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INVENTIONS PATENTED.

NOTE—Patents are granted for 15 years. The term of years for which the fee has been paid, is given after the date of the patent.

No. 30,683. Hoisting Machine. (*Monte-charge.*)

Walter Hart, New York, N. Y., U. S., 2nd February, 1889; 5 years.

Claim.—1st. In a hoisting machine, the combination of a plain-faced disk, an adjustable bevelled disk arranged to rotate in different planes, an axial connection between the disks provided with an anti-friction ball bearing for the adjustable disk, substantially as herein specified. 2nd. In a hoisting machine, the combination of a plain-faced disk, carrying a grooved drum, a bevel-faced disk provided with inwardly-projecting lugs, and mounted upon a sleeve journaled in inclined bearings, with its said lugs engaging the drum of said plain disk, an axial connection between the disks, provided with an anti-friction ball bearing for the bevelled disk, substantially as specified. 3rd. In combination, in a hoisting machine, of a plain-faced disk rigidly mounted upon a shaft, a bevel-faced disk movably mounted upon the same shaft, and rotating in a plane inclined to that of the fixed disk, a fixed bearing upon the said shaft, and friction balls arranged between said bearing and the movable disk, substantially as specified. 4th. In combination, the main shaft K, the disks and threaded sleeve mounted thereon, the journal D, the collar S and the friction balls T, substantially as specified. 5th. In combination, the main shaft K, the disks and threaded sleeve mounted thereon, the journals C and D, the nut I, the collar S and the friction balls T, substantially as specified.

No. 30,684. Liquid Storage Tank.

(*Réservoir d'emmagasinage des liquides.*)

Sylvanus F. Bowser and Augustus Bowser, Fort Wayne, Ind., U. S., 2nd February, 1889; 5 years.

Claim.—1st. A liquid storage tank, having an aperture in its cover, and a flaring annular flange secured around the edge of said aperture, in combination with a supplementary tank or casing, having flaring sides adapted to make an air-tight connection with said flange, and a pipe extending downward from said casing to a point near the bottom of said tank, as and for the purpose set forth. 2nd. A liquid storage tank, having an aperture in its cover and a flaring annular flange secured around the edge of said aperture, in combination with a supplementary tank or casing, having flaring sides adapted to make an air-tight connection with said flange, a lid for said casing, a downwardly-opening funnel in said lid and a pipe extending downward from said casing to a point near the bottom of said tank, as and for the purpose set forth. 3rd. A liquid storage tank, having an aperture in its cover and a flaring annular flange secured around the edge of said aperture, in combination with a supplementary tank or casing having flaring sides adapted to make an air-tight connection with said flange, a lid for said casing, a downwardly-opening funnel in said lid, and a pipe extending downward from said casing to a point near the bottom of said tank, and with a force pipe located within said tank, an operating rod therefor extending to the exterior of the tank, and a discharge pipe leading from said pump to a point above said funnel, as and for the purpose set forth. 4th. A liquid storage tank, a cylinder pump connected therewith, a piston in said pump, and a rod leading from said piston, in combination with a collar on said rod, adjustable stops operated from the exterior of said tank for engaging said collar, and a discharge pipe leading from said pump, as and for the purpose set forth. 5th. A liquid storage tank, a cylinder pump therein, a piston in said pump, and a piston-rod leading to the exterior of the tank, in combination with a collar on said piston rod, an oscillating gauge rod to said piston rod, a handle thereon, forked stops on said gauge rod for engaging said collar, and a discharge pipe leading from said pump, as and for the purpose set forth. 6th. The tank A, having an aperture in its cover, the casing P tightly fitting in said aperture, the pipe *s* leading from said casing to a point near the bottom of the tank, the lid T for said casing, and the funnel T₁ in said lid, over said pipe *s*, in combination with the cylinder G located within and near the bottom of said tank, the discharge pipe H leading from the cylinder to a point

directly above said funnel, the piston within said cylinder, piston-rod I leading from said piston to the exterior of the tank, and a collar K on said rod, and with the gauge rod J turning in bearings T and lying parallel with said piston rod, forked stop U on said gauge rod, set at angles to each other, whereby, when a lower stop is in disengagement with the collar K, an upper one will engage it, and a handle L on said gauge rod outside said tank, for turning said rod to set the stops U, as desired, the whole operating as and for the purpose set forth.

No. 30,685. Sulky Plough. (*Charrue à siège.*)

Nelson Lampman, Woodstock, Ont., 2nd February, 1889; 5 years.

Claim.—The vibrating leg B, pivoted in the slotted frame piece A, which is bolted to the tongue D, the vibrating leg B carrying at its lowest extremity the wheel H, and at point J, the extended leg beam N, which is pivoted to the plough beam E, substantially as and for the purpose hereinbefore set forth.

No. 30,686. Plastic Compound.

(*Composition plastique.*)

Frederick A. Meyer, Brooklyn, N. Y., U. S., 2nd February, 1889; 5 years.

Claim.—1st. The composition of matter herein described, consisting of sulphur, fibrous material, finely-divided mineral, and a waxy or similar substance, whose fusion point is below that of the sulphur. 2nd. The composition of matter consisting of sulphur, asbestos, fibre, silicious sand and paraffine, in substantially the proportions set forth.

No. 30,687. Water Cock. (*Robinet d'eau.*)

Henry D. Medrick, Port Jervis, N. Y., U. S., 2nd February, 1889; 5 years.

Claim.—1st. The combination, with a casing, provided with the inlet D, smaller outlet D₁ and auxiliary outlet D₂, of a tubular plug E, provided with the large recess E₁, small aperture *e* and the filter H, having a flaring open mouth *h*, engaging the walls of said recess, the body of the filter being horizontally supported in the plug, substantially as shown and described, whereby, when the recess in said plug is made to register with the inlet D and auxiliary outlet D₂, the filter will be automatically cleaned, as herein set forth. 2nd. The combination, with a casing, provided with the inlet D, smaller outlet D₁ and auxiliary outlet D₂, of a tubular plug E, provided with a large rectangular inlet recess E₁, a small rectangular outlet *e*, at one side of said recess, brackets *et* attached to the inner wall of the plug in central alignment with the recess E₁, and a semicircular filter H, having a flaring open mouth supported in said recess, the body of the filter being supported within the plug by said brackets, substantially as shown and described.

No. 30,688. Apparatus for Casting Lead Seals. (*Appareil pour couler les cachets de plomb.*)

Timothy Conners, Brooklyn, N. Y., U. S., 2nd February, 1889; 5 years.

Claim.—1st. An apparatus for casting the leads of lead seals, comprising a flask, a sprue or gate-containing member truly fitted to the face of said flask and pivoted thereto, so as to be movable crosswise of the face of said flask, to shear the face of the cast, core-pins attached to the said gate-containing member, and an ejector arranged within the flask to discharge the cast from the mould therein, substantially as described. 2nd. In an apparatus for casting the leads of lead seals, a flask having series of moulds therein, gate or sprue-containing members pivoted to said flask and truly fitted to the face thereof, core-pins attached to said gate containing members and entering the moulds transversely, disks arranged in and forming the bottoms of said moulds, a spring-pressed plate or bar to which said disks are connected, and a locking lever for operating said plate or bar and its attached disks, substantially as described. 3rd. In an apparatus for casting the leads of lead seals, a flask containing a suitable number of moulds, a gate-containing member pivoted to said flask containing a number of gates equal to that of the moulds and closely fitted to the face of said flask, and the cam pivoted to the free

end of said gate-containing member and bearing against the flask, to effect the movement of the gate containing member crosswise of the flask, to dress the face of the cast or sever the surplus metal therefrom, substantially as set forth. 4th. The flask *d*, having a series of moulds divided by a wall *d*, combined with an ejector, a sprue or gate containing member pivoted to the flask and adapted to be moved crosswise over the top of the same, and having two core-pins for each mould attached thereto, and adapted to be projected crosswise of the moulds, with their ends extending into perforations in the wall *d*, substantially as described. 5th. An apparatus for casting the leads for lead seals, consisting of the side pieces *a*, *b*, a flask *d*, provided with any desired number of moulds secured to the upper ends of said side pieces, the gate-containing members *p*, *p*, pivoted to said flask and provided with the cams *q*, *q*, the core-pins *r* attached to said gate-containing members, and piercing the moulds transversely, and the ejector, composed of the disks *f*, *f*, posts *g*, plate or bar *h*, spring supports *i*, *j*, and locking lever *k*, *l*, and the casing *s*, all combined and arranged substantially as set forth.

No. 30,689. Letter Box Connection.

(Correspondance de boîte à lettres.)

James G. Cutler, Rochester, N.Y., U.S., 2nd February, 1889; 5 years.

Claim.—1st. The combination, with a mailing-tube, consisting of a series of independently-removable sections, of the bands E, E, surrounding the ends of the sections and removably attached to the plate F, secured to the wall or other support, whereby the removal of any one of the sections is permitted without disturbing the remaining section, substantially as described. 2nd. The combination, with the adjacent sections, of a mailing-tube, of the plate F attached to the wall or other support, and the separate bands E, E, surrounding the ends of the tubes, and removably secured to the plate F, substantially as described. 3rd. The combination, in a mailing tube, of a series of independently-removable sections, consisting of the sheet metal tube L, glass front B, clamps C, C, and band E, around the lower end of the section, provided with bar G arranged to support the glass, substantially as described. 4th. The combination, with the mailing-tube, provided with a glass front, secured thereto by the removable clamps C, C, of the mailing section D, substantially as described. 5th. The combination, with the mail-chute A, of the mailing section D, provided with a restricted mail orifice *c* at its top, projecting from, and located in front of, the chute, and the pivoted plate constituting the gate *s*, having an outwardly-projecting lip *t* at its upper end, whereby the insertion of mail matter of excessive dimensions is prevented while the chute is left unobstructed for the descent of mail matter from above in rear of the gate, substantially as and for the purposes set forth. 6th. The combination, with a mailing-tube, formed of sheet metal, and provided on one side with inwardly-projecting flanges, of the glass front B attached to the said flanges by the clamps C, C, and the mailing section D provided with orifice *c* for the introduction of mail matter into the tube, and with projecting flanges, whereby the mailing section is adapted for attachment to the tube by the clamps which hold the glass front, substantially as described. 7th. The combination, with the sheet metal tube-section L, of a mail-chute having inwardly-projecting flanges of the glass front B attached to the flanges by clamps, with its inner surface in substantially the same plane as the inside of the flanges, as and for the purposes set forth. 8th. The combination, with the sheet metal tube L, having inwardly-projecting flanges *i*, of the glass front B and the clamps C, C, consisting of the outer and inner plates *a* and *b*, substantially as described.

No. 30,690. Manufacture of Nuts.

(Fabrication des écrous.)

Justin H. Burdick, Milton, Wis., U.S., 2nd February, 1889; 5 years.

Claim.—1st. The hereinbefore described method of forming a nut from a strip of metal, consisting of bending said strip between the opposing faces of a pair of die blocks, inserting a mandrel between the double sides of the strip and forcing the dies together, thereby compressing the metal of the strip into the required shape around the mandrel, substantially as set forth. 2nd. In a nut-making machine, the combination of a bender, a pair of die-blocks and a mandrel, and mechanism for successively moving three parts in the order named towards a common centre, substantially as set forth. 3rd. In a nut-making machine, the combination of a bender, a pair of die blocks, a mandrel and a plunger, and mechanism for successively moving these parts in the order named towards a common centre, substantially as set forth. 4th. In a nut-making machine, the combination of a bender, a pair of die-blocks, a mandrel and a plunger carrying a crowner, and mechanism for successively moving these parts in the order named towards a common centre, substantially as set forth. 5th. In a nut-making machine, the combination of a frame, a pair of die-blocks adapted to move within the same, skeleton safety pieces inserted in the outer ends of the die-blocks and bearing anti-friction rollers, a shaft carrying eccentrics, connecting rods, thrust bars jointed to the said rods, and bearing inlines adapted for engagement with said rollers, and retracting springs connecting the said die-blocks with the frame, substantially as set forth. 6th. In a nut-making machine, the combination of a frame, a pair of die-blocks adapted to move within the same, a shaft carrying three eccentrics, thrust bars adapted for engagement with the die-blocks and connected to the outer eccentrics, a mandrel connected to the intermediate eccentric and bearing a plunger, and a bender located above, and adapted to reach the common centre to which the dies and mandrel are successively moved by the action of the said eccentrics and connections, substantially as set forth. 7th. In a nut-making machine, the combination of a frame, a pair of die-blocks adapted to move within the same, a shaft carrying eccentrics at each end, and an intermediate eccentric set out of line with the end eccentrics, connecting rods and thrust-bars connected to the end eccentrics, a connecting rod and mandrel connected to the intermediate eccentric, a plunger and crowner by the mandrel, and a bender located above, and adapted to reach the common centre to which the dies and mandrel are successively moved, a shaft having a gear at one end, forming part of a train of gears in mesh with the gear of the described

eccentric shaft, and bearing an eccentric on its opposite end, a walking beam connected to the bender at one end, and a connecting-rod jointed to the other end of the walking beam and to the last-named eccentric, substantially as set forth.

No. 30,691. Sled Brake. (*Frein de traîneau*.)

Anders Anderson, Blossburg, M.T., U. S., 2nd February, 1889; 5 years.

Claim.—A sled brake, consisting of a rotary block pivoted to the runner, and having a straight side flush with the bottom of the runner, and means for moving the brake into position for use, substantially as shown and described.

No. 30,692. Extracting Gold, Silver, etc., from Ores. (*Manière d'extraire l'or l'argent, etc., des minerais, etc.*)

Alexander Parkes, Dulwich, Eng., 2nd February, 1889; 5 years.

Claim.—1st. The improved process of treating auriferous ores of the silicious class, whether sulphurous or non-sulphurous, for the extraction of the gold and other metals contained therein, by fusing the ore in a suitable furnace, with fluxes compounded of lime and soda, substantially in the proportions herein respectively specified for each class of ore, adding thereto lead or oxidized compounds of lead, and producing a metallic compound adapted for treatment by known methods for the separation of the gold and other metals contained therein. 2nd. For treating auriferous ores of the silicious and non-sulphurous class, and containing iron, the modification of the process referred to in the first claiming clause, substantially as herein set forth, and whereby the use of lead for forming a metallic medium for collecting the precious metals is dispensed with, and a portion of the iron contained in the ore is employed for the purpose, carbon being added, with or without oxide of iron, for reducing the said metals. 3rd. For treating auriferous ores of the silicious and non-sulphurous class, particularly such as are free from lead, the further modification of the process referred to in the first claiming clause, substantially as herein set forth, and whereby iron, copper or tin, or the oxidized compounds of iron, copper or tin, are introduced to the furnace, and furnish, or assist in forming a metallic medium for collecting the precious metals. 4th. For treating auriferous ores of the sulphide class, the modification of the process referred to in the first claiming clause, substantially as herein set forth, and consisting of fusing the ore in a suitable furnace with fluxes compounded of lime and soda, whereby a regulus having a natural tendency to disintegrate is produced, which may be heated with lead or by other known methods for the separation of the gold and other metals contained therein. 5th. As fluxing substances, for use in fusing auriferous ores of the silicious and non-sulphurous class, the combination, substantially in the proportions herein set forth, of caustic lime or limestone with caustic soda, or silicate, or carbonate of soda, the same being employed in conjunction with carbon. 6th. As fluxing substances, for use in fusing auriferous ores of the sulphide class, the combination, substantially in the proportions herein set forth, of caustic lime or limestone with caustic soda, or nitrate, silicate, or carbonate of soda, or sulphur compounds of soda. 7th. In the reduction of auriferous ores of the sulphide class, producing a regulus having a natural tendency to disintegrate and to assume a condition specially adapted for expeditious and economical treatment by known methods, for the separation of the gold and other metals contained in such regulus.

No. 30,693. Method of Making Ferrules for Cant-Hooks. (*Mode de fabrication des frettes de renards.*)

Edward Mansfield, Orono, Me., U.S., 2nd February, 1889; 5 years.

Claim.—1st. The herein-described method of making cant-hook ferrules consisting of, first, punching or cutting out a plate *a*, of steel or wrought metal, making a perforation *a* in such plate, and forming lips *a* at the edges of said perforation, then inserting therein a steel or forged metal staple *b*, and welding said parts together, as described, and finally bending the plate *a* on a suitable mandrel, and welding its abutting or overlapping edges together, substantially in a manner and for the purpose described. 2nd. The herein-described method of making cant-hook ferrules consisting of, first, making a slitted blank *a*, of a thickness greater than the thickness of the ferrule to be made, afterwards expanding the edges of the slitted portion and forming the staple in one piece with said blank, then reducing it to the thickness of the desired ferrule, and finally bending it and welding its overlapping edges together, substantially in the manner described and for the purpose set forth.

No. 30,694. Wire Cutting and Crimping Machine. (*Machine à couper et cambrer le fil de fer.*)

Timothy Conners, Brooklyn, N.Y., U.S., 2nd February, 1889; 5 years.

Claim.—1st. A machine for making the shackle or wire of lead seals, the same comprising matched rollers provided with feeding devices, such as spring-grippers, crimping or corrugating, or other projection-producing devices, such as teeth or lugs, and matrices therefor arranged upon said rollers, and a cutter, all arranged in the order specified, and designed to introduce the wire between the rollers, provided one end with projections, feed the wire thence onward between the rollers, and impart to the other end similar projections, and finally sever the wire to form a shackle ready for use, substantially as set forth. 2nd. In a machine for making crimped or corrugated wire shackles for lead seals, the combination of housings and boxes therein, with rollers arranged in said boxes and geared together, and provided with the spring-gripper *k*, the crimping devices *f*, *g*, and other crimping devices *f*, *g*, distant from the first-named crimping devices, about as specified, and a cutter *i*, *h*, all arranged in the order named and designed to operate substantially as described.

No. 30,695. Manufacture of Horse Shoes.*(Fabrication des fers à cheval.)*

Richard E. R. James and Charles W. James, Enfield, Eng., 4th February, 1889; 5 years.

Claim.—The construction, of shoes for horses, and like animals, having slots formed therein in which are fitted blocks or pads of rubber, or resilient material, such shoes having a crevice or groove formed therein, so that a wires or wires may pass through the said rubber, or resilient pads, and through the crevice or groove in the shoe and bind all together, substantially as described.

No. 30,696. Vehicle Wheel. *(Roue de voiture.)*

John E. Fisher, Boston, Mass., U.S., 4th February, 1889; 5 years.

Claim.—In a vehicle wheel, the metal rings or washers interspersed between the interior of the felloe, and the shouldered outer end of the spokes, substantially as and for the purpose set forth.

No. 30,697. Cattle Guard. *(Garde-bétail.)*

James T. Hall, St. Louis, Mo., U.S., 4th February, 1889; 5 years.

Claim.—1st. A metallic surface cattle guard composed of longitudinal bars or guide rails supported upon the ties, and assembled in the form of gratings by means of cross-bars connecting them on the under side between the ties substantially as described. 2nd. A metallic surface cattle guard composed of T-bars supported upon the ties in the longitudinal direction of the rails, and assembled in the form of grating by means of cross-bars upon their under side, and of rail-clips securing them to the cross-bars, substantially as described.

No. 30,698. Adjustable Bag - Holder attached to Fan Mills. *(Acroche-sac mobile pour tarares-cribleurs.)*

Henry T. Lepage, Charlottetown, P.E.I., 4th February, 1889; 5 years.

Claim.—The bag-holder, as described above, and as applied and adjusted to fan-mills, substantially as and for the purpose hereinbefore set forth.

No. 30,699. Machine for Constructing Fences. *(Machine à faire les clôtures.)*

Robert E. Morton, (assignee of Perry Allen), Flint, Mich., U.S., 4th February, 1889; 5 years.

Claim.—1st. The combination, with the uprights A and the twisting wheels journalled therein, of the straps secured to said uprights, the cogged driving wheel journalled in said straps and meshing with the two uppermost of said wheels, and a crank handle on the shaft of said driving wheel, as set forth. 2nd. The combination, with the upright 1 and the winding spool suitably journalled thereon, of a friction wheel on said spool, and the substantially U-shaped band 5 passed over said friction wheel, and adjustably secured in said upright, and the adjusting nuts 6 on one leg of said band, substantially as and for the purpose specified. 3rd. The combination, with the uprights A, of the beaters L, each formed of two parts l, n, the former formed with holes b, and rib m, adapted to engage a groove in the part n, said rib and part l being provided with holes p, and the removable bolt o, substantially as shown and described and for the purpose specified.

No. 30,700. Steam and Hot Water Radiator.*(Calorifère à vapeur et à eau)*

Edward Baines and Arthur J. Johnson, Toronto, Ont., 4th February, 1889; 5 years.

Claim.—1st. In a radiator, the combination, with the metal casing A, having opening B and flanges a, of the thin metal sheet C, the perforated guard D secured to flanges a, through holes formed in said thin metal sheet C, the inlet pipe E and outlet pipe F, and vacuum valve G, substantially as described and for the purpose specified. 2nd. A radiator having apertures d in it, and said apertures being covered on their inner sides with sheet metal C.

No. 30,701. Manufacture of Woven Glove.*(Fabrication des gants tissés.)*

George G. Pomphrey, Glasgow, Scotland, 4th February, 1889; 5 years.

Claim.—1st. The manufacture of gloves made substantially as described, on a hosiery frame wherein those portions of the fabric constituting the outer portions or tips of the thumbs and fingers thereof, to such extent as may be necessary, are made thicker by the introduction of "splicing" at such parts of gloves. 2nd. In the manufacture of gloves woven on looms, the thickening of those portions of the fabric constituting the outer portions or tips of the thumbs and fingers thereof, to such extent as may be necessary, this being effected by weaving those parts according to either of the modes above set forth, or any of them, substantially as hereinbefore described.

No. 30,702. Apparatus for Holding Horse Shoes while their Caulks are being Forged. *(Appareil pour saisir les fers à cheval pendant qu'on forge les crampons.)*

John M. Morgan and Jacob I. Morgan, Ottawa, Ont., 4th February, 1889; 5 years.

Claim.—1st. A hold-fast for sharpening toe-caulks, constructed substantially as hereinbefore shown and described, consisting of a spring fastened at one end so as to bring the disengaged end against the side of the anvil, and for the purpose set forth. 2nd. In a hold-fast for sharpening toe-caulks, the combination of the spring S with the socket C, D, and the anvil A, substantially as and for the purpose hereinbefore set forth.

No. 30,703. Chill. *(Coquille de fonderie.)*

William Fawcett, Jersey, N.J., U.S., 4th February, 1889; 5 years.

Claim.—1st. A chill consisting of a corrugated band, substantially as and for the purpose set forth. 2nd. A chill consisting of a corrugated annulus, substantially as set forth. 3rd. A corrugated chill, provided with slits extending across its interior and exterior faces from top to bottom, substantially as set forth. 4th. A chill consisting of a corrugated annulus, and a solid exterior clamping-ring, substantially as set forth.

No. 30,704. Railway Track Cleaner or Snow Plough. *(Charrue à neige de voie de fer.)*

Lewis J. Bergendahl, Pendleton, Oregon, U.S., 5th February, 1889; 5 years.

Claim.—1st. In a wheel-casting with an open-top delivery, the combination therewith of a double tilting shutter automatically moved to either side of said opening, as herein set forth. 2nd. A snow-plough consisting of a revolving drum provided with front automatic cutters mounted on a spider or open front end, and a solid rear end plate connected to said spider by radial plates, said radial plates surmounted by automatic scrapers, all mounted on a driving shaft and enclosed in a casing provided with a front hopper-shaped mouth and an alternating top delivery-opening governed by an automatically operating shutter, as herein set forth.

No. 30,705. Car Door Fastener.*(Fermeture de porte de char)*

William E. Heffner, Huntingdon, Penn., U.S., 5th February, 1889; 5 years.

Claim.—The combination, with the car and its door, of a casting secured to the side of said car and adapted to form a stop for the door, and a bar pivoted at one end within said casting on a pivot at right angles to the length of the car, provided at a point near its free end, with a staple to receive the eye of a hasp secured to said door, substantially as described.

No. 30,706. Skate. *(Patin.)*

John Forbes, Halifax, N.S., 5th February, 1889; 5 years.

Claim.—1st. In a skate, the combination, with the heel-plate, of a heel-clamp 2 so arranged that an automatic clamping of said heel-clamp, in a suitable position for clamping upon the boot-heel, is obtained at the time of application of the skate to the boot without the aid of serrations, pawls, pinching-screws, adjustment holes and pins, or other devices requiring a previous special setting. 2nd. In a skate, the combination, with a sole plate and clamps, of the locking-bars 4 and 5, substantially as described, whereby the sole-clamps are automatically adjustable to, and capable of being clamped upon, the boot-sole at the time and in the act of attaching the skate to the boot, without the necessity of a previous adaptation of said clamps, by means of pinching or binding screws, or graduated holes and pins, or equivalent devices. 3rd. In a skate, a runner having its forward part from about its middle straight on its sides, the bottom surface curved upward to its front or toe end, and having on the rear portion curved or tapered sides and a bottom surface in a straight line to the heel end, substantially as described for the purpose of giving support under the centre of gravity of the body of the skater and affording curved edges for curving movements. 4th. In a skate, the heel-clamp 2, slotted so as to embrace the heel-plate 1, or an extension from same, and to clamp thereon in the act of applying the skate to the boot, substantially as described. 5th. In a skate, the spring-bar 4, in combination with the serrated bar 5, and the knife-edges 9, 9, and bent-down inner ends of the clamps 7, 7, substantially as described. 6th. In a skate, the sole-clamps 7, 7, the same clamping the boot-sole by a mechanism acting so as to press their inner ends outward from the boot-sole, such ends being held in position relatively by being locked upon an intermediate connecting-bar 5, substantially as described.

No. 30,707. Manufacture of Explosives.*(Fabrication des explosifs.)*

Alfred Nobel, Paris, France, 5th February 1889; 5 years.

Claim.—1st. The manufacture, from nitroglycerine and soluble nitro cellulose, of a horny or semi-horny explosive compound susceptible of granulation, substantially as and for the purposes herein described. 2nd. In the manufacture of a compound having the explosive character above indicated, the use of nitrated starch and nitro dextrine, either or both, or their equivalent in partial substitution for the nitro cellulose employed, as and for the purpose above described. 3rd. The combination of powdered nitrates, chlorates or picrates, as above set forth, with the new explosive compounds above described, composed of nitro-glycerine and nitro-cellulose with or without the addition of nitro-starch or nitro-dextrine.

No. 30,708. Sulky Plough. *(Charrue à siège.)*

James Marr, Brantford, Ont., 5th February, 1889; 5 years.

Claim.—1st. In a sulky plough, the combination of gauze wheel D, crank shaft J, and lever K, as and for the purpose hereinbefore set forth. 2nd. In a sulky plough, the combination of the wheel B and circular lever C, as and for the purposes hereinbefore set forth. 3rd. In a sulky plough, the combination of the land wheel G, frame F and box o, as and for the purpose hereinbefore set forth.

No. 30,709. Car-Coupling. *(Attelage de chars.)*

George W. Smillie, Newark, N.J., U.S., 5th February, 1889; 15 years.

Claim.—A car-coupling consisting of a draw-head A, coupling-pin B, coupling-link D, spring-actuated plunger C, actuating lever C, all formed, arranged and adapted to be operated substantially as described and shown and for the purpose set forth.

No. 30,710. Composition of Liquids for use in Generating Vapours through Heated Water, etc., and Condensed direct through Cold Water, to work Vapour Engines or Motive Power Apparatus. (*Composition de liquides pour servir à produire la vapeur au moyen d'eau réchauffée, etc., et directement condensée au moyen d'eau froide, pour faire fonctionner les machines à vapeur et les appareils moteurs.*)

Max Blumrich, Philadelphia, Penn., U.S., 5th February, 1889; 5 years.

Claim.—The mode, herein described, of operating motive power apparatus or vapour engines with bisulphide of carbon, said method consisting in mixing with the bisulphide of carbon at least 5 per cent. of any soluble hydro-carbons (series) of which I preferably use 20 per cent., or as much as the bisulphide is capable of taking up, and for the purpose of destroying its inflammability to almost any extent on exposure to the atmosphere or in a vaporized state during the working of the vapour engines, while at same time not interfering with its volatile properties, the vapors of which may also be generated inside the boiler through the action of heated water, and condensed direct through cold water inside the condenser, substantially as and for the purpose set forth.

