides and stops are provided to control and limit the motion of

Watling v. Stevens.

"the body, and locking apparatus is provided to hold the body securely whilst travelling." After describing the drawings the specification concludes thus: "Having thus described the nature of my said invention, and the manner of performing the same, I would have it understood that I claim as my improvements in wagons the construction of side tipping wagons substantially as described. I also claim as my improvements in apparatus for distributing manure the combination with the hopper or recipient for the manure of a barrel with pins or projections capable of being protruded and withdrawn, and provided with a scraper or cleaner, substantially as described."

The action was heard before *Matthew, J.* without a jury. He decided (1) that the invention being a combination of old details for a new and useful purpose, that combination was properly claimed by the specification; (2) that the complete specification did not go beyond the provisional specification; and (3) that the invention had not been anticipated. Judgment was accordingly given for the Plaintiff.

B. appealed, and on the 10th of May applied to the Court of Appeal for leave to adduce fresh evidence on the hearing of the appeal, alleging that such evidence had only been discovered two days before the application. After some discussion the Court decided that the Appellant might have his fresh witnesses ready to be called, and then, if the Court considered their evidence sufficiently material, they would be able to hear it; but the witnesses were to be produced at the Appellant's expense.

The appeal came on for hearing on the 21st of May, when *Aston, Q.C.*, and *Swinfen Eady* (instructed by *Hicklin and Washington*) appeared for the Appellant; and *Moulton, Q.C.*, and *Terrell* (instructed by *Whyte, Collisson, and Pritchard*) appeared for the Respondent.

On the first day of the hearing of the appeal the Appellant's counsel asked to be allowed to call the fresh witnesses who were in attendance. The Court would not allow this to be done, because there was no affidavit as to this evidence having only come to the Appellant's knowledge since the trial of the action. On the following day the counsel for the Appellant renewed the application upon an affidavit to the effect above stated, but the Court held that it was too late.

At the close of the case the Court dismissed the appeal.

THE MASTER OF THE ROLLS.—Unless there is something wrong in the patent itself, it is obvious that there has been a palpable and gross infringement. The Defendant has used the very exact thing which the Plaintiff claims to have invented. The whole question therefore must be whether the Plaintiff's patent is a bad or a good one. It has been attacked on various grounds. It was attacked on the ground that there was want of novelty, and in order to show that want of novelty, a patent taken out by a person of the name of *Greig* was mainly relied on. There was also another patent taken out by a person of the name of *Cooper*. As for *Cooper's* patent, anything more impossible than *Cooper's* patent I cannot very well conceive. It was described in a specification only, and I am prepared to say that I think nobody could have made anything of it; and as far as one can comprehend it, I do not see that it is the least like this. With regard to *Greig's* patent, there, again, it was only on paper, and it never has been used. The learned Judge came to the conclusion that that could not really be made out by an ordinary workman, but if it could, to my mind that patent was a patent for a combination. I am equally clear that this patent is a patent for a combination, and it is obvious to my mind that the two combinations are absolutely different. Therefore *Greig's* could not be said to be an anticipation of this. Any objection to this patent, therefore, on the ground of want of novelty, falls to the ground.

Then it is said that the specification is bad. It is as ill-drawn as it can be, and it has, as nearly as possible, rendered this patent invalid. But I think, looking at it fairly, and, as has been said, with a view of making it good so far as reason will allow, rather than destroying it, the patent having been granted, it is sufficiently clear to show what it is that is meant. To my mind it is for a combination, and describes a combination,—in an odd way certainly,—but it sufficiently describes it so that one can understand what is

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meant. I cannot help thinking that the combination is really a combination of three elements; that the one is a frame running along the whole length of what is to be supported; that that which is to be supported is separate from the frame and is made to run along the frame in order to get means of tipping it. Therefore there is the frame, the separation from the frame, and then there is, when you get to a certain length in sliding along, the means of controlling more or less the angle. In the first claim, and in the first figure, it seems to me that the mode of controlling, at all events, is of one kind. Then there is a second figure, and that seems to me to show a similar combination of three things, but that the mode of controlling the angle is a different one, although on the whole producing, not precisely the same result, but a sufficiently similar result to be a different and equivalent means. Then if so,—if one can see that combination sufficiently described in the two modes, and that the second one is only an equivalent mode of doing the first,—it seems to me that so far the patent is good.

Then it was said that the beginning of the final specification states that this is an invention by which means vans or waggons may be made to tip their loads with the same facility as at present obtains in the case of two-wheeled carts. Then, when the claim comes, it is, "the application of a four or two-wheeled van," that is to say, the application to a four-wheeled or a two-wheeled van, and it is said that that variation is fatal to the patent. I do not think myself that the question of wheels is really a material matter in this patent. As I have said, I think it is a combination to be applied to waggons whether of four wheels or six wheels—a combination of the three things that I have said. Even with regard to a two-wheeled waggon or cart, it is a different mode of making it. The material parts of the combination, even as applied to that, being this frame that runs along so as to support the upper part of the cart, the upper part of the cart sliding along that, till it comes to a place where you can more or less, as I say, by the means described, check the angle. I cannot see that the number of wheels is a material part of the patent, or is a material part of the claim, or is any part whatever of the combination which the Plaintiff has invented. To say that you can apply the patent to one thing, and then to say that it is not an infringement because that very same thing is applied to a similar thing, is a false point. Even if the two-wheeled carts were not named here in the patent, I cannot myself think that there would be no infringement of the exact combination producing the exact effect, because a person applied it to a two-wheeled cart instead of to a four-wheeled waggon. Even if it had not been mentioned, I cannot see that the introduction of that application to a two-wheeled waggon is fatal to this patent.

The main question which the parties came here to argue, is that it is said that the complete specification goes beyond and too far beyond the provisional specification, and that therefore the whole patent is bad. I think that the law with regard to that is this: that if the complete specification sets out and claims an invention independent of that which is in the provisional specification, besides also describing that invention which is in the provisional specification, then the complete specification is bad. It would be equally bad if the invention described in the complete specification were a wholly different invention from that described in the provisional specification because, as has been said, the patent is not given then for the invention which is described in the provisional specification. Therefore (I must try and say it again) if there were only one invention described in the provisional application, and only one in the complete specification, but those two inventions were wholly and substantially different, the patent would be bad. So if an invention is described in the provisional specification, which invention is also described in the complete specification, but in the complete specification another and distinct invention is described and claimed, then it is bad because with regard to the second invention so described and claimed in the complete specification, there would be no provisional specification to cover it. Then comes the question whether this complete specification breaks either of those rules. I think it does not, and that there is no new and independent invention described in the complete specification which was not in the provisional specification, but that all that occurs here is that the invention which is described in the provisional specification is completed and amplified in the complete specification. I think that to amplify the invention which is in the provisional specification, in the complete specification, does not vitiate the complete specification. There-

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fore, even if it had been right to let in this objection in the present case, it would have been no fatal objection. As it has been argued, I have given my opinion upon it, but I do also think that in this case the Appellants here were not justified in bringing forward this objection as to the difference between the complete specification and the provisional specification, because that objection is not properly put forward by them in the objections which they gave to the Plaintiffs when they were bound to do so, before they came to trial. On all grounds, therefore, I think that this judgment of my brother Mathew must be upheld and that this appeal must be dismissed.

BOWEN, L. J.—The main point argued before us was that the complete specification in this case went beyond the provisional specification; and when the point was first taken, the learned counsel for the Respondents objected that it was a point which was not opened owing to the course which had been taken at the trial, and more especially having regard to the fact that the objections delivered did not condescend with particularity to the exact point which was about to be made. Whether, on the true construction of the Act, the absence of further particularity in the objections was a reason why the Appellant should have been precluded below, or should be precluded here, from taking this point, is a matter on which I desire to express no opinion. The only thing I wish to say is this, that I do not see that if the point had prevailed it would have been possible to do anything except give a new trial, because the conduct of the case below, to my mind, would make it necessary, in order to do complete justice between the parties, that the point should have been submitted to the test of evidence of experts, which was not done in the Court below at the trial; but it is not necessary to decide whether or not the Appellant could be allowed to make that point now. On the whole, we think it is a bad point when it is made, on the materials even which are before us, and it is to that conclusion I have come with the other members of the Court.

The other point which was taken was, that on the true construction of this specification the attempt to apply to two-wheeled vans in the complete specification what had been by the provisional specification mentioned as an invention with regard to waggons only, rendered the whole of the patent bad. It seems to me that this last point, which was a point, be it observed, that was not taken below, and was only suggested, I think by one of my learned brothers during the argument, could not be decided in favour of the Appellants without enabling the case again to be tried, and again to go down to be tested, as I have said before, by the evidence of experts. But it is not necessary to send it down if we think there is nothing in the point on the materials before us, and it seems to me that the true key to the whole of this case—the key which solves this difficulty as well as the other, is, that the invention is really independent of the number of wheels. I think that Mr. Moulton was right in saying that the patentee, in patenting this invention, was really getting rid of a difficulty which arose from the number of wheels, and that although the real object of it, and the great utility of it, was to render a two-wheeled waggon capable of being tipped with as great facility as an old two-wheeled cart, there is nothing in the invention itself which renders it in the least degree incapable of being applied, and, for anything I know being applied with usefulness, to certain classes of two-wheeled carts. As to the real invention, what is the patent? Really it is for a combination or arrangement of rollers, and the pushing back and tipping, with a certain control of the angle. In the original specification the control of the angle was thought to be a very important part of the combination; but when the patentee came to the final specification, he thought it apparently more convenient for his general purposes to adopt a form of combination in which you do not require any very special control of the angle, and was satisfied with the minimum, as I will call it, of control. But it seems to me that nevertheless that form of combination really is within the ambit and scope of the invention itself; and I cannot think that, once given the idea of the rollers, the pushing back, and the tipping, and that the angle might, if you wanted it, be controlled by the original slotted levers or links, the variation to the present form in which the model has been made, and in which the second figure has been drawn, is a variation in any way of principle, but a simple substitution of what really is a mechanical equivalent. For these reasons it seems to me that the appeal ought to fail and ought to be dismissed with costs.

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FRY, L. J.—I have arrived at the same conclusions. It has been urged before us that the specification does not disclose a novel invention, and to induce us to come to that conclusion, we have been asked to look at Cooper's specification. There is not the slightest evidence to show that that specification ever produced any results at all, or was ever followed up by a complete specification; and for all that appears it fell stillborn. Very nearly the same observation applies to the case of Greig's specification, which was taken out in 1874, and it does not appear that that was ever used; and when one comes to look at the combination of the old and well-known mechanical appliances in that specification, one sees that it was essentially different from the combination which has been used by the present Plaintiff; and I am bound to say that it appears to me that the argument that Greig's specification was an anticipation of the Plaintiff's was sought to be supported by a very dishonest model.

Then it is said in the next place—and that is really a more serious inquiry—that the specification in the present case does not with particularity describe and ascertain the invention of the Plaintiff. I am bound to say that I think that this specification comes as near as possible to being bad without being bad; and I think a very little more would certainly have made it bad. It has been objected that the specification does not sufficiently and adequately discriminate between the new combination that is claimed and the old parts. I have said the new combination which is claimed, because I confess that I found the claims as being claims for distinct combinations to effectuate certain objects, and it is difficult, no doubt, to say, that the line is drawn with precision between the old and the new in this specification. But there are some things so old and so well known that it is not necessary for a patentee to say, "I do not claim them." If he mentions a wheel or an inclined plane, or a screw, he is not bound to disclaim each of those well-known mechanical instruments. I think that that observation very much covers this case. I do not think that any person of adequate knowledge reading this specification could for one moment believe that the entire cart or the entire waggon or van is claimed. I think that, although not very clearly, yet with adequate clearness, such a person on reading this specification would know what was claimed; and I think what really is claimed is a combination of three things: it is the friction rollers which are to move the body of the cart or the frame of the cart; it is the mechanism by which that rolling back produces the tipping of the cart; that is to say, stopping the forward motion, it tilts the cart up; and, thirdly, it is the control over the angle of the tip. Now, those three things are effectuated by two plans, which are mentioned in claim 1 and in claim 2; and I think that an ordinary reader would say that that is a claim, and would be able to discriminate that claim of a new combination from the old parts of it. Then, with regard to the objection which has arisen from the course of the discussion, that the claim seeks to apply this invention to two-wheeled carts as well as to four-wheeled carts, I think that the true answer is that which has been given by Mr. Moulton, that really the claim is one for an invention which connects the body with the frame, and which enables that body to operate upon that frame in a particular manner. The number of wheels is really an immaterial matter.

Then it has been said that the specification is bad because it does not correspond with the provisional specification. I share the inclination of opinion, at any rate, of the Master of the Rolls, in thinking that this objection is not open, on the ground that the particulars did not state it. It is not necessary, no doubt, to determine that point, because, admitting the discussion of the point, as we have, it appears to me, I confess, that the provisional specification does claim the three things to which I have referred; and it points out clearly that the control of the angle may be effectuated by other means than that referred to in the provisional specification. Now, in the complete specification that control of the angle is arrived at by another method in the second plan. In the first plan the control of the angle results from the position, and bringing into action of the slotted levers operating on the two screws or two pins. In the second plan the control of the angle of tip results from the position in which the end of the groove-guard is placed in relation to the end of the frame of the cart. The interval between the end of that groove-guard and the end of the frame operates as a check upon the angle of tip. If that end of the groove-guard is placed very far

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...it almost destroys the tip, if it is placed very far from it, and it almost destroys any control over it. Therefore there is no substantial variance between the invention described in the provisional specification and the invention particularly described and ascertained in the complete specification.

Widdowson—The appeal is dismissed with costs, and costs, if any, of the application with regard to the new evidence.