No. 30,711. Refrigerating and Freezing Apparatus. (*Appareil frigorifique et congélateur*)

Loftus Perkins, London, Eng., 5th February, 1889; 5 years.

Claim.—1st. A freezing or refrigerating apparatus consisting of a system of hermetically-closed pipes or chambers, in combination with pipes or chambers at a higher level than such system, rising pipes connecting the same and overflow pipes from such higher level pipes to those of said system, as and for the purposes described. 2nd. In freezing or refrigerating apparatus, the combination, with pipes or chambers G, for containing solution to be heated, of hot water pipes H extending through said pipes or chambers, as and for the purpose described. 3rd. Freezing or refrigerating apparatus constructed in two or more similar divisions, each composed of a closed heating pipe or chamber, a condensing pipe, an overflow pipe, a rising connecting pipe, and a sleeve or jacket communicating with condensing pipe and enclosing said connecting pipe, as and for the purpose described. 4th. Freezing or refrigerating apparatus constructed in two or more similar divisions, as above described, and with independent branch connections to each heating tube from heat supply pipe, as and for the purpose described.

No. 30,712. Combined Fire and Burglar Alarm. (*Avertisseur d'incendie et de voleur*)

Ira S. Bunker, Nevada, Mo., U.S., 5th February, 1889; 5 years.

Claim.—The combination, with the casing 1 containing clock mechanism, and the alarm bell 22 on said casing, of the spring-actuated vertically-movable rod 10, having the plates 10^a secured to its horizontal member, and the detent 11 secured to one of its vertical members, and adapted to engage the escapement 20 of the clock-work mechanism, the series of spring-actuated vertically-movable rods 7, arranged above the plate 10^a, the cords or wires 25, 25^a, connected respectively to and with the rods 7, and connections, substantially as shown and described, between said cords or wires, and the various parts of a house, or other similar structure, as and for the purpose herein set forth.

No. 30,713. Cash Till. (*Caisse de comptoir*.)

George R. Stokes, William Loney, Hanley, and Thomas M. Favell, Etruria, Eng., 5th February, 1889; 5 years.

Claim.—1st. In a cash checking till, the application of the device J j j, substantially as and for the purposes herein set forth. 2nd. In a cash checking till, the application of the brake wheel H, substantially as and for the purposes herein set forth. 3rd. In a cash checking till, the employment of the three brackets s, s, s, for keeping the paper band at a constant degree of tension, substantially as herein set forth. 4th. The employment in a cash till, as herein described, of a metal plate or spring U, in combination with a ratchet wheel g, as a substitute for the brake wheel H, and spring M, substantially as and for the purposes herein set forth. 5th. The adaptation to a cash checking till, of a spike T, for filing the duplicates of bills or accounts, substantially as herein set forth.

No. 30,714. Horse Blanket Fastener.

(*Courroies de couverture de cheval*.)

Naomi Coburn and Elizabeth J. Martin, Toronto, (assignees of Joseph L. Coburn, Newmarket), Ont., 6th February, 1889; 5 years.

Claim.—The combination, with a blanket A, of adjustable straps B, B¹, and adjustable straps E, E¹, designed to fasten onto rings or catches D, D¹, and rings or catches G, G¹, substantially as described and for the purpose specified.

No. 30,715. Machine for Making Paper Bags. (*Machine à faire les sacs de papier*.)

Arthur Bolduc, Ste. Cunégonde, and Edward St. Cyr., Montréal, Que., 6th February, 1889; 5 years.

Claim.—1st. In a machine for making paper bags, the bracket h¹, h², provided with the shaft H, and adjustable bracket h⁴, band h², pul-

ley h⁵, weight h⁶, movable pieces B, provided with the rollers I and J wheels L, L, standards L₂, L₂, pieces L₃ and L₆, template M, piece M₄, adjustable pieces N, wheels F, F, rollers O, S, V and V¹, gear wheels R₁, R₂, R₆, cog wheels R₃ and R₄, and chain R₅, substantially as described and for the purposes set forth. 2nd. In a machine for making paper bags, the bevel pinions R₉ and R₁₀, shaft R₈, pulley R₁₃, fly wheel R₁₂, gear wheel R₁₄, pinion R₁₅, wheel R₁₇ provided with the eccentric slot R₁₉, slot S₃ and T, slot S₄, shaft R₁₆, movable block R₂₀, radial arms E¹ and E², guide Z¹ provided with the piece Z² having the projection Z, and substantially as described and for the purposes set forth. 3rd. In a machine for making paper bags, the lever a¹, shaft a₃, lever a₅, spring a₂₃, pulley a₉, chain a₈, lever a₁₀, pieces a₁₃ and a₅, fillers a₂₄, a₂₄, springs a₂₂, a₂₂, plate a₁₉, guides a₂₀ and a₂₁, and pieces G₂ and G₃, substantially as described and for the purposes set forth. 4th. In a machine for making paper bags, the spring D₄, lever D₁, pieces C₃, C₃, cross-head c₄, channel C₁₃, piece C₅, space c₈, band C₆, space C₇, pulleys C₁₀ and C₁₄, substantially as described and for the purposes set forth. 5th. In a machine for making paper bags, the combination of the frames A and R₁₈, paste applicator K and transfer W, with the brackets h¹, h² and h⁴, shafts H, R₈, R₁₀ and a₃, bands h² and C₆, pulleys h⁵, R₁₃, a₉, C₁₀, and C₁₄, weight h⁶, movable piece B, rollers I, J, O, S, V and V¹, wheels L, L and F, F, standards L₂, L₂, pieces L₃, L₆, M₄, a₁₃, C₅, a₁₅, G₂, G₃ and C₃, C₃, adjustable piece N, gear wheels R₁, R₂, R₆ and R₁₄, template M, cog wheels R₃ and R₄, chains R₅ and a₈, bevel pinions R₉ and R₁₀, fly wheel R₁₂, pinion R₁₅, wheel R₁₇, provided with the eccentric slot R₁₉, slot S₃, T, slot S₄, movable block R₂₀, radial arms E¹ and E², guides Z¹ provided with the piece Z² having the projection Z, levers a, a₅, a₁₀ and D₁, springs a₂₃, a₂₂, a₂₂ and D₄, fillers a₂₄, a₂₄, plate a₁₉, guides a₂₀ and a₂₁, cross-head C₄, channel C₁₃ and space C₈, substantially as described and for the purposes set forth.

No. 30,716. Cut-off for Steam Engines.

(*Détente de machine à vapeur*.)

Thomson Kingsford, (assignee of John J. Tonkin), Oswego, N.Y., U.S., 6th February, 1889; 5 years.

Claim.—1st. In combination with the cylinder and steam chest, the reciprocating main valve having steam ports extending through it, a valve case provided with steam ports coinciding with the ports of the main valve, steam induction ports in said valve case between the aforesaid steam-ports, and a reciprocating governor-valve in the said valve case, substantially as set forth and shown. 2nd. In combination with the steam cylinder and steam chest, the main valve A formed with the steam chest B, and with the receiving ports a, a, a and discharge ports a¹, a¹, the valve case C secured to the interior of the steam chest, and provided with the ports b, b, b coinciding with the ports a, a, a, and provided also with the steam induction ports b¹, b¹, and the reciprocating governor valve I provided with bridges c, c¹, having perforations c¹, c¹, substantially as described and shown. 3rd. In combination with the steam chest and the main valve A provided with ports a, a, a, the valve case C provided with the ports b, b, b and b¹, b¹, the governor valve I provided with the governing bridge c and safety stop bridge c¹, respectively, at opposite sides of the port b, substantially as described and shown. 4th. In combination with the steam chest, and main valve A, the valve case C provided with the ports b, b, b, and b¹, b¹, and the governor valve I provided with the governing bridges c, c, c, at one side of the respective ports b, b, b, and having the stop bridges c¹, c¹, c¹, adjustably in their position at the opposite side of said ports, substantially as and for the purpose set forth. 5th. In combination with the steam chest, the reciprocating main valve A provided with the ports a, a, a, the valve case C secured to the steam chest, and having a cavity O extending through it at right angles to the movement of the main valve, steam ports b, b, b, extending from the cavity C to the ports a, a, a, valve seats d, d, at opposite sides of each port b, and steam receiving ports b¹, b¹, between the seats of valve-seats d, d, the governor valve I extending longitudinally through the cavity O, and provided with the bridges c, c¹, the governor P mounted on the steam chest, and the stem s connecting the governor with valve I, substantially as described and shown. 6th. In combination with the steam chest, main valve and governor valve inside of said steam-chest, the governor P mounted on the steam-chest, the governor stem s connecting the governor with the aforesaid governor valve, and a catch adapted to temporarily retain the governor stem in its depressed position, substantially as and for the purpose set forth.

No. 30,717. Self-Locking Automatic Device for Opening and Closing Valves to Air Brake Hose Coupling.

(*Appareil automatique pour ouvrir et fermer les valves des joints de tuyaux des freins atmosphériques*.)

John H. Porter, Jackson, Edward A. Grosvenor and Edward L. Boyd, Detroit, Mich., U.S., 6th February, 1889; 5 years.

Claim.—In a hose coupling, section A, valve K, interlocking arm B, all arranged and combined substantially as and for the purpose set forth.

No. 30,718. Vestibule Car. (*Char à vestibule*.)

Thomas E. Thomson and Charles Gardner, Chicago, Ill., U.S., 6th February, 1888; 5 years.

Claim.—1st. In a railway-car, a rack-plate with horizontal teeth pivotally connected to the end of the buffer-bar, to intermesh with a corresponding rack-plate on the buffer-bar of an adjoining car, substantially as described. 2nd. In a railway-car, a rack-plate with horizontal teeth pivotally connected to the end of the buffer-bar and rigidly secured in place, as regards vertical and torsional movement, to intermesh with a corresponding rack-plate on the buffer-bar of an adjoining car, substantially as described. 3rd. In a railway-car, a rack-frame having horizontal teeth mounted upon the end of the car, and rigidly secured thereto, against vertical and torsional movement, to intermesh with a corresponding rack-frame on an adjoining car,

substantially as described. 4th. In combination with the rack secured to the end of a railway-car, the flaring aprons I and I', projecting inward from the rack to receive the end sill, substantially as described. 5th. In a railway-car, the combination, with the rack and end sills K, of the buffer N N' pivotally connected to the rack, and curved bars L rigidly connected to the rack, and projecting through openings in the end sill, substantially as described. 6th. In a railway-car, the combination, with the rack sill, K and sill K', of the buffer N N' pivotally connected to the rack, curved bars L rigidly connected to the rack and extending through openings in the end sill, mandrel-rods L' pivotally connected at their heads *g* to the bars L, and extending through openings *h* in the sill K', and springs *r* surrounding the rods L' and confined between the heads thereof, and the sill K', substantially as described. 7th. In a railway-car, the combination, with the rack buffer pivoted thereto, bars L projecting therefrom, and end sills K, of the blocks M having curved openings through them, to receive the curved bars L and fitting mortises in the sill K, whereby they will automatically shift with the variation in position of the pivotal connection between the buffer-stem and rack, substantially as described. 8th. In a railway-car, the buffer rack secured to the end of the car rigidly, as regards vertical and torsional movement, and having its teeth and spaces located as described, whereby any tooth on one side of the centre corresponds in position with a space on the opposite side of the centre. 9th. In a vestibule railway-car, the combination, with the metal contact frame secured to the end of the car, of the flexible sheathing U secured by one edge to the contact frame, and extending back therefrom into a recess formed to receive it, substantially as described. 10th. In a vestibule railway-car, the combination, with the metal contact frame secured to the end of the car, and with the bars *e*, and shields *d*, of the flexible sheathing U secured by one edge to the contact-frame, and extending back therefrom between the bar *e* and shield *d*, substantially as described. 11th. In a vestibule railway-car, the combination, with the metal contact frame secured to the ends of the arc, of the flexible sheathing U in two layers, secured by corresponding edges out of contact with each other to the frame, whereby an air-space *c* is formed and both extending back into a recess formed to receive them, substantially as described. 12th. In a railway-car, the truss-rod Q passing under the bottom platform sill P', and up through the side platform sills P, and secured above the latter by nut *f*, in combination with the truss rod Q', passing over the intermediate platform sills P, and down through the bottom platform sill P', and secured below the latter by nuts *g*, substantially as described. 13th. In combination with the sills P, K' and P₃, of a railway-car, the metal straps R₁ and R₂, crossing the sill K' above the sills P, and below the sills P₃, and bolted together through the sills, substantially as described. 14th. In combination with the body and platform of a vestibule railway-car, having their floors in substantially the same plane, the doors G swinging both ways from the end B of the car, as shown, whereby they may serve to close the platform or close the end of the car, or open both the platform and the end of the car, substantially as described. 15th. In combination with a railway car having the casing *z*, recessed as shown at *y*, the doors G having the rounded rear edges *w* fitting within the recess *y*, and provided above and below with trunnions *v* entering sockets *v*, formed in the floor and in the frame above the door to form a pivot, a spring operating to throw the door into central position, and bolt-mechanism for securing the door in place at the extremes and centre of its sweep, substantially as described. 16th. In combination with a railway-car having the casing *z* provided with the thimble *q* and diminished recess *pi*, and with the door G provided with the recess *o*, the rollers *n* mounted in bearings *nl* in the recess *o*, thimble *o'* entering the thimble *q*, and having upon its outer end the disk *m*, to bear against the rollers *n*, mandrel *l* extending from the disk *m*, through an opening *p* in the inner end of the thimble *q*, into the recess *pi*, screw nut *h* on the mandrel *l*, and helical spring *i* surrounding the mandrel and confined between the screw-nut and the inner end of the thimble *q*, substantially as described. 17th. In a vestibule railway-car, the double swinging doors G' separating from the main body of the car, an end compartment which may be made integral with the vestibule and with the corresponding compartment of the adjacent car by means of the doors G, substantially as described.

No. 30,719. Corset Clasp. (*Agrafe de corset.*)

Max W. Henius, Bridgeport, Conn., U. S., 7th February, 1889; 5 years.

Claim.—1st. A corset clasp, comprising a busk having studs, a second busk having fixed eye portions 4, curved to form hooks 16, pointing slightly inward toward said busk, and thereby adapted to hold the studs and take all of the strain when the corset is tightly laced, movable eye portions also carried by said second busk and adapted to prevent the escape of the studs when the corset is loosely laced, and a slide connecting and adapted to operate said movable eye portions, substantially as set forth. 2nd. A corset clasp, comprising a busk having studs, a second busk having fixed eye portions 4, pivoted movable eye-portions 5, having vertical slots and also carried by said second busk, and a slide 10 carrying studs engaging said vertical slots of eye-portions 5, substantially as set forth.

No. 30,720. Sofa-Bed. (*Sofa-lit.*)

Oliva Langlois and Henri Langlois, St. John, Que., 7th February, 1889; 5 years.

Claim.—1st. In sofa-beds, the connecting blocks *i*, *i*, *i*, *i* and *k* having for object to bring the axis of rotation of the back and of the head close under the stuffing of the sofa-bed. 2nd. In sofa-beds, the cords or chains O, O for the purpose set forth. 3rd. The combination, in a sofa-bed, of the connecting blocks *i*, *i*, with the supports S, S and the rests *t*, *t*, all substantially as described and for the purpose set forth. 4th. The supports S, S, having the rods *r*, *r*, and the eye-peeces *v*, *v*, and the rests *t*, *t*, all substantially as shown. 5th. In sofa-beds, the combination of the blocks I and K, with the bar *q* and cross-bars *b* and *c*, all substantially as and for the purpose set forth.

No. 30,721. Whiffletree Hook.

(*Crochet de palonnier.*)

George T. Wilson, Lowville, N. Y., U. S., 7th February, 1889; 5 years.

Claim.—The device described, consisting of the tapered hollow casting C, formed with closed sides and top and open at the bottom, and provided at one end with suitable holes for the reception of the securing means, a hook pivoted within a recess in the enlarged outer end of said casting, and having its base portion enlarged and the lower face of said enlarged portion concaved in a direction parallel with the length of the casting, and the front and rear edges of the hook beveled as shown, and a flat spring H arranged within said casting with its free end in said concaved recess when the hook is raised, substantially as shown and described.

No. 30,722. Railway Coupon Ticket Rack.

(*Casier de billet-coupon de chemin de fer.*)

George Ross, South Butte, M. T., U. S., 7th February, 1889; 5 years.

Claim.—1st. The combination of the standards C₁, the transverse pegs D, the links B₁ and the ticket-holding plates, as set forth. 2nd. The combination of the standards C₁, the transverse pegs D, the forwardly projecting pegs E, the links B₁ and the ticket-holding plates, having openings B engaged by the links and engaging the pegs E, as set forth. 3rd. The combination of the casing, the links and the ticket-holding plates A, as set forth.

No. 30,723. Reclining and Operating Chair.

(*Fauteuil pliant de chirurgie.*)

Richard B. Roberts, William D. Allison and Henry H. Elbreg, Indianapolis, Ind., U. S., 7th February, 1889; 5 years.

Claim.—1st. In a reclining chair, the combination, with the seat frame, of the pivoted back C, pivoted standards D, recessed pivoted arms E, and an adjusting and locking mechanism, consisting of a rack-bar G pivoted within said arms E, a bell crank, or equivalent, pivoted to the chair back, a rod pivoted to the bell crank and to the forward end of the rack-bar, a sliding pawl to engage the teeth of the rack-bar, and a lever pivotally connecting the pawl with the pivoted back, all substantially as and for the purpose described. 2nd. In a reclining chair having a pivoted back, pivoted standards and pivoted recessed arms, the combination therewith of an adjusting and locking mechanism, consisting of the slotted plates *e*, having the upwardly projecting ears *e*₁, the rack-bar G pivoted between said ears, the flanged sliding pawl *e*₂ pivoted to the back by a suitable rod, and means, as described, to raise the rack-bar and disengage its teeth from the pawl, substantially as set forth. 3rd. The combination, with the pivoted back and standards of a reclining chair, of the arms E pivoted to the back and standards, and having the recess *e*₁ therein, and the slotted plate *e*₂ secured to the bottom thereof, a gravity rack-bar G pivoted within said recess *e*₁, having a depending lug, a sliding pawl having a tooth to engage the teeth of the rack-bar and having flanges *e*₄ to bear upon the slotted plate, a lever pivotally connecting said pawl to the chair back, and means to operate the rack-bar to throw it out of engagement with the pawl, substantially as and for the purpose described. 4th. The combination, with the two rack bars G, pivoted one within each of the arms E, of a mechanism to automatically operate both rack-bars simultaneously, consisting of a shaft extending entirely from side to side of said chair, suitably supported in bearings, a bell crank secured to each end of said shaft, and a rod pivoted to one arm of each bell-crank and to the front end of the rack-bar, substantially as set forth and operating as specified. 5th. In a reclining chair, the pivoted arms E, E, recessed as described, with the slotted plates *e*₂ secured thereto, and the rack-bars G pivoted within said arms, and having the depending slugs *e*₂, in combination with the rods *e*₃, pivoted to the forward end of said rack-bar and to one arm of the bell-crank A, located one at each side of the chair, both of which are keyed to one continuous shaft I and have the forwardly-projecting hand-lever *h*₁, as described, and the sliding flanged pawls *e*₃ to engage the teeth of the rack-bars, and the levers *e*₂ pivoted to said pawls and to the back of the chair, below the pivotal point of the arms E, E, substantially as shown and described. 6th. The combination, in a reclining chair, with the seat frame, of the legs B, removably hinged or pivoted to said frame, the cross-bars *b*, *b*, removably secured to the legs and to each other, and the foot-rest F, having hooks or equivalents at its upper end, to removably engage pins upon the seat frame, whereby the legs, cross-bars and foot rest may be quickly taken apart for the purpose of shipment, substantially as described. 7th. The combination, with the side sills of the seat frame, of the open-ended box L having the transverse tooth or projection *l*, and the stirrup-supporting bar M notched upon its underside, as shown, and the stirrup N adjustably secured to the forward end of said bar M, substantially as and for the purpose described. 8th. In a reclining chair, the adjustable stirrup mechanism, consisting of the plates or boxes L, secured to the seat frame and having the internal projections *l*, the movable stirrup-supporting bars M, having notches in their under faces and having the vertical eye in their forward ends, with the annularly-arranged teeth and notches in the upper edge, and the open stirrups N having a shank bearing in the eye in the bar M, and having a tooth to engage the notches, whereby the stirrup may be adjusted laterally and locked in position, substantially as and for the purpose set forth. 9th. The combination, with the back C, of the depending rods K connected therewith, and the plates K₁ secured to the lower portion of the chair, to support the ends of the rods when the chair back is adjusted approximately to a horizontal position, substantially as and for the purpose set forth. 10th. The combination, with the front of the chair, of a sliding shelf to rest upon the upper edge of the foot-rest, to support instruments or articles when the chair is in use, and adapted to be slid backward out of the way, when not needed, substantially as described. 11th. The combination, with the side rails of the seat frame, of the plates R having vertical openings therein, in combination with the shelf or table *r*, having the supporting rods *r* with pintles or shanks to enter said openings, substantially as shown and described. 12th. The combination, with

the seat-frame, of the foot-rest pivoted at its upper end thereto, and having a pivoted brace rod *U*, which engages teeth *or* upon the racks *P* secured to the upper edge of the side cross-bars *b*, whereby the adjustment of the foot-rest may be regulated, substantially as described. 13th. The combination, with the foot-rest *F*, of the step *T* hinged thereto, the brackets *T'* secured to the foot-rest, and the bar *T''* secured to the step in such manner that they will abutt against each other when the step is adjusted to a position at right angles to the foot-rest, substantially as shown and described. 14th. The combination, with the foot-rest removably pivoted to the seat-frame, of the step *T* hinged to the lower end thereof, and means, substantially as shown, to support the step in adjusted position. 15th. The combination, with the leg *B* of the chair, of the bracket or plate *s*, having a vertical eye in its forward end, and an upwardly-projecting flange *z* at its rear end, and metallic step-bracket *st* pivotally secured thereto, substantially as shown and for the purpose set forth.

No. 30,724. Furniture Drawer.

(*Tiroir de meuble.*)

George Bower, Fayette, Mo., U. S., 7th February, 1889; 5 years.

Claim.—1st. The combination, with a casing and a sliding drawer, of a roller journalled on the rear of the drawer below the upper edge thereof, and having its ends projecting beyond the ends of the drawer, and cords wound on the projecting ends of the said roller, and having their ends secured to the front and rear of the casing, substantially as described. 2nd. The combination, with a casing and a drawer sliding therein, of brackets secured to the back of the sliding drawer, a roller journalled in the said brackets, below the upper edge of the back of the drawer, and having its ends projecting beyond the ends of the drawer, cords wound on the projecting ends of the roller, and having one end connected to the rear of the casing, and adjustable pins secured to the front of the casing, and to which the other ends of the said cords are secured, substantially as herein shown and described.

No. 30,725. Portable Derrick. (*Grue portative.*)

Peter Rabbitt, Jacksonville, Ill., U. S., 7th February, 1889; 5 years.

Claim.—1st. In a portable derrick, the combination of the upper or top beam *A*, the laterally and longitudinally movable lower or track beam *B*, the trussing and bracing rods *E*, *E* and *F*, *F*, the standards *C*, *C*, and the longitudinally-slotted adjustable legs *H*, *H*, substantially as and for the purpose described. 2nd. In a portable derrick, the combination of the upper or top beam *A*, the laterally and longitudinally movable lower or track beam *B*, the trussing and bracing rods *E*, *E* and *F*, *F*, the knuckle-jointed bolts *G*, *G*, the longitudinally-slotted adjustable legs *H*, *H*, and the standards *C*, *C*, substantially as described. 3rd. In a portable derrick, the combination of the legs or standards *C*, *C*, the extension legs *H*, *H*, formed with the longitudinal slots *I*, *I*, the rods *D*, *D*, provided with the nuts *d* and *d'*, arranged on the outside and inside of said legs, and the tail-bolts *J*, *J*, provided with the nuts *j*, *j* and *j*, *j*, the latter being elongated and having teeth or projections on their inner faces, substantially as and for the purpose described. 4th. In a portable derrick, the combination of the top beam *A*, the laterally and longitudinally movable track-beam *B*, the knuckle-jointed bolts *G*, *G*, the legs or standards *C*, *C*, the extension legs *H*, *H*, rods *D*, *D*, provided with the nuts *d*, *d'*, the tail-bolts *J*, *J*, provided with the nuts *j*, *j*, and *j*, *j*, and the trussing or bracing rods *E*, *E* and *F*, *F*, substantially as described.

No. 30,726. Submarine Telegraphic Cable.

(*Câble télégraphique sous-marin.*)

Johann C. I. Loeffler, Westminster, Eng., 7th February, 1889; 5 years.

Claim.—A telegraph cable on which are strung metal ferrules, forming part of its protective covering, substantially as and for the purpose herein set forth.

No. 30,727. Milk Aerator and Cooler.

(*Garde lait aérateur.*)

Thomas J. Millar, Spencerville, Ont., 7th February, 1889; 5 years.

Claim.—A milk cooler and aerator comprising, in combination, the milk receiver *A* having a bottom provided with a neck *B* on the outside, surrounded by a row of perforations *a*, and the circular distributing or cooling disk *C*, having a neck *C'* to telescope said neck *B*, and provided with a drop rim *C*, overflow rim *Cl*, and feet *D*, as set forth.

No. 30,728. Signal Light for Vessels.

(*Feu de signal pour vaisseaux.*)

Joseph W. Coulston, Philadelphia, Penn., U. S., 7th February, 1889; 15 years.

Claim.—1st. The combination in signal lights for vessels, of colored port and starboard lights, with a white warning or object light visible from dead astern, and from a number of points to port or starboard of dead astern, but shielded from view from points within the range of the said colored port and starboard lights. 2nd. The combination in signal lights for vessels, of colored port and starboard lights, with white warning or object lights located at port and starboard, and visible from dead astern, and from a number of points to port or starboard of dead astern, but shielded from view from points within the range of the colored port and starboard lights. 3rd. The combination in signal lights for vessels, of the usual colored port and starboard lights, supplementary colored side lights visible through a range including a number of points to port or starboard respectively, and one or more white warning or object lights visible from dead astern, and through a range including a number of points to port and starboard of dead astern, but shielded from view from points within the range of the colored side lights. 4th. The within described compound side light consisting of a single lantern box, having a colored side light

visible from a number of points to port or starboard, and a white warning or object light visible from dead astern, and from a number of points to port or starboard of dead astern. 5th. The combination of the single lantern box, having a colored side light visible from a number of points to port or starboard, and a white warning or object light visible from dead astern, and from a number of points to port or starboard of dead astern, with a shield, or shields, for restricting the aft range of the colored side light, and the forward range of the white warning or object light.

No. 30,729. Machine for Rolling Screw Threads. (*Machine à fileter les vis.*)

The American Screw Company, (assignee of Charles D. Rogers), Providence, R. I., U. S., 7th February, 1889; 15 years.

Claim.—1st. In a machine for rolling threads on screw blanks, a straight die having formed upon its acting face a series of inclined parallel ribs, which for portions of their length are V-shaped in cross-section, and are then transformed into ridges whose cross-sections are truncated wedges having faces progressively increasing in width from the point where they commence to take the truncated form to the end of the ribs, in combination with a straight back-rest or die having upon its face a series of inclined parallel ribs, similar in form to the series of reversely inclined parallel ribs upon the acting die, but of less area in cross-section, and thereby adapted to bear only upon the core of a screw-blank rolled between it and the acting die, as described. 2nd. In a machine for rolling screw threads on screw-blanks, a straight die, substantially as described, in combination with a straight back-rest, having formed upon its face a series of inclined parallel ribs, which are similar to the series of reversely inclined parallel ribs formed upon the acting die, excepting that the sides of the ribs which constitute the walls of the recesses between the ribs upon the back-rest are less inclined relatively to each other than the sides of the corresponding portions of the ribs of the acting die.