THE MASTER OF THE ROLLS.—I think not. There have been no costs as to the new evidence. You must have the costs of the appeal.

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REPORTS

OF

PATENT, DESIGN, AND TRADE MARK CASES

DECIDED

COURTS OF LAW IN THE UNITED KINGDOM.

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IN THE HIGH COURT OF JUSTICE (IRELAND) CHANCERY DIVISION.

Before THE MASTER OF THE ROLLS.

June 25th and 26th, and July 1st, 1886.

WATT v. O'HANLON.

Action to restrain infringement of trade mark. Trade Mark Registration Act, 1875, section 10.—Geographical or descriptive words. Registration of a trade mark consisting of words, with a signature.

A. 24937.

Held, that (there being no evidence of fraud or colourable imitation of the Plaintiffs' labels), (1) the words "Old Innishowen" were descriptive, and not capable of registration by themselves as a trade mark; (2) that the Plaintiffs had no right to complain of the use of those words by the Defendants; and (3) that the action must be dismissed, with costs.

The Plaintiffs, as they alleged, previous to 1880 having discovered a certain blend of whisky much approved of by the public, designated it "Old Innishowen" whisky, and it became known by that name in the trade. Finding that it commanded an extensive sale and was likely to obtain increased favour they spent large sums in advertising it, and on 3rd March 1880 they registered the words "Old Innishowen," together with the signature of their firm, as their trade mark, under No. —, since which date they had sold large quantities of the whisky in England and the colonies, in bottles and cases bearing labels containing the name of their firm and the words "Old Innishowen" whisky. In April 1884, having discovered that the Defendants were selling whisky labelled "Old Innishowen Blend," the Plaintiffs instituted the present action. The Defendants denied that the Plaintiffs had any exclusive right to the words "Old Innishowen," which, they alleged, were in common use in the trade for years as descriptive of a class of whisky or "poteen," manufactured by various illicit distillers in Innishowen, an extensive district of Donegal. It was proved to the satisfaction of the Court that no fraud had been practised by the Defendants, that they had not passed off their whisky as the Plaintiffs' manufacture, and there was no proof that any one had been deceived into purchasing one in mistake for the other. The labels used by Defendants were wholly unlike those of the Plaintiffs, their shape, colour, and appearance being totally different, and the Defendants' name being printed in large characters thereon. The only words common to both labels were the words "Old Innishowen." Evidence was given by Defendants that long prior to 1880 other traders in Ulster had used the words "Innishowen" and "Old Innishowen," as names for particular blends of whisky, presumably had in imitation of the illegal spirit or poteen formerly manufactured in Donegal. The questions chiefly argued were—(1) whether the words "Old Innishowen" were capable of being made a trade mark, or were words which any person was entitled to use; (2) whether the evidence of previous user by the Plaintiffs, or of their whisky being known in the trade under the designation of "Old Innishowen," together with the fact of registration in 1880, entitled them to the exclusive use of the words as a trade mark.

After the arguments were concluded judgment was reserved, and was ultimately delivered as follows:—

delivered as follows:—

PORTER, M. R.—This action was instituted by the Plaintiffs, a firm of wine and spirit merchants at Londonderry, who, by their writ and statement of claim, as former dated the 8th October and the latter the 14th November 1884, seek an injunction to restrain the Defendants (who also appear to be merchants carrying on business at Londonderry), their agents, servants, and workmen from infringing the Plaintiffs' trademark or name of "Old Innishowen," and from selling whisky in any way designated by label or otherwise as "Old Innishowen." The writ also claims damages and costs. The case made in the statement of claim is as follows:—In the year 1878 the Plaintiffs commenced to make a new blend of whisky, which they termed "Old Innishowen," which blend was quite distinct from any then in the market, and from any previously sold by the Plaintiffs themselves. In the year 1879 the Plaintiffs, finding that they had sold in this country great quantities of this blend of whisky, advertised it extensively in England and abroad, with the view of getting into the English and foreign trade. I may say it is clearly proved that the Plaintiffs did so extensively, advertise this whisky, and spent large sums of money in advertisements. The statement of claim says that after a short time the Plaintiffs found that the said old blend of whisky was much approved of in England and abroad, and became well known in the trade under the name of "Old Innishowen," and, accordingly, in their own interests, and to protect the public from

to have the words "Old Innishowen" registered, and on the 3rd day of March 1880 the said words were duly registered, and the application was published in the "Trade Marks Journal." On the that averment, which lies at the very root of the entire of the Plaintiffs' case, is utterly untrue. I do not mean to say that that circumstance would alone have determined the case, if the question had been raised, as it might have been, by a demurrer, to the statement of claim relying upon registration as a trade mark of that which could not possibly be registered as a trade mark, and which, in fact, was never so registered. This averment in the statement of claim shows an amount of laxity on the part of whoever drew it which it is very difficult to understand. That which was actually registered as a trade mark was something totally different from what is described in the statement of claim. That which was registered included not only the words "Old Innishowen," but also contained a facsimile, or what purported to be a facsimile, of the signature of the firm—"Andrew A. Watts and Co." Why, under those circumstances, such a statement should have been made, passes comprehension. The statement of claim proceeds to allege that before and since the registration of the said trade name the Plaintiffs have sold the said blend of whisky very extensively, both in the United Kingdom and also in India, China, Australia, and elsewhere, and since such registration the said whisky has been sent out bottled and in cases, the bottles being labelled and the cases branded invariably with the words "Old Innishowen." I may mention that, as regards the cases, they are proved to have been branded not "Old Innishowen," but "Innishowen" simply; and as regards the labels put on the bottles, did not the Plaintiffs, for some reason or other, from beginning to end of the case, did not prove the use of any label upon any bottles. The statement of claim proceeds to aver that since the year 1878 the said "Old Innishowen" whisky has become exclusively known in the market—I presume that is a mistake for extensively—and vendors have been in the habit of selling it, and purchasers have been in the habit of buying it, as the whisky of the Plaintiffs. In the month of April 1884 the Plaintiffs became aware, for the first time, that the Defendants' firm were selling whisky of their own in bottles having labels which bore the said words "Old Innishowen," although, in other respects, the said labels do not resemble the Plaintiffs' labels. On learning such infringement by the Defendants the Plaintiffs caused their solicitors, Messrs. T. and R. N. Chambers, of Derry, forthwith to write to the Defendants, and on the 25th April

1884 they wrote and sent to the Defendants a letter complaining of the said infringement, and warning them that they had incurred serious liability. In reply, the Plaintiffs' solicitors received a letter from the solicitors of the Defendants, in which they stated that the only similarity they could see in the labels was the use in both of the words "Old Innishowen." They in the said letter claimed the right to use the word "Innishowen," and suggested that both parties should submit a joint case for the opinion of the Attorney-General. The Plaintiffs, through their solicitors, declined to adopt that course. The Defendants have since continued to use the said label bearing the said words "Old Innishowen," and refuse to discontinue the use thereof. Then follows this averment:—"The Plaintiffs charge that the Defendants, by the use of the said words in their label, are passing off their whisky as and for the whisky of the Plaintiffs, and are using the Plaintiffs' trade name in a manner calculated to deceive, and that, in fact, does deceive intending purchasers into a belief that they are purchasing the whisky of the Plaintiffs." I at first thought the phrase "the Plaintiffs' trade name" meant that the Defendants were using the name of the Plaintiffs' firm. That is what one would ordinarily understand by the expression, particularly having regard to the form in which the name of the Plaintiffs' firm was actually registered. However, I think, having regard to the case made by the Plaintiffs in their affidavits, that that is not the meaning of the expression. I think it means their "trade name" as equivalent to their "trade mark," and meaning the mark which they had adopted of "Old Innishowen." The Plaintiffs aver that the Defendants have sold large quantities of whisky bearing the said trade name thereon, whereby considerable damage and loss has accrued to the Plaintiffs in their trade.

Now that statement of claim was met by a statement of defence delivered on the 26th November 1884. That statement of defence denies that the alleged new blend sold to in the fourth paragraph of the statement of claim ever bore the words "Old Innishowen," or that the words "Old

"Old Innishowen" were ever duly registered as a trade mark or name; and the Defendants aver that the said words are not a trade mark within the meaning of the Trade Marks Registration Act, 1875, or any Act amending the same, and they say that the said words "Innishowen" and "Old Innishowen" were in the year 1878, and for many years previously in common use and well known in the city and county of Londonderry and adjoining counties as descriptive of a certain spirit otherwise known as "poteen," made or distilled in the barony of Innishowen, in the county of Donegal, by divers persons other than the Plaintiffs. The Defendants deny each and all of the allegations in the fifth and sixth paragraphs of the statement of claim. They then say that in the year 1879 they discovered a certain blend of whisky which resembled in flavour the well-known spirit or poteen referred to in the third paragraph, and that they gave to it the name of "Old Innishowen Malt," that they thenceforth sold, and still sell, the said blend, under the name of "Old Innishowen Malt," the words "Innishowen Malt" appearing together on Defendants' labels in large capital letters, with the word "Old" above in small letters and the name of Defendants' firm beneath in large letters; and that save as aforesaid the Defendants have never used labels bearing the words "Old Innishowen," and that the said labels do not, in any way, resemble any labels of the Plaintiffs. They deny that they are passing off their whisky as the whisky of the Plaintiffs; and on the contrary they allege that the blend of whisky sold by them, was and is superior to, and sold at a higher price than the whisky of the Plaintiffs. They deny that they are using the said alleged trade name of the Plaintiffs in a manner calculated to deceive, or that they have thereby ever deceived, or do deceive, any intending purchasers into a belief that they are purchasing from the Defendants the whisky of the Plaintiffs. They admit that they have sold, and are still selling, large quantities of whisky bearing labels having thereon the words "Old Innishowen," and assert their right to do so; and they deny that any damage or loss has thereby occurred to the Plaintiffs; the Defendants' trade in said blend of whisky being exclusively confined to the Ulster counties in Ireland, while the Plaintiffs' said "Old Innishowen" is not known by that name in the trade in Ireland.

Before I refer to the affidavits, which I shall be obliged to do at some length, I wish to state the conclusion at which I have arrived as to the matter of fact alleged in the concluding paragraph of the statement of claim, and denied in the defence. The

Plaintiffs undoubtedly do make the case that the Defendants by using certain words in their labels are passing off their whisky as the whisky of the Plaintiffs. That averment, although it was not expressly admitted at the bar by Plaintiffs' counsel that it did not amount to a charge of fraud, was yet not pressed as being in point of fact a charge of fraud. Now, the only evidence of the use of any label by the Plaintiffs at all was the production of a label, verified by the Defendants as in use by the Plaintiffs, at any rate that is the only one in evidence before me. I have also before me, verified in the same way by the Defendants, a copy of the label used by them. There is absolutely no resemblance between the two. It is true that the word "Innishowen," and the word "Old" occur in both; but in the arrangement and collocation of those words there is no attempt to copy or imitate the Plaintiffs' labels, either actually, or in any colourable manner. In the Plaintiffs' labels the words "Old Innishowen" occur in one line by themselves in the middle of the label. In the Defendants' label the words "Innishowen Malt" are in one line, and the word "Old" above it. Therefore, even in that part which is common to both there is no resemblance. The Defendants' label is totally unlike the Plaintiffs' label either in shape, colour, or the style of printing. The names of "A. A. Watt and Co." on the Plaintiffs' label, and "O'Hanlon and Co." on the Defendants', are equally prominent, and must catch the eye at once. Therefore, though it does not determine the question at all, for it has been decided that the right to a trade mark is a right to property, and that a Plaintiff may obtain an injunction against a Defendant for infringing a trade mark without proof of any fraudulent intent, still it is right to say that it has been established to my mind, as plainly as anything can be, that there is here no attempt whatever on the part of the Defendants at either actual or colourable deception; and that there is nothing in the affidavits to support the averment that the Defendants were passing off their whisky as the whisky of the Plaintiffs.