No. 30,730. Steam Pump. (*Pompe à vapeur.*)

Dorr B. Burnham, (assignee of Elon A. Marsh,) Battle Creek, Mich., U. S., 7th February, 1889; 5 years.

Claim.—1st. In combination, a steam chest provided with suitable ports, chambers, and restricted passages from the chamber to the cylinder, and an actuating valve having heads with faces of unequal area, whereby said valve is operated to diminish or increase the flow of steam, and thereby regulate the pressure in the cylinder to correspond with the resistance to the piston, or work to be done, substantially as described. 2nd. In combination, a steam chest having restricted portage from valve chamber to cylinder, and an automatic valve having heads with faces of unequal area, operating to produce isochronism of the piston by equal and differential steam pressure acting upon the unequal areas of the heads, the resistance of the piston serving to automatically regulate the pressure in the cylinder to correspond with the work required, substantially as described. 3rd. In combination, an automatic valve for steam engines, a trip passage leading from live steam passage to the engine cylinder, similar passages leading from each end of said cylinder to the ends of the valve chamber, and a longitudinal passage in the engine piston, whereby the end passages from cylinder to the ends of valve chamber are alternately coupled to the passage from live steam pipe, and the valve is reversed by live steam pressure, substantially as described. 4th. An automatic valve for steam engines, provided with exterior enlargements having faces of different areas, in combination with induction ports and restricting ports, substantially as described. 5th. The combination, with a steam chest having annular admission ports and secondary restriction ports, of a valve provided with heads having faces of unequal area, whereby the portage is restricted when the pressure in the engine is beyond that required to do the work, and said portage is increased when the pressure is insufficient, substantially as described. 6th. In a steam pump having the water cylinder adjacent to the steam cylinder, the combination of the water plunger, a packing, a perforated ring interposed between the ends of said packing, and a passage leading from said ring in the water chamber to the suction chamber, substantially as described. 7th. In a steam feed water, the combination, with the exhaust chamber, of a three-way valve, and ports arranged, the diaphragm between the exhaust suction chambers, to conduct the exhaust steam to atmosphere or to suction chamber, substantially as described. 8th. In a steam pump, the combination of the steams and water cylinders in close connection with each other, and means consisting of a loose divided packing, and an opening, substantially as described, to prevent the leakage of water into the steam cylinder. 9th. In a steam pump, the combination of a sliding member, and the packing, whereby automatic variable tension is produced by the hydraulic pressure exerted in the pump, substantially as described. 10th. In a steam pump, a plunger packing sealed from atmospheric leakage into the pump chambers, in combination with a perforated ring, and a passage from the water cylinder to the suction chamber, substantially as described. 11th. In a steam pump, the combination of a steam and water cylinder, a packing whose tension is automatically varied by water pressure, and means for conducting the leakage by the plunger packing into the suction chamber.

No. 30,731. Steam Boiler Setting.

(*Montage des chaudières à vapeur.*)

Martin E. Hershey, David Longenecker and David Fleming, Jr., Harrisburg, Penn., U. S., 7th February, 1889; 5 years.

Claim.—1st. In a steam-boiler setting, the combination, with the bridge-wall, and the air passages for supplying air to the top thereof, formed by the metal bottom plates having the upwardly extending webs or flanges, and the refractory blocks lying over the tops of such webs, of hollow perforated fire-bricks located over the mouths of such passages for distributing the air, substantially as described. 2nd. In a steam-boiler furnace, the combination, with the bridge-wall, of air passages for supplying air to the top thereof, formed by the bottom plate having the upwardly extending webs, and the re-

fractory blocks lying on the tops of such webs, substantially as described. 3rd. In a steam boiler furnace, the combination, with the bridge-wall, of the passages for supplying air to the top of the same, formed by the plates having the upwardly extending webs with flanged tops, and the refractory blocks resting on such tops, substantially as described. 4th. In a steam-boiler furnace, the combination, with the grate-bar, end bar and bridge-wall, of the plates having the upwardly extending webs, with the refractory blocks on such webs forming air-passages for supplying air to the top of the bridge-wall, and supported in position by the end bar, substantially as described. 5th. In a steam boiler furnace, the combination, with the grate end bar and bridge-wall, of the bottom plates having the upwardly extending webs, with the flanged tops and the refractory blocks resting on such tops, the bottom plates and refractory blocks resting upon and supported by the end bar, substantially as described. 6th. In a steam-boiler furnace, the combination, with the grate-bars, bridge-wall and plates forming air passages, of an end bar having the two rails for supporting the grate-bars, and plates forming the air passages respectively, the connecting webs and the apertures through which the air passes to the top of the bridge-wall, substantially as described. 7th. In a steam-boiler setting, the combination, with the boiler, the setting walls, and the supplemental walls or ledges on each side at the bottom of the removable flame-bed, underlying and in proximity to the boiler, formed of the girders lying loosely on said supplemental walls or ledges, and the refractory blocks removably supported on said girders, substantially as described. 8th. In a steam-boiler furnace, the combination, with the grate, rear air-supply, and setting walls having the projections or ledges, of a flame-bed overlying said air passage for heating the air therein, formed of the T-shaped girders removably supported on the projections or ledges with the flanges down, and exposed to the air beneath, and the refractory blocks removably supported on said flanges, substantially as described.

No. 30,732. Duplex Telegraphy.

(*Télégraphie duplexe.*)

Siemens Brothers and Company, (assignees of Frank Jacobs), Westminster, Eng., 7th February, 1889; 5 years.

Claim.—1st. In combination with the actual and artificial cables, and appliances employed for duplex telegraphy, an artificial line or cable similar in all its electrical qualities to the earth cable, or conductor connecting the operating station to the sheathing of the actual cable or to other earth connection, applied and connected as and for the purpose herein set forth. 2nd. In combination with the actual and artificial cables, and appliances employed for duplex telegraphy, an artificial line or cable similar in all its electrical qualities to the earth cable or conductor connecting the operating station to the sheathing of the actual cable or to other earth connection, and a condenser interposed in the connection of the bridge arm to the earth armature, of the artificial cable applied and connected, as and for the purpose set forth.

No. 30,733. Ejector Condenser.

(*Condensateur-éjecteur.*)

Louis Schutte, Philadelphia, Penn., U.S., 8th February, 1889; 5 years.

Claim.—1st. In an ejector condenser, having the nozzle combining tube and discharge tube as usual, the sliding sleeve O arranged to close the steam inlets at the upper or receiving end of the combining tube distinguished from a sleeve at the delivery end of said tube, whereby the aggregate area of the steam admission openings may be varied to maintain the required velocity of the inflowing steam without causing the leakage of water from the combining tube into the condenser body. 2nd. In an ejector condenser, the combination of the discharge tube, the combining tube with variable steam inlets, and the water nozzle with the variable throat, whereby the admission of steam and water may be established, and maintained with proper relations under varying conditions of supply and pressure. 3rd. In an ejector condenser of the type herein shown, the water nozzle, the combining tube with its series of forwardly directed steam inlets, the discharge tube, and the central ram to regulate the water passage as heretofore, in combination with a sliding sleeve to control the steam inlets through the combining tube. 4th. In an ejector condenser, of the type herein described, the combining tube with variable steam inlets, the water tube with the variable throat, and an adjusting mechanism common to the two, whereby the admission of steam and water is controlled simultaneously and in proper relations to each other.

No. 30,734. Weighing Bridge and Weighing Machine. (*Balance à bascule.*)

Pierre Guillaumin, Voiron, France, 8th February, 1889; 5 years.

Claim.—1st. In a scale, the combination of the platform P₁ mounted upon the levers L, l, the connecting lever C, the connecting rod Q, the standard H, with the beams K, K', and I, I', the counterpoise S attached to the said beam K, K', the link A, A', connecting the beam K, K' to the connecting rod Q, the jointed link B₁ connecting the said two beams and supporting the receptacle B, the pes Q, q and Q', the graduations T, t and T' upon said beams, and upon which the said pes are adapted to move, the frame or stand M supporting said beams and their accompanying mechanism, and the weights V, all substantially as and for the purpose set forth.

No. 30,735. Egg Beater. (*Vergette de cuisine.*)

David T. Winter, Peabody, Mass., U.S., 8th February, 1889; 5 years.

Claim.—1st. An egg-beater frame supporting two toothed gears B, D, engaging directly with each other, the driven gear carrying the beater, and being journalled on one side or face of the frame, and the driving gear being journalled on the opposite side of the frame, substantially as set forth. 2nd. In an egg-beater, the toothed gear D, combined with and operating a vibratory beater G, whose upper end

is adjustably attached to such gear to regulate its extent of throw, and with a guiding eye I on the frame through which the lower free vibrating end of the beater works. 3rd. In an egg-beater in which the beater describes a vertical path substantially circular, the described means for removing the beater or dasher from its frame or support, consisting of the removable crank pin E on the driven gear, and the open eye fulcrum guide pin I on the frame, and through which the dasher rod vibrates and slides when in action. 4th. An egg-beater frame supporting two toothed gears B, D, engaging each other, in combination with the vibrating beater adjustably attached to one of the gears to regulate its extent of throw, and with a guiding eye I on the frame through which the lower free end of the beater works, the beater having a coil H at its extremity, substantially as shown and described. 5th. I claim in an egg-beater, in combination with the driving gears B, D, a wire beater terminating at its lower end in a horizontal coil, and its other end driven in a circular path by a pin E on one of the gears, and an intermediate guide eye, or hole I through which the wire has a lengthwise and also a lateral play, substantially as shown and described.

No. 30,736. Ore Separator and Amalgamator. (*Séparateur et amalgamateur de minerais.*)

Levi Newcomb, Boston, Mass., U.S., 8th February, 1889; 5 years.

Claim.—1st. A tank or receptacle A having an inclining bottom in two portions B, C meeting at D, and a water-tank J having perforations or jet-holes a near the lower portion of the bottom part C, in combination with finger rods or agitators Q, and a reciprocating-shaft N, substantially as described and for the purpose specified. 2nd. A tank or receptacle A having an inclining bottom in two portions B, C meeting at D, and a water-tank J having perforations or jet-holes a near the lower portion of the bottom part C, and ore-agitating or stirring mechanism, in combination with an amalgamating-plate or guard located at and dipping below the level at which the water discharges from the tank, substantially as described for the purpose specified. 3rd. A tank or receptacle A having an inclining bottom in two portions B, C meeting at D, a water-tank J having perforations or jet-holes a near the lower portion of the bottom part C, and an amalgamating-plate X on the inclining portion B, in combination with an ore-agitating or stirring mechanism, all as and for the purpose specified.

No. 30,737. Cabinet for Sewing Machines.

(*Buffet pour machines à coudre.*)

Charles Raymond, Guelph, Ont., 8th February, 1889; 5 years.

Claim.—1st. The pivoted top A supporting the machine B, in combination with the cord E, connected at one end to the top A, and at its other end to the hinged cover D, arranged substantially as and for the purpose specified. 2nd. The top A supporting the machine B, and provided with a downwardly-projecting bracket C pivoted at a to the side of the cabinet, in combination with the cord E connected at one end to the top A, and at the other end to the hinged cover B, substantially as and for the purpose specified. 3rd. The top A supported on one side by the pivoted bracket C, and on the other side by the cord E, in combination with the sliding panel G connected to the top A by a cord or rod H, substantially as and for the purpose specified.

No. 30,738. Composition of Matter to be used for Cleaning and Removing Dandruff from the Scalp and Restoring the Hair to its Original Colour and Lustre. (*Composition de matières pour servir à nettoyer le scalp et enlever les pellicules, restaurer à la chevelure sa couleur et son lustre.*)

A. Félix Pratte, Montpelier, Vt., U.S., 8th February, 1889; 5 years.

Claim.—The herein described composition of matter to be used as a hair-restorative, consisting of water, eggs, glycerine, sulphur and alcohol, in the proportions specified.

No. 30,739. Bed Spring. (*Ressort de lit.*)

Frederick G. Wolfhard, Waterloo, Ont., 8th February, 1889; 5 years.

Claim.—The combination of the coil spring D, in connection with movable standards E, and rack F forming a pivot on frame B, which gives the required elasticity also the attachment of sliding bars I and L, with iron screws N, and coil springs O, and the wooden roller P with ratchet R, all required to give canvas H proper tension, substantially as and for the purpose hereinbefore set forth.

No. 30,740. Portable Drilling Machine.

(*Machine à percer portative.*)

James T. Halsey, Paterson, N.J., U.S., 8th February, 1889; 5 years.

Claim.—1st. In a drilling machine, the combination, with a base-piece, as D, and a driver for the drill-holder mounted rotatively thereon, of the said holder, as A, mounted in the driver, as described, and provided with a feed-screw, a feed-nut embracing said screw, and gears, substantially as described, driven from a common source for rotating said driver and nut simultaneously in the same direction, but at different rates of speed. 2nd. In a portable drilling machine, the combination, with the base-piece, as D, having a cylindrical neck, as d, of the bearing bracket, as E, for the driving-shaft, provided with a band, as e, which embraces the said neck on the base-piece, and with a securing screw, as e', substantially as set forth. 3rd. In a drilling machine, the combination, with a base-piece, as D, and a driver for the drill-holder rotatively mounted therein, of the said holder, as A, provided with a feed-screw, the feed-nut embracing said screw, the toothed wheel B forming a part of said nut, the

toothed wheel C forming a part of said driver, the driving pinions, as B and Cr, in mesh with said wheels respectively, the shafts, as H and F, arranged one within the other, the driving sheave, as G, on the exterior shaft, and the clutch connecting said shafts, whereby they may be driven in unison or independently, all arranged to operate substantially as set forth. 4th. A portable drilling machine, having its base-piece, as D, provided with an aperture for the passage of the drill, and provided also with a tubular male screw, as J, for securing the drill in the proper position for drilling, said tubular attaching screw being adapted to embrace the drill, as set forth. 5th. The combination, with a portable drilling machine having its base-piece or stock provided with a tubular male screw J, for securing the drill to a templet, of a templet provided with a female screw to receive the said male screw on the drilling machine, which latter screw embraces the drill and centers it, as set forth.

No. 30,741. Combined Cultivator, Scraper and Roller. (*Cultivateur-grattoir-rouleau.*)

William Huggins, Bushnell, Mich., U.S., 8th February, 1889; 5 years.

Claim.—The garden implement comprising the beams or handles B, the roller G journaled between the beams, the oblique horizontal cutter M, the beams adapted to carry the cultivating teeth P, the said cultivating teeth having their standards secured to opposite sides of the beam from the cutter M, substantially as described.

No. 30,742. Range and Position Finder. (*Micromètre.*)

Bradley A. Fiske, New York, N.Y., U.S., 8th February, 1889; 15 years.

Claim.—1st. The method of determining the angular change in position of a body moving about a centre, which consists in measuring the electrical resistance of a conductor extending between the initial and final positions of said body. 2nd. The method of determining the change of position in arc of a body moving about a centre, which consists in measuring the electrical resistance of a continuous conductor forming an arc of which said body is a radius, and extending between the initial and final positions of said body. 3rd. The method of determining the angle included between two lines of sight directed upon a distant object, which consists in, first, directing two pivoted radial sight tubes, located at opposite ends of a base line longitudinally in line with said object, the said tubes being pivoted at one extremity, and having their other extremities moving over arcs of conducting material having a known ratio of electrical resistance per unit length, second, placing one tube parallel with the other tube, third, measuring the electrical resistance of the arc included between the initial and final positions of said last-mentioned tube. 4th. The combination, with circuit connections, a source of electricity, an indicating device, such as a galvanometer and a variable resistance, said parts being united in a wheatstone bridge, of a radial arm moving on a centre, to which arm one member of said bridge is connected, and an arc of conducting material to the extremity of which the adjacent member of said bridge is connected, the free end of said radial arm moving over and maintaining electrical contact with said arc. 5th. The combination, with circuit connections, a source of electricity and an indicating device, such as a galvanometer, said parts being united in a wheatstone bridge, of a radial arm moving on a centre to which one member *c* of the bridge is connected, an arc of conducting material to the extremity of which the adjacent member *a* of said bridge is connected, a similar arm moving on a centre to which the third member *d* of the bridge is connected, and a similar arc of conducting material to the extremity of which the fourth member *b* of said bridge is connected, the said radial arms moving over and at their free ends, maintaining electrical contact with their adjacent arcs. 6th. The combination with circuit connections, a source of electricity, and an indicating device, such as a galvanometer, said parts being united in a wheatstone bridge, of two arcs of conducting material uniting the extremities of the opposite pairs of adjacent members of said bridge, as *a, c* and *b, d*, two radial pivoted arms maintaining at their free ends electrical contact with said arcs and conductors respectively, leading from opposite poles of the source of electricity to said arms. 7th. The combination of the four members *a, b, c, d* of a wheatstone bridge, two arcs *h, h'* respectively interposed between members *a, c* and *b, d*, two pivoted radial arms *i, i'* respectively having their free ends moving over and maintaining electrical contact with said arcs, a source of electricity having one pole connected to one of said arms, and the other pole connected to the other of said arms, two bars of conducting material respectively interposed between members *a, b* and *c, d*, contact pieces adjustable upon each of said bars, a loop conductor connected at its end respectively to said contact pieces, and an indicating device, such as a galvanometer in said loop. 8th. The combination of the four members *a, b, c, d* of a wheatstone bridge, two arcs *h, h'* respectively interposed between members *a, c* and *b, d*, two pivoted radial arms *i, i'* respectively having their free ends moving over and maintaining electrical contact with said arcs, a source of electricity having one pole connected to one of said arms, and the other pole connected to the other of said arms, a circuit breaker interposed between said source of electricity and one of said arms, two bars of conducting material respectively interposed between members *a, b* and *c, d*, contact pieces adjustable upon each of said bars, a loop conductor connected at its ends respectively to said contact pieces, and a telephone in said loop.

No. 30,743. Sulky Plough. (*Charrue à siège.*)

Nelson Lampman, Woodstock, Ont., 8th February, 1889; 5 years.

Claim.—1st. In a sulky plough, tongue E, frame beam A, main frame A' and plough beam C, all formed and combined substantially as and for the purpose hereinbefore set forth and shown. 2nd. In a sulky plough, the combination of frame beam A, foot-lever H and hanger I, substantially as and for the purpose hereinbefore set forth.

No. 30,744. Balanced Valve for Steam Engines. (*Soupe équilibrée pour machines à vapeur.*)

Chilion M. Farrar, Buffalo, N.Y., U.S., 8th February, 1889; 5 years.

Claim.—1st. A balanced steam valve, consisting in the combination of a steam chest, having an upper and lower steam chamber, divided by a sheet metal diaphragm, a valve located in the lower chamber, the usual mechanism for operating it, a plate seated on the top of the valve filling the space between the valve and the diaphragm, and a steam passage connecting the upper and lower chambers, substantially as and for the purpose described. 2nd. In a balanced steam valve, the combination of a steam chest, having an upper and lower steam chamber divided by a sheet metal diaphragm a valve located in the lower chamber, the usual mechanism for operating it, a plate seated on the top of the valve, having an upward portion provided with a top piece adapted to screw up or down on the same, so as to adjust the two parts between the valve, and the diaphragm and a steam passage connecting the upper and lower chambers, substantially as and for the purposes described. 3rd. In a balanced steam valve, the combination, with the steam chest, of a sheet metal diaphragm secured steam tight to the upper portion of the same, a valve having a plate seated thereon and provided with a cylindrical portion projecting upward, and a top piece adapted to screw on said portion, so that the two parts may be adjusted between the top of the valve and the underside of the diaphragm, for the purposes described.

No. 30,745. Compound for Improving the Quality of Steel. (*Composition pour améliorer la qualité de l'acier.*)

Catharine Schaefer (administratrix to the estate of Adam Schaefer) Philadelphia, Penn., U.S., 8th February, 1889; 5 years.

Claim.—The compound for improving the quality of steel, consisting essentially of rosin, glycerine, linseed oil and carbon, substantially in the proportions hereinbefore recited.

No. 30,746. Letter and Document File. (*Serre-papier.*)

William Robertson, Mount Forest, Ont., 9th February, 1889; 5 years.

Claim.—1st. A drawer A, having rollers or projecting pins K, to rest on the curved track J and support the inner end of the door A, in combination with the spring E, arranged substantially as and for the purpose specified. 2nd. The combination, with a clamping board B, of a spring C provided with a roller *a*, and designed to impart a downward pressure on the said clamping board, substantially as and for the purpose specified. 3rd. A drawer A, designed to contain documents below the clamping board B, against which a downward pressure is imparted by the roller *a*, actuated by the spring C, a spring wire F connected to the cabinet, and fitting into a hole made in the bracket G, attached to the drawer A and actuated by the eccentric H, in combination with the rollers or projecting pins K attached to the inner end of the drawer, and resting upon the track J, and with the spring E, arranged substantially as and for the purpose specified.

No. 30,747. Railroad Switch and Signal and Apparatus for Connecting and Operating the Same. (*Aiguille et signal de chemin de fer et appareil pour les raccorder et manoeuvrer.*)

Henry F. Parsons, New York, N.Y. (administrator of the estate of Annie I. Parsons, Denver, Col.), U.S., 9th February, 1889; 5 years.

Claim.—1st. A railway switch, comprising a switch-bar, a worm-gear operating lever, a worm-shaft meshing therewith, all arranged at the side of the track, an endless bar, chain cable or the like, and vertical levers connected thereto to move it in opposite directions, and means, substantially as described, for actuating said vertical levers to rotate said worm shaft and thereby actuate the worm-gear lever, and simultaneously lock it and consequently the switch in desired position, substantially as set forth. 2nd. A railway switch-operating mechanism, comprising an endless rod, chain, cable, rope or the like, mounted upon pulleys, a series of vertical levers to move said rod in either of two directions, and a switch lever having a worm gear and a worm shaft connected to said rod, and all arranged at the side of the track, combined with signals connected to said endless rod and operated by the operating of the switch, substantially as set forth. 3rd. The combination of the endless rod or its described equivalent, and a series of vertical levers, flexibly connected in order to the upper and lower members of said rod, with a switch mechanism comprising a switch bar, a worm-gear segmental lever connected thereto, and a worm-shaft connected to, and rotated by the movement of the said rod, the whole arranged parallel to the rails, substantially as described. 4th. A switch operating mechanism comprising a switch bar and rails as usual, and two series of alternately rising and falling, or reversing levers, connected with the switch bar, and each by its operation, in one way causing the other to operate in the reverse direction thereby always to present for use one or the other series of levers, substantially as described. 5th. A switch bar and locking mechanism connected therewith, which is also its operating medium, combined with series of rising and falling levers connected with said operating medium, and arranged to work in series, so as to insure the presentation of one or the other series in operative position for reversing the last movement of the switch, substantially as described.

No. 30,748. Kerosene Lamp Burner. (*Bec de lampe à kérosène.*)

Thomas Fitzgerald, Revere, Mass., U.S., 9th February, 1889; 5 years.

Claim.—In a kerosene lamp burner, the single cone B provided

with the openings D, D, and the grooved and perforated division or partition E, the latter being on a level, or nearly so, with the tops of the openings D, D, in combination with the wick tubes C, C, as and for the purposes set forth.

No. 30,749. Horse Power. (*Manège.*)

Colin McDonald, Ripley, Ont., 9th February, 1889; 5 years.

Claim.—A grooved rim A, suitably supported by arms C radiating from the vertical shaft B, an endless rope D inserted in the groove of the rim A, and in a groove formed in a pulley E fixed to the driving shaft F, in combination with the grooved guiding pulleys G and H, arranged substantially as and for the purpose specified.

No. 30,750. Axle Box for Railway Rolling Stock. (*Boîte à graisse de voiture de chemin de fer.*)

Daniel Maenee, London, Eng., 9th February, 1889; 5 years.

Claim.—In combination with an axle box for railway rolling stock, a packing ring fitted in a groove formed in the inner side of the box, and pressed by springs against the boss of the running wheel, substantially as and for the purpose herein set forth.

No. 30,751. Railway Switch, Frog and Signal, and Apparatus for Connecting and Operating the Same. (*Aiguille, rail de croisement et signal de chemin de fer, et appareil de raccordement et de manoeuvre.*)

Henry F. Parsons, New York, N. Y., U. S., 9th February, 1889; 5 years.

Claim.—1st. A main track, a siding and switches at each end of the siding, combined with switch-operating mechanism, comprising two systems, each having two series of permutable reversing levers, and connecting mediums for coupling in pairs the series of each system, substantially as described. 2nd. In a railway switch, the combination of a pair of oppositely movable rods, with a series of levers, each consisting of an exposed arm to be operated by a passing locomotive or train, a toothed arm connected to said exposed arm, a rotary shaft geared with said toothed arm, and with a rotary shaft which in turn is geared to the rods, substantially as described. 3rd. In a railway switch and signal mechanism, the rails and bars of the switch combined with a suitable number of the reversing so-called "levers" of this specification, each lever comprising an exposed arm adapted to be operated by or from a passing train or locomotive, a toothed arm connected to said exposed arm, a rotary shaft operated from said toothed arm, a rotary signal, rods connecting the several "levers" together and to the switch, and gearing interposed in each "lever" between its rotary shaft, rods and signal, substantially as described. 4th. The main track, an interposed siding, switches at each end of said siding and switch stands for said switches, combined with the levers *e, e1, e2, e3, e4, e5* and *e6*, and the levers *f, f1, f2, f3, f4*, and *f5* connected in two systems of two series each, which systems are operable from the main track and also from the siding to set the switches to the siding and to the main track, substantially as described. 5th. A combined switch and signals therefor, composed of a main track, an interposed siding, switches at each end of said siding, and switch stands and signals for said switches, combined with the levers *e, e1, e2, e3, e4, e5* and *e6*, and the levers *f, f1, f2, f3, f4* and *f5*, each provided with co-operating signal, and connected in two systems of two series each, which systems are operable from the main track and also from the siding to set the switches and signals, substantially as described. 6th. A combined switch stand and signal tower, comprising a suitable casing, a rotary or rooking worm shaft, a horizontal lever geared to said worm shaft and coupled to the switch bar, a pinion, semaphores or targets and toothed rack bars geared to said pinion and engaging the said targets, substantially as described. 7th. A combined switch stand and signal tower, comprising a suitable casing, a shaft and means to rock it, a gear wheel on said shaft, semaphores or targets and toothed rack bars meshing with said wheel and connected with the said targets, in combination with the switch and switch-bars, substantially as described. 8th. The so-called "lever" of this specification, comprising an exposed arm adapted to be operated by or from a passing train or locomotive, a toothed arm connected to said exposed arm, a rotary shaft operated from said toothed arm, and gearing which is interposed between the parts operated by said lever and said rotary shaft, substantially as described. 9th. The so-called "lever" of this specification, comprising an exposed arm adapted to be operated by or from a passing train or locomotive, a toothed arm connected to said exposed arm, and a rotary shaft operated from said toothed arm, combined with a signal and rods for connecting a series of such levers, and gearing interposed between the said rotary shaft and the rods and signal, substantially as described. 10th. The so-called "lever" of this specification, combined with the water-tight casing, and a separable cap therefor containing, in packed bearings, the rods for connecting the levers in series, substantially as described. 11th. A continuous rail frog, combined with self-feeding worm gearing for operating it, substantially as described. 12th. The combination, with a continuous rail frog, of automatic operating mechanism, and self-locking worm gearing connecting the two, substantially as described. 13th. The combination, with automatic switch-operating mechanism, comprising a suitable number of the so-called "levers" of this specification, and the combined switch stand and signal tower, substantially as described, of the frog *v* and connections between them, substantially as described. 14th. In a block signalling system for railways, the combination of a series of signal stations arranged along the track at intervals, each comprising an entrance signal connected with a "lever" to be operated by or from the locomotive, and a second signal connected with an independent "lever" and adapted to be similarly operated, the second "lever" being provided with a blocking mechanism for the entrance "lever," and also with connections

with the entrance "lever" of the station in advance, substantially as described. 15th. In an automatic block signalling system for railways, a number of signal stations arranged alongside the road, and each comprising signals and entrance and exit "levers" therefor, and blocking devices for the entrance "levers" with connections between the "levers" and signals of adjacent stations on both sides, combined with a bar on the locomotive, movable laterally to engage the "levers" and depress them to operate the signals and block, an entrance "lever" in the rear and also yielding vertically by contact with an immovable obstacle, such as one of the blocked "levers" to put the brakes on or arrest the attention of the engineer by sounding an alarm, substantially as described.