Issue was joined on the statement of defence, which as I have said was filed on 26th November 1884; but for some reason or other the case was not brought to a hearing until now. The Plaintiffs in support of their case filed a number of affidavits to which I must now refer. The first is made by a gentleman well known to many of us. Mr. John Pitt Kennedy, of 14, Hyde Park Gate, London, Barrister-at-law. He states that for the last four or five years he has frequently ordered and got from the Plaintiffs several lots of their "Old Innishowen" whisky, for himself and for friends; that during a considerable portion of that time he was resident in Calcutta, and that the Plaintiffs on his order sent to him then several cases of their "Old Innishowen" whisky; that the bottles containing such whisky were labelled "Old Innishowen"; and that he did not know of any other person or firm than the Plaintiffs using the name or brand of "Old Innishowen" until he heard last year that the Defendants were selling whisky under that name; and that in ordering whisky from the Plaintiffs he has always ordered it as "Old Innishowen" simply. William McCoe, a publican in the city of Londonderry, says he has been extensively engaged in the wine and spirit trade for the last 10 or 11 years, and has known, bought, and sold Andrew A. Watt and Co.'s "Old Innishowen" whisky since they established that brand, about the year 1878, until the present time. He says that he is fairly well acquainted with the general names and brands of whiskies sold in and about the locality, and that he never heard, until informed of it in the year 1884, of any person or firm claiming or using the words "Old Innishowen" as a distinctive name, except Messrs. Andrew A. Watt and Co. Thomas Watnough, wine and spirit merchant carrying on business at Churwell, near Leeds, says he has been engaged in the wine and spirit trade for ten years, and for the last five years has been getting a regular supply of "Old Innishowen" whisky from Andrew A. Watt and Company, as it is greatly liked by many of his customers who always order it from him as "Old Innishowen." He says he has never known any whisky sold under that name except by Messrs. Andrew A. Watt and Co.; and that he looks upon them as the owners of the brand. That last statement is of course not evidence. William Bridge Collins a member of the firm of Collins and Company, colonial merchants and export agents, of London, says that since 1880 his firm purchased from Andrew A. Watt and Co., the Plaintiffs, and have sold large quantities of their whisky known as "Old Innishowen" and had shipped same to Sydney, Melbourne,

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Brisbane, Otago, and various other places. He says that he has never known or heard of any other whisky sold under that brand or name except that of Messrs. *Andrew A. Watt and Co.*; and that when asked, as his firm frequently are, for "Old Innishowen" whisky, would apply to none but Messrs. *Watt and Co.*, believing them to be sole proprietors of that make or brand. Here, again, a statement has been introduced into the affidavit which is not evidence—his belief that the Plaintiffs are sole proprietors of the name or brand is not an admissible statement. *Michael Cunningham*, of Francis Street, Londonderry, says he has been extensively engaged in the wine and spirit business for the last ten years, and has known the name of "Old Innishowen" as applied only to whisky sold by *Andrew A. Watt and Co.*; and he says he never knew or heard of any other whisky being sold under that name or brand until he was told in the year 1884 that the Defendants were selling whisky under that name. The affidavit of *James A. Stewart* is to the same effect. He is also a wine and spirit dealer in Londonderry, and has been engaged in the trade for 18 years past. He says he has a good knowledge of the several whiskies offered by wholesale spirit merchants from most parts of Ireland; that he knows the names or brands of their different whiskies, that he has known the name "Old Innishowen" as applied to whisky sold by *Andrew A. Watt and Co.*, and always believed that brand or name was their exclusive property. He says he never knew or heard of any other person using that name or selling whisky under that name or brand until he heard the Defendants were doing so in the year 1884. *David T. McGin*, who is also a publican in Londonderry, extensively engaged in the wine and spirit trade for 17 years, says he has a good knowledge of the several whiskies offered by wholesale spirit merchants from most parts of Ireland, and that he knows the names or brands of their different whiskies. He says that, in the wine and spirit trade, the name "Old Innishowen" is applied only to whisky sold by *Andrew A. Watt and Co.*, and he knows that they, and they only, were supplying and selling it for several years. *William Doherty*, of the City Hotel in Londonderry, says he has been manager of the hotel for the last 20 years, and has had many opportunities of knowing the different names or brands of whiskies, not only of those used and sold in and about Derry, but also of those sold by spirit merchants whose representatives have stopped at said hotel, and he says he never knew the words "Old Innishowen" applied to any whisky unless that of *Andrew A. Watt and Co.* *William Watt*, who I take it is not one of the firm of the Plaintiffs—I do not know how that is, but it does not appear that he is—says that he is a spirit merchant in Liverpool, and that he is one of the firm of *Lamb and Watt*, wholesale wine and spirit merchants and exporters. He says his firm have bought several large lots of "Old Innishowen" whisky from the Plaintiffs, Messrs. *Andrew A. Watt and Co.*, and that he has never known any other whisky sold under that brand or name except by Messrs. *Andrew A. Watt and Co.*, whom his firm have always looked upon as the proprietors of it, and he believes the name "Old Innishowen" is known in the trade as a term meaning the whisky of Messrs. *Andrew A. Watt and Co.* *Frederick Edwin Tyler* says he has been for many years a wine and spirit merchant and broker in London, and from 1879 until January 1881 acted as agent in London for the Plaintiffs, during which time he sold for them upwards of 1,000 cases, each case containing 12 bottles, equal to about two imperial gallons of "Old Innishowen" whisky, the bottles being labelled and captioned with the words "Old Innishowen," and the cases branded "Innishowen." He says that customers and traders have always been during that time in the habit of asking for and ordering "Old Innishowen" whisky, and that he was publicly recognised by the trade as agent for the "Old Innishowen" whisky. He says that during the time he acted as agent for the Plaintiffs large sums of money were expended by them in advertising said "Old Innishowen" whisky in London and different parts of the country; that the Plaintiffs paid a considerable portion of the bills for such advertising, chiefly from their house at Derry, and that he paid for them sums amounting to between £500 and £700 for same, in different papers, the names of which he mentions; and he says he at one time had a contract for the Plaintiffs with Messrs. *Hilling and Co.*, advertising agents, to exhibit for several months, on 300 of the principal street stations in London, the name of "Old Innishowen" on posters of 6 feet long by 4 feet wide. He says he has never known or heard of any other whisky

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sold under that brand, and had he seen such he would have looked upon it as spurious, and would have at once informed the Plaintiffs thereof. He then says that, to his own knowledge, the whisky called "Old Innishowen" is always understood to mean, and is known in the trade solely as the whisky of the Plaintiffs. *Edward Kelly*, a member of the Plaintiffs' firm, says that they are a long-established firm of wine and spirit merchants in Londonderry, and that the Defendants are a firm in the same place, and in the same business. He says he has been connected with the Plaintiffs for the last 19 years, and is the managing partner, and that he is thoroughly acquainted with the entire business, and all the business transactions of the firm. He says that in the year 1878 the Plaintiffs commenced to make a new blend of whisky which they termed "Old Innishowen," and which blend was quite distinct from any then in the market, and from any previously sold by the Plaintiffs themselves; and he says that during all his experience of the trade previous to the adoption of this name by the Plaintiffs, the words had never been employed by any other seller of whisky to designate their manufacture. He states that in the years 1879 and 1880, and since those dates, the Plaintiffs advertised this whisky extensively in England and abroad, with the view of getting into the English and foreign trade, and upwards of 900*l.* was spent by them in advertising this particular whisky. He then makes exhibits of the different advertisements; and I have no doubt that this whisky in question was extensively advertised in the way he states. After a time, he says, the Plaintiffs found that the said blend of whisky was much approved of in England and abroad, and become well known in the trade under the said name of "Old Innishowen;" and accordingly, in order to protect the public from fraudulent imitations, they on 3rd March 1880 applied to have the said words "Old Innishowen" registered as a trade mark or name, and the said words were on 21st September 1880 duly registered as a trade mark or name in the form of a label, having on it the name *Andrew Alexander Watt and Co.*, and the trade mark or trade term "Old Innishowen" and the application was published in the "Trade Marks Journal" of 12th May 1880, and he refers to the certificate of registration. I do not know whether it is in Court, if it is I should wish to see it. He says that before and since the registration of the said trade name the Plaintiffs have sold this blend of whisky very extensively in the United Kingdom, and also, since the registration, in India, China, Australia, Canada, and elsewhere; and that since such registration the said whisky has been sent out bottled and in cases, the bottles being labelled invariably with the words "Old Innishowen," and the cases branded "Innishowen Whisky—*Andrew A. Watt and Co.*" He then states that since the year 1878, the said "Old Innishowen" whisky has become exclusively known in the trade. I am not sure whether that word "exclusively" is also a mistake for "extensively," it is difficult to understand if it means that there was absolutely no other whisky known in the trade as "Old Innishowen," having regard to the facts shown on the Defendants' affidavits. He says that vendors were in the habit of selling, and purchasers in the habit of buying it, as the whisky of the Plaintiffs, and that it is advertised in, and quoted as such, in the "Wine Trade Review," and he makes exhibits of several copies of the Review, and to a number of orders, bills, letters, and other documents, in confirmation of his statement. He then says that in April 1884 the Plaintiffs became aware, for the first time, that the Defendants were selling whisky of their own in bottles having labels which bore the words "Old Innishowen," although he admits that in other respects the Defendants' labels do not resemble the labels of the Plaintiffs, and he then states the correspondence which took place between the solicitors of the parties, to which I have already referred. He says he believes that the Defendants by the use of the said words "Old Innishowen" in their label are using the Plaintiffs' trade name in a manner calculated to deceive intending purchasers into a belief that they are purchasing the whisky of the Plaintiffs; and that he has heard and believes that the Defendants have stated that they have sold large quantities of whisky bearing labels having the said trade mark thereon. There is no dispute that the Defendants have been selling large, or at any rate considerable quantities of whisky, bearing labels with those words upon them, but I am not aware of any evidence that they are using those labels in a manner calculated to deceive purchasers. There is also an affidavit by a Mr. *Charles R. Gosheron*, a licensed victualler at Peckham, London, who says that he has carried on business for the last five years and has frequently sold and

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purchased "Old Innishowen" whisky, such whisky, as he always understood, was manufactured solely by the Messrs. *Andrew A. Watt and Co.*, the Plaintiffs in this action. He says he recently received an order for "Old Innishowen" whisky, without specifying any distiller, that he ordered same of the spirit merchant who usually supplies him, and was supplied with Messrs. *Watt and Co.*'s "Old Innishowen" whisky as a matter of course. *George Lock*, of Ballareena, in the county of Londonderry, hotel keeper, says he is the proprietor of the Portrush Hotel, and also of a spirit store at Magilligan Point, that he has been in the spirit trade for about three years, and has done business with the Plaintiffs for several years. He says he knows that the Plaintiffs have for some time past been selling a special brand of whisky under the name of "Old Innishowen" whisky, and he has from time to time purchased the said "Old Innishowen" whisky from them, that in ordering it he would only designate it by that name, and has always ordered it from the Plaintiffs, believing them to be the sole proprietors of that brand. I presume that affidavit was filed for the purpose of meeting the statement made in the defence, that the Plaintiffs were only selling this whisky in England and abroad while the Defendants' trade in their brand of whisky was exclusively confined to the Ulster counties in Ireland. Mr. *Richard W. Jewison*, of Kentish Town, in the county of Middlesex, says he has carried on business as a wine and spirit merchant for the past eight years, that for several years past he has been in the habit of purchasing and supplying Messrs. *Watt and Co.*'s "Old Innishowen" whisky; that he has sold such whisky as "Old Innishowen" and has never heard of any other persons, besides Messrs. *Watt and Co.*, attempting to make use of that name, and he says that if "Old Innishowen" whisky were ordered from him he would assume it to be the whisky of Messrs. *Watt and Co.*

That is the whole of the original case made on behalf of the Plaintiffs, and it certainly is a very extraordinary thing, that from beginning to end of the statement of claim, and from beginning to end of the affidavits filed on the part of the Plaintiffs, it does not appear that there was ever such a thing known as "Old Innishowen" whisky, until the year 1878, when the Plaintiffs began to use it as if it were a new term invented by themselves. There is no allusion to the fact of there ever having been such a thing known as "Old Innishowen" whisky, until the Plaintiffs began to use it. It is a curious circumstance that the Plaintiffs' affidavits should have been so prepared, having regard to the facts which appear abundantly manifest upon the affidavits filed by the Defendants. Before stating the opinion as to the matters of fact which I have arrived at, it is necessary I should first state part of the Defendants' affidavits. The first affidavit is that of *James Hassen*, of Foyle Street, Londonderry. He says he has been 17 years engaged in the wine and spirit trade in Londonderry, and during the last seven years he has acted as commercial traveller in the north-west of Ulster; and he says he has always understood the term "Innishowen" to mean that whisky from the prevalence at one time in Innishowen of illicit distillation. Innishowen, we all know, is in the neighbourhood of Londonderry, being the district which lies between Lough Foyle and Lough Swilly, and everybody who knows the district is very distinctly work upon that part of Ireland mentions it—is aware that Innishowen was one of those districts in which illicit distillation was formerly carried on. He says that during his time as commercial traveller, and during the whole of his experience of the whisky trade, he never met with a whisky known as "Watt's Old Innishowen," and no whisky so named was generally known in the trade, or in the district of Derry and the north-west of Ulster. He says that he never met with or heard of a whisky of the Plaintiffs known by that name. He says that from 1875 till the present time he has been partner in a firm of wine and spirit traders, and during said period and up till the commencement of this action he never met with or heard of a whisky known as "Watt's Old Innishowen." He says that for the past two years he has been purchasing from the Defendants their "Old Innishowen malt;" and he knows, of his own knowledge that it is a dearer whisky than any other that he has purchased during said period. That affidavit also is important. Mr. *Crampsey* could have been cross-examined as to the statements which he makes. He has not been cross-examined; and I must therefore assume that this allegation, which is distinct and positive, and upon which an indictment for perjury could be sustained if it were not true, is correct; and that he actually was engaged, as he says, in bottling, labelling, and selling whisky known as "Innishowen" whisky between the years 1865 and 1871, undoubtedly a long time previous to the adoption by the Plaintiffs of the name "Old Innishowen."