No. 30,752. Apparatus for Cleansing Wool and other Textile Products. (*Appareil pour nettoyer la laine et autres matières textiles.*)

George Burnell and Arthur Burnell, Hindmarsh, South Australia, 11th February, 1889; 5 years.

Claim.—1st. In the construction of machines for cleansing wool, the drums A and B, or either of them, in combination with a series of rollers C compressed upon the circumference of A and B by springs acting upon the bearing blocks, with which the spindles of C are provided, or by other suitable means, for the purpose of subjecting the wool to repeated squeezings whilst in the solvent, substantially as herein described and shown. 2nd. The combination, with the drums A and B, or either of them, of a wringing attachment consisting of the rollers G, G2, with their attachments G3, G4, G5, and the stripping rollers H, substantially as herein described and shown. 3rd. The apparatus for the removal of the earthy matters consisting of the roller L, constructed with deep grooves N revolving in the cylinder casing M for the purpose indicated, substantially as herein described and shown. 4th. The general construction and arrangement of the apparatus as a combination of parts.

No. 30,753. Can. (*Boite métallique*)

Andrew D. Shuman, Toledo, Ohio, U. S., 11th February, 1889; 5 years.

Claim.—1st. The combination, with the can A, of the curved lid C having the necks H, H, the band S passing transversely over the curved face of the lid between said necks, and the clutches T in the ends of said band, and engaging catches W at the upper end of the can, as set forth. 2nd. The combination, with the can A, of the curved lid C having the necks H, H, the covers I hinged to the upper ends of said necks, catches M carried by said covers, a band S passing transversely over the curved face of the lid between the necks, and clutches T, mounted in the ends of said band, and adapted to engage catches W at the upper ends of the can, as set forth.

No. 30,754. Combined Letter Sheet and Envelope. (*Papier à lettre et enveloppe combinés*)

William Stacey, Barnes Corners, N. Y., U. S., 11th February, 1889; 5 years.

Claim.—In a combined letter sheet and envelope, the combination of a sheet of paper A, adapted to be folded in the centre line *a*, with the projecting gummed flaps, or margins Band C on adjoining covers, and the gummed flap D formed by an incision *d*, and a perforated line *d1* on the centre fold, substantially as set forth.

No. 30,755. Truss. (*Bandage herniaire.*)

Joseph R. Meloney, Bloomer, Wis., U. S., 11th February, 1889; 5 years.

Claim.—In a truss, the combination, of a base block, and a head block, each provided with two openings, the respective openings in one block being in alignment with the corresponding openings in the companion block, the inner part of each opening being recessed or enlarged, two spiral springs interposed between the blocks and seated in the respective aligning openings, as specified, a yoke-shaped rod having its side arms in the respective springs and openings aforesaid, the ends of said arms being secured to the base block, the cross-piece of the yoke lying outside of the head block, whereby the body band may be secured between said cross-piece and head block, substantially as specified.

No. 30,756. Office Tickler. (*Serre papier.*)

Frank E. Smith, Toledo, Iowa, U. S., 11th February, 1889; 5 years.

Claim.—A file for office use, consisting of a rectangular box having a fixed vertical partition near the front wall, the space between the said vertical partition and the rear wall of the box being less in width than the intermovable month-partitions, and in combination therewith the intermovable month and adjustable day partitions unattached to each other, and provided with extensions of their upper edges cut away as shown, and carrying the proper designations of month and days, whereby a single series of day-partitions can by interposition be used with any month partition of the series, as shown and described.

No. 30,757. Method of Treating Low Steel.

(*Mode de traitement de l'acier doux.*)

Wayward A. Harvey, Orange, N. J., U. S., 11th February, 1889; 15 years.

Claim.—1st. The herein described process of treating ingots, or other objects composed of low steel, such as Bessemer steel, for the purpose of imparting to the metal, of which such objects are composed the qualities of refined crucible steel, which consists essentially in embedding the object, or objects, to be treated in a body of granulated or powdered carbonaceous substance, such as wood charcoal, deposited in a crucible or receptacle made of plumbago, or any other

suitably refractory material, and provided with a cover to prevent the combustion of the charcoal, and in heating such receptacle and its contents in a furnace, or heating chamber, the temperature of which is above the melting point, of cast iron for such length of time that the objects treated, when removed from the charcoal, will exhibit clean unblistered surfaces of a prescribed color, or colors, as herein set forth, and will possess the capacity of taking in tempering the degree, or degrees, of hardness ordinarily indicated by such color, or colors. 2nd. The herein described process of treating ingots, or other objects composed of low steel, such as Bessemer steel, for the purpose of increasing the tensile strength of the metal, of which such objects are composed, and giving it the quality of weldability, so that it can be piled and reworked in the ordinary manner, which consists essentially in embedding the object, or objects, to be treated in a body of granulated or powdered carbonaceous substance, such as wood charcoal, deposited in a crucible or receptacle made of plumbago, or other suitably refractory material, and provided with a cover to prevent the combustion of the charcoal, and in then heating such receptacle and its contents in a furnace or heating chamber, the temperature of which is above the melting point of cast iron, for such length of time that the objects treated will, on removal from the charcoal, exhibit clean unblistered surfaces of a prescribed color, or colors, as herein set forth.

No. 30,758. Pianoforte and Similar Stringed Instruments. (*Pianoforte et instruments à cordes semblables.*)

Edmund B. Nunn, Royston, Eng., 11th February, 1889; 5 years.

Claim.—1st. The improvement in pianofortes and similar stringed instruments, which consists in attaching the strings or wires to levers, so mounted that when the said levers are moved in the proper direction the tension of the strings will be varied, substantially in the manner and for the purpose set forth. 2nd. In a pianoforte or similar instrument, the employment of levers of the kind shown in the drawing, one end of each of which has connected to it one of the wires or strings of the instrument, while the other end is connected to a wrest pin, substantially as described. 3rd. The manufacture and use of pianofortes, provided with the improvement hereinbefore described and illustrated in the accompanying drawing.

No. 30,759. Electric Belt. (*Ceinture électrique.*)

George W. Totman and Perry C. Totman, Cassadaga, N. Y., U. S., 11th February, 1889; 5 years.

Claim.—1st. A battery-chain for electric body-wear, composed of links or cells coupled together in series, the links of opposite polarity or the plates of the cells being held together by a non-conducting binder of electricity, and a supplemental metallic binder, embracing and forming a shield for the said binder, the metallic parts being suitably insulated, substantially as and for the purpose described. 2nd. In electric body-wear, the combination, with two plates of opposite polarity, having notches in their edges, of the non-conducting binder of electricity fitted in the notches, the supplemental metallic binder fitting over the non-conducting binder, and the insulation interposed between the plates and the supplemental binder, substantially as and for the purpose described.

No. 30,760. Store Service Apparatus.

(*Appareil de service de magasin.*)

Nelson E. Springsteen, Royal Oak, Mich., U. S., 11th February, 1889; 5 years.

Claim.—1st. In combination with two pivoted bell-crank levers, each having a weight on one of its arms, a single wire stretched between the other arms of said levers, and a wheeled carriage on said track, substantially as shown and described. 2nd. In combination with the pivoted bell-crank levers C, D, each having the weight W on its long arm, the single wire R connected with the short arms of said levers, the car Q and a catch so arranged that the car will be disengaged therefrom by the oscillation of said levers, substantially as described.

No. 30,761. Gripper for Platen Printing Presses. (*Frisquette de presse d'imprimerie à platine.*)

Richard Mingay, Jr., Saratoga Springs, N. Y., U. S., 11th February, 1889; 5 years.

Claim.—1st. In a platen press, a gripper provided with a slot A, a metallic plate E placed into the slot A, with the finger B attached to the plate E, substantially as described and for the purpose set forth. 2nd. In a platen press, a gripper provided with a slot A, a plate E provided with studs e, e, placed into the slot A, the fingers S, S, attached to the studs e, e, on the plate E and adjusted by the screw D, all substantially as described and for the purpose set forth.

No. 30,762. Manufacture of Steel.

(*Fabrication de l'acier.*)

Matthew Graff, Pittsburgh, Penn., U. S., 11th February, 1889; 15 years.

Claim.—1st. As a step in the art of manufacturing steel direct from ore, the herein described process, which consists in intimately mixing the ore with a carbonaceous material, protected as against rapid combustion by a coating of suitable material, and then subjecting the mixed ore and carbonaceous material to the action of a reducing flame in a suitable furnace, substantially as set forth. 2nd. As a step in the art of manufacturing steel direct from ore, the herein described process, which consists in intimately mixing the ore with a carbonaceous material protected by a coating of lime, as against rapid combustion, and then subjecting the mixed ore and carbonaceous material to the action of the reducing flame in a suitable furnace, substantially as set forth. 3rd. The herein described pro-

cess of manufacturing steel direct from ore, which consists in intimately mixing the ore with a carbonaceous material, protected by a coating of suitable material, as against rapid combustion, subjecting the mixed ore and carbonaceous material to the action of a reducing flame in a suitable furnace, balling the spongy iron so formed, thereby freeing the same from slag and other impurities, and finally charging the ball while hot into the metal bath of an open hearth furnace, substantially as set forth.

No. 30,763. Mainspring for Watches and Method of Inserting and Removing the Same. (*Grand ressort de montre et mode de le poser et l'enlever.*)

Ernest Karthaus, Huntsville, Ala., U. S., 12th February, 1889; 5 years.

Claim.—1st. The combination, with a going barrel and a mainspring of a watch or other time-keeper, of a coiled tension spring completely encircling the mainspring, and having both ends thereof connected to the outer coil of the mainspring and to one another in such a manner as to prevent the ends of the coiled tension spring from sliding past one another, said coiled tension spring being fitted tightly in the going barrel, to be held by frictional contact against the inner periphery of the barrel, and capable of a radial movement inwardly upon the mainspring by an excessive strain upon the latter, substantially as described for the purpose set forth. 2nd. The combination, with a going barrel and a mainspring, of a coiled tension spring completely encircling the mainspring, and having one end permanently united to the outer coil of the mainspring, the unattached or free end of the coiled tension spring being detachably connected to the united ends of the tension spring and mainspring, to prevent the ends of said tension spring from sliding past one another, the tension spring being capable of a radial movement inwardly upon the mainspring, substantially as described for the purpose set forth. 3rd. The combination, with the going barrel and a mainspring, of a tension spring encircling the mainspring, said tension spring having one end thereof secured to the outer coil of the mainspring by a transverse rivet which passes through the tension spring and mainspring at a suitable distance from the ends of the same, to form a seat or fork, the unattached or free ends of the said tension spring being fitted in the fork or seat, and thereby held against sliding past the same, substantially as described for the purpose set forth. 4th. The herein described method of inserting mainsprings into the going barrels of time-keepers and other instruments, which consists, first, in placing a non-expandable clasp around the mainspring to be inserted, the interior diameter of said clasp being of corresponding or slightly smaller diameter than the barrel into which the mainspring is to be inserted, and then forcing the mainspring into the barrel and causing the clasp to strike the end of the barrel, whereby the clasp is removed from the mainspring by the operation of forcing the mainspring into the barrel, substantially as described for the purpose set forth. 5th. The herein described method of inserting and removing mainspring into and from the going barrels of other time-keepers and other instruments, which consists, first, in placing a non-expandable clasp-ring around the mainspring to be inserted, the interior diameter of said clasp-ring being of corresponding or slightly smaller diameter than the barrel into which the mainspring is to be inserted, then partially forcing the mainspring into one end of the barrel, and partially forcing another mainspring already fitted in the barrel from the opposite end thereof, and finally forcing the first mainspring completely into the barrel and entirely expelling the second mainspring therefrom, the clasp-ring being removed from the mainspring, when the latter is forced completely into the barrel by striking against one end thereof, as and for the purpose described. 6th. The herein described non-expandable clasp-ring, adapted to be placed around a mainspring, and having its interior diameter corresponding to the interior diameter of the going barrel, into which said mainspring is to be inserted.

No. 30,764. Ballot Slip. (*Bulletin de votation.*)

Olivier Durocher et Pierre H. Chabot, Ottawa, Ont., 12th February, 1889; 5 years.

Claim.—A ballot slip or ticket, in which the whole of the slip other than the spaces reserved for the names of the candidates and the marks of the voters is coloured in a uniform deep tint, either black or some approved colour, in strong contrast with that of the reserved spaces, as shown and specified for the purpose set forth.

No. 30,765. Scale. (*Balance.*)

John H. Milburn, W. Osborne and R. B. Osborne, Hamilton, Ont., 12th February, 1889; 5 years.

Claim.—1st. In a scale, the drop lever bars G, G, the same attached to the long lever D and the short lever F, and arranged and constructed substantially as and for the purpose specified. 2nd. In a scale, the drop lever bars G, G attached to and placed parallel with the long lever D and short lever F, or at right angles to the same, substantially as specified. 3rd. In a scale, the combination of the drop lever bars G, G, the long lever D, short lever F, pivots k, i, loops g, j, links h, l, substantially as and for the purpose specified. 4th. In a scale, the combination of the drop lever bars G, G, formed as shown, with the platform B, long lever D, short lever F and their connecting devices, substantially as and for the purpose specified.

No. 30,766. Embroidery Attachment.

(*Appareil à broderie.*)

Samuel Halliwell (assignee of Albert W. Johnson), New Haven, Conn., U. S., 12th February, 1889; 5 years.

Claim.—1st. In an embroidery attachment for sewing machines, the combination, with a supporting frame A, of two wheels C, D geared together and provided with wings 1, 2, 3, 4, an operating lug connected and actuated by the needle bar and impinging alternately against side wings, whereby an intermittent rotary movement is

given to said wheels, the thread carrier and means for communicating motion from said wheels to the thread carrier, substantially as described. 2nd. The combination of the frame A, carrier E, wheels C, D, provided with wings 1, 2, 3, 4, eccentric or cam F, spring H and an operating lug connected to and actuated by the needle-bar, and impinging alternately against said wings, substantially as described.

No. 30,767. Machine for Punching Checks, Drafts, etc. (*Machine à perforer les chèques, traites, etc.*)

William D. Elger and William Myers, Brooklyn, N. Y., U. S. (assignees of Charles A. Randall, London, Eng.), 12th February, 1889; 5 years.

Claim.—1st. The combination of a movable frame, the cutters or punches and dies carried by the same, a single selecting and actuating lever mounted upon and moving with the movable frame, and a single lever interposed between the punches or cutters and the single selecting and actuating lever, substantially as and for the purpose set forth. 2nd. The combination of a movable frame carrying the punches and dies, a punch selecting and actuating lever mounted on and moving with the frame, paper feed devices, and a swinging lever for operating the feed devices, interposed between the punches and the punch-selecting lever, and depressed by the latter to operate the punches, substantially as described. 3rd. The combination of a movable frame carrying the punches and dies, a punch-selecting and depressing lever mounted on and carried by the swinging frame, a movable lever having an arm projecting forward beneath the punch-selecting lever, the rock-shaft carrying the pawl and connected with the armed lever, the feed-wheel, the ratchet-wheel and the yielding friction roller, substantially as described.

No. 30,768. Automatic Overflow Check Nozzle. (*Tuyau de trop plein automatique*)

Ephraim W. Spear, George W. Lawlor and James L. Smith, Boston, Mass., U. S., 12th February, 1889; 5 years.

Claim.—1st. An automatic overflow check nozzle, consisting of the combination of a liquid discharge nose, a separate air admitting tube, and an acoustic indicator, constructed and arranged substantially as and for the purposes described. 2nd. An automatic overflow check nozzle, consisting of a discharge nose N, a separate admitting tube B, terminating at its outer end near the end of the said nose, and at its inner end near the inner side of the can to which the nozzle is applied, and an acoustic indicator C attached to the inner end of the tube B, substantially as and for the purposes described. 3rd. An automatic overflow check nozzle provided with an acoustic indicator, substantially as described. 4th. An automatic overflow check nozzle, in combination with a liquid discharge nose and an air admitting tube, substantially as and for the purposes described. 5th. An automatic overflow check nozzle, consisting of a discharge nose N, a separate air admitting tube B terminating at its outer end, near the end of the said nose, and at its inner end near the inner side of the can to which the nozzle is applied, substantially as and for the purposes described.

No. 30,769. Coating Iron or Steel with Copper or other Metals. (*Mode de couvrir le fer ou l'acier de cuivre ou autres métaux.*)

George Prout and David Murray, Barbican, Eng., 12th February, 1889; 5 years.

Claim.—1st. The improved process of coating iron or steel plates, bars, rods, tubes, castings, forgings, and other articles with copper or other comparatively non-oxidizable metal, substantially as herein described, the same consisting in raising the iron or steel body to a temperature of 1100° Cent. or thereabouts, and whilst at this temperature plunging it into or passing it through a bath of molten copper, or applying the copper in a molten state to the surface to be coated. 2nd. In the process of coating iron or steel plates, bars, rods, tubes, castings, forgings, and other articles with copper or other comparatively non-oxidizable metal by the method referred to in the preceding claiming clause, rolling, drawing, or pressing the copper or other coating metal while still in a viscid state, substantially as and for the purposes herein set forth.

No. 30,770. Mechanical Movement.

(*Mouvement mécanique.*)

Samuel Halliwell, (assignee of Albert W. Johnson), New Haven, Conn., U. S., 12th February, 1889; 5 years.

Claim.—The herein described mechanism for converting reciprocating into an intermittent rotary motion, consisting of a pair of gear wheels of equal size, and teeth working together, each wheel provided with radial arms, with a reciprocating device from which a projection extends and so as to work in a path between said arms, substantially as described, and whereby the said reciprocating movement in one direction will impart rotation to one wheel, and that one wheel communicate its rotation to the other wheel, but when moving in the opposite direction, the said reciprocating movement will impart rotation to the said other wheel, and the said other wheel will communicate its rotation to the first mentioned wheel, the rotation of the wheels being in the same direction under both operations.

No. 30,771. Shears. (*Cisailles.*)

Henry Pattison, Windsor, N.S., 14th February, 1889; 5 years.

Claim.—1st. In a shears of the character described, the combination of the following instrumentalities, to wit: a lower cutting blade provided with a handle, and with an auxiliary blade standing at an angle thereto, the cutting edges of said blades being continuous, a stop secured to said lower blade, an upper blade provided with two continuous cutting edges standing at angles to each other, and re-

spectively adapted to work in conjunction with the cutting edges of the lower, and auxiliary blades, and a gauge secured to said upper blade, said handles being pivoted together, substantially as set forth. 2nd. In a shears, a pivoted bar, as J, carried by a blade of said shears, said bar being adapted to act gravitatively to project a portion thereof past the cutting edge of the blade on which it is mounted, whereby it may serve as a stop for the article being cut, substantially as described. 3rd. A plate, as H, provided with a slot, as 14, a bar, as J, pivoted to said plate, and a stop, as 15, for said bar, in combination with the blade of a shears, and a screw, as G, for securing said plate to said blade, substantially as set forth. 4th. In a shears, the handle A provided with the blade D, having the cutting edge z, and auxiliary blade x having the cutting edge v, said cutting edges being continuous, the handle B provided with the blade C having the cutting edge t, and inclined cutting edge f, said cutting edges being continuous, the gauge K adjustably mounted on the blade C, the pivoted bar J adjustably mounted on the blade D, and a stop for said bar, said handles being pivotally connected, and all being combined and arranged to operate substantially as described. 5th. In a shears, the handle A provided with the loop E, and blades D, x having the continuous edges z, v, the handle A provided with the loop F, and blade C having the continuous cutting edges t, f, the bracket 16 secured to the blade C, the gauge K adjustably secured to said bracket by the screw 17, the plate H provided with the slot 14 and stop 15, said plate being adjustably secured to the blade D by the screw G, and the bar J pivoted to said plate, all being constructed, combined and arranged to operate substantially as set forth. 6th. In a shears, the blade D having the auxiliary blade x provided with the return blade 19, in combination with the blade C, and handles A, B pivoted at m, substantially as described. 7th. In a shears, the blade D having the auxiliary blade x provided with the return blade 19, in combination with the blade C, and handle A, B pivoted at m, and a gauge for said shears, substantially as set forth.

No. 30,772. Bolt. (*Boulon.*)

Wesley W. Woodford, Unionville, Conn., U. S., 14th February, 1889; 5 years.

Claim.—The herein described bolt, consisting of the head and body portions, having at the junction of said head and body the conical portion d, the holding wings or keys f on said conical portion, and an annular face g on the under side of the head outside of said conical portion, substantially as described and for the purpose specified.

No. 30,773. Apparatus for the Absorption of Gases. (*Appareil pour l'absorption des gaz.*)

Frederick Carlisle, Franklin, N.J., U. S., 14th February, 1889; 5 years.

Claim.—1st. In an apparatus for absorbing gases by a liquid, a conductor having a receptacle upon its upper side at one end, and an outlet conducting the fluid from the receptacle over the end of the conductor to its under side, as and for the purpose set forth. 2nd. In an apparatus for absorbing gases by a liquid, a conductor having a receptacle upon its upper side at one end, and an outlet upon its upper side at one end, and an outlet conducting the fluid from the receptacle over the end of the conductor to its under side, and a depending lip at the other end of the conductor to throw off the liquid, substantially as set forth. 3rd. In an apparatus for absorbing gases by a liquid, a series of inclined conductors arranged with their upper ends adjacent, and provided at such ends with receptacles discharging the fluid upon their under sides, supply pipes delivering fluids into all such receptacles, and a series of similar conductors, arranged with their receptacles alternately at the right and left hand ends, and receiving and conveying from one series to the other the fluid discharged from the first series of conductors, substantially as herein set forth. 4th. In an apparatus for absorbing gases by a liquid, the combination, with the narrow chamber A1, of a series of longitudinal inclined conductors arranged one above another, and provided each with a receptacle upon its upper end, the receptacle being open upon one side toward the higher end of the conductor, and thereby adapted to discharge the fluid over the end of the conductor upon its under side, and the conductor being grooved or bent adjacent to the casing of the chamber A1 to confine the fluid to the under side of the conductor, as and for the purpose set forth. 5th. In an apparatus for absorbing gases by a liquid, the combination, with the narrow chamber A1, of several series of sloping conductors arranged one above the other, with the narrow spaces o between the several conductors, each conductor being provided with a receptacle at its upper end, such receptacle being open upon one side toward the higher end of the conductor to discharge the fluid over the end of the conductor upon its under side, and the lower ends of the conductors being arranged over the receptacles of the conductors beneath the same, as and for the purpose set forth.

No. 30,774. Process for Treating Meat for Transportation. (*Procédé de traitement de la viande pour la transportation.*)

John W. Street, Chicago, Ill., U. S., 14th February, 1889; 5 years.

Claim.—1st. The herein described process of preparing meat, it consisting in subjecting it immediately after slaughtering and while enclosed in an apartment to the action of currents of air forced through the said apartment, and heated to a temperature between 70 degrees Fahrenheit, and the degrees at which cooking occurs, and maintaining said treatment until the products of normal waste have been eliminated, and subsequently cooling it to arrest the further elimination and escape of materials therefrom, substantially as set forth. 2nd. The herein described process for preparing slaughtered beef for transportation, it consisting in, first subjecting the said beef immediately after slaughtering, and while enclosed in an apartment to the action of currents of air heated to a temperature between 70 degrees Fahrenheit and that at which cooking occurs, said air having its humidity reduced before bringing it in contact with the meat, and maintaining such treatment until the products of normal waste

have been eliminated, then enclosing said meat in a transporting vehicle containing refrigerating or cooling apparatus, and therewith arresting further elimination and escape of materials from the meat, substantially as set forth.

No. 30,775. Box Handle. (*Poignée de boîte.*)

Justus A. Trant, New Britain, Conn., U.S., 14th February, 1889; 5 years.

Claim.—1st. The herein described box handle consisting of the handle bar, the diverging and return arms adapted to clasp the box, and the handle 4 hinged to said handle bar, substantially as described and for the purpose specified. 2nd. The herein described box handle consisting of the handle bar 5, diverging and return arm 6 and 7 for clasping the box, and the handle, the diverging arm 6 being bent outwardly just above the handle bar, substantially as described and for the purpose specified.

No. 30,776. Dynamo Electric Machine and Electric Motor for Driving Tramway Vehicles and for other purposes. (*Machine dynamo-électrique et moteur électrique pour mettre en mouvement les voitures à ornères et pour autres fins.*)

William D. Sandwell, London, Eng., 14th February, 1889; 5 years.

Claim.—1st. In an electric motor, the employment of two armatures in connection with one set of field-magnets, the said armatures and field-magnets being arranged in such a manner that they can be moved relatively to each other for enabling either armature to work in the magnetic field, for the purposes specified. 2nd. In an electric motor, the combination of two armatures with one set of field-magnets, the said field-magnets being adapted to move longitudinally with the armature shaft, so that the said field-magnets can be arranged to work in conjunction with either armature, substantially as described.

No. 30,777. Can Assembling Machine.

(*Machine à assembler les boîtes métalliques*)

Edward J. Dolan, Philadelphia, Penn., U.S., 14th February, 1889; 5 years.

Claim.—1st. The combination, with the moving can-body holder, of an inclined can-head guideway extending in the same general direction as the travel of the can-body holder, as and for the purpose specified. 2nd. The combination, with the can-body holder, of an inclined can-head guide for the ends, and an extension to said can-head guide arranged parallel with the travel of the can-body holder, substantially as described. 3rd. The combination, with the can-body holder and the inclined can-head guide for the ends, of an extension to said can-head guide, arranged parallel with the travel of the can-body holder, and a presser acting on the ends, as set forth. 4th. The combination, with the can-body holder and the inclined can-head guide for the ends, of an extension to said can-head guide arranged parallel to the travel of the can-body, and a spring-actuated presser arranged to act on said ends, as and for the purpose specified. 5th. The combination, with the can-body holder and inclined can-head guide, of an extension to said can-head guide, arranged parallel to the travel of the can-body holder, and a presser operating at right angles to the travel of the holder, substantially as described. 6th. The combination, with the can-body holder and the inclined can-head guide for the ends, of a pivoted presser located near the terminus of said guide, substantially as and for the purpose specified. 7th. The combination, with the can-body holder, and the inclined can-head guide for the ends, of a pivoted spring-actuated presser located near the terminus of said can-head guide, substantially as and for the purpose specified. 8th. The combination, with the can-body holder and inclined can-head guide for the ends, of a presser pivoted to said can-head guide, and operating at right angles to the travel of the can-body holder, substantially as and for the purpose specified. 9th. The combination, with the can-body holder and the converging can-head guides arranged upon opposite sides thereof, of pressers arranged at the termini of said guides, and operating at right angles to the travel of the holder, as set forth. 10th. The combination, with the can-body holder and the converging can-head guides arranged upon opposite sides thereof, of spring-actuated pressers arranged at the termini of said guides, and operating at right angles to the travel of the can-body holder, as set forth.

No. 30,778. Evaporating Pan.

(*Chaudière d'évaporation.*)

Gustave H. Grimm, Hudson, Ohio, U.S., 14th February, 1889; 5 years.

Claim.—The evaporating pan or pans having pockets C and discharge nozzle C', substantially as and for the purpose hereinbefore set forth.

No. 30,779. Metallic Lathing.

(*Lattage métallique.*)

Israel Kinney, Brantford, Ont., 14th February, 1889; 5 years.

Claim.—Metallic lathing composed of sheets or strips of metal corrugated, slitted or bent to form an uneven surface to receive and key the mortar, substantially as described and for the purpose hereinbefore set forth.

No. 30,780. Machine for Making Hollow Ware Pottery. (*Machine à faire les objets creux en poterie.*)

Robert Campbell and Charles James, Hamilton, Ont., 14th February, 1889; 5 years.