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prevalence in Innishowen at one time of illicit distillation; and he says that until within the last 12 months he never met with a brand of whisky known as "Watt's Old Innishowen," and that no whisky so named was generally known in the trade. The same observation, of course, applies to this affidavit as to the last. *James Campbell*, of Londonderry, says that he was, in 1852, in the employment of *John Meehan*, then distilling whisky at Clooney, Waterside, Londonderry, and selling the same wholesale in Derry and the Ulster counties; that in that year the said *John Meehan* adopted the name "Innishowen" for certain malt whisky, and had the said name branded on casks, printed on show cards, and distributed over the publicans in the district; but that before the close of the season of 1852 the Excise officers having taken exception to the name as implying illicit whisky, the said *John Meehan*, ceased to use the name. He says that the term "Innishowen" at that time, as applied to whisky, signified potent or illicit whisky, and the same meaning still commonly attaches to the same word as applied to whisky. He says that though engaged in the trade, and though he was for five years, up to November 1883, managing a public-house in Derry, and during that time he was dealing with Messrs. *Watt and Company*, the Plaintiffs, he never knew or heard of a brand of whisky called "Watt's Old Innishowen," nor was there any whisky known by that name and bought and sold commonly in Derry during the said period to his knowledge, and the first time he heard of it was when this dispute between Plaintiffs and Defendants got published in the papers. Now, that affidavit has been made by a man who has not been cross-examined at all; and I must take that affidavit to be true, as he gives figures and dates for it. It amounts to this, that in 1852 a Mr. *John Meehan*, a distiller, at Londonderry, adopted the name of "Innishowen" for certain whisky, branded it upon casks, printed it upon show cards, and distributed it amongst the publicans in the district; but that he stopped doing it because the Excise interfered with him. I may observe that the Excise had no right whatever, so far as I can see, to interfere with his using the name; but at any rate he did discontinue it. The affidavit is important as, taking that statement to be true, the Plaintiffs were not the first persons who adopted the word "Innishowen" as the name of a whisky; and though I am not aware what has become of the business of Mr. *Meehan*, whether it is in existence or not, I do not suppose that it is, this affidavit shows at any rate that the word "Innishowen" was used by him as a name descriptive of whisky in the year 1852. The next affidavit is that of *Charles Shaw*, of Londonderry, who says that he has been in the employment of a very extensive firm of wine and spirit merchants in Londonderry for five years, and since then and for the past 12 years he has been travelling for himself in several counties in Ulster. He says that during his experience he has never met with a whisky known as "Watt's Old Innishowen," and no whisky so named was generally known in the trade or bought and sold by that name in the district of Derry and the north-west counties of Ulster; and he says he has always understood the term "Innishowen" to mean illicit whisky, a perfectly well-known commodity in Ulster, though not merchantable. *Patrick Crampsey*, of Carndonagh, in the county of Donegal, makes an important affidavit. He says he was in the employment of Messrs. *C. and P. Dogherty*, of Carndonagh, in the barony of Innishowen and county of Donegal, as spirit merchants, from 1865 to 1871, and during that time he was engaged in the bottling, labelling, and selling of a whisky known as "Innishowen;" but he never met with or heard of a whisky of the Plaintiffs known by that name. He says that from 1875 till the present time he has been partner in a firm of wine and spirit traders, and during said period and up till the commencement of this action he never met with or heard of a whisky known as "Watt's Old Innishowen." He says that for the past two years he has been purchasing from the Defendants their "Old Innishowen malt;" and he knows, of his own knowledge that it is a dearer whisky than any other that he has purchased during said period. That affidavit also is important. Mr. *Crampsey* could have been cross-examined as to the statements which he makes. He has not been cross-examined; and I must therefore assume that this allegation, which is distinct and positive, and upon which an indictment for perjury could be sustained if it were not true, is correct; and that he actually was engaged, as he says, in bottling, labelling, and selling whisky known as "Innishowen" whisky between the years 1865 and 1871, undoubtedly a long time previous to the adoption by the Plaintiffs of the name "Old Innishowen."

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The next affidavit is made by *Edward Rooney*, of Londonderry. He says that he has been engaged for the last 19 years in the spirit business in Derry, Armagh, Omagh, and Cookstown. He says he never met with, nor did he hear of "*Watt's Old Innishowen*," and he makes the same statement about the term "*Innishowen*" being applied to poteen or illicit spirit. He states that in July last, in company with Mr. *Thomas O'Hanlon*, one of the Defendants, he visited the shops of *Michael Cunningham*, *James A. Stewart*, *William Dogherty*, *William McCool*, and *David T. McGin*, all in the city of Derry, and not one of them could give them even a small bottle of "*Watt's Old Innishowen*." *John Black*, the manager of Defendants' business, says that he has been about six years engaged in business for the Defendants, and during that time the whisky sold by Defendants as "*O'Hanlon's Old Innishowen Malt*" has been most popular wherever tried, and has sold at from two to three shillings dearer per dozen than any bottled whisky he has found selling by wholesale merchants to publicans. He says shopkeepers call it and order it as "*O'Hanlon's Old Innishowen Malt*," and that he sells it as such, and it is perfectly known amongst their customers as their own blend. He says that till the commencement of this action he never heard of a whisky called "*Watt's Old Innishowen*," and to the present hour he never met with so much as a bottle of it; and he says positively there is no whisky known in the trade by that name in Ulster—but that he has met with a whisky sold by the Plaintiffs, and which is generally called "*Watt's whisky*," and that it sells from two to three shillings less than the Defendants' "*Old Innishowen Malt*." Now, it certainly is a curious fact that the Plaintiffs' witnesses do not appear ever to have met with the Defendants' "*Old Innishowen Malt*" and the Defendants' witnesses have never met with the Plaintiffs' "*Old Innishowen*," but such does appear to be the result of these affidavits, and the statements were not tested by cross-examination. A Mr. *William McPhelim*, of *Carndonagh*, publican's assistant, also make an affidavit to a similar effect—that he has been 12 years engaged at *Carndonagh* as assistant to his brother who keeps a public house there, and that until the newspapers reported the dispute between the Plaintiffs and Defendants in this case, he never heard of or met with a whisky known as "*Watt's Old Innishowen*," and he says that his brother had been getting from the Defendants a malt whisky before the dispute arose called and labelled "*O'Hanlon's Old Innishowen Malt*," which he says is a very superior whisky and dearer than any whisky in the trade. *Thomas O'Hanlon*, one of the Defendants, says that he also never heard of the Plaintiffs selling whisky under the name of "*Old Innishowen*" and that since the commencement of this action he has inquired of many of the leading wine and spirit merchants in Derry, and he has been informed by them, and verily believes, that no whisky of the Plaintiffs has been generally known in Derry and neighbourhood, or in Ulster, by that name. He says that to his own knowledge the words "*Innishowen*" and "*Old Innishowen*" were in 1878, and for many years previously, in common use, and well known in the city and county of Londonderry, and adjoining counties, as descriptive of a certain malt whisky, otherwise known as "*Innishowen whisky*," made or distilled extensively at one time in the barony of *Innishowen*, in the county of Donegal, by divers persons other than the Plaintiffs; and he says the name has, as he is aware, been used by *James Campbell* and *Patrick Crampsey*, and as he himself knows, been used by merchants in Derry and Donegal, as a catching name for a bottle label and to popularise the whisky. Now that appears to me an excellent phrase, and exactly describes the purpose for which the name "*Old Innishowen*" was used, and I do not think it was quarrelled with by counsel at either side. It appears to me to be the true explanation of why this name was adopted, a catching name and so popularise the whisky. He then makes an important statement—that in 1876 his firm discovered a certain blend of whisky which resembled in flavour the said "*Innishowen*,"—of course the Defendant says that his own is much better,—and he says that his firm gave this new blend of whisky the name of "*Old Innishowen Malt*," and that his firm thenceforth sold and still sell the said blend under said name, the words "*Old Innishowen Malt*" appearing together on Defendants' labels in large capital letters, with the word "*Old*" above it in small letters, and the name of Defendants' firm beneath in large letters, and he makes an exhibit of the label, which, as I have said, bears no resemblance whatever to the Plaintiffs' labels. The important statement in that

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paragraph is, that in 1876 the Defendants discovered a blend of whisky and gave it the name of "*Old Innishowen Malt*" and "thenceforth" sold and still sell the said blend. Any one reading that paragraph would understand that word "thenceforth" as meaning that from 1876 and down to the present time, the Defendants have sold, and still sell, this whisky under the name of "*Old Innishowen Malt*." Now, when I compare that statement with the paragraph in the defence, which fixes the date of the adoption by the Defendants of the name "*Old Innishowen Malt*" as 1879, and bearing in mind that the date 1879 is posterior in time to the date fixed by the Plaintiffs as the time when they commenced to use the name, and that in this affidavit it is in that way put impliedly before the date of the user by the Plaintiffs, I must criticise closely the language of this paragraph, and although at first sight those words appear to mean that the use of the name "*Innishowen*" by the Defendants commenced in 1876, yet that depends upon the meaning to be given to the word "thenceforth," and I cannot infer, taking those words critically, that the Defendant pledges his oath to the use, as a matter of fact, of the words "*Innishowen Malt*" prior to 1878—they would, in my opinion, be open to the construction that the use of the words by the Defendants did not commence until subsequently—and having regard to the statement of defence I am disposed to infer that, as a matter of fact, they did not put those words upon their whisky until 1879. He then says that the Defendants by the use of the said words on their labels were not and are not passing off their whisky as and for the whisky of the Plaintiffs. I may say I entirely believe that statement. There has been absolutely no evidence given of any deception being practised upon any human being by the use of this label by the Defendants, still, if the Plaintiffs have got the exclusive right to this trade mark, and have spent their money in advertising it, the Defendants are infringing upon their manor and getting the benefit of their advertisements by using those words upon their labels, and the Plaintiffs would be entitled to restrain them from doing so. He then says that he personally called at several shops in Londonderry and found that they never had any of the Plaintiffs' "*Old Innishowen*" in stock, and could not give him any. I do not attach very much importance to that, though the parties seem to have thought it important. He called upon *William McCove*, *Michael Cunningham*, *James A. Stewart*, *David T. McGin*, and *William Dogherty*, all of whom have made affidavits in this action, and he was informed by each of them that he had not then, nor never had, any of the Plaintiffs' "*Old Innishowen*" in stock, and had never sold any of it. He also, since the filing of the said affidavits went to England and called personally upon *Thomas Watmough*, *William B. Collins*, *William Watt*, and *Charles Thomas Goshereen*, and was informed by them that they had none of the Plaintiffs' whisky in stock and could not give him any. He also called on *Frederick B. Tyler*, and was informed by him that he could not sell the Plaintiffs' said whisky after *David Watt and Co.*'s whisky came into the market, and that he had resigned his agency for the Plaintiffs in July 1883. He says he also called personally on *Richard H. Jewison*, who professed to have "*Watt's Old Innishowen*" in stock, and that he ordered a dozen bottles, but he said he had not it bottled, nor had he labels, but that he would have them next morning; knowing that the Plaintiffs only sold their so-called "*Old Innishowen*" bottled he determined to follow the matter up, and called the next day and got half a dozen bottles with printed labels, not the labels of the Plaintiffs, but labels bearing on them merely the words "*Fine Old Irish Whisky*." As I have said, I attach no importance whatever to statements of that kind. That is not the way to test the truth of witnesses at all. It may be quite right to obtain those particulars, and then cross-examine the witness with regard to them, but such statements as to what these witnesses said in conversation with the Defendant is not evidence against the Plaintiffs; besides, even if they were, how am I to get over the positive swearing of a witness who says, that within a given period he sold 1,000 cases of this whisky, and adds, that the Plaintiffs expended large sums of money in advertising some of the particulars of which he gives? It is impossible for me to disbelieve the statements made by these witnesses that the Plaintiffs are selling this "*Old Innishowen*" whisky. Of course they are largely selling it for their own advantage, though some wholesale agents may find it more for their advantage to purchase the whisky—either on account of getting more commission or for some other reason—

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I cannot refuse to give credence to the evidence that the Plaintiffs are largely selling it; and these conversations which the Defendant had with those witnesses may be susceptible of explanation, and if it was intended to rely upon them they should have been cross-examined with regard to them. Now, Mr. John O'Hanlon, another member of the Defendants' firm, makes the same statement as that made by Mr. Thomas O'Hanlon with regard to the use of the term "Innishowen," and he also says that it was employed by merchants in Derry and Donegal as a catching name and to popularise their whisky. He then makes the same statement as the other Defendant makes in reference to the use of this name by the Defendants, and the date of that use. He does not use the identical language, because he does not say "my firm thenceforth sold," but he says "my firm from thenceforth sold," if there be any difference in that, I do not think there is. Both the expressions would at first sight lead any one to suppose that the Defendants commenced using those words "Old Innishowen Malt" immediately after 1876, but they do not distinctly say so; and bearing in mind the statement of defence I cannot assume that the Defendants ever sold whisky under the name of "Innishowen" prior to the date assigned in the statement of defence, 1879. I must say I do not approve of that way of framing an affidavit, whoever it was that drew it. Now, there is next an affidavit by Peter McGeehan, of Glenties, in the county of Donegal, he says he has been for five years engaged in the spirit trade there, and that until the newspapers reported the dispute between the Plaintiffs and the Defendants he never heard of or met with a whisky known as "Watt's Old Innishowen." He says that for years he has been getting from the Defendants a malt whisky called and labelled "O'Hanlon's Old Innishowen Malt" which is a dearer whisky than any he knows of in the trade; and that in buying the said whisky from the Defendants he did not think he was buying "Watt's Old Innishowen," nor did the Defendants pass it off as Watt's whisky of any name. As I have said, I entirely believe that statement; no deception appears at any time to have been practised. Joseph Edward Colleser, who describes himself as a commercial traveller, states that for the last three years he has had opportunities of seeing the several brands offered for sale as Irish whiskies, and never knew or met with "Watt's Old Innishowen." He says that in August last he called on Mr. Gosheron and asked him for "Watt's Old Innishowen whisky" and was told they had not it in stock for over a year, and could not get any. He was also called on Messrs. Collyn's and Co., and that Messrs. Collyn's had been told him that "Old Innishowen" whisky was a thing of the past in foreign trade, having been supplanted by other whiskies. He says he also called on Mr. Frederick W. Tyler, of 62, Leadenhall Street, London, and having asked for a good brand of Irish whisky was shown one called "Kildare;" that he asked specially for "Old Innishowen," but was told it was not to be had; and that he was distinctly told by Mr. Tyler that the "Old Innishowen" and "Kildare" whiskies were one and the same, and that the former was now extinct. Now, that evidence is subject to the observation I have already made, it is a case of mere hearsay, and not worth one farthing. It has been explained by evidence from those two gentlemen, one of whom says he does not know who Mr. Colleser is, and does not recollect ever seeing him at all, but that if he did see him he never made the statement that "Old Innishowen" whisky was a thing of the past, or that it was supplanted by other whiskies, and he says that on the contrary, the "Old Innishowen" whisky has been more favourably received than the generality of spirits which his firm have introduced into the colonial markets, and where it has been introduced it has continued to hold its own. The other gentleman says it is true that he was selling "Kildare" whisky, that it is his own brand, and he, therefore, naturally recommended it to an inquirer. Well, Mr. Arthur Flood, of Redhills, in the county Cavan, makes an affidavit that he has for seven years been a grocer and publican at Redhills, and he makes the same statement as to not knowing the Plaintiffs' "Old Innishowen" whisky, and being well acquainted with the Defendants' "Old Innishowen Malt," which he has bought regularly, and that he never imagined or thought for a moment that it was Watt's whisky he was buying, nor was it offered as Watt's. He says Watt's whisky is a cheaper whisky than the Defendants', and he never heard it or any whisky of the Plaintiffs called or known as "Old Innishowen."

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The affidavits which have been filed in reply, with the exception of the explanations given by Mr. Tyler and Mr. Collyn's, to which I have already referred to, do not seem to advance the case of the Plaintiffs, or to contain any new facts to which it is necessary to refer. I should, however, except the affidavit of Mr. Kelly, one of the Plaintiffs, who says in reference to paragraph 2 of the respective affidavits of the Defendants, Thomas O'Hanlon and John O'Hanlon, that it is quite untrue that the Plaintiffs during the last 15 years have traded in no other whiskies than those known as "Watt's whisky," and sometimes "Watt's Old Grain" and "Stewart's Malt," and in proof of the unfounded nature of this statement he refers to, and makes exhibits of a number of invoices which are before me, of whiskies purchased by the Plaintiffs, largely consisting of Scotch whiskies, and some from well-known Dublin and Belfast traders—all showing that the Plaintiffs were doing an extensive trade in whiskies which they purchased from those various firms, and disposed of either singly or blended. He says, with reference to paragraph 3 of the affidavit of Thomas O'Hanlon, that since he has been in the trade, nearly 20 years, no legal whisky, as he believes, was sold in Derry under the name of "Innishowen" or "Old Innishowen" until that sold by the Plaintiff. That is a very guarded statement. He says that "no legal whisky" was sold under these names, he does not say no whisky was sold in Derry at all under these names, or that "Innishowen whisky" was not perfectly well known as an article which, though illegal, was sold and purchased in the district. It is to be observed that he confines his statement to Derry and its neighbourhood. It appears to me that the Plaintiffs must have known perfectly well that prior to the adoption by them of the term "Old Innishowen" to designate their whisky, there was such a thing known in that part of Ulster as "Innishowen" whisky, that it was largely consumed, and I have not a shadow of doubt it was on that account that they adopted the name, as a catching name, and to popularise their whisky. Mr. Kelly then goes into some matters which I do not think are of great importance, and winds up with a paragraph which I do not approve of, an attempt to discredit the witnesses who have made affidavits for the Defendants, by stating matters of fact which, not having been cross-examined, they have had no opportunity of meeting. That appears to me to be not a proper way of assailing adverse witnesses, who, if they are to be discredited, should be subpoenaed for cross-examination.

That being the case made upon the affidavits, the question I have to determine is whether the Plaintiffs have established their right to the exclusive use of this name, "Innishowen" or "Old Innishowen" as a trade mark for their whisky. As I have already said the right to a trade mark is a right of property. The case of the *Singer Sewing Machine Company*, Law Reports, 3 Appeal Cases, and the judgment of Lord Cairns, at page 391, is conclusive on that, and establishes that proof of fraud is not necessary in order to sustain the Plaintiffs' right to an injunction. I am therefore not concerned to inquire into the motives and objects of the Defendants in using the term "Old Innishowen Malt" to designate their whisky. If the Plaintiffs have the exclusive right to use the name the question of fraud is immaterial, and the Plaintiffs are entitled to an injunction. Now, the conclusion at which I have arrived as to the matters of fact in this case is: first, that in adopting the word "Innishowen" as the name of their whisky the Plaintiffs did not intend to hold out to the public that they were dealing in illicit spirits, and that the dealers with whom they transacted business knew, when purchasing this whisky, that they were not purchasing potent or illicit spirit. I am further convinced that before the adoption of the name of "Old Innishowen," Mr. Meehan had for some time used the same name to designate a whisky of his own manufacture under the circumstances stated in the affidavit of Mr. Campbell. There is no proof of Mr. Meehan's having acquired or asserted any exclusive right to the use of it. There is, further, nothing to show that the Plaintiffs were aware of those proceedings. As to the affidavit of Mr. Campbell, it is undoubtedly rather vague, it gives no names, and supplies no means of testing the accuracy of his statements, he certainly states no facts to show that any private or exclusive right to the name "Innishowen" was acquired by anybody, or, if acquired, was not subsequently abandoned. However, he was not cross-examined, and I must receive his affidavit as uncontradicted; and it undoubtedly shows that the name "Innishowen" was not the exclusive property of the Plaintiffs, apart of course from

registration, which is another matter. It also goes a great way to satisfy me that this name of "Innishowen" was not a mere fancy name. I ask myself, what was it that induced Mr. Meehan to adopt that name? What was it that induced Messrs. Doherty and other persons to use it? What was it that induced the Plaintiffs to use it? and what induced the Defendants to use it? The answer is, simply because it was a name that had been currently given to a whisky of a particular kind, which formerly was largely consumed in the district. The Defendants say that in 1876 they discovered a blend resembling the said spirit known as poteen, which at one time was made and distilled extensively in Innishowen, that they gave to it the name of "Old Innishowen Malt," and from thenceforth sold and still sell it under that name. They give no corroborative evidence to prove that in point of time the Plaintiffs were not before discovered this blend of whisky, to which they gave the name of "Old Innishowen Malt." I therefore think it probable that at the time the Plaintiffs registered their trade mark in 1878, there was no trader, merchant, or manufacturer using the name, and therefore any one would have a right to take it and use it as a trade mark, if capable of being used as such. The evidence makes it clear to me that at one time, and apparently not a very remote time, there was in existence (and possibly samples of it are still existing), a kind of whisky, which though manufactured only in small quantities and in different places, was known as Innishowen whisky, and sold and purchased under that designation; and I am satisfied that both the Plaintiffs and Defendants, with what amount of success does not appear, nor is it material to inquire, have endeavoured to reproduce the special properties of that class of whisky, and it was called Innishowen, not as having been made in Innishowen, but as having a flavour like the whisky formerly made in Innishowen, and the term being used as conveying to a connoisseur the idea of a certain special blend of whisky. This Innishowen whisky was not an article of free or unrestricted commerce as a commodity to be bought and sold without incurring the penalties attaching to illicit distillation. Now, if these literal description, this action could not succeed, since that would indicate that the Plaintiffs were disposing of illicit spirit, and they would have no case—*ex turpi causa non oritur actio*. But, of course, that it not the sense in which the Plaintiffs use the words. There is another sense in which the words may be descriptive, they may mean having the peculiar flavour and appearance of the whisky known as Old Innishowen, and from observations made by the Plaintiffs' counsel as well as by counsel for the Defendants, I refer especially to the observations of Mr. Madden, I was at once time under the impression that was conceded to be the meaning, although the concession was not persevered in and is not to be taken as having been made. But the evidence given in the case I am satisfied that that is really the sense in which the term is used, and that that was the leading idea in the minds both of the Plaintiffs and the Defendants when they adopted it to designate their whiskies. But why should they adopt it? Why not call it "Watt's Londonderry Whisky," or by any other name sufficiently specific to distinguish it, if it were not perfectly well known that Innishowen was a word commonly understood and recognised as a term descriptive of a particular class of whisky? In this respect the present case goes far beyond the Strathmore blend case (*Blair v. Stock*, 58 Law Times Reports, 1881). I think the word "Innishowen" is applied to a whisky which, although not really made in Innishowen, was a blend of whisky made elsewhere and made in imitation of what Innishowen was. The characteristics of Innishowen whisky, in a word of description, referring to the class and quality of the spirit and not to the locality in which it was manufactured, and therefore, incapable of being lawfully appropriated to the exclusive use of any individual. No doubt in the Anatolia case (*McAndrew v. Bassett*, 4 De Gex, Jones and Smith, 380) it was held that the name of a locality may be used as a trade mark, even where, as in the Anatolia case, the name used might happen to be a place of origin. But there were special circumstances in that case, which was one of as palpable fraud as ever was brought into a court of justice. The Cromite springs case, *Wheeler v. Johnston*, in the 3rd Irish Law Reports, was much

dwelt upon in the argument. I have considered it carefully, but in my opinion it is not a case that decides very much on the present question. The injunction there given was a harmless one to the Defendant. It did not restrain the Defendant from using the name he had been using before, but only from using it in such a way as to indicate his place of business and to represent his commodity as being the commodity of the Plaintiffs. That injunction did the Defendant no harm at all; and the case does not decide very much one way or the other, and does not appear to me to resemble the present case. In *Blair v. Stock*, the Strathmore blend case, it appeared that no whisky was manufactured at any place named Strathmore. In the present case it is not denied that no whisky is made at present in Innishowen, and so far as anyone knows no whisky was ever legally manufactured there. The distinction between the Strathmore case and the present is that while there was no such thing as Strathmore whisky before Blair adopted the name, Innishowen was a well known whisky bought and sold in the north of Ireland, and whisky under that name had been manufactured by Mr. Meehan and other parties before either the Plaintiffs or the Defendants had thought of adopting the name. In fact had "Innishowen" whisky not been well known, had it not been, as described, a "catching" name, and one which would popularise their whisky, neither the Plaintiffs or the Defendants would ever have adopted it. It would not have been a catching name, and would not have popularised their whisky if it had not been previously well known to the public as a class of whisky largely sought after. On these grounds I hold that the word "Innishowen," as applied to whisky, is a term of description, and that the Plaintiffs have no sole or exclusive right to its use. But another point of great importance remains behind. Under the Act of 1875, a word of description such as "Innishowen" or "Old Innishowen," not used as such before the Act, could not be registered alone as a trade mark. For the purposes of that Act a trade mark must consist of one or more of the following essential particulars, that is to say, the name of an individual or firm printed, impressed, or woven in some peculiar and distinctive manner; secondly, a written signature or copy of a written signature of the individual or firm applying for registration; or thirdly, a distinctive device, mark, brand, heading, label, ticket, or fancy word or words not in common use. Now I have asked for the certificate of the registration of this trade mark, but it has not been handed up to me; but at any rate what was registered here was not the word "Innishowen" or "Old Innishowen" simply, but those words accompanied by a facsimile of the signature of the firm, that was the essential portion of the trade mark which was adopted and registered by the Plaintiffs in this case, and if they had used it, it might be a perfectly good trade mark, coming as it does within the terms of the section, "the written signature, or copy of the written signature of the firm," and "a distinctive device, mark, brand, heading, or label not in common use"; and then we have this provision in the Act: "There may be added to any one or more of these particulars any letters, words, or figures, or combination of letters, words, or figures, or any of them." Of course the words "Old Innishowen" are a combination of letters or words and could be registered, as was done in this case, along with the name "Andrew A. Watt and Co.," although by themselves, and without the signature they could not have been so registered. The section goes on to enact that any special and distinctive word or words, letter, figure, or combination of letters or figures, or of letters and figures, used as a trade mark before the passing of the Act may be registered as such under the Act. If, therefore, the words "Old Innishowen" had been used as a trade mark before the passing of the Act, the Plaintiffs could have registered them as a trade mark under the Act; of course, the question still might have arisen whether it was one to which the Plaintiffs had an exclusive right. But it is conceded that the Plaintiffs did not use it before the date of the passing of the Act in 1875—it is conceded that they never registered it till 1878, fully three years after the passing of the Act. The words were, therefore, incapable of being registered by themselves, and could only be made a trade mark by force of being registered along with the signature or name of the firm "Andrew A. Watt and Company." Now the registration—the signature of the firm, along with the words "Old Innishowen"—could not be objected to *in toto* by any one, because the essential particulars required by the Act were complied with, the "written signature or copy of a written signature

"of the firm," and with that a word or words may lawfully be combined. But the peculiarity of this case is, that the Plaintiffs are not shown to have ever actually used their registered trade mark at all. It is not shown that, except upon the documents lodged for registration in 1880, and advertised in the "Trade Marks Journal" in the same year, they have ever on any occasion used the trade mark they took the trouble of registering. Instead of that they have adopted the label bearing the words "Old Innishowen," which are part of this registered trade mark, words which could not have been registered by themselves, and, as a matter of fact, it does not appear that they have ever adopted on any label, bottle, case, or brand sent out from their establishment the actual device which they had registered as their trade mark. This label which the Plaintiffs actually use, as has been proved by the Defendants, but which the Plaintiffs themselves refused to put in evidence, does no doubt contain the name "A. A. Watt and Co.," but it does not correspond with their registered trade mark. Upon the label which they actually use the name is printed; upon the trade mark as registered it is not printed, but there is a facsimile of the written signature of the firm. In fact, the Plaintiffs seem to have gone out of their way to devise a label different from that which they registered.