Claim.—1st. In a machine for making hollow ware pottery, a rigid

vertical standard A provided with a vertical slide having flanges for guiding the same up and down the standard, in combination with a horizontal sliding arm G having handle G', and provided with a preparation H to admit an adjustable shaper I of any protuberant design, and the stops S and S', substantially as and for the purpose specified. 2nd. The combination, in a machine for making hollow ware pottery, of a standard A providing with an adjustable sliding arm G at right angles, having an adjustable internal shaper I, of a straight or protuberant design, and a weight O attached to slide E by means of band R, and pulleys P, substantially as and for the purpose specified. 3rd. In a machine for making hollow ware pottery, a horizontal arm G provided with an adjustable shaper I of any desired shape at right angles to the same, and the stops S, S', and S₂, in combination with a vertical standard A having a slide E, arranged and devised to admit the movable arm and to allow the same to move horizontally through the said slide which acts also as guide, substantially as and for the purpose specified.

No. 30,781. Sectional Hot Water Boiler.

(*Chaudière sectionnelle de calorifère à eau.*)

Edward Gurney, Toronto, Ont., 14th February, 1889; 5 years.

Claim.—1st. A section having its top and bottom plates arched inwardly, the vertical portion connecting the top and bottom plates being curved on a large easy sweep, substantially as and for the purpose specified. 2nd. A section having its top and bottom plates arched inwardly, the vertical portion connecting the top and bottom plates being curved on a large easy sweep, and a head cast on the outer edge of the bottom of each section to overlap the section on which it rests, substantially as and for the purpose specified.

No. 30,782. Sectional Hot Water Boiler.

(*Chaudière sectionnelle de calorifère à eau.*)

Edward Gurney, Toronto, Ont., 14th February, 1889; 5 years.

Claim.—1st. A hollow ash-pit section having a water-space formed in its bottom, and communicating directly with all the other water spaces in the boiler, and with the return pipe or pipes, substantially as and for the purpose specified. 2nd. A hollow ash-pit section having a water-space formed in its bottom, and communicating directly with all the water-spaces in the boiler, and with an extension chamber or chambers formed in the section, and having a hole or holes pierced in its or their crown to receive the return pipe or pipes, substantially as and for the purpose specified.

No. 30,783. Fifth Wheel. (*Rond d'avant-train.*)

William T. Cheatham, Pulaski, Tenn., U.S., 14th February, 1889; 5 years.

Claim.—The combination of the axle A, the circle B secured rigidly thereon, the king-bolt C secured to the axle, the head-block D composed of a T-shaped casting having the cross-bar E and the coupling plate F, the coupling plate being provided on its upper side with vertical ribs H arranged in diverging pairs, and the guide G for the circle as specified.

No. 30,784. Sectional Locking Pulley for Hoisting Apparatus designed for Handling Shirred Slings or Forks. (*Poulie à enrayage de monte-charge pour manoeuvrer les élingues élastiques ou les fourches.*)

Samuel G. Emerson, Belleville, Ont., 14th February, 1889; 5 years.

Claim.—The sectional pulleys A and B, the locking device W and R R, for the purposes hereinbefore set forth, the guiding sheaves H, H and slot S S' for the purposes hereinbefore set forth, the swinging hooks K, K, and the depending lug L, substantially as and for the purposes hereinbefore set forth.

No. 30,785. Awning. (*Auvent.*)

Henry B. Knoblauch, Washburn, Ill., U.S., 14th February, 1889; 5 years.

Claim.—1st. A brace for awnings, comprising two sections pivoted together at their adjacent ends, the end of one section being extended beyond the pivot, and provided with a perforation coinciding with the perforation in the other section, and a key adapted to engage perforations to retain the sections against pivotal movement, substantially as and for the purpose set forth. 2nd. The combination, with a metallic awning comprising a frame constructed of tubing, and adapted to be pivotally secured in position, of braces, each comprising two sections pivoted together, one of said sections being extended and provided with a perforation coinciding with a perforation in the other section, and a key adapted to engage said perforation to lock the sections against pivotal movement, said braces being pivotally connected with the awning-frame at their outer ends, and with securing brackets at their inner ends, substantially as and for the purpose set forth. 3rd. In an awning, the combination, with the frame constructed of tubing, a sheet metal covering secured thereto by bolts, braces each composed of two sections pivoted together, the end of one section being extended and provided with a perforation coinciding with a perforation in the other section, and a key adapted to engage said perforations to lock the sections against movement, said braces being pivotally connected at one end to the frame, and the other end to a securing-bracket, substantially as and for the purpose set forth.

No. 30,786. Sewing Machine.

(*Machine à coudre.*)

Jacob Boppel, Newark, N.J., U.S., 14th January, 1889; 5 years.

Claim.—1st. In a sewing machine, the combination of a reciprocating looping ring *vz*, having a flat face to receive the thread and form

a loop, and a hook or tit *w* to catch the said thread, and means, as described, for reciprocating said looping ring, substantially as and for the purposes set forth. 2nd. In a sewing machine, the combination, with the needle bar and needle, of a reciprocating looping ring, a spool reciprocator and spool spindle, all arranged and adapted to operate substantially as and for the purposes set forth. 3rd. In a sewing machine, the combination, with a main shaft and connecting rods, of a shaft *p* reciprocating under the influence of one of said connecting rods, a fixed spindle, a reciprocating looper working on said spindle, and a spool reciprocator *w* adapted to move the spool back and forth through said looping ring, and a needle, all said parts being arranged and operating substantially as set forth. 4th. In a sewing machine, the combination, with a needle, of a reciprocating looper, a fixed spindle carrying said looper, a spool carrier 2 adapted to receive the spool from said spindle, and a spool reciprocator, all said parts being arranged and combined as and for the purpose set forth. 5th. In a sewing machine, the combination, with a needle, of a spool spindle upon which the spool may revolve, a carrier to receive the spool from said spindle in its reciprocal movement, a looper arranged to move on said spindle, and a spool reciprocator, all said parts being arranged to operate substantially as and for the purposes set forth. 6th. In combination, in a sewing machine, with a suitable needle operated in connection with the main shaft, a connecting rod *k*, lever *n*, reciprocating rod *p*, fixed spindle *r*, sleeve *u*, looper fastened to said sleeve, and a spool reciprocator, substantially as and for the purposes set forth. 7th. In a sewing machine, the combination, with a spool reciprocator, and a bed plate *a* having a passage therethrough, of a carrier 2 adapted to throw the spool toward said passage, substantially as and for the purposes set forth. 8th. In a sewing machine, the combination, with a spool spindle, and a reciprocator arranged beneath the bed-plate, of a spool carrier bent, as at 3, and a spring, said parts being arranged and adapted to operate substantially as and for the purposes set forth. 9th. In a sewing machine, the combination, with the bed plate *a*, having a slide 5, of a spool carrier bent as at 3, 3, and provided with a pin or stud 6, and a spring, all said parts being arranged and adapted to operate substantially as and for the purposes set forth. 10th. In combination with a fixed spindle, and a reciprocating looper, and a spool reciprocator, a spool carrier arranged in line with the spindle and bent as at 3, 3, and arranged pivotally in suitable bearings and adapted to raise the spool to a point convenient for grasping, substantially as and for the purposes set forth. 11th. In combination with a flat reciprocating looper, a lever 12 for throwing the thread from said looper, substantially as and for the purposes set forth. 12th. In combination with a fixed spindle *r*, a looper arranged thereon, and having a flat hooked ring, a spool reciprocator, and a lever actuated by said reciprocator, substantially as and for the purposes set forth. 13th. In combination with a spindle and a looper revolving thereon, and a hooked ring, of a lever for throwing the said thread from said ring, and a reciprocator provided with a pin 13 adapted to engage the said lever, substantially as and for the purposes set forth. 14th. In combination with a bed-plate *a* having a hollow arm *b*, and a main shaft *c* adapted to operate the needle bar and needle, and having cams thereon, connecting rods *k*, lever *n*, rod *p* having teeth thereon, a fixed spindle, a sleeve having a cog-wheel *t*, and a looper *v*, a lever 7 having arm 9, and a spool-holder adapted to receive the spool from the spindle, and means as described for throwing the looped thread from the looper, substantially as and for the purposes set forth. 15th. In a sewing machine, the combination, with a spindle *r*, a cog *t*, and looper attached to said cog and reciprocated thereby, substantially as and for the purposes set forth. 16th. In a sewing machine, the combination, with a fixed spool spindle, a reciprocating sleeve *u*, and a looper having a disk *v*, a looping ring *w* hooked at *w*, and a connecting rod or bar *v* 3, all arranged and adapted to operate substantially as and for the purposes set forth. 17th. In a sewing machine, the tension device herein described, consisting of the perforated discs 20, 20 adapted to engage the ends of the spool, and a connecting rod or bar 21, perforated as at 25 to receive the spool thread, substantially as and for the purposes set forth. 18th. In a sewing machine, the tension device herein described, combining the discs 20 having bearings 22 around the central perforations 24, and a connecting bar 21, arranged to receive the spool thread, substantially as and for the purposes set forth.

No. 30,787. Regulating Device for the Distributing Pipes of Hot Air Furnaces. (*Appareil régulateur des tuyaux de distribution des calorifères à air.*)

Thomas G. Wanless, Toronto, Ont., 14th February, 1889; 5 years.

Claim.—1st. A valve located within a hot air distributing pipe in proximity to the hot air chamber of the furnace, in combination with a cord or chain attached to the said valve, and leading to the room with which the distributing pipe connects, substantially as and for the purpose specified. 2nd. A valve pivoted within a hot-air distributing pipe in proximity to the hot-air chamber of the furnace, in combination with a cord or chain connected to the said valve, and conveyed over guiding pulleys to a point within or near the discharge mouth of the distributing pipe, where it is connected to an operating lever or spindle, substantially as and for the purpose specified.

No. 30,788. Windmill Derrick.

(*Cage de moulin à vent.*)

Thomas O. Perry, Chicago, Ill., U.S., 15th February, 1889; 5 years.

Claim.—1st. In combination with a windmill actuating a rod or shaft for communicating motion, a sustaining-mast pivoted to a fixed support and balanced so that, on being released, it may be readily turned about its pivot from its normal upright position, to bring the windmill to the ground or within easy reach for oiling, and such attentions as may be occasionally required, substantially as herein shown and described. 2nd. In combination with a windmill sustained by a mast pivoted to a fixed support, a shaft or rod having a suitable joint or hinge at or near the axis of the pivot about which the mast is turned, so that the windmill, without uncoupling or dis-

turbing the shaft or rod, may be lowered to within easy reach for oiling, and such attentions as may be occasionally required, substantially as herein set forth. 3rd. In combination with a windmill sustained by a mast pivoted to a fixed support, a rod or shaft for communicating motion, having at or near the foot of the mast a release joint or coupling, whereat the rod or shaft may be disconnected, so as to allow the mast to swing on its pivot, as required, for lowering the windmill, substantially as set forth. 4th. In combination with a windmill sustained by a mast pivoted to a fixed support, a rod or shaft for communicating motion held by guides or bearings attached to the mast, and having at or near the foot of the mast a release joint or coupling, whereat the rod or shaft may be disconnected, so as to allow the mast to swing on its pivot as required for lowering the windmill, substantially as and for the purpose herein set forth. 5th. In combination with a mast pivoted to a fixed support, and sustaining at its upper end a windmill or other apparatus requiring in normal use a fixed elevation, means for securing a mast in its normal upright position by means of fastening, which admits of ready releasing, whenever it may be desired to swing the mast on its pivot in order to lower the windmill or apparatus, substantially as and for the purpose herein specified. 6th. The combination embracing the windmill or apparatus *W*, mast *A*, pivot *C*, support *B* and detachable fastening *E*, substantially as and for the purpose herein shown and described. 7th. The combination, embracing the windmill or apparatus *W*, mast *A*, pivot *C*, support *B* and guys *P*, *Q*, substantially as and for the purpose herein set forth. 8th. The combination embracing the windmill *W*, mast *A*, pivot *C*, support *B*, guides or bearings *S* and rod or shaft *R*, having detachable joint or coupling *G*, substantially as and for the purpose herein set forth. 9th. The combination embracing the windmill *W*, mast *A*, pivot *C*, support *B*, detachable fastening *E*, guide *S* and rod or shaft *R*, having hinge or joint *H*, substantially as and for the purpose herein specified. 10th. The combination embracing the windmill *W*, mast *A*, pivot *C*, support *B*, guys *P*, *Q*, guide *S* and rod or shaft *R*, having hinge or joint *H*, substantially as and for the purpose herein specified. 11th. The combination embracing the windmill *W*, mast *A*, pivot *C*, support *B*, detachable fastening *E*, guys *P*, *Q*, guides or bearings *S* and rod or shaft *R*, *R*, substantially as and for the purpose herein set forth. 12th. The combination embracing the windmill *W*, mast *A*, weight *D*, pivot *C*, support *B*, detachable fastening *E*, guide or bearing *S* and rod or shaft *R*, *R*, substantially as and for the purpose herein set forth.

No. 30,789. Ladder. (*Echelle.*)

Charles M. Bowker, West Farnham, Que., 15th February, 1889; 5 years.

Claim.—The combination of the short lengths of ladder *A*, *A*, *A*, with their slotted ends *B*, *B*, and projections *G*, *G* of the upper round or rung *C*, the wrought iron bands *E*, *E*, and spring catches *F*, *F*, with a ladder, substantially as and for the purpose hereinbefore set forth.

No. 30,790. Neck Yoke. (*Volée de bout de timon.*)

John Shalto, Hebron, Iowa, U.S., 15th February, 1889; 5 years.

Claim.—A vehicle tongue having a socketed end with annular and longitudinal grooves, in combination with a pin having a key thereon, and formed with a head having a kerf therein, a clip having a shank inserted in the kerf and pivotally connected thereto, and a neck-yoke pivotally connected to the clip, substantially as and for the purpose described.

No. 30,791. Plough. (*Charrue.*)

Webster A. Fairbank, Charles, Iowa, U.S., 15th February, 1889; 5 years.

Claim.—1st. The combination in a plough, with a curved standard and having an eye through its front end, and a beam having a vertical transverse slot through its rear end, of a front swivel-clasp *F*, and a rear clasp *E* pivoted to the said standard, and connected to the beam by nuts and washers. 2nd. The combination of the curved standard, the curved plough beam, the front swivel-clasp pivoted to the said standard and beam to allow vertical and lateral adjustments thereof, and the clasp *E* connected to the beam by a transverse pivot-bolt, and having a screw stem provided with nuts and washers, and adjustably secured to the rear transversely slotted end of the plough-beam, substantially as described.

No. 30,792. Car Coupling. (*Attelage de chars.*)

Robert F. Thomson, Kingston, Ont., 15th February, 1889; 5 years.

Claim.—1st. The combination of a coupling-pin with a joint near the centre *B*, *C*, and link-guide with roller *H*, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the coupling-pin with a joint near the centre *B*, *C*, and link-guide, with a roller *H*, and connecting rod *D*, substantially as and for the purpose hereinbefore set forth.

No. 30,793. Oliver. (*Marteau cingleur.*)

Walter J. Stevens, Whitesville, N.Y., U.S., 15th February, 1889; 5 years.

Claim.—1st. In an oliver, the combination of the rock-shaft *H*, the sector plate *S*, and the pivoted hammer *U*, substantially as set forth. 2nd. The combination of the rock-shaft *H*, having a crank arm *P*, the sector plate *S*, the hammer *U*, the latch *W*, the spring *R* to rotate the rock shaft in one direction, and mechanism for rotating the rock shaft in the direction contrary to that of the spring, as set forth. 3rd. In an oliver, the combination, with the base *B* having the pin *C*, of the operating lever *J*, having a spring *M* adapted to contact with said pin, as set forth. 4th. The combination of the standard, the rock-shaft *H* having a crank arm *I* at one end, and the crank arm *P* at its centre, the spring *R* secured to crank arm *P*, the hammer *U* carried by the rock-shaft, the lever *J* and the connecting rod *N*, as set forth. 5th. The combination of the rock-shaft *H*, the sector plate *S*, the hammer *U*, the casting *a*, having the tongue *b*,

the latch W, and the spring X in engagement with the sector plate, as set forth. 6th. The combination of the standards, the rock-shaft H mounted thereon, the hammer U, the guide K, the base having the pin C, guide D, the operating lever J, the spring M, and the connecting rod N, as specified.

No. 30,794. Aerial Cable Railway.

(*Chemin de fer à câble aérien*)

James B. Perry, Toronto, and John MacKenzie, Presqu' Isle, Ont., 15th February, 1889; 5 years.

Claim.—In an aerial cable railway supported on two standards B, with platform Br, the cable A tightened and secured by the screws a₁, and sloping stakes a₂, the combination, of the car c, with wheels c₁, sides c₂, bolt c₃, ferrule c₄ and threaded nuts c₅, projecting ends c₆, rubber sleeves c₇, washers c₈, screws c₉, and slot in side c₁₀, the whole constructed and arranged and operating as set forth.

No. 30,795. Washing Machine.

(*Machine à blanchir.*)

Joseph H. Jones, Gobles Corners, Ont., 15th February, 1889; 5 years.

Claim.—The vertical corrugated ribs which line the tub, the vertical carrying arms 1, 2, 3 and 4, the expanding and contracting arms 2 and 3, in combination with flattened pieces E, E, and thumb screw D, substantially as and for the purpose hereinbefore set forth,

No. 30,796. Hand Truck. (*Camion à bras.*)

David M. Macpherson, Lancaster, Ont., 15th February, 1889; 5 years.

Claim.—1st. The combination, with the parallel skids A, A₁, secured to an axle B, having wheels B₁ and provided with handles C, C₁, supporting the skids inclinedly, of the jaws E, E, toggle bars g, g, and spring side bars H, H₁, as set forth for the purpose described. 2nd. The combination, with the skids A, A₁, of the jaws E, E, toggle bars g, g, boxes e, e, and spiral spring J, as set forth. 3rd. The combination, with the skids A, A₁ provided with cheek plates D, of the jaws E, E, spring side bars H, H₁, toggle bars g, g and spiral spring J, as set forth.

No. 30,797. Ornamental Hanging Step Ladder. (*Echelle à queue d'ornement.*)

Anna Dormitzer, New York, N.Y., U.S., 15th February, 1889; 5 years.

Claim.—1st. An ornamental step-ladder constructed substantially as herein shown and described, with frame sections pivoted or hinged together, panel and folding steps C, C₁, all arranged and adapted for use as and for the purposes described. 2nd. A step-ladder constructed substantially as herein shown and described, devoid of a step on top, the front section having one or more folding steps, and the rear section provided with a panel arranged to fold within the front section, as set forth. 3rd. The combination, with a step-ladder constructed substantially as herein shown and described, of handle and hand supporting rod, as and for the purposes set forth. 4th. In an ornamental step-ladder, the combination, with the upper step, of strengthening edge bands, substantially as herein shown and for the purpose described. 5th. In an ornamental step-ladder, the combination, with the upper step, of steps fixed in the inner face of the back section, substantially as herein shown and described, whereby the ladder steps are held in operative position, as set forth. 6th. The combination, with the step-ladder A, B, of the pivoted sleeve i, stop r₁, tongue v, and rod e, provided with grooves v₁, stud v₂, and fork v₃, all arranged and operating substantially as set forth. 7th. In an ornamental step-ladder, a grooved supporting rod, substantially as herein shown and described, said rod being adapted to be moved up and down on a tongue or fin fixed on a side of the ladder, as set forth. 8th. An ornamental step-ladder provided with feet, substantially as herein shown and described, whereby the said ladder may be operated or used as a screen. 9th. A step-ladder constructed substantially as herein shown and described, devoid of a step on top, the front section having one or more folding steps, and the rear section arranged to fold within the front section, substantially as herein shown and described.

No. 30,798. Case for Containing and Displaying Reams of Sheet Paper. (*Buffet pour placer et montrer des rames de papier*)

Maurice M. Vardon, Toronto, Ont., 15th February, 1889; 5 years.

Claim.—1st. A frame A having a series of wires C strung across it to form supports for sheets of paper D, in combination with a case J designed to receive the frame and its contents, substantially as and for the purpose specified. 2nd. A frame A having a series of wires C strung across it to form supports for sheets of paper D, a back B hinged to the frame A, in combination with a case J designed to receive the frame and its contents, substantially as and for the purpose specified. 3rd. A frame A having a series of wires strung across it, each wire being slightly below the other, commencing at the farthest wire from the hinge, in combination with a case J designed to receive the frame A, substantially as and for the purpose specified. 4th. A frame A having a series of wires strung across it, each wire being slightly below the other commencing at the farthest wire from the hinge, in combination with a back B hinged to the frame A, the case J designed to receive the frame A, and back B, substantially as and for the purpose specified. 5th. A frame A having a series of wires C strung across it designed to support sheets of paper D, in combination, with cords E, spring roller F and case J, substantially as and for the purpose specified.

No. 30,799. Danger Signal for Railways.

(*Signal de chemins de fer.*)

Jerome Prince, Milford, Mass., U.S., 15th February, 1889; 5 years.

Claim.—1st. The car A, wheels B, C with driving spring, and gear-

ing suitably connected thereto, in combination with the folding signal apparatus D E F carried on said car, substantially as set forth. 2nd. The car, the driving spring and gearing, and the gong automatically sounded during movement of the car, in combination with a visible signal device, and with a self-acting stop apparatus, for the purpose set forth. 3rd. The car A having one or more driving wheels B, and a swinging arm X carrying wheel C, in combination with the driving spring, and gearing suitably connected to the wheel B, and with fastenings for the arm C, for the purpose set forth.

No. 30,800. Book Cover. (*Couverture de livre.*)

George F. Ronald, (Co-inventor with Robert Anderson), Toronto, Ont., 15th February, 1889; 5 years.

Claim.—A plate of metal or other stiff material fixed to the inside of a cover, and bent to form an open-ended pocket to receive the bound end of the book, inwardly-projecting lip or lips being formed on or near the edges of the plate to grip the bound end of the book inside of the stitching, in combination with a book of leaves, bound together by wire stitching, substantially as and for the purpose specified.

No. 30,801. Dress Cutter's Scale.

(*Echelle de tailleur de vêtements.*)

Rebecca Hurdle and Mary B. Manypenny, Washington, D.C., U.S., 15th February, 1889; 5 years.

Claim.—1st. A dress cutter's scale of semi-elliptical form at one end, and having one edge extending in a straight line tangent from one side of the said semi-ellipse, and the other edge sloping inward in a long graceful curve from the other side of the said semi-ellipse to a narrow point about midway the scale, the remaining portion of the scale being narrow, substantially as shown and described. 2nd. A dress cutter's scale having curved edges, substantially as described, and provided with a diagram of a dress pattern printed on it, and showing the outline of the said scale in various positions, partly coinciding with the curves of the pattern, substantially as shown and described. 3rd. The combination of a dress cutter's scale, having curved edges, and a printed diagram showing a dress pattern, and the outline of the said scale in various positions, partly coinciding with the curves of the pattern, substantially as described.

No. 30,802. Dynamo Electric Machine or Motor. (*Machine ou moteur dynamo-électrique.*)

The Thomson-Houston International Electric Company, Boston, (assignee of Elihu Thomson, Lynn), Mass., U.S., 16th February, 1889; 5 years.

Claim.—1st. In a dynamo electric machine or motor, a compound pole piece, one position of which is of constant or approximately constant effect upon the armature, while the other varies with the load, as and for the purpose described. 2nd. The combination, with armature coils in the same circuit, of two field magnet pole pieces, one of which is of approximately constant strength, while the other is variable with the load, as and for the purpose described. 3rd. In a dynamo electric machine or motor, a field magnet pole-piece constantly magnetized to saturation or approximately saturation, in combination with a field pole acting on the same armature or armature coils in the same circuit, and wound with coils, which are connected to the circuit of the machine, and whose magnetizing effect on their field pole is variable. 4th. In a dynamo electric machine or motor, a field pole constantly magnetized to saturation or approximately saturation, in combination with a field pole of variable magnetism excited by a coil in derived circuit to the work. 5th. In a dynamo electric machine or motor, the combination, with the armature, of two pole pieces of the same polarity, one having a constant, or approximately constant, effect upon the armature, and the other provided with a main circuit coil, wound to normally oppose or cut down the magnetism of the same, as and for the purpose described. 6th. In a dynamo electric machine or motor, the combination, with the armature, of two field magnet cores, one provided with an exciting derived circuit coil, whose influence is opposed by a main circuit coil tending to cut down the magnetism, and the other a pole piece, whose magnetic influence upon the armature is approximately constant. 7th. In a dynamo electric machine or motor, a field magnet pole having a magnetic saturation, or approximate magnetic saturation, in combination with a second pole piece, variable in strength according to the work. 8th. In a dynamo electric machine or motor, a field magnet pole having a magnetic saturation, in combination with a second pole, whose normal magnetism is opposed by a main circuit coil, as and for the purpose described. 9th. In a dynamo electric machine or motor, a field magnet pole normally saturated by the current of the machine, in combination with a second pole, whose magnetism is normally maintained by a derived circuit coil, and with a direct circuit coil for cutting down or reversing the magnetism of said derived circuit coil, as and for the purpose described. 10th. The combination, in a dynamo electric machine or motor, of a field magnet core magnetized nearly or quite to saturation, and a field magnet core whose strength decreases with a decrease in the work. 11th. The combination, in a dynamo electric machine or motor, of a field magnet core magnetized nearly or quite to saturation, and a field magnet core having a demagnetizing coil in the main circuit, as and for the purpose described. 12th. In a dynamo electric machine or motor, the combination of a field magnet core magnetized nearly or quite to saturation, a field magnet core excited by a derived circuit coil, and a main circuit coil acting in opposition to the latter. 13th. In a dynamo electric machine or motor, a field magnet core excited nearly or quite to saturation by a current in the coil connected to the circuit of the machine, in combination with a magnet core having a pole piece separate from that of the first core, and wound with a derived circuit coil, as and for the purpose described. 14th. In a dynamo electric machine or motor, the combination of the three coils, one of which excites its core to saturation, while the other two are respectively in a derived circuit and a main circuit, and act differentially upon a core

as and for the purpose described. 15th. The combination, with a field magnet coil, which is wound to produce a saturation, or approximate saturation in a dynamo electric machine or motor, of a magnetic coil wound in proper manner to set up magnetism, which would develop an armature current counter to that developed by the first-named coil. 16th. In a dynamo electric machine having a field magnet core normally and constantly saturated, or approximately saturated, as described, a coil applied to another portion of the field magnet, or magnetic field, and wound to oppose or cut down such field magnetism, as and for the purpose described. 17th. In a constant current or series dynamo, the combination of field magnet cores, magnetized to a high degree of saturation, and field magnet coils differentially magnetized, as and for the purpose described. 18th. In a dynamo electric machine for supplying a constant current, the combination, with field magnet cores, magnetized nearly to saturation, of field magnet coils differentially magnetized by a shunt circuit to the work opposed by a coil in the main circuit. 19th. In a dynamo electric machine, field poles or pole pieces adjustable around the circumference of the armature independently of the field magnet, whereby they may be set at different circumferential positions, as and for the purpose described. 20th. In a dynamo electric machine or motor, the combination, with a field magnet having two sets of pole pieces, one of constant and the other of variable polarity, of an armature, whose line of commutation is on a line passing between the constant and variable poles, as and for the purpose described. 21st. In a dynamo electric machine, the combination, with an armature, of four field magnet poles, each two of which on the same side of the line of commutation are respectively of constant strength and of variable strength according to the work demanded of the machine. 22nd. In a dynamo electric machine or motor, the combination, with the armature, of four field magnet poles, each pair of which on the same side of the line of commutation consists respectively of a pole-piece, whose magnetism is constant or approximately constant, and a pole piece which is normally of the same polarity with the first, but is provided with a counteracting coil, which serves to reverse the polarity of the same, as and for the purpose described. 23rd. The combination, with a dynamo electric machine or motor, of a set of interchangeable pole pieces of different magnetic effect, as and for the purpose described.

No. 30,803. Electro Mechanical Movement.

(*Moteur électro mécanique.*)

The Thomson-Houston International Electric Company, Boston (assignee of Elihu Thomson, Lynn), Mass., U. S., 16th February, 1889; 5 years.

Claim.—1st. The combination of a closed receptacle partly filled with volatile liquid, a heating conductor giving rise to a bodily movement of said liquid, and a register for indicating the amount of said movement. 2nd. The combination of a closed receptacle, partly filled with a volatile liquid, and a coil or other resisting part of an electric circuit in heating proximity to a wick or other porous substance extending into said liquid. 3rd. The combination of a closed receptacle partly filled with volatile liquid, a heating conductor giving rise to a bodily movement of such liquid, and a switch magnet in an independent circuit for controlling the passage of the heating current. 4th. The combination of a closed receptacle partly filled with volatile liquid, and a heating conductor within such receptacle, and in heating proximity to a wick or equivalent porous substance extending into said liquid. 5th. The combination of a closed receptacle, consisting of two communicating chambers or bulbs partly filled with a volatile liquid, a heating conductor applied to one chamber or bulb, and a source of heat applied to the other chamber or bulb. 6th. The combination of a closed receptacle, consisting of two closed communicating chambers or bulbs partly filled with a volatile liquid, and differentially-heated conductors applied to said chambers or bulbs. 7th. The combination of a closed receptacle, consisting of two closed chambers or bulbs communicating below, and differentially-heated conductors applied to said chambers to produce a retarded movement of said liquid from one receptacle to the other. 8th. The combination of a pivoted receptacle, consisting of two closed chambers or bulbs communicating below, a heating conductor applied to one chamber or bulb and giving rise to a bodily movement of said liquid, and a register for indicating the movement of said pivoted receptacle. 9th. An oscillating structure, consisting of two closed chambers or bulbs communicating below and partly filled with volatile liquid, and heating conductors applied to said chambers or bulbs, and adapted to force said liquid from one chamber to the other. 10th. An oscillating structure, consisting of two closed chambers or bulbs communicating below, mounted on a pivot and partly filled with volatile liquid, and heating conductors applied to said chambers or bulbs, and adapted to drive the liquid from one bulb to the other, and switch devices for alternately connecting said conductors with the heating current. 11th. An oscillating structure, consisting of two closed chambers or bulbs communicating below, mounted on a pivot and partly filled with volatile liquid, heating conductors applied to said chambers or bulbs, and automatic switch devices mounted on said chambers or bulbs for connecting said heating conductors successively with the heating circuit. 12th. A pivoted receptacle, consisting of two closed chambers or bulbs communicating below, and partly filled with volatile liquid, heating conductors giving rise to an oscillatory motion of said receptacle. 13th. A pivoted receptacle, consisting of two closed chambers or bulbs communicating below, heating conductors giving rise to an oscillation of said receptacle, and means for controlling an independent electric circuit actuated by the movement of said receptacle. 14th. A group of pivoted receptacles, each consisting of two closed chambers or bulbs communicating below, and partly filled with volatile liquid, a revolving pivot or axis, and a heating conductor acting successively on the bulbs or chambers on one side of said pivot or axis. 15th. A group of pivoted receptacles, each consisting of two closed chambers or bulbs communicating below, and partly filled with volatile liquid, a revolving pivot or axis heating coils, and switch devices for successively connecting said coils into circuit on one side of said pivot. 16th. A group of pivoted receptacles, each consisting of two closed chambers or bulbs communicating below, and partly filled with volatile liquid, a revolving pivot or axis,

heating conductors giving rise to a rotary motion of said pivot or axis, and a register for indicating the amount of movement of said pivot or axis. 17th. The combination of the closed receptacle partly filled with volatile liquid, a heating conductor applied to said receptacle, and an enclosing case or box which is a non-conductor of heat. 18th. The combination of a pivoted receptacle, consisting of two closed chambers or bulbs communicating below, and partly filled with a layer of comparatively heavy liquid below, and a layer of comparatively light and volatile liquid above, and heating conductors in heating proximity to said layers of volatile liquid, substantially as specified. 19th. A pivoted receptacle in unstable equilibrium, consisting of two closed chambers or bulbs communicating below, and partly filled with volatile liquid, heating conductors applied to said chambers or bulbs, giving rise to oscillatory movements of said receptacle at different periods, and a register for indicating the movements of said receptacle.

No. 30,804. Electric Meter. (*Electromètre.*)

The Thomson-Houston International Electric Company, Boston. (assignee of Elihu Thomson, Lynn), Mass., U. S., 16th February, 1889; 5 years.

Claim.—1st. The combination, with two confined bodies of fluid contained in separate chambers, of a shiftable pivoted or tilting weight controlled in its position by the expansion of said fluid, electric heaters for expanding the same, and switches controlled by the movements of the shiftable weight for shifting the electric current to the heaters alternately, as and for the purpose described. 2nd. In an electric meter, the combination, with separate confined bodies of expansible fluid, of electric heaters for heating the same, a register of the expansions of said fluid, and electric switches governing the flow of current to the heaters and controlled by such expansions, as and for the purpose set forth. 3rd. The combination, substantially as described, of a body of liquid contained in a pivoted or movable receptacle, and interposed between two gas-chambers, electric heaters for causing expansion of the gas in said chambers alternately, and consequent movement of the body of interposed liquid, and electric switch devices controlled by the movement thus produced for bringing the heaters alternately into action, as and for the purpose described. 4th. An electric motor consisting of a pivoted tilting receptacle, comprising air or gas boxes or bulbs connected by spaces containing a body of liquid, heating-coils for causing expansion of the gas and consequent movement of the liquid, electric switch devices controlled by the movements of the receptacle for throwing the heating coils into and out of action alternately, and an automatic register of the number of oscillations or movements. 5th. In an electro thermo-expansion device, a closed receptacle of metal containing a fluid of any character susceptible to heat, and an electro-magnetic coil adapted to act inductively on the metal of the receptacle to develop heating electric currents in said metal. 6th. The combination, with a pivoted or tilting receptacle containing a shiftable body of liquid, of electric switch devices mechanically operated by said receptacle, and an electro-magnetically-controlled switch governed by the latter and in turn controlling the electric heater, by whose heating effects a movement of the liquid bodily is induced. 7th. The combination, with two confined bodies of fluid contained in chambers forming a pivoted or tilting structure, of a shiftable weight moved by the expansive force of said fluid, electric heaters for causing expansion of the fluid, and switches controlled by the movements of the tilting structure for shifting the electric current, as and for the purpose described.

No. 30,805. Elevator. (*Monte-charge.*)

The Hydraulic Elevator Company, (assignee of Norman C. Bassett), Chicago, Ill., U. S., 16th February, 1889; 5 years.

Claim.—1st. A device for operating the stopping and starting device of an elevator, consisting of two fixed suspended cable sections hanging in the well adjacent to the path of the cage, and connected to operate the stopping and starting device, and a single cable tightener carried by the cage, and bearing upon both cable sections to tighten and slaken the same alternately, substantially as set forth. 2nd. The combination, with an elevator cage and the stopping and starting device of the elevator, of two fixed cable sections suspended within the well adjacent to the cage, and both connected with the stopping and starting device, cable tightener carried by the cage, and consisting of a frame provided with pulleys bearing on both cable sections, and with a single operating lever within the cage, substantially as set forth. 3rd. The combination, of a shifting cable, having two fixed suspended sections, a lever connected with both ends of said cable at the bottom of the well, and with the stopping and starting device, a cable tightener carried by the cage and bearing on both cable sections, and provided with a single hand device within the cage, substantially as set forth. 4th. The combination of two cable sections suspended within the well of an elevator, and connected to operate the stopping and starting device thereof, two pairs of guide pulleys carried by the cage, and a lever or arm carrying two guide pulleys, and connected with the hand device within the cage, each cable section passing over one pair of guide pulleys, and around one of the pulleys carried by said lever or arm, substantially as set forth. 5th. The combination, in a hydraulic elevator, of a cylinder having a series of ports, a valve and piston connected thereto, and an auxiliary valve constructed to regulate the flow of the actuating fluid through said series of ports in respect to the piston, and a lever connected to said auxiliary valve and to lever operating devices between the lever and the cage, substantially as specified. 6th. The combination, with the main valve of a hydraulic elevator, of an auxiliary engine having its piston connected to said valve, and arranged to traverse a series of ports, an auxiliary valve also arranged to traverse said series of ports to direct the flow of the motor-fluid to and from the opposite faces of the auxiliary piston, a passage from the face to the periphery of the piston, and connections for operating said auxiliary valve from the elevator-cage. 7th. The combination, with an engine connected to the main valve of a hydraulic elevator, and having a cylinder provided with a series of ports traversed by the piston, of an auxiliary valve connected to be operated from the cage of the elevator, and also traversing said ports, a passage through the piston, and an exhaust passage, all arranged substantially as de-

scribed to direct the motor-fluid to one side or the other of the piston according to the direction in which the auxiliary valve is moved through the said ports, and to cut off the supply or discharge as the piston approaches the position assumed by the auxiliary valve, substantially as specified. 8th. The combination of the main valve, actuating-piston connected therein, cylinder having a series of ports traversed by the piston, a passage leading from one face of the piston to its edge opposite said ports, a discharge passage, and an auxiliary valve also traversing said ports, with recesses arranged to permit the motor-fluid to be directed from one side to the other of the piston through said ports, and to permit the water between the piston and the head of the cylinder to be directed to the discharge passage according to the position assumed by the auxiliary valve, all arranged to regulate the extent and direction of the movement of the piston according to the extent and direction of the movement of the auxiliary valve, substantially as specified. 9th. The combination, with the main valve, of a hydraulic elevator, of an actuating-piston connected thereto, a cylinder having a series of ports along one side communicating with the chest of an auxiliary valve, an auxiliary valve in said chest provided with recesses, a passage from the face to the periphery of the piston, and a discharge-passage for the flow of the water from the space between the piston and cylinder head to the discharge-port, all arranged to operate substantially as set forth. 10th. The combination of a hydraulic elevator provided with a valve A, an engine provided with a piston cylinder, and auxiliary valve connected to be operated from the cage of the elevator, a series of ports between the cylinder and auxiliary valve chest, arranged to be traversed by the piston, a water passage through the piston from the face to the periphery, a discharge passage leading to the discharge pipe, and recess in the auxiliary valve, all substantially as set forth. 11th. The combination of a piston, a cylinder provided with a series of ports extending to opposite sides of the piston, a main valve connected with said piston, an auxiliary valve controlling the flow of fluid through said series of ports to and from opposite sides of the piston at any point of its stroke, and an arm and stop carried by the piston-rod, and auxiliary valve rod to engage at any point of the piston's stroke according to the adjustment of the auxiliary valve, substantially as described. 12th. The combination, with the main valve of a hydraulic elevator, of an auxiliary engine having its piston connected to said valve, a valve connected with the cage for controlling said auxiliary piston, a series of ports between the valve casing and engine cylinder, the auxiliary valve, auxiliary piston and main valve being connected substantially as described, whereby the main valve is under the direct and positive control of the operator in the cage.

No. 30,806. Field Filtering Water Bottle.

(*Bouteille-filtre de campagne.*)

Patrick Lewis and Eugène N. Chinic, Quebec, Que., 16th February, 1889; 5 years.

Claim.—1st. The combination of the water chamber C with the filtering compartment D, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the filtering compartment D, set in the collar H of the partition G, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the filtering compartment D with the filtered water chamber E, substantially as and for the purpose hereinbefore set forth. 4th. The combination of the filter D, with the loop handle K and the stopper B, substantially as and for the purpose hereinbefore set forth. 5th. The combination of the tube I, opening into the compartment E, through the partition G into the compartment C, substantially as and for the purpose hereinbefore set forth. 6th. The combination of the filtered water chamber E with the lower mouth or openings F, substantially as and for the purpose hereinbefore set forth.

No. 30,807. Manufacture or Production of an Improved Material or Compound adapted for use as a Substitute for Ivory, Horn, Whalebone, India Rubber, Gutta Percha and other Materials, also as a Coating or Varnish for Water-Proofing and other Purposes.

(*Fabrication ou production de matériel ou composition pour servir de substitut à l'ivoire, la corne, la baleine, le caoutchouc, le gutta-percha et autres matériaux, aussi d'enduit ou vernis pour rendre imperméable à l'eau et pour d'autres fins.*)

Frederick Greening, Uxbridge, Eng., Ogle R. Peck, Toronto, Ont., and Thomas W. T. Potts, London, Eng., 16th February, 1889; 5 years.

Claim.—1st. Treating fibrous substances with a mixture of fuming nitric acid and sulphuric acid, and, after washing the product, submitting it to a bath of sodium chloride and ammonia alum for producing a base, substantially in the proportions and for the purposes hereinbefore described. 2nd. The herein described solvent, such solvent being produced by distilling a mixture of acetate of lead and anhydrous lime, fusel oil being added to the distillate and also a suitable purifier, substantially in the proportions and for the purposes described.

No. 30,808. Control Apparatus for Counters

(*Appareil de contrôle pour les comptoirs.*)

Paul C. Filgen and Paul E. Kürsten, Leipsic, Germany, 16th February, 1889; 5 years.

Claim.—1st. The improved device for checking counter mechanism, arranged or operating substantially as described. 2nd. A device for enabling the action of counter mechanism to be checked or

tested, and comprising a supplementary disc, such as O, moved at each revolution to be recorded a distance corresponding with one of its divisions, and so numbered that the accuracy of the record shown by the counter mechanism may be determined by observing whether after dividing the number displayed by the counter by the number of divisions of the supplementary disc, the remainder of any corresponds with the number exposed by the said disc, substantially as described.

No. 30,809. Automatic Car Coupler.

(*Attelage automatique de chars.*)

Frederick J. Hughes, Watford, Ont., 19th February, 1889; 5 years.

Claim.—The combination of the drawhead A, with the counter-weighted dog B, substantially as shown and described, in combination with dog B, undershaft with cranks E, E, at each end, with bent centre C and adjustable weights D, D opposite, and journals F, F, as shown and described, in combination with log B, upright rod G, passing substantially as shown and described.

No. 30,810. Copying Press. (*Presse à copier.*)

Jeremiah P. Johnson, Detroit, Mich., U. S., 19th February, 1889; 5 years.

Claim.—1st. In a letter-press, the combination of the frame B and platen C, having a vertical adjustment in said frame, with the toggle levers G, G, threaded bolts D, D, the latter pivotally connected directly to the upper ends of the toggle levers, lever H and links I, the parts being constructed, arranged and operating substantially in the manner and for the purposes described. 2nd. In a letter press, the combination of the bed A, frame D, platen C, screw bolts D, F, turn buckle E, toggle-levers G, G, bifurcated lever H, links I, spring J, and stop c, all combined and operating substantially in the manner and for the purpose described. 3rd. In a letter-press, the combination of the frame B and platen C, having vertical adjustment in said frame, and operated by a pair of toggle levers hinged to the frame at one end, and the platen at the other, substantially as and for the purpose described.

No. 30,811. Vaporizer. (*Evaporateur.*)

Gardner M. Sherman, Springfield, Mass., U. S., 19th February, 1889; 5 years.

Claim.—1st. The vaporizer herein described, consisting of a receptacle of porous material for containing a disinfecting fluid, a casing wholly inclosing said receptacle, and having one or more openings therein, and means, substantially as shown and described, for closing said openings to any desired extent, substantially as set forth. 2nd. The vaporizer herein described, consisting of a casing having a series of openings therein, and having connected therewith a movable shield provided with a corresponding series of openings, whereby the openings in said casing can be opened to any desired extent, and a receptacle of porous material for containing the disinfecting-fluid located within said casing, substantially as described. 3rd. The combination, with the supporting-casing, of a porous wheel pivoted therein, said wheel having buckets or pockets arranged to lift a liquid when partially turned, substantially as described. 4th. In a vaporizer, the combination of a casing, a register in said casing, a porous disk within the casing having buckets arranged as described, and a handle connected to the disk and extending outside the casing. 5th. A wheel of plaster of paris, or similar porous material, having buckets or pockets extending from the outside or periphery in lines crossing radial lines, substantially as described. 6th. The combination in a vaporizer, of the inclosing-casing having an aperture for filling, and orifices for the escape of fumes, a plate having corresponding orifices, a disk or wheel pivoted in the casing, the same being of porous material, and having buckets as described, and a handle for rotating said wheel extending outside the casing, substantially as described.

No. 30,812. Art of Telegraphy.

(*Art télégraphique.*)

Elisha Gray, Highland Park, Ill., U. S., 19th February, 1889; 5 years.

Claim.—1st. The method of transmitting and recording a character by the movements of a transmitting pen, and a receiving pen, by transmitting the movements of said transmitting pen into pulsations of substantially the same effective strength in an electric circuit, varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, and through the intervention of an electro-motor transmitting said pulsations into movements of the receiving pen, substantially as set forth. 2nd. The method of transmitting and recording a character by the movements of a transmitting pen, and a receiving pen, by producing in an electric circuit through the movement of said transmitting pen pulsations of substantially the same effective strength, varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement and thereby through the intervention of an electro-motor causing movements of the receiving pen, substantially as set forth. 3rd. The method of transmitting and recording a character by the movements of a transmitting pen, and a receiving pen, by transmitting the movements of said transmitting pen in two directions crosswise of each other into two series of pulsations in two electric circuits, the pulsations of each series being of substantially the same effective strength, and varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, and transmitting said two series of pulsations into movements of the receiving pen in directions crosswise of each other, substantially as set forth. 4th. The method of transmitting and recording a character by the movements of a transmitting pen and a receiving pen, by producing in two electrical circuits through the movement of the transmitting pen in two directions crosswise of each other, two series of pulsations, the pulsations of each series being of substantially the same effective strength, and varying in number with the linear extent of the movement of said

pen, and varying in speed of succession with the rapidity of said movement, and thereby, through the intervention of two electro-motors, causing movements of the receiving pen in two directions crosswise of each other, substantially as set forth. 5th. The method of transmitting and recording a character, by the movements of a transmitting pen and a receiving pen, by transmuting the movements of said transmitting pen in directions opposite of each other, into pulsations of substantially the same effective strength of opposite polarity in an electric circuit, respectively varying in number with the linear extents of the movement of said pen in opposite directions, and varying in speed of succession with the rapidity of the said movement, and transmuting the said pulsations of opposite polarity into movements in opposite directions of the receiving pen, substantially as set forth. 6th. The method of transmitting and recording a character by the movements of a transmitting pen and a receiving pen, in directions opposite of each other, by producing in an electric circuit through the movement of said transmitting pen in said opposite directions, pulsations of substantially the same effective strength, and of opposite polarity, respectively varying in number with the linear extents of the movements of said pen in opposite directions, and varying in speed of succession with the rapidity of the said movements, and thereby, through the intervention of an electro-motor, causing movements of the receiving pen in opposite directions, substantially as set forth.

No. 30,813. Time Piece. (Horloge.)

Martin Van B. Ethridge, Boston, and Henry E. Waite, West Newton, Mass., U.S., 19th February, 1889; 5 years.

Claim.—1st. The combination of the bell and gong, the two faced hammer E, the laterally swinging arm E¹ carrying said hammer, the rocker shaft G having the adjustable lug G¹ to which the arm E¹ is pivoted, the spring or weight drum H¹¹, wheel H¹ secured thereto, cam ring H attached to the wheel H¹, and notched peripherally in the manner set forth, the pivoted lever I having a projection c that engages the cam ring, and a slotted arm I¹¹ which embraces the arm E¹, and the forked guard K, all arranged to operate substantially as described. 2nd. The combination of the driving gear C¹, the actuating pinion C¹¹ therefor, having half as many teeth as the gear C¹, the hollow shaft D on which the pinion C¹¹ is mounted, the snail wheel C provided on its periphery with cam teeth, the striking rack N, the single toothed pinion P, and pawl N¹, all arranged to operate substantially as described. 3rd. The combination of the bell and gong, the laterally swinging striking arm carrying a hammer, the rocker shaft with which the swinging arm is pivotally connected, the spring or weight drum, the gear wheel secured to the drum, the peripherally notched cam ring attached to said gear wheel, the pivoted lever having a projection that engages the cam ring, and a slotted arm that embraces the striking arm, and the mechanism described for setting in motion the striking wheels, substantially as described. 4th. The combination of the snail wheel C constructed as shown, the driving gear C¹, said snail wheel and driving gear being connected and placed on a stud a, the pinion C¹¹ having as many teeth as the gear C¹, the striking rack N, pawl N¹, single toothed pinion P, the bell and gong, the striking arm carrying the hammer, the cam ring, spring or weight drum, and the spring-actuated lever provided with a slotted arm, all arranged to operate substantially as described. 5th. The combination of the bell and gong, the laterally swinging striking arm E¹ carrying a hammer E, having faces b and b¹, the rocker shaft G having the adjustable lug G¹, to which the arm E¹ is pivoted, the drum H¹¹, wheel H¹ secured thereto, cam ring H attached to the wheel H¹ and notched peripherally as shown, the bracket I¹, lever I pivoted to said bracket and having projection c and slotted arm I¹¹, the springs c¹, guard K, snail wheel C, and gears C¹ and C¹¹, all arranged and operated as set forth. 6th. In a time piece, the combination, with the main spring and an adjacent shaft, of a pivoted arm provided with a projection engaging said main spring, and with a spring arm bearing upon said shaft, substantially as and for the purposes specified. 7th. The combination, with the time piece herein described, shown and claimed, of a dial for simultaneously indicating local and universal time, composed of a series of individually shifting numeral blocks which expose their figures in a single duodecimally graduated circle, and two local time pointers, and one universal time pointer, substantially as described.

No. 30,814. Invalid Bed. (Lit d'invalidé.)

John M. Scribner, Hamilton, Ont., 19th February, 1889; 5 years.

Claim.—1st. In an invalid bed, the longitudinal rod B holding and passing through the ends of frame c, in combination with the rod c¹, cords c², and the wheel I with pawl J, substantially as and for the purposes hereinbefore set forth. 2nd. In an invalid bed, the combination, of the rods F, crank H, wheels G, G, segments E, E, and the sections D, D¹, D², D³, and foot-rest D⁴, substantially as and for the purpose hereinbefore set forth. 3rd. In an invalid bed, the longitudinal rod B, frame c, rod c¹, cords c², wheel I, pawl J, rods F, crank H, wheels G, segments E, and the sections D, D¹, D², D³, and foot-rest D⁴, all formed, arranged and combined substantially as and for the purpose hereinbefore set forth.

No. 30,815. Fence Wire Stretcher.

(Tendeur de fil de fer à clôture.)

Jesse F. Warner, Winnebago, Neb., U.S., 19th February, 1889; 5 years.

Claim.—1st. The combination of a main lever, having a handle at one end, and provided at the other end with a loop adapted to engage a fulcrum, a block or jaw fixed between the said loop, and main lever near the inner end of the loop leaving the said end a projecting lip, and another jaw pivoted to the main lever to swing beneath the said lip opposite to the fixed jaw, substantially as shown and described. 2nd. The combination of a main lever having a handle at one end, a block or jaw fixed upon the said lever at some distance from its other end, a loop fixed upon the other end of the lever, and resting near its inner end upon the said block, and extending as a lip beyond the jaw portion of the block, and another jaw pivoted to the main lever to swing beneath the said lip opposite to the fixed jaw, substantially as shown and described.

No. 30,816. Saw Set for Cross-Cut Saws.

(Tourne à gauche pour les scies de travers.)

Daniel Stewart, Brussels, Ont., 19th February, 1889; 5 years.

Claim.—In a saw set of the kind described, block B having notches of different angles, substantially as and for the purpose hereinbefore set forth.

No. 30,817. Attachment to the Cutting Bars of Reapers or Mowers commonly known as Lifters, and used in Cutting Peas or other Lodged Grain or Lodged Grass. (Disposition aux lames des moissonneuses ou faucheuses appelée pointe et servant à faucher les pois ou autres grains ou herbes couchés.)

John Richmond, Morris, Ont., 19th February, 1889; 5 years.

Claim.—1st. The combination of the iron shoe E, with the lifter D and spring F, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of spring F, with the guard, or a cutting bar of a reaping or mowing machine by means of slot G, substantially as and for the purpose hereinbefore set forth.

No. 30,818. Mode of and Apparatus for Dyeing Textile Materials. (Mode et appareil de teinture des matières textiles.)

Fred. Lee, Joshua Bradshaw, Wakefield, and Frank Lee, Didsbury, Manchester, Eng., 19th February, 1889; 5 years.

Claim.—1st. In apparatus for dyeing cotton, wool and other fibrous or textile materials, the vat b provided with cans to hold the materials, and the dye cistern a, in combination with a pump or lifting apparatus for circulating the dye liquor, substantially as and for the purpose set forth and indicated. 2nd. In apparatus for dyeing the said materials, the combination of the dye cistern a, the vat b, the strainer f, the pans or receptacles d, d, and the circulating pump c, or an equivalent lifting apparatus, substantially as and for the purpose set forth and indicated. 3rd. In apparatus for dyeing the said materials, the lower dye cistern and the upper vat to contain the materials to be dyed, in combination with a pump or lifting apparatus for raising the dye liquor from the said cistern to the said upper vat, the liquor returning by gravity through the textile materials, and the pervious bottom of the vat to the lower cistern, substantially as set forth and indicated. 4th. In dyeing apparatus of the indicated nature, uniting the main cistern a to the upper vat b by an air-tight connection, so as to cause a vacuum, or partial vacuum, during the dyeing operation in the lower cistern, and beneath the pervious receptacles, or pervious bottom of the vat, thus causing atmospheric pressure to assist the natural gravity of the liquid in percolating through the said pervious receptacles or vat bottom, substantially as described and shown.

No. 30,819. Article of Food or Solidified Jelly. (Article alimentaire ou gelée solidifiée.)

Walter Robertson, Chelsea, Eng., 19th February, 1889; 5 years.

Claim.—The solidified jelly composed of 24 parts of sugar, 15 parts of liquid glucose, 3 parts of gelatine, 1 part of citric acid, or thereabout, and a suitable quantity of flavouring essences to taste, treated and prepared substantially as described and for the purpose set forth.

No. 30,820. Metallic Racing and Riding Saddle-tree and Panel. (Carcasse métallique et panneau de selle.)

Arthur W. M. Keen, Melbourne, Victoria, 19th February, 1889; 5 years.

Claim.—A metallic saddle-tree consisting of seatbow A, neck piece A and gullet pieces B, all formed and combined substantially as and for the purpose hereinbefore set forth.

No. 30,821. Lantern. (Lanterne.)

Harvey L. Jewell, Bangor, Me., U.S., 19th February, 1889; 5 years.

Claim.—1st. The frame L, sustained by its upper end and having the arm n. 2nd. The frame L, having the arm n, brackets r, r and pivots s, s. 3rd. The catch comprising the plate o and spring K, combined with the rod J. 4th. The tilting plate M, mounted upon pivots s, s, combined with spring arms for clamping the upper end of the globe, which arms have an opening between their free ends, and are adapted to spring apart to admit the globe as it turns with plate M into a vertical position. 5th. The spring arms i, i, adapted to spring apart at their free ends and clasp the globe both above and below its bead. 6th. The plate M, having the spring clips q, q. 7th. The springs m, combined with the eyes or loops m on the globe holder. 8th. The burner locking device, consisting of the circumferential and outward-extending slots c, and projecting tongues c, under which the wick adjuster-rod is fastened. 9th. The burner cone provided at its lower edge, with the circumferential and outwardly-extending slots c, with projecting tongues c to admit and fasten the said cone to the body of a lantern, substantially as shown and described.

No. 30,822. Sectional Hot Water Boiler.

(Chaudière sectionnelle de calorifère à eau.)

Edward Gurney, Toronto, Ont., 19th February, 1889; 5 years.

Claim.—1st. In a sectional hot water boiler, having a series of vertical smoke flues made in its centre, in combination with a disc-

shaped damper pivoted in the centre of the section, and having holes pierced through it to correspond with the smoke-flues in the section, the whole being arranged substantially as and for the purpose specified. 2nd. In a sectional hot water boiler, having a series of vertical smoke flues D made in its centre, in combination with a disc-shaped damper A pivoted in the centre of the section, and having holes C pierced through it to correspond with the smoke-flues D in the section B, stops F and G extending above the section B, and a handle E attached to the damper A and extending to the outside of the section B, substantially as and for the purpose specified.

No. 30,823. Sulky Plough. (*Charrue à siège.*)

Alexander Coon, South Grimsby, Ont., 19th February, 1889; 5 years.