Now, this case, in my opinion, and the exclusive right of the Plaintiffs to use these words, depends upon registration and registration alone. If actual fraud or colourable imitation were proved as against the Defendants, it might not depend upon registration; but here there is neither fraud nor colourable imitation, and the case, as between the Plaintiffs and the Defendants, depends exclusively upon registration. Now, the only word the Defendants are charged with improperly using is a word or rather two words, which, except in connexion with the written signature could not constitute or be validly registered as a trade mark under the Act, and in such connexion the Defendants have not used it, for they have never used the name of "Watt and Co.," or anything like it. It cannot be contended that any word whatever, if registered along with a trade mark, would be protected by the Act. Take, for instance, one of the words registered by the Plaintiffs, the word "Old." Could any one contend that they could prevent any other trader from using the word "Old" in connexion with his whisky, or putting it upon his labels? Of course they could not. Again, suppose a facsimile copy of the signature of Watt and Co. had been registered along with the words "Irish Whisky," could the Plaintiffs prevent any other trader from putting those words on his labels? Of course not. Yet it would be a valid registration, because along with a signature you may register a word or combination of words. It would be absurd to suppose, for example, that by registering the name of "Johannesson and Co.," in connexion with the words "Dublin whisky," though it would be a perfectly valid registration, that firm could prevent any other manufacturer in Dublin from selling whisky under the name of "Dublin whisky." Looking through the cases, I find no case, turning on the registration of a trade mark not adopted before the Act, deciding that you can, by virtue of registration, retain the exclusive right to that which you could not register at all, apart from the context. Yet this is what the Plaintiffs have done. I have said the cases go upon the use of peculiar and distinctive words before the Act. The Valvoline case, *Leonard v. Ellis*, Law Reports, 26, Chancery Division, and the judgments of Lord Selborne, at page 299, and Lord Justice Cotton, at page 303, may be referred to on this question. Lord Selborne says: "The conclusion to which in my mind the evidence irresistibly leads, is that the word 'valvoline' has been used by the Plaintiffs, not only as a descriptive term, but as a descriptive term of a thing which the Plaintiffs desire the public to suppose that nobody else does make or can make. By 'can make,' I do not mean that they claim an exclusive right to make it, but represent themselves to be, or to have been, and in many cases, exclusively, in possession of the manufacture. It is upon the evidence that that is not so. The words which are manufactured are *publici juris*, and so long as the word 'valvoline' is used in such a manner as to represent that the article sold under that name is manufactured by the Plaintiffs, or by persons identified with the business of the Plaintiffs, it seems to me that the use of it cannot be restrained." And Lord Justice Cotton says: "There are come to the motion for the injunction, and I must not be understood to say that the use by a person of part of a trade mark may not be restrained, but that the registered proprietor of the

"trade mark to get an injunction; on the well-known principle that although the actual trade mark itself is not used, yet part of it, and an important part of it, may be so used as to be the means of deceiving the public, by representing things which are not in fact the Plaintiffs' goods as the Plaintiffs' goods. We must then consider whether the word valvoline here is so used by the Defendant as to be calculated to mislead, so as to induce incautious persons buying their goods to consider them as the goods of the Plaintiffs, and in my opinion it would not be a proper conclusion, on the evidence, to hold that purchasers would be so misled." That condition is, in my opinion, also absent from the case before me.

I, therefore, deciding this case as I do in favour of the Defendants, wish distinctly to say that, in my opinion, so far from it being established that the course adopted by the Plaintiffs here,—using part only of their registered trade mark,—can be successfully adopted, I hold that the registered trade mark, as alone it could be registered, including the signature of "A. A. Watt and Co.," has not been interfered with by the Defendants, and therefore if the case depended on that ground alone I should refuse the injunction.

Curiously enough, since this case was argued, I find in the current number of the English Law Reports, which reached me yesterday, a case bearing on this very point heard in the Court of Appeal. I refer to the case of *Hudson's Trade Mark* (L. R. 32 Ch. D. 311). The facts of that case were as follows:—*Hudson* applied, in December 1883, to register as a trade mark a label bearing the words "*Hudson's Carbolic Acid Soap Powder*." It had not been used before the application. It was held that the application must be treated as made under the Act of 1875, and the Court could not enforce, as a term of registration, disclaimer of the words "*Carbolic Acid Soap Powder*," which were common to the trade and merely descriptive—that Act having no provision similar to that contained in sect. 74 of the Act of 1883—that the label was a distinctive label and capable of registration as a trade mark under the Act of 1875, but that only the label as a whole could be claimed as a trade mark, and that no right could be acquired by such registration to the exclusive use of those common words, however long might be the use of them. In that case the proceeding was originally taken under the Act of 1883, but counsel on both sides agreed, and the Court decided that it must be treated as coming under the Act of 1875. It was contended that under the Act of 1875, on the true construction of that Act, he could not register a trade mark which had not been used before, that the words of the Act implied that the thing you ask to have registered must have been in use before, and that unless there was such user it could not be registered under that Act. The registration was opposed by another person in the trade, who said, "I do not object to your label; your label, as a whole, is all right; register it as much as you like, but 'carbolic acid soap powder' is a combination I have been using, and other persons in the trade have been using it, and you must disclaim the exclusive right to those words, otherwise you would get an exclusive right to that which belongs to the public." Lord Justice Cotton says:—"Here the only objection to the label is that by using the words 'carbolic acid soap powder' on the label which it is proposed to register, the applicant is seeking to secure to himself the exclusive right to use those words 'carbolic acid soap powder.' Now, ought this, independently of the objection which I shall have to deal with, to be registered? In my opinion it is a matter which could properly be registered under the Act of 1875. It is a label, and I think a distinctive label, with words added. It is distinctive in this way, that there are ornamental lines round it, and part of it is in one colour—white, and in the centre, as I have said, there is a black patch where the name of the owner, Hudson, could be put, and then the description of the goods to which it applied, and other words; and the Act specially says that to a distinctive label there may be added any words. In my opinion all that the person registering this can claim is the whole label as his trade mark. He cannot say that a portion of it, as 'carbolic acid soap powder' can be claimed by him as a registered trade mark. It is not. Had he applied to register '*Hudson's Carbolic Acid Soap Powder*,' I see no ground on which he could have based such an application unless those words had been used before the date of the application, because it is not the name of the firm woven in any particular or distinctive manner, but it is only the combination which is the label. It is his

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"label which he must claim to register and which in fact he does register. I entirely dissent from the view that he could have taken part of the words out of this combination, omitting the label altogether, and have said 'That is my registered trade mark, and I insist upon that as protecting my goods.'"

Thus here if the Plaintiffs had applied to register the words "Old Innishowen" simply, I see no ground upon which they could base such an application, unless those words had been used by them before the date of the application, because those words are not the name of a firm, woven in any particular or distinctive manner, but it is only the combination which is the label. Then the Lordship says: "I am laying aside the fact that by a certain arrangement of common things one man may pass off his goods for those of another, and be liable to no punishment if he do so by imitating the registered trade mark so as to deceive others; but, in my opinion, on the express ground that the registration of those words, or more description, when used on the label, however long they may have been used on the label, cannot give the applicant any right to them as a trade mark, I think we ought, with that expression of opinion, not to allow this label to be registered though it has those words upon it."

That, therefore, is an express decision that no one could have prevented the Plaintiffs from registering this trade mark—consisting of the facsimile signature of the firm, "A. A. Watt and Co.," along with the words "Old Innishowen,"—but that the registration cannot give the Plaintiffs any right to them as a trade mark. To the same effect is the judgment of Lord Justice Fry: "With regard to the second question, I entirely concur in the view that by the label in question the Respondents cannot acquire any exclusive right to the use of the words, 'carbolic acid soap powder,' and I am bound to say that I do not think the application was a perfectly fair one, because the Respondents described the words 'soap powder' as being in common use, but did not disclaim the words 'carbolic acid soap powder.' I think, therefore, the form of application, to say nothing of the argument used throughout the case, is one which justly awakened suspicion against the applicants."

It seems to me that that case has a strong bearing indeed upon the present, and confirms the view of the law which I have expressed. In my opinion, those words, "Old Innishowen," are words of description, and upon that ground alone this action must fail. I am further of opinion that even if these words were not words of description, that, being registered only in connexion with something else—namely, the signature of the firm—which the Plaintiff is not shown to have used, on that ground also the action is not maintainable. I must, therefore, dismiss the action with costs.

IN THE HIGH COURT OF JUSTICE.—CHANCERY DIVISION

Before MR. JUSTICE KEREWICH.

November 15th, and 16th, 1886.

GUILBERT-MARTIN v. KERR AND JUBB.

Patent.—Alleged infringement.—Infringement denied.—Validity of patent denied.—Anticipation proved.—Costs of issue of infringement.

In an action for infringement of a patent for a gauge-glass backed with a stripe of red enamel on a white enamel ground, the Defendants denied infringement and alleged that the patented article was useful, and had been made and sold by the Defendants. The Defendants proved that the alleged invention had been anticipated by the public use of gauge-glasses exactly similar to the Plaintiffs', made under a patent for a gauge-glass with a white or coloured enamel back.

Held, that the Defendants were entitled to judgment and to all the costs of the action.

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In 1863 a patent (No. 1749) of 1863 was granted to *Alexander Melville Clark* for "An improvement in gauge glasses or tubes for the water gauges of steam boilers, and for other liquid gauges applicable also to certain other instruments, in which the height, length or position of a liquid column is to be ascertained" as a claimant of an invention relating to an improved gauge glass, or tube for the water gauges of steam boilers, applicable also for thermometers, barometers, and other instruments, in which the height or length of a column of transparent liquid, is required to be ascertained. To enable the height of the liquid column to be more easily seen, such gauge glasses and tubes have heretofore had a white stripe generally of enamel applied to the tube in rear of the liquid column, but in the case of boiler gauges in consequence of the condensation within the tube and the impurities of the water it is frequently difficult to ascertain the precise level of the water except by applying the eye close to the gauge glass which cannot in many cases be conveniently done. This invention has for its object to remedy this defect, and it consists in the construction of a gauge glass or tube in which the white or reflecting stripe serves only as a background for a narrower bright coloured stripe which is sharply defined, the effect being that by reason of the different refractive powers of the glass and the stripe a sharp, clear, and accurate indication of the precise height of the liquid column is afforded, which is visible from a distance without liability of error." After referring to the drawings the specification concluded thus:—
"Having described the nature of the said invention and the manner of performing the same I would observe that I do not make any claim to the application of a single broad band of enamel but what I claim as the invention is—
"the hereinbefore in part recited Letters Patent is—A gauge glass or tube having a relatively narrow longitudinal stripe of colored enamel applied to its rear side in combination with a broader band of white enamel applied behind the colored stripe to form a background or reflecting surface upon which said colored stripe is sharply defined substantially as described and for the purposes specified."

This patent having been assigned to the said *Auguste Guilbert-Martin*, he in 1885 brought an action against the Defendants alleging infringement and asking for an injunction and damages, or an account of profits and costs. The Defendants denied infringement and alleged that the Plaintiffs' patent was invalid on the grounds set forth in their particulars of objection, viz., that the alleged invention was not useful and had been anticipated "by the specification of the prior art of 4111 of 1874) granted to *Louis John Crossley, Richard Hanson, and Joseph A. Hicks*, and by public use of articles made according to the alleged invention by the several persons herein-after named at the times and places following, that is to say:—(a.) By the Defendants *Kerr and Jubb* in the year 1875 and subsequently thereto and before the date of the Plaintiffs' patent at Halifax, in the county of York, by the sale or public exhibition for sale or otherwise of water gauges for steam boilers. (b.) By the Company of *John Crossley and Sons, Limited*, of Halifax, in the county of York, at their mills in Halifax, by the use of gauge glasses on the boilers in the said mills in the year 1875, and subsequently before the date of the said Letters Patent. (c.) By *Joseph Toney*, of Aston, Birmingham, in the county of Warwick, glass tube manufacturer, in the year 1877 and subsequently thereto, and before the date of the Plaintiffs' patent, by the manufacture and sale of gauge glasses, and by use of a gauge glass at his works at Aston aforesaid, during the years 1877, 1878, and 1879."

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The action came on for trial before Mr. Justice Kekewich. The Plaintiffs were represented by *Aston, Q.C., Pollard, and Gazdar* (instructed by *Gresham and Davies*). They called several witnesses, who explained the nature of the invention, and gave evidence of the utility of the Plaintiffs' patent and of sale by the Defendants of water gauges similar in every respect to those of the Plaintiffs. *Moulton, Q.C., and R. Wallace* (instructed by *Burn and Berridge*, agents for *R. M. and J. M. Kerr, Halifax*) appeared for the Defendants. They did not contest the evidence given by the Plaintiffs' witnesses, but called a number of witnesses to prove the prior user alleged in the particulars of objections. The Plaintiffs, in their reply, contended that the alleged anticipation amounted only to an abandoned experiment, and that even if they should fail in the action they had succeeded on the issues of infringement and want of utility, and would be entitled to the costs of those issues. They cited and relied upon the cases of *Jones v. Pearce*, 1 Webs. P. C. 124; *Hills v. London Gas Light Co.*, 29 L. J. Ch. 409; *Newall v. Elliott*, 27 L. J. Ch. 342; *Galloway v. Bladen*, 1 Webs. P. C. 325; *The Househill Co. v. Neilsen*, 1 Webs. P. C. 683; and *Plimpton v. Malcolmson*, L. R. 3 Ch. D. 576.

KEKEWICH, J.—It seems unnecessary for me to determine in this case the comparative utility of the tubes, the one with the plain white enamel and the one with the red stripe on the plain white enamel. There has been evidence to show that it is the opinion of many persons capable of forming a correct judgment one or the other is extremely useful and preferable to the other. It is not necessary to come to a conclusion on the subject it might be desirable that I should, either myself or by some other means, ascertain, as Mr. *Aston* invited me to do, which is really practically the best; but it does not seem to be necessary to go into this at all. The question seems to be, whether there has been really an anticipation of the patent or not.