Claim.—1st. The combination of the tongue C, C and the rods E, E connecting the tongue to the sulky, the spring U and the slot and slide A, A, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the forked rod 2, 2, face plate Y and neck Z, the slide D, D, lever No. 2 and connections 5, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the lever G, G and connections H, H to rod L, which runs upward to the tongue and downward through the eyes K, K, the rod L, L and eyes K, K, substantially as and for the purpose hereinbefore set forth. 4th. The combination of lever No. 1 with connections X, joint W and wheel V, substantially as and for the purpose hereinbefore set forth. 5th. The lever M and ratchet on the bend of rod L, used for tilting plough, substantially as and for the purpose hereinbefore set forth.

No. 30,824. Combined Racket Holder and Press. (*Porte-raquette et presse-raquette combinés.*)

George P. C. Holmes, Llangollen, Wales, Eng., 19th February, 1889; 5 years.

Claim.—1st. A combined racket holder and press, arranged and operating substantially as and for the purpose described and shown. 2nd. In a combined racket holder and press, the combination of uprights V, V, with base plate p, upper shelf S and racket press P, substantially as and for the purpose described. 3rd. In a combined racket holder and press, arranging the rackets in double consecutive and adjacent rows, substantially as described and shown. 4th. In a combined racket holder and press, the combination of cross-bars C, C, with central bars B, B, Br, Br, bars f, f, ft, ft, tie bars D, D, D, D, substantially as and for the purpose described. 5th. In a combined racket holder and press, arranging the rackets in two or more superposed rows and in inverted positions, substantially as described and for the purpose set forth.

No. 30,825. Permutation Lock.

(*Serrure à combinaison.*)

E. John Lander and T. Henry Lander (assignees of Byron J. Douds), Canton, Ohio, U.S., 19th February, 1889; 5 years.

Claim.—1st. The combination, with a lock casing and a bolt, of a disk having a series of passages, and a pin adapted to traverse said passages and withdraw the bolt, substantially as and for the purpose specified. 2nd. In a lock, the combination, with a disk having a series of passages on one of its faces, of a pin to traverse said passages to operate the bolt, substantially as set forth. 3rd. In a lock, the combination, with a disk having a series of passages on its face, of a pin adapted to traverse said passages in certain predetermined routes, and a bolt operated by said pin, substantially as and for the purpose specified. 4th. In a lock, the combination, with a disk having a series of passages, of a pin adapted to traverse said passages, and a retaining spring, substantially as and for the purpose specified. 5th. In a lock, the combination, with a disk having a series of passages on its face, of a pin adapted to traverse said passages, to operate a bolt, notches projecting from the operating disk, and a key adapted to operate the disk, substantially as set forth. 6th. In a lock, the combination, with a disk having a series of passages on its face, a pendulum lever pivoted to the case and projecting over the face of the disk, a pin carried by said lever and adapted to traverse the passages on the disk, and a sliding bolt adapted to be withdrawn by engagement with it of the pendulum lever, substantially as set forth. 7th. In a lock, the combination, with a revolvable disk, of a series of circuitous passages on its face, a pendulum lever pivoted to the case and projecting over the face of the disk, a pin carried by said lever and adapted to traverse the passages on the disk, a sliding bolt mounted in the case, a spring for projecting the bolt, and a lug or projection on the bolt, with which the pendulum lever engages to withdraw the bolt, substantially as and for the purpose set forth. 8th. In a lock, the combination, with a revolvable disk, of a series of circuitous passages on one face thereof, a pendulum lever pivoted to the case, and projecting over the face of the disk, a pin carried by said lever and adapted to traverse the passages on the disk, a spring secured to the case and bearing upon the free end of the lever, and mechanism for operating the disk, substantially as and for the purpose set forth. 9th. In a lock, the combination, with a notched disk, a spring adapted to engage said notches, a sliding bolt and mechanism for operating said bolt, substantially as and for the purpose set forth. 10th. In a lock, the combination, with the case, of a disk having a series of notches, of a spring arm secured to the case and adapted to ride from one notch to another when the disk is turned, whereby a certain predetermined signal may be felt by the hand of the operator when operating the disk, substantially as set forth. 11th. In a lock, the combination, with a disk having a series of passages, a pin or stop attached to said disk, and adapted to be placed at different points on the face of the disk, substantially as and for the purpose set forth. 12th. A spring and stop attached to a lock, or parts connected therewith, in such a manner that the operator can be guided in operating the lock, by stopping felt by the hand when turning the key, substantially as and for the purpose set forth. 13th. The combination, with a lock, of a disk having projections thereon, and a spring arm to engage said projections, and produce temporary stops of the disk, which may be felt by the hand of the operator

through the medium of a suitable key, substantially as and for the purpose set forth. 14th. The combination, with a lock, of a disk having projections thereon, and a spring to engage said projections to produce temporary stops of the disk, which may be felt by the hand of the operator through the medium of a suitable key, said notches and spring being so arranged relatively to each other that the disk may be turned in either direction, substantially as and for the purpose set forth. 15th. The combination, with a lock, having a permanently attached key, of a notched disk secured thereto, and a spring arm to engage said notched disk, whereby, when the key is turned, the engagements of the spring arms with the disk will be felt by the hand of the operator, substantially as set forth. 16th. The combination, with a lock, of a disk having a series of grooves or notches, and a spring arm adapted to engage said notches, whereby, when the disk is turned to operate the lock, the engagement of the spring arm with the notches will be felt by the hand of the operator, substantially as set forth. 17th. In a lock, the combination, with the case, of a spring adapted to engage the free end of the pendulum lever, and steady the movements of said pendulum lever, substantially as and for the purpose set forth. 18th. In a lock, the combination of a sliding bolt, and a spring adapted to operate said bolt, and force it forward into its keeper when released, and mechanism for operating said bolt, substantially as and for the purpose specified. 19th. In a lock, the combination of a lock having a disk provided with a series of passages, a pin adapted to traverse said passages, a pendulum lever attached to the case, and a spring adapted to steady the movements of said lever, and prevent accidental displacement thereof, substantially as and for the purpose set forth.

No. 30,826. Tunnel. (*Tunnel.*)

Caleb W. Wetmore, Saint John, N.B., 20th February, 1889; 5 years.

Claim.—1st. The use of wood for the wall of a subaqueous tunnel, substantially as and for the purposes described. 2nd. A tubular tunnel, consisting of layers of timber, constructed and bound together, substantially as and for the purposes described. 3rd. A tubular tunnel, whose wall is of timber, and consists of sections made and joined and laid substantially as and for the purposes described. 4th. A tubular timber tunnel, consisting of sections joined together, built and laid as described, and having a lining of brick, stone, cement, or wood, substantially as and for the purposes described. 5th. A subaqueous tunnel, whose tubular wall consists of layers of timber constructed in sections, which fit into one another, so as to form a continuous tube, and are laid and joined together as described, substantially as and for the purposes described. 6th. In a subaqueous tunnel, the tubular wall, consisting of the layers of timber A, A₁, A₂, and A₃, constructed and bound together, substantially as and for the purposes described. 7th. In a subaqueous tunnel, the combination of the tubular wall, A, A₁, A₂ and A₃, having the rods C and tree nails D constructed in sections with the supplementary timbers E and E₁, the blocking planks H and the lag screws L, substantially as and for the purposes described. 8th. In a subaqueous tunnel, the combination of timber A, A₁, A₂ and A₃, bound together with bolts and tree nails, as described, and constructed in sections and joined and bound together by supplementary timbers E and E₁, and blocking planks H fastened by lag screws L, so as to form a continuous tunnel with the lining F, substantially as and for the purposes described. 9th. The combination of the layers of timber A, A₁, A₂ and A₃, the rods C, the tree nails D, the supplementary timbers E and E₁, the lining F, the packing G, the blocking planks H, the lag screws L and the bolts M, substantially as and for the purposes described. 10th. A subaqueous tunnel suspended on piers, substantially as and for the purposes described.

No. 30,827. Composite Boot.

(*Botte composite.*)

William McKie, Albany, N.Y., U.S., 20th February, 1889; 5 years.

Claim.—As an improved article of manufacture, a composite boot, which consists of a leg and upper, composed of an outer body of sail duck, and an inner lining of felt or woven fabric, a sole of felt, india rubber, or other suitable material, and a sole-filling of leather or other flexible material, said outer body and lining of the leg and upper being composed of two pieces of each of the said materials cut to a uniform size and shape, secured together by a single seam at the front and rear, and turned inwardly to form a continuous flange around the lower edge, said front and rear seams being covered by stay-pieces of sail duck, said sole filling forming a flush surface with the upper and lower faces of said in-turned flange, and said sole being cemented to the foot of the boot, and then secured by a line of stitching which involves said sole, flange and inner sole, substantially as and for the purpose herein specified.

No. 30,828. Process of Preserving Dead Bodies. (*Procédé de conservation des cadavres.*)

John G. Meyers, Washington, D. C., U. S., 20th February, 1889; 5 years.

Claim.—The process of preserving a corpse, which consists in placing the same in a vault or cell of a mausoleum, or other structure for the reception of dead bodies, hermetically sealing the same, except as to inlet and outlet passages for air, and then passing through the cell a current of air, substantially as and for the purposes set forth.

No. 30,829. Dog Power. (*Manège à chien.*)

Alpheus Hamlin, Almonte, Ont., 20th February, 1889; 5 years.

Claim.—1st. The tilting bar B pivoted to the side of the inclined frame A, and supporting the thread wheel C, as set forth. 2nd. The driving shaft D extending across the frame A, and having the friction roller F provided with a screw F₁ for adjustment nearer to, or farther from, the centre of the thread wheel, as set forth. 3rd. The post G having a longitudinal channel, provided with a sliding block G₁, and an arm G₂ connected by a pitman H to the driving wheel E, as set forth.

No. 30,830. Washing Machine.*(Machine à blanchir.)*

William I. McCausland, Temple, Texas, U. S., 20th February, 1889; 5 years.

Claim.—The combination of the outer pan A, inner pan B, fans e_3 and grooved wheel a_3 , substantially as and for the purpose hereinbefore set forth.**No. 30,831. Book Leveler. (Appui-livre.)**

Will M. Kinnard, Dayton, Ohio, U. S., 20th February, 1889; 5 years.

Claim.—1st. An adjustable lever for raising the cover and leaves of an open book, consisting of a hinged arm incased within the cover of the book, its free end arranged to engage with a ratchet for adjusting and holding it in position, substantially as and for the purpose described. 2nd. A book-leveler for leveling the cover and leaves of an open book, consisting of a hinged arm C C' sunk in the lid of the book when not in use, and capable of being bent out and adjusted at any desired angle, substantially as and for the purpose described. 3rd. A book-leveler for leveling the cover and leaves of an open book, consisting of a hinged arm C C' pivoted to the cover of the book, in combination with the plates H, H, ratchet P, and springs for holding the arm C' in engagement with the ratchet, substantially as and for the purpose described. 4th. A book having its cover, or covers, provided with adjustable arms for leveling the pages of the book when open, and sunk in the lid of the book when not in use, and adjustable by means of a ratchet and spring, substantially as described. 5th. An adjustable arm for leveling the cover and leaves of an open book, sunk in the lid of the book and arranged to be drawn out and adjusted at any height, substantially as and for the purpose described.**No. 30,832. Straining Device for Steam Traps. (Appareil à filtrer pour trappes de vapeur.)**

William Haythorn, Chicago, Ill., U. S., 20th February, 1889; 5 years.

Claim.—The combination, with a steam-trap, of a terminal pipe B having the capped opening a , and provided with the rabbetted grooves a_2, a_3 , a strainer inserted in said pipe and removably retained therein by said grooves, the drop-tube or catch-basin C connected to the under side of the pipe B, and the removable cap b provided with the valve b_1 , substantially as set forth.**No. 30,833. Doubletree. (Volée d'arrière.)**

John A. Markle, Birtle, Man., 20th February, 1889; 5 years.

Claim.—A doubletree formed by the combination of two plates of metal, or other suitable material, placed one above the other at such distance and in such manner that the whiffletrees may work between them, and joined in the centre by a block or connection, substantially as and for the purposes set forth.**No. 30,834. Book Binding and Book. (Livre et reliure de livre.)**

Will M. Kinnard, Dayton, Ohio, U. S., 20th February, 1889; 5 years.

Claim.—1st. The above described improvement in book-binding, which consists in attaching the sections of the book to the back by means of an intervening compact, round or oval body, to which the sections are attached by a flexible joint, substantially as and for the purpose described. 2nd. The above described improvement in book-binding, which consists in stitching the sections to a strip of leather, or book-muslin, in which is wrapped a round or oval cord, and binding said cord directly to the back, substantially as and in the manner described. 3rd. A book in which the sections are attached to a round or oval cord by a flexible joint, and the cord attached securely to the back, substantially as and for the purpose specified. 4th. In a book-binding, a round or oval cord intervening between the sections of the book and the back, and attached to the sections by a flexible joint, substantially as and for the purpose described.**No. 30,835. Slop Jar. (Cuvette à rinçures.)**

Frederick Haberman, New York, N. Y., U. S., 20th February, 1889; 5 years.

Claim.—A slop-jar cover, consisting of the centrally apertured bottom wall B, the vertical rim portion H to closely fit the internal surface of a jar mouth, the lateral flange E to rest on the jar, and the vertical rim portion F, having the inwardly projecting rim D extended downward to form the internal annular pendent flange D' overhanging the bottom wall, substantially as described.**No. 30,836. Station Indicator. (Indicateur de station.)**

John F. O'Brien, Québec, Qué., 20th February, 1889; 5 years.

Claim.—1st. The case I having within a book, or leaves secured horizontally to the back of the case, each leaf in succession inscribed with the name of a station in order of occurrence, and adjustable into the upper half of the case by hand, and mechanism to release the leaves successively, each leaf falling by its own gravity into the lower part of the case, whereby the name of the next station will be exposed, and the name of the last station concealed, as set forth. 2nd. The combination, with the case I containing a book, or leaves secured horizontally to the back of the case, and notched as set forth, of the plate 3, star wheel 4 provided with a pin 12 near each point, levers 6, 7, connecting bar 8, pendulum bar 9 having notches 10, 11, dog 14 provided with notches 15, 16, and a spring or springs 19, 20, as set forth.**No. 30,837. Drive Chain. (Chaîne sans fin.)**

Frederick H. C. Mey, Buffalo, N. Y., U. S., 20th February, 1889; 5 years.

Claim.—The combination, with two links, each composed of twoside bars A, a connecting cross-piece a provided with a bore c having a longitudinal groove g , and eye pieces b having bores d provided with longitudinal grooves f , breaking joint with the groove g , of a cylindrical connecting pin C provided on its end portions with two raised longitudinal ribs e seated in the grooves f , substantially as set forth.**No. 30,838. Composition of Matter for Removing and Preventing the Formation of Scales in Steam Boilers without causing injury to Iron or Steel. (Composition de matières pour enlever les incrustations et en empêcher la formation dans les chaudières à vapeur sans détériorer le fer ou l'acier.)**

Robert D. Blair, Belledune, N. B., 20th February, 1889; 5 years.

Claim.—A composition composed of crushed or ground flax-seed meal, boiled in a solution of washing soda dissolved in boiling water, substantially in the proportions and for the purposes set forth.**No. 30,839. Telautograph. (Telautographe.)**

Elisha Gray, Highland Park, Ill., U. S., 20th February, 1889; 5 years.

Claim.—1st. The combination, with a transmitting pen, of an electric circuit, an interrupter operated through said pen and producing pulsations of substantially the same effective strength in said circuit, varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, an electro-motor operated by said pulsations, and a receiving pen controlled by said motor, substantially as set forth. 2nd. The combination, with a transmitting pen, of two electric circuits, two interrupters operated respectively through the movement of said pen in two directions crosswise of each other, and producing two series of electric pulsations in said circuits, the pulsations of each series being of substantially the same effective strength, and varying respectively in number with the linear extent of the movement of said pen in said crosswise directions, and in speed of succession with the rapidity of said movement, two electro-motors included in the respective circuits and operated respectively through said two series of pulsations, and a receiving pen controlled by said two motors in two directions crosswise of each other, substantially as set forth. 3rd. The combination, with a transmitting pen, of an electric circuit, an interrupter operated through said pen and producing pulsations of substantially the same effective strength in said circuit, varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, an electro-motor operated through said pulsations, a receiving pen controlled by said motor, and a stationary recording surface over which said receiving pen is moved, substantially as set forth. 4th. The combination, with a transmitting pen, of an electric circuit, an interrupter operated through said pen, and producing pulsations of substantially the same effective strength in said circuit, varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, an electro-motor operated through said pulsations, a stationary recording surface over which said receiving pen is moved, and a circuit controller and feeding mechanism for shifting the position of the said recording surface when the reproduction of the characters is suspended, substantially as set forth. 5th. The combination, with a transmitting pen, of an electric circuit, an interrupter operated through said pen, and producing pulsations of substantially the same effective strength in said circuit, varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, an electro-motor operated through said pulsation, a receiving pen controlled by said motor, and a pen-rest for lifting said receiving pen, substantially as set forth. 6th. The combination, with a transmitting pen, of an electric circuit, an interrupter operated through said pen, and producing pulsations of substantially the same effective strength in said electric circuit, varying in number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, an electro-motor operated through said pulsations, a receiving pen controlled by said motor, and a circuit-changer for changing the condition of the current in said circuit when the movement of the transmitting pen is reversed, substantially as set forth. 7th. The combination, with a transmitting pen, of an interrupter operated through said pen, and producing pulsations in an electric circuit varying a number with the linear extent of the movement of said pen, and varying in speed of succession with the rapidity of said movement, an electro-motor operated through said pulsations, a receiving pen controlled by said motor, and a pole-changer for changing the polarity of the current in said circuit when the movement of the transmitting pen is reversed, substantially as set forth. 8th. The combination, with an electric circuit including an interrupter and receiving magnets, which are respectively energized by different conditions of the current over the circuit, of a transmitting pen connected to operate said interrupter to interrupt the circuit, a circuit-changer for changing the condition of the current over the circuit whenever the movement of the pen is reversed, and a receiving pen moved in two directions through the action of said receiving magnets, substantially as set forth. 9th. The combination, with two electric circuits, each including an interrupter producing pulsations of substantially the same effective strength, and receiving magnets which are respectively energized by different conditions of the currents over the circuits, of a transmitting pen connected to operate said respective interrupters by its movements in directions crosswise of each other, circuit-changers for changing the condition of the currents over the respective circuits whenever the movement of the pen in either direction is reversed, and a receiving pen moved in two directions crosswise of each other through the action of the magnets of the respective circuits, and in opposite directions by the respective magnets of each circuit, substantially as set forth. 10th. The combination, with a main circuit including a pole-changer, an interrupter receiving magnets, and a polarized relay ar-

rangvd to direct the current through one or the other of the magnets according to its polarity, of a transmitting pen connected to operate said interrupter, a local circuit including the magnet of the pole-changer, and a circuit maker and breaker which is also connected to, and operated by, the pen, to change the condition of the local circuit, and thereby change the polarity of the current over the main circuit when the movement of the pen is reversed, and a receiving pen moved in two directions through the action of the said magnets, substantially as set forth. 11th. The combination, with two main circuits, each including a pole-changer, an interrupter receiving magnets, and a polarized relay arranged to direct the current through one or the other of the magnets according to its polarity, of a transmitting pen connected to operate said interrupters by its movements in two directions crosswise of each other, two local circuits, each including the magnet of one of the pole-changers, and a circuit maker and breaker which is also connected to, and operated by, the pen to change the condition of its local circuit, and thereby change the polarity of the current over the corresponding main circuit, when the movement of the pen in either direction is reversed, and a receiving pen moved in two directions crosswise of each other through the action of the magnets of the respective circuits, and in opposite directions through the action of the respective magnets of each circuit, substantially as set forth. 12th. The combination, with the receiving pen, and a main circuit (b or c) including a receiving magnet for operating the pen, of the brush 12, and disk 13 also included in the circuit, the transmitting pen, and connections with the transmitting pen for moving the brush or disk, one with relation to the other, to interrupt the circuit repeatedly by the continued movement of the pen in one direction, substantially as set forth. 13th. The combination, with the receiving pen, and a main circuit (b or c) including receiving magnets for moving the pen in opposite directions, of the brush 12 and disk 13 also included in the circuit, the transmitting pen, and connections with the transmitting pen for moving the brush or disk, one with relation to the other, to interrupt the circuit repeatedly by the continued movement of the pen in one direction, and a retractile 15 for effecting the same result when the pen is moved in the reverse direction, substantially as set forth. 14th. The combination, with the receiving pen, and the circuits b, c, including receiving magnets for moving the pen in two directions crosswise of each other, of a brush 12, and disk 13 included in each circuit, the transmitting pen, and connections with the transmitting pen for moving the brush or disk of each circuit, one with relation to the other to interrupt the respective circuits repeatedly by the continued movement of the pen in two directions crosswise of each other, substantially as set forth. 15th. The combination, with a main circuit (b or c), the transmitting pen, and means for interrupting the circuit by the movement of a transmitting pen, of a receiving magnet included in the circuit, and having a two-part armature, each part of which is pivoted to move in two directions, a rod acted on and moved with a step-by-step movement by the armature, and a receiving pen connected to and moved by the rod, substantially as set forth. 16th. The combination, with two receiving magnets having two-part armatures, each part of which is pivoted to move in two directions, and means for interrupting the currents through the magnets by the movement of a transmitting pen, of a rod arranged to be acted on and moved with a step-by-step movement in opposite directions by the respective armatures, and a receiving pen connected to and moved in opposite directions by said rod, substantially as set forth. 17th. The combination, with two pairs of receiving magnets, each having a two-part armature, each part of which is pivoted to move in two directions, and means for interrupting the currents through the magnets by the movement of a transmitting pen, of two rods arranged to be acted on and moved with step-by-step movements in opposite directions by the respective armatures of the respective pairs of magnets, and a receiving pen connected to and moved in two directions crosswise of each other by said rods, substantially as set forth. 18th. The combination, with a pair of receiving magnets, having two-part armatures pivoted to move in two directions, and means for interrupting the currents through the magnets by the movement of a transmitting pen, of a rod arranged to be gripped and moved in opposite directions by the respective armatures, friction jaws acting upon the rod, and a receiving pen connected to and moved in opposite directions by the rod, substantially as set forth. 19th. The combination, with the receiving pen G having a fine or capillary bore located above the recording surface, of the ink-well, located at a lower level than the point of the pen, and a flexible tube connecting the pen and ink-well, substantially as set forth. 20th. The combination, with the receiving pen, having a fine or capillary bore located above the recording surface, of the ink-well having a fine or capillary discharge tube, and located at a lower level than the point of the pen, and a flexible tube connecting the pen and the discharge tube of the ink-well, substantially as set forth. 21st. The combination, with the transmitting and receiving pens, of a pen-rest for raising the pen from the paper, an electro-magnet controlling the position of the pen-rest, electrical connections having a circuit controller at the transmitter for energizing and de-energizing said magnet, and a movable table beneath the transmitting pen for operating said circuit controller, substantially as set forth. 22nd. The combination, with the receiving pen, and the main circuits b, c through which it is operated, of an electro-magnet o for controlling the position of the pen, a local circuit including said magnet, and reversely acting circuit closers, electro-magnets l included in the respective main circuits and controlling said circuit closers, reversely acting temporary circuit breakers located in the respective main circuits, a local circuit including an electro-magnet for operating said circuit breakers, and a circuit controller included in said last local circuit and controlled by the position of the transmitting pen, substantially as set forth. 23rd. The combination, with the receiving pen having a movement in two directions crosswise of each other, of a stationary recording surface over which the pen moves to reproduce the message, a feeding mechanism for shifting the recording surface at times when the writing is suspended, an electro-magnet for controlling said feeding mechanism, and electrical connections including said magnet, and a circuit maker and breaker at the transmitter, whereby the operator at the transmitter can control the shifting of the paper in the receiver, substantially as set forth. 24th. The combination, with the receiving pen, having a movement in two directions

crosswise of each other, of a stationary recording surface over which the pen moves to reproduce the message, an escapement and escapement lever for effecting the shifting of the recording surface at times when the writing is suspended, an electro-magnet for operating said escapement lever, and electrical connections including said magnet, and a circuit maker and breaker at the transmitter, whereby the operator at the transmitter can control the shifting of the paper in the receiver, substantially as set forth. 25th. The combination, with the receiving pen, the recording surface upon which it acts, and a feeding mechanism for shifting said recording surface when the writing is suspended, of an electro-magnet for controlling said feeding mechanism, a local circuit including said magnet, and circuit closing devices for energizing and de-energizing said magnet to control the feeding mechanism, substantially as set forth. 26th. The combination, with the receiving pen, and the main circuits (b, c) through which it is operated, of a recording surface upon which the pen acts, and a feeding mechanism for shifting said recording surface when the writing is suspended, an electro-magnet for controlling said feeding mechanism, a local circuit including said magnet, and circuit closing devices for energizing and de-energizing said magnet to control the feeding mechanism, electro-magnets included in the main circuits for controlling said circuit closing devices, and circuit making and breaking devices included in the main circuits at the transmitter for energizing and de-energizing said magnets, substantially as set forth. 27th. In a telergraph system, the combination, with a transmitter, and a receiver located at one station, and the electrical connections constituting the line to another station, of a switch for connecting either the transmitter or the receiver to the line, and a pen rack or receiver connected to the switch and operated by the placing of the pen therein to shift the switch and connect the receiver to the line, substantially as set forth. 28th. In a telergraph system, the combination, with a transmitter and a receiver located at one station, and the electrical connections constituting the line to another station, of a switch for connecting either the transmitter or the receiver to the line, and a pen rack or receiver connected to the switch, and operated by the placing of the pen therein to shift the switch and connect the receiver to the line, and a retractile for automatically shifting the switch to connect the transmitter to the line when the pen is removed, substantially as set forth. 29th. The combination, with an electro-magnet, of an armature for said magnet, made in two parts mounted to move to and from each other, and to and from the magnet, substantially as described. 30th. The combination, with an electro-magnet, of an armature for said magnet made in two parts, mounted to move to and from each other, and to and from the magnet, and a rod or wheel acted on by said armature, substantially as described. 31st. The combination, with an electric circuit including an electro-magnet and an interrupter, of an armature for said magnet, made in two parts mounted to move to and from each other, and to and from the magnet, and a rod or wheel acted on by said armature, substantially as described. 32nd. The combination, with two electro-magnets, of armatures for said magnets, each made in two parts mounted to move to and from each other, and to and from their respective magnets, and a rod or wheel acted on in reverse directions by said armatures, substantially as described. 33rd. The combination, with an electric circuit including two electro-magnets, a pole-changer, and a polarized relay connected to short-circuit, one or the other of said magnets according to the polarity of the current, over the circuit, of armatures for said magnets, each made in two parts mounted to move to and from each other, and to and from their respective magnets, and a rod or wheel acted on in reverse directions by said armatures, substantially as described.

No. 30,840. Sewing Machine.

(Machine à coudre.)

The Singer Manufacturing Company, New York, N. Y. (assignee of Philip Diehl, Elizabeth, N.J.), U.S., 20th February, 1889; 5 years.