It is suggested that Mr. *Martin*, the Plaintiff, was aware of this invention having been published in the United Kingdom when he communicated it himself from France. In that sense he seems to have been the first inventor, but yet that will not help him in England if, as a matter of fact, he has been anticipated. Now, if it became necessary for me to decide what was done before 1877 or before about that time, for the date is not very accurately ascertained, I should have some difficulty in coming to any conclusion, though I think that even then I should be disposed to hold that some sets of compound glasses, as they have been conveniently called, were made before that date. It is not unlikely at any rate, if not probable, that some were made before 1877 because the patent of Messrs. *Crossley, Hanson, and Hicks*, which is dated in 1874, is expressly extended not only to white enamel but to white or colored enamel or other reflecting means at the back of the tube, and one would suppose that any persons using that patent would try, as was contemplated by the patent that they should try, some white enamel, but I intentionally pass that by, because to my mind the whole question turns on what occurred either at the end of 1876 or between that time and the time when Mr. *Hanson*, who was occupying a superintending position in the factory of Messrs. *Crossley and Sons, Limited*, of Halifax, appears to have been

been doubted that this letter was written with reference to that discontent, and with reference also to some colored glasses, about which he must have had some prior communication with Mr. *Tomie*, though when that prior communication took place, or what the prior communication was, has not been told us in court. He then wrote the letter of the 14th December 1876 to Mr. *Tomie*, "I am anxious to hear about the colored glasses. Have you done anything yet? Kerr and Jubb are complaining about a great many tubes splitting from end to end. Kindly have this altered." Now *Kerr and Jubb* were the consignees of Mr. *Tomie*, and *Kerr and Jubb* were the persons to whom *Crossley and Sons* applied for the supply of these glasses, and I gather it is a fair conclusion from the evidence, that though all orders

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were given, or at any rate all orders were performed through Messrs. *Kerr and Jubb*, yet Mr. *Hanson*, or Messrs. *Crossley and Sons*, his principals, were in the habit of communicating directly with Mr. *Tomie*, and that Mr. *Hanson* knew him in business, and knew that what he supplied to *Kerr and Jubb* were intended for and would be transmitted to *Crossley and Sons, Limited*. Nothing seems to have been done, at any rate we are informed of nothing, between the date of that letter and a visit of Mr. *Hanson*'s to Birmingham on his way to, or back from, London in the spring or summer of the following year, 1877. Then, as I read the evidence, he called on Mr. *Tomie* and must have had some conversation about these glasses, at any rate Mr. *Tomie* produced him some which were looked at, and so far approved that Mr. *Hanson* there and then ordered some two or three dozen. I do not think it matters what the precise order was, but certainly some two or three dozen were sent, and they were sent, according to the evidence, to *Kerr and Jubb* in the ordinary way of business, that is to say, to be transmitted by them to the consignees, Messrs. *Crossley and Sons*, in Halifax. *Kerr and Jubb* may not have been acquainted, and probably were not acquainted, with what had taken place between Mr. *Hanson* and Mr. *Tomie*, and it appears, therefore, that they were in some doubt what were the contents of this parcel that was sent. There seems to have been some doubt whether these particular colored glasses were specified in the invoice or whether they were included in the general list which was sent, but at any rate these colored glasses were forwarded to Messrs. *Crossley and Sons*, and they were used in their engine houses. They were used against several boilers, how many does not appear, but certainly, I think, in three different places, and apparently at the same time. They were used there as long as the life of the article lasted. It is common knowledge that no manufactured article used in manufacture lasts long, and I apprehend these glass tubes are apt to break and are very apt otherwise to get out of order, but any rate they were used as long as they could be used, and they were not taken out, they were not abandoned in that sense. Then from that time they do not seem to have had their places supplied by others of the same character. I have no doubt, on the evidence, myself that they were included in an invoice, and that it was a matter of arrangement. I will go to the question of sale as a publication directly, that it was otherwise a question of the ordinary course of business between Mr. *Hanson* as representing his principals on the one hand and Mr. *Tomie* on the other, and that they were used there in the most public way that an article of this kind could be used in manufacturing premises. Remembering that one of the witnesses stated, and I think I stopped him from going into the matter, what we all know, that Messrs. *Crossley and Sons* have a very large business, and very large manufacturing premises, it would be difficult to suppose any greater exposure to public view than some three or four of those glasses used at the same time in the different shops of such a manufacturing firm. Well, that I say is my conclusion on the evidence, and it rests upon the evidence given in the witness box by some six witnesses. Now, I am not forgetful that Mr. *Hanson* is an interested witness, and I think Mr. *Aston* was entitled to cross-examine him as to his credibility. He was not only interested, but he was part owner of this patent of 1871, which of course is substantially in question to some extent at this moment here. He therefore was strictly an interested witness, but I confess I thought Mr. *Aston*'s cross-examination, far from shaking his evidence, rather brought it out to advantage, and in particular, I thought the reference to the affidavit which he made on the motion for injunction confirmed the evidence, remembering as we must do that when evidence is prepared by a solicitor, whether settled by counsel or not, for the purpose of a motion for injunction, the witness does not necessarily tell the whole truth, although he is bound to tell the truth and nothing but the truth. He gives the information which he has and which he can remember and recall accurately, and on the spur of the moment, and that is reduced into the form of an affidavit. It is not for him to say—and one's experience tells one that a witness does not say—"Oh, there is something more which I have not said and which it is necessary for me to say in order that I may tell the whole truth." When he goes into the witness-box one very often gets little additions. But I have found nothing in the affidavit (and I have read it carefully through) which in the slightest degree leads me to suppose that *Hanson* was doing otherwise than telling the whole truth in the witness-box. But I should make some deductions from

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his evidence on the ground of his being an interested witness. Then came two other men, both men in the employ of *Crossley and Sons*, namely, *Charles Henry Smith* and *John Roche*, and it is important to observe, as regards the latter witness, that he fixed the time and supports his recollection of what occurred, by the time when he was in one particular part of the manufacturing premises, and when he was removed from that part to another. These two men both support Mr. *Hanson* and give independent evidence of value, but also gave weight to his evidence. Then we come to *Joseph Tomie*. Now *Joseph Tomie*, again, is an interested witness—an extremely interested witness—he has made an agreement with the patentees in 1874, and under that agreement, the general purport of which we know, though the agreement itself was not produced, he has a very great interest in this matter. Also, it must be remarked that he is an illiterate man; that is to say, he has not had the advantages of that education which most of us have had. That seems to have acted in this case in this way, that his memory is not good as regards dates, and he cannot recollect them unfortunately by reading letters or other papers. Notwithstanding all that, I came to the conclusion that Mr. *Tomie* was the witness of truth. I thought that notwithstanding a good deal of contradiction in matters of detail, a great deal of uncertainty in matters of detail, a great deal of reliance necessary in his case on the information given by others, he still was the witness of truth; and as regards the one glass which was fixed in his boiler and removed from Catherine Street when he removed from there in 1877, or whenever it was, I thought that story was fully borne out by all he told us and by all that we heard from other witnesses. I do not attribute much importance to his son *Thomas Walter Tomie*, but he confirmed his father as far as he went; and the evidence of the other men—the glass-blower *Hastley*—I thought was extremely valuable, as confirming *Tomie's* evidence, and as showing that he was correct where he could have been contradicted. Now, as against that, I really have nothing except comments on the affidavits, about which I will say no more, because what I have said already I think applies to them all; and comments also on these two omissions: first that Mr. *Kerr* has not been called. Well, I have no doubt that Mr. *Moulton* exercised a wise discretion in not calling him. At the same time, I cannot see that there was anything very important to be supplied. We have had sufficient evidence in this case of all kinds, and I for my part did not miss Mr. *Kerr*, though he might have supplied some details which are now wanting.

The other comment was of a more remarkable character, and that is this, that there were no invoices, no documents, and nothing to be referred to except this one letter which I have already read. Now the Plaintiff might if he liked—I do not know that he did not—get a full and complete affidavit of documents from these Defendants, and having got that affidavit of documents he might have inspected every one of those documents that were not privileged, and having ascertained which of them were important either in supporting his own case or in negating the case of his opponent; he might have given precise notice to them that they should be produced here to-day, when we should have had the opportunity of going into them. I do not know whether there was an affidavit or not, but instead of the precise notice to which I have referred, as possible, there was a long rambling notice which no one could be expected to obey by bringing up all the documents belonging to a business, covering many years and many transactions which might be more or less irrelevant. Therefore, I think, if it is a misfortune that the documents are missing, the Plaintiff is responsible for that, and not the Defendant. Now, under these circumstances, Mr. *Aston* has argued, with his usual force, that I am to hold, not that this was a publication amounting to a prior user, but that it was "experimental and tentative," using the words of another case; "a mere experiment or course of experiments," as described in another case; "trials of an incomplete invention," as described in another case; or, according to that last case of *Plimpton v. Malcolmson*, which really sums up the whole question in a few words, that "the invention had not been made known in such a way as to become common knowledge or part of the public stock of information." Now there is no doubt that some of the witnesses said that these glasses had been sent to Halifax, and that Mr. *Hanson* had said that they were to be used to try to see if they would do, or words of that kind. Well, now, in one way everything that

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anyone buys—the simplest or the most complicated thing—is bought to try to see if it will do. No one ever purchases an engine or a small article for commercial purposes with the intention of continuing to use it if it is not useful and profitable. There is always that element in a purchase in the first instance, but that is something quite different from what is described in that language by the Master of the Rolls or described in any of the other cases to which I have referred. I cannot think that Messrs. *Crossley and Sons* purchased and used through Mr. *Hanson* these glasses in 1877 by way of experiment in the sense in which that word has been used in the decided cases. They purchased them, and I think they purchased them for value, whether they were included in another parcel or not. They purchased them for the purposes of their business, and if eventually they did discard them in the sense of not using all that they had and not replacing those which were worn out, they did so as they would have done with anything else, because they found on the whole they were not the most suitable for their purpose. That in the meantime they were publicly used, and used for the purposes for which they were purchased and for which they were made, I cannot on the evidence myself entertain a doubt. Now that being so, the Plaintiff seems to me to have failed in this—not failed in showing that his invention is a useful one, not failed in showing that he infringed any other person's patent knowingly, nor has he failed in anything else than this—that he has failed to show that he was really the first inventor; and therefore he seems to me not to be entitled to the injunction which he asks to restrain the Defendant from further infringement of his patent. I have not heard a word about damages or an account of profits, and therefore I suppose that that is not insisted upon; but then Mr. *Aston* says, though you may come to the conclusion that the Plaintiff is entitled to an injunction, still he is entitled to a judgment and costs of the two other issues, namely, infringement and utility. Now as regards infringement, if I am right in the conclusion which I have arrived at, the Defendants have not infringed the Letters Patent, because no infringement was possible in law; and as regards the utility I consider that only a matter of pleading, which the defendant was entitled to set up and to have tried. I think it would be an extremely hard thing if a Defendant were to be mulcted in costs because he did not prove such an allegation—it is not really an issue—as is given in the particulars of objection, that the alleged invention was not useful. It would be extremely hard if, therefore, he should lose, it may be, a considerable part of the costs of succeeding. Therefore I hold that the Defendants are entitled to judgment, and that the Plaintiffs must pay all the costs of the action.

His Lordship directed that the costs should be upon the higher scale, and upon his attention being drawn by the Plaintiffs' counsel to the case of *Badische Anilin, &c. v. Teichmeyer*, L.R. 29 Ch. D. 366, as showing that they were entitled to the costs of the issue of infringement, said that he did not think that issue was sufficiently distinguished from the rest of the case for him to give the Plaintiffs any costs of that issue independently.

IN THE HIGH COURT OF JUSTICE.—QUEEN'S BENCH DIVISION.

Before MR. JUSTICE MATTHEW.

November 24th, 25th, and 27th, 1886.

KAXE v. CHUBE AND SONS.

Patent for a combination.—Action for alleged infringement.—Infringement denied.—Validity denied.—Alleged anticipation.—Judgment for Plaintiffs.—Injunction suspended pending appeal.

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The grantee of a patent for improved means of fastening and unfastening doors, brought an action against the Defendants, alleging infringement by the use of the combination claimed in the Plaintiff's specification, and asking for the usual relief. The Defendants denied the alleged infringement and put in issue the validity of the patent, alleging that the invention had been anticipated.

Held (1) that the invention had not been anticipated, (2) that the Plaintiff's claim must be construed by the lights of the whole specification, (3) that the combination which the Defendants admitted to have been used by them was substantially the same as that claimed by the Plaintiff's specification, (4) that the Plaintiff was entitled to the relief asked, but (5) that the injunction and account of profits ought to be suspended pending appeal.

In 1877 a patent (No. 4873 of 1877) was granted to Joseph Kaye, Jim Watnwright Kaye and Walter Kelela Kaye for "Improvements in the means or apparatus employed for fastening and unfastening doors, gates, lids and windows." The specification stated as follows: "The object of our invention is to produce a ready means whereby doors, gates, lids, and windows may be readily fastened or unfastened for the purpose of closing and opening the same. We provide a shell (by preference of metal) or frame, so constructed that it may be fitted into a door in a similar manner to a mortice lock. Within the shell or frame we provide a segment or finger which is fitted so as to project when in position, and to be drawn through the frame plate of the frame for the purpose of inserting itself, or being withdrawn from the catch plate on the door frame or jamb. This segment or finger is drawn from the catch plate on the door frame or jamb. This segment or finger is acted upon by means of a lever, which is also pivoted or mounted within suitable bearings within the shell or framework. In order to effect the desired end we engage the inner end of the spindle projecting from the door or gate the handle or knob at one end of the spindle projecting from the door or gate the door or gate is opened, and by pushing at a knob or handle at the other end of the spindle the door or gate may also be opened; that is to say, if the door or gate opens towards the person by pulling at the knob or handle, the segment is removed from the latch plate; or if the door opens from the person by pushing the knob or handle in that direction the door or gate may also be opened. The effect of pulling or pushing imparts a movement to the aforesaid lever within the framework, the outer end of which comes in contact with a projecting part on the segment or finger, and withdraws it (the segment or finger) from the catch plate. The segment or finger is made to work independently of the lever when the door is being closed, so that the door may be closed by pushing the knob from the inside or pulling the knob or handle at the outside, without any interference of the lever, with perfect ease, and without any strain on the door or fastener, and the segment or finger will insert itself into the catch plate automatically, such automatic action of the segment or finger being produced by means of a spring, spiral or otherwise, in connection with the framework acting thereon. When the fastener is applied to swing doors we employ, by preference, two segments or fingers acting in opposite direction to each other. A fastener of a similar construction to the above described may be applied to windows having an upper and lower sash, or to such as are known as French windows; also to closets, and cupboards, and boxes, which will only require a knob or handle at the outside. When the fastener is applied to thin doors, cupboards, or closets, and where the inside of the door is not exposed, and only requires a knob or handle outside, we prefer screwing the shell to the door or lid." The specification then described the drawings, and

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concluded thus: "It will be readily understood that fasteners of the construction herein-before described may be applied to window sashes as well as to doors, gates, lids, and the like. For doors swinging both ways the fastener is employed in duplicate, one to catch each way, and each having a spindle with its knob only on one side of the door, so that on being pushed it disengages its catch, and allows the door to open in obedience to the push, the other catch yielding. Having thus described the nature of the said invention, and in what manner the same is to be performed, we hereby declare that we make no general claim to the opening of latches or fasteners by a pull or push of a spindle or knob, but we claim the construction of a latch or fastener wherein a lever worked by the push or pull of a spindle or knob moves in one direction only, a segment or finger turning on a fulcrum and pressed in the opposite direction by a spring, so as to engage with a catch plate, substantially as and for the purposes herein set forth."

In 1886 the Patentees brought an action against Chubb and Sons Safe and Lock Company, Limited, alleging infringement of this patent, and asking for the usual relief.

The particulars of breaches stated that the alleged infringement consisted in the manufacture or sale or use of a lock latch or fastener wherein a lever worked by the push or pull of a spindle or knob moves in one direction only of a segment or finger turning on a fulcrum and pressed in the opposite direction by a spring, so as to engage with a catch plate as described in the first 37 lines of the Plaintiff's specification, and as illustrated by the accompanying drawings thereof and the description thereof therein contained or only colourably differing therefrom.

The Defendants by their statement of defence denied the alleged infringement, and alleged that the Plaintiff's patent was invalid on the grounds that the alleged invention was not new and was not useful, and that the alleged inventors were not the true or first inventors thereof, and that the Plaintiff's specification was insufficient, and did not distinguish what was claimed as new from what was old.

By their particulars of objection the Defendants alleged that the invention had been anticipated by (among other things) certain parts of the specifications of the following patents and the figures therein referred to respectively, viz: (1) *Bradley's*, No. 1021 of 1860, page 1, line 1, to page 3, line 26, and page 4, line 33, to page 6, line 3. (2) *Imray's*, No. 1160 of 1871, page 2, line 13, to page 3, line 3, and page 4, line 16, to page 5, line 6, and page 6, line 11, to the end.

The action came on for trial before Mr. Justice Mathew. *Aston, Q.C., Marcoray, and Waugh* (instructed by *Williamson, Hill, and Co.*, appeared for the Plaintiff and called only one witness, viz., Mr. John Imray; the Defendants, by their counsel, admitting that they had used the lock alleged to be an infringement, that the alleged invention was useful, and that the Plaintiff were the true and first inventors thereof, and both parties agreeing that expert evidence confirming that of Mr. Imray for the Plaintiff and that of Mr. E. A. Cooper for the Defendants should be dispensed with.

The Defendants were represented by Sir R. Webster, Attorney General, and *Bunting* (instructed by *Ingle, Cooper, and Holmes*), who called as witnesses Mr. E. A. Cooper and Sir George Chubb, and contended that the Plaintiff's patent was for a combination of old parts, and as such could only be infringed by the same combination, or by a subordinate combination claimed in the patent. In Plaintiff's patent there was no claim for the whole lock, but only for a subordinate combination, and Defendants' combination was essentially different from that claimed by the

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Plaintiffs. Defendants had merely combined *Imray* and *Brodie's* inventions, which they were entitled to do. Plaintiffs' alleged invention had been anticipated by *Imray*. They relied upon *Harrison v. Anderson Foundry Company*, L.R. 1, Ap. Cas. 574; *Clark v. Adie*, L.R. 2, Ap. Cas. 315; and *Nordenfjeld v. Gardner*, 1 Reports of Patent Cases, 65.

The Plaintiffs' counsel in reply contended that their combination contained a new element, which rendered their lock a great success, whereas *Imray's* was a failure. Such a combination was the subject of a valid patent. Defendants' lock was the same combination, studiously disguised. Plaintiffs had proved their particulars of breaches. In any event they were entitled to the costs of the issues which the Defendants had not contested, and of that of novelty. They cited *Murray v. Clayton*, L.R. 7, Ch. 570; *Hinks v. Safety Lighting Company*, L.R. 1, Ch. D. 607; and *Bulische, Anilin, &c. v. Levinstein*, L.R. 29, Ch. D. 266.

MATHEW, J.: This was an action brought for the infringement of a patent taken out by the Plaintiffs in 1877 for an improved method of opening and shutting doors. The only grounds of defence upon which any reliance was placed were a denial of novelty and of infringement.

The object of the Plaintiffs' invention was to produce a ready means of opening and shutting doors by pulling or pushing a handle, instead of turning it. The mode in which this object was effected was by fixing on the spindle, between the handles, a projection which was placed in contact with one end of a lever. The other end of the lever touched a segment or finger of the latch. When the handle was pushed forward the latch was drawn back and the door opened. When the handle was pulled back the pressure of the lever was withdrawn from the latch, and a spring pushed the latch back into position and the door was closed.

The Plaintiffs made no claim to the opening or latches upon push or pull of a spindle, which was known before, but their claim was confined to the apparatus I have described, where a lever worked by the push or pull of a spindle moved in one direction only a segment of the latch, and where the latch was pressed in the opposite direction by a spring, and so worked automatically.

In support of the defence of want of novelty, reliance was placed on letters patent granted to *John Imray* in 1871. It appeared from the specification filed by *Imray* that one object of his specification was the construction of a spring latch to work by pulling or pushing a handle. For this purpose the spindle was made with a groove in it, which was attached to a lever connected with a spring bolt, and the spindle, when pulled or pushed, moved the lever and caused the bolt to be retracted, but, as appeared from the evidence of the patentee, while it was easy to open a door by his process, there was a difficulty in closing it, which was due to the rigid connexion of the lever with the spindle on the one hand, and the latch on the other. The invention was of no practical utility, and the letters patent were allowed to drop.

The Attorney-General, for the Defendants, called attention to page 4, line 21, of *Imray's* specification, and argued that *Imray* had anticipated a part of the Plaintiffs' apparatus by describing the spindle as made with a groove or (in the alternative) with a projection or collar on it; and it was contended that a skilled workman would from that have produced a spindle which, like the Plaintiffs', was in free contact and not rigidly connected with the lever by means of a projection upon it. But I am satisfied that the specification described a projection to which the lever was intended to be fastened on each side, and in that way to be equivalent to the groove in which the end of the lever would be engaged, and I am of opinion, that *Imray's* patent was not an anticipation of any part of the Plaintiffs' combination.

The other ground of defence was, that the Defendants had not infringed the Plaintiffs' combination as described and claimed by their specification. The Defendants' lock was constructed with a spindle having a projection upon it, which was in contact with one end of the lever. The other end of the lever was in free contact

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with a slot in the segment latch. When the handle was pushed forward the latch was drawn back and the door opened. When the handle was drawn back the lever no longer offered any resistance to the segment latch, and a spring, operating in the first instance on the lever, transmitted the necessary force to the segment latch to send it back into position automatically, and so the door was closed.

It seems to me only necessary to lay the two locks side by side to show that the mechanism is substantially identical. It makes no real difference in the apparatus that the spring, which operates directly on the segment latch in the Plaintiffs' lock, acts through the medium of the lever in a similar manner in the Defendants' lock.

But, upon the assumption of the mechanical identity of the locks, it was further contended for the Defendants that the Plaintiffs' specification did not contain a claim for the whole of the apparatus of his lock, but only for a subordinate part, namely, for a lever moving in one direction only and a segment or finger pressed in the opposite direction by a spring, and this combination, it was said, the Defendants had not infringed.

It was urged that all that the Defendants had done was to combine a segment latch acted upon by a spring, which had been described in Letters Patent granted to one *Brodie* in 1860, with the apparatus patented by *Imray* in 1871, and that they have avoided the exact combination claimed in the Plaintiffs' specification. I am satisfied that the Plaintiffs' specification ought not to receive this narrow construction. The claim must not be interpreted as if it stood alone. It must be read by the light of what is contained elsewhere in the specification.

So dealt with, it seems to me that all the elements of the Plaintiffs' lock are properly claimed; and I am of opinion that the elements so claimed by the Plaintiffs are clearly combined for the same purpose in the Defendants' lock.

My judgment must therefore be for the Plaintiffs.

The Learned Judge gave the Plaintiffs a certificate that they had proved their particulars of breaches, and that the validity of the patent came in question in the action. He gave them also costs upon the higher scale with nominal damages and an account of profits, but ordered the account and the injunction to be suspended pending appeal, the Defendants undertaking to keep an account in the meanwhile and to enter their appeal forthwith, and liberty being reserved for the Plaintiffs to apply to his Lordship in case the appeal should not be prosecuted with due diligence.

IN THE COURT OF APPEAL.

Before LORDS JUSTICES COTTON AND BOWEN.

November 29th and 30th, 1886.

ANGLO-AMERICAN BRUSH ELECTRIC LIGHT CORPORATION, LIMITED, v. CROMPTON.

Action for infringement of patent.—Objection alleging discrepancy between provisional and complete specification.—Order for further and better particulars of this objection.—Patents, &c. Act, 1883, s. 29 (3).

The Anglo-American Brush Electric Light Corporation, Limited, as the owners of a patent (No. 2003 of 1878) for "Improvements in apparatus for the generation and application of electricity for lighting, plating, and other purposes," being a communication from abroad by *Charles Brush*, as altered by two disclaimers filed respectively on the 11th January 1882 and the 2nd July 1885, in 1886 brought an action against Messrs. *R. E. Crompton and Co.*, alleging infringement by the

Anglo-American Brush Electric Light Corporation, Limited, v. Crompton.

manufacture, sale, use, and letting on hire of dynamo-electric machines manufactured in accordance with the patent, and asking for the usual relief. The Defendants denied infringement and denied the validity of the patent, and delivered particulars of objections, of which the 5th was as follows: "That the alleged invention described 'in the complete specification as amended is a different invention from that described 'in the provisional specification.'"

The Plaintiff took out a summons for better particulars, showing (amongst other things) "how and in what respect the alleged invention described in 4th division 'and claimed in the 7th claiming clause of the final and amended specification referred 'to in the statement of defence and particulars of objections was a different invention 'from that described in the provisional specification,'" and obtained from *Bacon, V.C.* in chambers, on the 2nd November 1886, an order in their favour in the terms of the summons. The Defendants appealed from so much of this order as directed them to furnish better particulars of the disconformity alleged between the above-mentioned parts of the final and the provisional specification.

Butcher (instructed by *Goodhart and Medcalf*), who appeared for the Defendants, contended that the particular complained of raised a question of law, to be decided by the Court on a comparison of the two specifications. No expert evidence would be required beyond that which the Plaintiffs were bound to furnish in order to show what their invention really was. To require the Defendants to give particulars of their objection of disconformity would be to compel them to disclose their case. He relied upon *Heath v. Unwin*, 10 M. and W., and *Bailey v. Robertson*, L. R. 3 Ap. Cas. 1055.

J. C. Graham (instructed by *Renshawes*), who appeared for the Plaintiff, was not called upon.

Cotton, L.J.—I think in this case we cannot interfere with the order of the Vice-Chancellor. All that is required is that particulars be given to show how and in what respect the alleged invention, described in the 4th division and claimed in the 7th saving clause of the final and amended specification referred to, is different from the invention described in the provisional specification. As regards claim No. 7, of, I should say one covers the other. But then there is a 4th division which describes particularly how that to which claim No. 7 relates is to be construed. That has not been read to us, and I have not had an opportunity of reading it with that care which would be necessary in order to enable one fully to determine what the objection probably is as to that. It is not solely with reference to the evidence that is to be adduced, but the object of giving particulars is that the parties may come fairly prepared to meet the case of their opponents. It may be that when the Plaintiffs here, coming to enforce the patent, know what the objection is and the nature of it (not the argument in favour of it), they may be able to show by the evidence of experts that the objection fails, and that it is owing to a misunderstanding, therefore, it is reasonable, with reference to the object and intention of particulars of objections being delivered, that here the Defendants should deliver some further particulars of their objections so as to tell the Plaintiffs what they really have to meet. It must always depend on the circumstances of each particular case, and although in this case we think it reasonable (at least I do) that the Plaintiffs should have further particulars given, it does not at all follow when there is an objection, such as is here taken in Objection 5, that we should require that to be investigated. It may be that it would be quite sufficient to enable the party who has his patent objected to to come fairly prepared to meet it.

In this case we think it is reasonable that there should be some further particulars given so as to enable the Plaintiffs to come prepared to meet the case against them

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(not that they are to have the heads of the Defendants' argument), and so as to enable them to know what the objection is that is going to be supported by evidence. In my opinion therefore the appeal fails.

BOWEN, L.J.—I am of the same opinion.

Graham.—Will your Lordship make any order as to costs in this case?

COTTON, L.J.—We dismiss the appeal with costs.

Butcher.—This is an entirely new point which has never been decided before, and never taken before.

COTTON, L.J.—So many new points come before the Court of Appeal that if we were to vary our rule as to costs on that account we should vary it very often.

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