Claim.—1st. In a sewing machine, the following instrumentalities, viz., a reciprocating needle-bar, carrying an eye-pointed needle, a rotating needle-bar actuating shaft, and intermediate connections between it and the needle-bar, a take-up, a rock-shaft located below the bed-plate of the machine, mechanism, substantially as described, to oscillate the said rock-shaft for more than one-half a rotation, a shuttle-driver, a shuttle-race, an oscillating shuttle having a point and loop discharger located adjacent to the point, and pointing toward the periphery of the bobbin-case, and operating to discharge the loop of needle-thread upon the bobbin-case, just past its lower centre, a bobbin-case and a bobbin supported by a post or stud at the centre of oscillation of the shuttle, the said bobbin having its centre of motion coincident with the centre of oscillation of the rock-shaft for moving the shuttle to operate, all substantially as described. 2nd. In a sewing machine, an oscillating shuttle having a heel and point at nearly one hundred and eighty degrees from each other, and a loop discharger longer than the point and extended toward the bobbin-case, combined with a bobbin-case and bobbin, the centre of rotation of the bobbin being coincident with the centre of motion of the shuttle, substantially as described. 3rd. In a sewing machine, an oscillating shuttle having a heel and point substantially, or nearly, one hundred and eighty degrees distant, a loop-discharger adjacent to but longer than the point, and extended to the bobbin-case in the direction of the forward movement of the shuttle, a bobbin having its support concentric to the circular periphery of the shuttle, and a bobbin-case, combined with a tension device arranged at the outer side of the bobbin-case, and accessible from the front of the shuttle to adjust the tension on the bobbin-thread, substantially as described. 4th. A shuttle-race, a rock-shaft, and means, substantially as described, to oscillate it for more than one hundred and eighty degrees, an oscillating shuttle having a point substantially, or nearly, one hundred and eighty degrees distant from its heel, and a loop-discharger adjacent to, but longer than the point, and extended in the direction of the forward motion of the shuttle, and inclined toward the bobbin-case, combined with a bobbin-case, means, substantially as described, to prevent the rotation of the bobbin-case with the shuttle and a bobbin, the centre of rotation of the bobbin in the case, and the centre of oscillation of the shuttle, and the rock-shaft actuating it being all substantially coincident, whereby

the momentum of the oscillating shuttle is only that due to its own weight, thus enabling the shuttle to be run at high speed with the minimum of shock and strain upon its actuating parts, as set forth. 5th. In a sewing machine, a circular raceway, a rock-shaft provided with a shuttle-driver, means, substantially as described, to oscillate the said rock-shaft for more than one hundred and eighty degrees, and a bobbin having its support coincident with relation to the centre of oscillation of the said rock-shaft and of the raceway, combined with a shuttle having a loop-discharging prong, and the bobbin-case swelled or bulged and cut away, as described, to enable the loop of needle-thread to be unerringly passed beyond the vertical centre of the bobbin-case, to be drawn up about and enclose the bobbin or under thread, substantially as described.

No. 30,841. Manufacture of Panel Doors.

(Fabrication des portes en panneaux.)

Alexander McKay and Henry A. Bell, Vancouver, B. C., 20th February, 1889; 5 years.

Claim.—The combination of side rails, cross rails and dowels indicated by dotted lines and letter A, as and for the purpose heretofore set forth.

No. 30,842. Elevator. (Monte-charge.)

Otis Brothers and Company, New York (assignees of Cyrus W. Baldwin, Yonkers, N. Y., U.S., 20th February, 1889; 5 years.

Claim.—1st. The combination, in controlling devices for elevators, of a suspended cable connected to the stopping and starting device, a car provided with pulleys around which the cable passes, a lever to move said cable, and contact plates at the upper and lower limits of travel of the car to strike the lever and automatically stop the car. 2nd. The combination, with the cage and stopping and starting device of an elevator, of a cable consisting of two suspended sections within the well, connected at their lower ends with the stopping and starting device, and two pairs of pulleys supported side by side, and adjusting mechanism extending within the cage for simultaneously raising or lowering the adjacent pulleys of both pairs, the two sections of the cable being passed in opposite directions round the pulleys, substantially as set forth. 3rd. The combination, with a vibrating frame carrying pulleys, around which pass the suspended cable sections, of a toothed wheel upon the shaft of said frame, and a hand-wheel within the cage upon a shaft having a pinion gearing with said toothed wheel, substantially as set forth. 4th. The combination, with the stopping and starting device of an elevator, of a counterbalance connected thereto to hold same in its mid-position, a detent for holding said counterbalance out of action, a pulley arranged to bear against the operating cable for shifting the stopping and starting device, and an arm or bar arranged to release the detent when the pulley moves from contact with the cable, substantially as set forth. 5th. The combination, with the shifting cable, stopping and starting device, a counterbalance connected to hold the latter in its mid-position, and detent for holding said counterbalance out of action, of a pulley arranged between the two sections of the cable, and a pivoted forked bar supporting the pulley and arranged with its forked ends on opposite sides of the detent, substantially as and for the purpose set forth. 6th. The combination of the shifting cable, pulley 2, around which the shifting cable passes, a counterbalance connected to said pulley by a flexible strip, a detent for holding the said counterbalance, a pivoted forked bar having its prongs extending on opposite sides of the detent, and a pulley carried by said bar and normally occupying a position between the two sections of the shifting cable, substantially as set forth. 7th. The combination, with the operating cable and stopping and starting device of an elevator, of a counterbalance, whereby to bring the stopping and starting device into position to arrest the cage, a detent for holding the said counterbalance out of action, and an arm bearing on the operating cable, and connections between the arm and detent, whereby the latter is shifted when the arm moves on the breaking or displacement of the cable, substantially as described. 8th. The combination of the stopping and starting device, the pulley 2, the cable, the strap and weight, the rollers 40, the detent and an automatic device for moving the detent when the shifting cable breaks, substantially as described. 9th. The combination in an elevator, of a cage, a stopping and starting device, two cable sections suspended from fixed points within the well, and connected at their lower ends with said device, and two pairs of grooved pulleys carried by the cage and connected with a single operating device within the cage, each cable section passing beneath one pulley of one pair, and over the adjacent pulley of the other pair, substantially as and for the purpose set forth.

No. 30,843. Adjustable Chimney.

(Cheminee mobile.)

Peter C. Elser (Co-inventor with Isaac N. Jones), Dupont, Ohio, U.S., 20th February, 1889; 5 years.

Claim.—1st. The combination, with the chimney-cap, of the slide thereon and carrying the draft-pipes, and capable of curvilinear adjustment. 2nd. The combination of the cap, having the convex upper side provided with the opening, and the slide adapted for the attachment of the pipe and fitting on the convex upper side of the cap, and adjustable thereon for the purpose set forth, substantially as described. 3rd. The combination of the plate adapted to be secured on the roof, and having the opening and the flange D, the hemispherical cap provided with the opening F, the lower edge of said cap fitting over the flange D, and the slide fitting on the upper side of the cap adjustable thereon, having the opening L registering with opening F and adapted for the attachment of the pipe, substantially as described.

No. 30,844. Adjustable Bed Clothes Holder.

(Acroche-couvertures de lit mobile.)

Rhoda C. Wicks, (assignee of Thomas Wicks), Toronto, Ont., 20th February, 1889; 5 years.

Claim.—The head A horizontally adjustably connected to the

bracket B, in combination with a holder fastened to the side-board F, and arranged to hold the bracket B, so that it may be vertically adjusted thereon, substantially as and for the purpose specified.

No. 30,845. Blacksmith's Tuyere.

(Buse de forge.)

James Cumming and Margaret Cumming, Buffalo, N. Y., U.S., 20th February, 1889; 5 years.

Claim.—The annular casing A having the nozzle B, and the upright tube D cast therewith, and having also a central opening H above said tube, in combination with an auxiliary conduit having a central opening, and downwardly-extending flange N surrounding said opening, and fitting into the said opening H, this auxiliary conduit being shaped to conform to the work required, and provided with discharge-openings o in its top, substantially as set forth,

No. 30,846. Octave Coupler for Pianofortes.

(Lien d'octave pour pianos.)

Thompson and Shackell, Cardiff, (assignees of Samuel Thompson, Swansea, and William Shackell, Cardiff), Wales, 20th February, 1889; 5 years.

Claim.—1st. In an octave coupler for pianofortes, in combination, a key 6, an octave key 6, and an additional half key 9 carried by one of such keys 6, and operating as one key with such key when operated thereby, and operating independently of such key when operated by the other key 6, as set forth. 2nd. In an octave coupler for pianofortes, in combination, the diagonal lever 14, formed with vertically adjustable ends, the frame 17, and means of operating the same, as set forth. 3rd. In an octave coupler for pianofortes, in combination, a key 6, an octave key 6, an additional half key carried by one of such keys, adjustable lever 14 and rising frame 17, operating as set forth.

No. 30,847. Nut. (Erou.)

The Elastic Nut Company, Milwaukee, (assignee of Justin H. Burdick, Milton), Wis., U.S., 20th February, 1889; 5 years.

Claim.—The combination of a screw-threaded bolt with a slitted elastic nut, the bore of the bolt and nut being normally the same, but the pitch of the threads being different.

No. 30,848. Illuminating Tile.

(Tuile transparente.)

Jacob Jacobs, New York, N. Y., U.S., 22nd February, 1889; 5 years.

Claim.—1st. An illuminating tile in which the light openings contain glass lenses that are each adapted to receive and contain a separate centrally located lens, substantially as and for the purpose specified. 2nd. An illuminating tile in which each light opening is provided with a glass lens that has a central opening, substantially as and for the purpose shown. 3rd. As an improvement in illuminating tiles, a glass lens which is adapted to fit into the light opening in a tile, and is provided with a central opening, in combination with a second lens which fits into and is secured within such opening, substantially as and for the purpose set forth. 4th. An illuminating tile in which a light opening is filled by a central lens, and an external enclosing lens that have different colors, substantially as and for the purpose shown and described. 5th. As an improvement in illuminating tiles, a lens which is adapted to fit into a light opening, and is provided with a central opening, in combination with a second lens that is adapted to fit into and fill the opening within said lens, and is provided with a central ventilating opening that is larger at its inner end than at its outer end, substantially as and for the purpose specified.

No. 30,849. Grain Measuring Machine.

(Machine à mesurer le grain.)

Charles W. Hadley, Owatonna, Minn., U.S., 27th February, 1889; 5 years.

Claim.—1st. In combination with the cylinders A and A1, the shafts C and C1, pinions D and D1 on said shafts, the segment E, and the horizontally revolving wings I and I1, respectively, at the ends of said shafts C and C1, and having their front edges turned up. 2nd. In combination with the vertical shafts C and C1, flanges G and G1, and pinions D and D1, each provided with a clutch on its under surface, the clutches F and F1, the cams M and M1, and the segment E, substantially as and for the purpose set forth. 3rd. The cylinders A and A1, and shaft L, and the movable bottom H attached to its lower end, in combination with the vertical shafts C and C1, each having on its lower end a horizontally-revolving wing with upturned edges, and mechanism, substantially as described, whereby said bottom alternately covers the lower end of one or the other cylinders, substantially as set forth. 4th. In combination with the shaft C and C1, each having a flange G or G1, the pinions D and D1 loosely placed on said shafts, the cams M and M1, and the segment E to which the said cams are secured, and the clutches whereby the said pinions are alternately held fast to be alternately engaged with said segment, substantially as and for the purpose set forth. 5th. The combination, of the detent-pawls W, W1 fixed to the bracket, the shafts C and C1, and cogs or pinions D, D1 loosely mounted thereon, the clutches d, d1 on the pinions, and the clutches E, F on the shafts, whereby the pinions alternately engage with their operative mechanism, substantially as set forth. 6th. In an automatic grain-measurer, extensible cylinders combined with horizontally-revolving wings secured to the operative mechanism, substantially as described, whereby when the cylinders are lengthened, the wings can be correspondingly moved, substantially as and for the purpose set forth. 7th. In a grain-measuring device, in combination with a movable shaft, horizontally revolving wings adapted to be raised by the infowing grain as it fills the cylinder in which the said wings revolve, and the mechanism operating said shaft, whereby said shaft is automatically thrown into and out of gear with the mechanism which moves it, substantially in the manner and for the purpose set forth.

No. 30,850, Lifting Jack. (Cric.)

James M. Smith, Greenwich, Conn., U.S., 27th February, 1889; 5 years.

Claim.—In a lifting jack, the combination of the central post or standard A, having a longitudinal slot c and branch slots d, the hollow lifting bar or outer case C, the slotted lever B provided with a stop a', fulcrum pin e, and upper arm l, and the side links D, all combined and arranged to operate substantially as shown and described.

No. 30,851, Ventilating Device.

(Appareil de ventilation.)

Alfred C. Stevenson, Oakdale Station, Penn., U.S., 27th February, 1889; 5 years.

Claim.—1st. The combination, with a window frame, of journal plates in the upper portion of the grooves for the lower sash, side guides formed in the head between the two sash grooves, a spring roller journaled in the plates in the upper portion of the lower sash groove, a foraminous diaphragm wound upon the roller, and provided with a heavy heel on each side extending beyond the ends of the roller and traveling in the guides, and a rigid strip attached to the lower end of the diaphragm, and connected to the upper end of the upper sash, substantially as and for the purpose described. 2nd. The combination, with a window frame, of two foraminous diaphragms arranged side by side across the opening of the window sash to form a space between, and a support attached to the window frame, and arranged between the diaphragms for the reception of volatile substances, for modifying the character of the air admitted to the room through the same, substantially as described. 3rd. The combination, with a window frame, of two sets of distending devices, arranged side by side, and provided with foraminous diaphragms adapted to be drawn across the opening of the sash, supports arranged upon the window frame between the diaphragms, and a box frame consisting of top, bottom and ends held upon said supports, and having their edges fitting closely against the two diaphragms to form a receptacle for disinfectants, inhalants, etc., as described.

No. 30,852, Railway Car. (Char de chemin de fer.)

Gerald P. Warren, San Antonio, Texas, U.S., 27th February, 1889; 5 years.

Claim.—1st. A railway car provided with a safety-compartment, the sides of said compartment formed of sections hinged at their lower ends to the car-body, whereby the upper end may be swung outward, said sections provided at their ends with inwardly-projecting wing portions, adapted to form end walls of the side sections when said sections are swung outward, substantially as and for the purpose described. 2nd. A railway car provided at one end with a safety compartment, having hinged sections forming the sides thereof, doors arranged in said compartment, and adapted to close the entrance to same from the platform and from the interior of the car, the inner faces of the sections, the end walls, and the doors of said compartment being lined with bullet-proof materials, substantially as shown and described. 3rd. In a railway car, the combination, with the car-body, of a safety compartment constructed in one end thereof, said compartment consisting of the auxiliary compartments B and C, and the partition-wall D provided with a doorway E, said compartments B and C, provided with doors I, K, the said doors hinged to swing outward, the door I adapted to close the passage-way E, and the door K adapted to close against the platform door F when said doors are opened outward, said compartment provided with port-holes in the side and end walls thereof, all arranged as and for the purposes set forth. 4th. The combination of the car-body A, provided with a compartment in one end thereof, the side walls of said compartment provided with cut-away portions forming openings, and movable sections G hinged at the lower edge of said openings, the upper ends of said sections G provided with inwardly-extending arms adjustably secured to end walls of the compartment, whereby the upper ends of said sections may be moved outwardly, substantially as shown and described. 5th. A car-body having a safety-compartment formed therein, said compartment provided with open side walls, and movable sections hinged at their lower ends to the lower edge of the openings in the side walls, and consisting of the body portion G, and the inwardly-projecting wings G¹, said portions G and G¹ provided with port-holes, the upper ends of said sections provided with inwardly-projecting arms H, adapted to be adjusted to the side walls of the compartment, substantially as shown and described. 6th. A car-body provided with a safety-compartment, said compartment having open side walls, movable sections hinged at their lower ends to the lower edge of said openings in the side walls, and consisting of the body portion G, the side wings G¹ and the top piece G², said sections provided with inwardly-slotted curved arms adapted to receive the adjusting screw J, said movable section provided with port-holes N, N¹, having sliding covers n, n¹, all arranged substantially as and for the purpose described.

No. 30,853, Appliance for Filling Bags.

(Appareil à ensacher.)

Olivier Asselin, Ottawa, Ont., 27th February, 1889; 5 years.

Claim.—In a bag-holder, the curved holder A, A, teeth or points D, spring B, and coil C, the whole substantially as and for the purpose hereinbefore set forth.

No. 30,854, Chimney Cowl.

(Capuchon de cheminée.)

James T. Lipsett, St. John, N.B., 27th February, 1889; 5 years.

Claim.—1st. A rotating chimney-cowl provided with a shaft having an inverted cone secured thereto, and a series of vanes attached at their upper ends to said cone, and united at their lower ends to a ring which is not connected with the shaft, substantially as described.

2nd. In a rotating chimney-cowl, the combination, of the cup C having the opening d, and pipe e, with the cup C¹ having the floor g soldered to the shaft D, substantially as and for the purposes described. 3rd. In a chimney-cowl rotating on an axial shaft, the combination of the cone-cup C¹ having the opening j, the band k secured to the shaft D, and having a slot as described, with the bearer i having a coned socket, and held in position by the cross-bars L, substantially as and for the purposes described. 4th. A rotating chimney-cowl having a series of curved vanes G, each of which is provided with a gutter n and flange p, substantially as and for the purposes described. 5th. A chimney-cowl consisting of the standards B united by the centre-tie c, the cup C having the opening d and the pipe e, the cup C¹ having the floor g soldered to the shaft D, the inverted cone C¹ having the opening j, the band k secured to the shaft D, and having a slot along the line of the shaft, the cross-bars L, the bearer i having a coned socket, the shaft D, the vanes G attached to the base of said inverted cone C¹, and the ring H uniting the ends of the vanes, and unconnected with the shaft D, substantially as and for the purposes described. 6th. The combination of the flue A, the standards B, the centre-tie c, the cup C, the opening d having a cap, the pipe e, the cup C¹, the floor g, the shaft D, the cone C¹, the band k secured by a set-screw to the shaft and slotted, the opening j having a cap, the bearer i having a coned socket, the cross-bars L, the vanes G, the gutter n, the flange p, the ring H and the wire w, substantially as and for the purposes described.

No. 30,855, Band-Cutter and Feeder.

(Coupe-hart et alimentateur.)

Oliver Anderson, Racine, Wis., U.S., 27th February, 1889; 5 years.

Claim.—1st. In a band-cutter and feeder, the combination, with a reciprocating feed-apron, of cutters having a circular edge, a rock-shaft on which said cutters are eccentrically mounted, and means for vibrating said cutters in a direction opposite to the movement of the apron, substantially as described. 2nd. The combination, with a frame, a feed-apron and forwardly-inclined pivotal supports therefor, of a crank-shaft for vibrating said apron, a rock-shaft journaled above the same, and provided with an upwardly-extending arm, and cutters rigidly and eccentrically mounted upon said rock-shaft, and a pitman connecting the arm on the rock-shaft with the reciprocating apron, substantially as described. 3rd. The combination, with a vibrating feed-apron, of a rock-shaft, rods secured thereto, and having downwardly-extending feed-regulating points, a cranked shaft supporting the said points, an arm rigidly attached to one end of the cranked shaft, and means for adjusting and locking the arm at any point within its arc of adjustment, substantially as described. 4th. The combination, with a reciprocating feed-apron, having transverse combs, of semicircular cutters eccentrically mounted above said apron, a rock-shaft carrying the cutters and having an upwardly-projecting arm, and a pitman attached at one end to the upright arm, and at the other end to the feed-apron, whereby the reciprocation of the apron gives the cutters movement in a direction opposite to that of the apron, substantially as described. 5th. The combination, with the frame and a rock-bar journaled in bearings thereon, of rods having downwardly-extending feed-regulating points, and having one end supported by said rock-bar, a cranked shaft supporting the other ends of the rods, an arm rigid on one end of the cranked shaft, and a rack by which the arm may be held at any point, substantially as described.

No. 30,856, Curtain Ring. (Jonc de rideau.)

John Day, New York, N.Y., U.S., 27th February, 1889; 5 years.

Claim.—1st. The curtain ring B having recesses a and holes d, combined with the curved wire F and with the rollers E through which said wire passes, said rollers being aligned with the recesses a, the free ends of the wire F being sprung into the holes d in the ring B, the middle portion of the wire F being rigidly held to the ring B, substantially as described. 2nd. The ring B having recesses a, holes d and slot f on its inner side, combined with the curved wire F, said wire having the eye or bend e that enters the slot f, the free ends of the wire F being sprung into the holes d, and with the rollers E, through which the wire F passes, said rollers being aligned with the recesses a and held upon the ring B by the wire F, substantially as described.

No. 30,857, Combined Waggon Jack and Truck. (Chèvre de voiture et camion combinés.)

William Becket, Allegheny, Penn., U.S., 27th February, 1889; 5 years.

Claim.—1st. In a combined jack and truck, a rolling telescopic frame provided with jacks, substantially as described. 2nd. In a combined jack and truck, two or more jacks connected together by extensible sliding bars, arranged to slide one past the other in a telescopic manner, substantially as described. 3rd. In a combined jack and truck, two or more jacks connected together, and made adjustable in relation to each other by means of telescopic rods, substantially as described. 4th. A combined jack and truck, consisting of a rolling frame composed of telescopic rods, provided with locking screws, and having lifting jacks located at the corners of said frame, in the manner and for the purpose set forth.

No. 30,858, Machine for Thrashing and Separating Grain. (Machine à battre et vanner les grains.)

George White, London, Ont., 27th February, 1889; 5 years.

Claim.—1st. In a thrashing machine, a reversible concave M, in combination with the side pieces m₃, as and for the purpose set forth. 2nd. In a thrashing machine, a concave M in which the teeth M₁ are formed integral therewith, in combination with the side pieces m₃, as set forth. 3rd. A perforated purse or pocket M₅, in combination with the concaves M, as and for the purpose set forth. 4th. The

concaves M, having teeth M₁ and studs or projections m₂, in combination with the pins m₄ and side pieces m₃, or other suitable supporting devices, as and for the purpose set forth. 5th. The boxes N, formed round or circular at N₁, the latter having flanges n₄, plates n₂, formed with circular recesses n₁, in combination with the shaft s and means for securing them together, as and for the purpose set forth. 6th. In a thrashing machine, the tooth bars T, having teeth T₂ formed integral therewith, in combination with the cylinder heads T₁ and shaft s, as set forth. 7th. In a thrashing machine, the tooth bars T, formed circular or round in cross-section, in combination with the cylinder heads T₁, having circular recesses formed therein to receive and permit the tooth bars to revolve therein, as set forth. 8th. The tooth bars T, in combination with the cylinder heads T₁, formed with slots T₃, as and for the purpose set forth. 9th. The tooth bars T, in combination with the cylinder heads T₁, formed with flanges T₃ and pin T₄, as and for the purpose set forth. 10th. The tooth bars T, formed with flat bearings T₆, in combination with the cylinder heads T₁ and spring T₅, as and for the purpose set forth. 11th. The cover C₁, part of the drums K and feed-board W, in combination with a pivotal bar W₁, as and for the purpose set forth. 12th. The fans F, drums K, tubes K₁ and shaft s, in combination with a straw deck D formed with openings o, as and for the purpose set forth. 13th. The tube J, drum I, shaft I₁ and fans F₂, in combination with the shoe C, as and for the purpose set forth. 14th. The tube J₃, cover J₄, drum I, shaft I₁ and fans F₂, in combination with a straw deck D, formed with openings o, as and for the purpose set forth. 15th. The stationary corrugated straw deck D, having openings o formed therein, and cover D₁, in combination with the agitators A and shafts A₁, and means for operating the same, as and for the purpose set forth. 16th. The fans F, drums K, tubes K₁ and shaft s, in combination with the straw deck D, having openings o formed therein, agitators A and shafts A₁, and means for operating the same, as and for the purpose set forth. 17th. The tubes J and J₃, cover J₄, drum I, shaft I₁ and fans F₂, in combination with the shoe C and straw deck D, having openings o formed therein, as and for the purpose set forth. 18th. The fans F, drums K, tubes K₁, shaft s, tube J₃, cover J₄, drum I, shaft I₁ and fans F₂, in combination with a straw deck D, formed with openings o, as and for the purpose set forth. 19th. The fans F, drums K, tubes K₁, shaft s, tube J₃, cover J₄, drum I, shaft I₁ and fans F₂, in combination with the corrugated straw deck D, having openings o formed therein, agitators A and shafts A₁, and means for operating the same, as and for the purpose set forth. 20th. The fans F, drums K, tubes K₁, shaft s, tubes J and J₃, cover J₄, drum I, shaft I₁ and fans F₂, in combination with the shoe C, straw deck D, having openings o formed therein, agitators A and shafts A₁, and means for operating the same, as and for the purpose set forth. 21st. The scourer E, formed with flanges f₁, the latter having perforations p₁ and closed at one side f₂, in combination with the shell E₁, cover f₃, supplemental chutes g₂, g₃ and chutes G, G₁, as and for the purpose set forth.

No. 30,859. Process and Apparatus for the Removal of Cotton Lint or Fibre from Cotton Seed. (*Procédé et appareil pour enlever la bourre ou la fibre de coton des graines du coton.*)

Robert S. Baxter and George D. Macdougald, Dundee, Scotland, 27th February, 1889; 5 years.

Claim.—1st. The removing of cotton lint or fibre from cotton seeds by a combination of processes, in which the fibre is first treated in an improved manner with sulphuric acid, so as to alter without carbonizing or destroying it, and is subsequently removed by mechanical means, substantially as hereinbefore described. 2nd. The treating of cotton lint or fibre on cotton seeds to facilitate its removal from the seeds, by processes consisting in first uniformly moistening or impregnating the fibre on the seeds with a small quantity of dilute sulphuric acid, and subsequently heating and drying it without carbonizing or destroying it, substantially as hereinbefore described. 3rd. The improved mixing apparatus for equalizing the distribution of the dilute acid to the cotton-seed fibre, such apparatus being constructed with wires or thin rods, which are driven through the mass of seeds, substantially as hereinbefore described.

No. 30,860. Button Setting Instrument.

(*Machine à poser les boutons.*)

Francis H. Richards, Hartford, Conn., U.S., 27th February, 1889; 5 years.

Claim.—1st. In a button-setting instrument, the combination, with the jaw C formed to receive the presser-slide and the slide-actuating spring, of the slide F and the coiled spring 10, the slide having a notch for receiving the projecting end of said spring, all substantially as described. 2nd. In a button-setting instrument, the combination, with the fastener-driving member thereof, of the slide F passing through said member, and the spring-plate pivoted in said slide and actuated to press upon the fastener by a spring carried by said slide, substantially as described. 3rd. In a button-setting instrument, the combination, with the driver having slot 62, of the slide F having slot 23, and the plate H having a rib or arm 25 pivoted to said slide in said slot 23, and adapted to enter said slot 62, substantially as described. 4th. In a button-setting instrument, the combination, with the fastener-driving member thereof, of the slide F having slot 23 and the chamber 21, the plate H pivoted to said slide and having arm 26, and the push-spring 22 contained in said chamber and acting on said arm, as set forth. 5th. The combination of the member C, carrying the slide F, and having the chamber or recess 15 opening to said slide within said member, of the spring 10 connecting with and actuating said slide, and the guide screw 18 having the head 19 forming a cover for said recess, as set forth.

No. 30,861. Time Stamp.

(*Timbre à mouvement d'horlogerie.*)

Ebenezer H. Rogers, Jr., New York, N. Y., U. S., 27th February 1889; 5 years.

Claim.—1st. The combination, with time mechanism, of time indicator mechanism, comprising a main shaft, separate indicators for minutes, hours, days, and A.M. and P.M., all supported upon said shaft, and mechanism for operating each of said indicators independently of the others, substantially as specified. 2nd. The combination, with time mechanism, of a number of indicator wheels and a number of levers independent of each other, and operated from the time mechanism, said levers operating the indicator wheels, substantially as specified. 3rd. The combination, with time mechanism, of a number of indicator wheels of equal diameter, and mounted loosely on a common shaft, and a number of levers operated from said time mechanism and serving to rotate the indicator wheels, substantially as specified. 4th. The combination, with time mechanism, of a number of indicator wheels, a number of independent levers for operating the indicator wheels, and a number of snail cams for operating the levers, substantially as specified. 5th. The combination, with time mechanism, of time indicator mechanism, comprising a day indicator wheel and an indicator wheel for A.M. and P.M., a shaft deriving motion from the time mechanism, a snail cam for transmitting motion to the day indicator wheel, and an "S" cam for transmitting motion to the A.M. and P.M. indicator wheel, both said cams being mounted on said shaft, substantially as specified. 6th. The combination, with time mechanism, of indicator mechanism, and a setting device for setting both the time and indicator mechanisms in unison, substantially as specified. 7th. The combination, with time mechanism, of indicator mechanism, a case in which the same are contained, and a setting device for setting both the time and indicator mechanisms extending to the outside of said case, substantially as specified. 8th. The combination, with time mechanism, of indicator mechanism, and a normally inoperative spring actuated setting device for setting both the time and indicator mechanisms, substantially as specified. 9th. In a time stamp, the combination, with a case, of a day indicator wheel and a projection extending to the outside of the case for independently setting the day indicator wheel, substantially as specified.

No. 30,862. Method of Electric Welding.

(*Mode de soudage électrique.*)

Elihu Thomson, Lynn, Mass., U.S., 27th February, 1889; 5 years.

Claim.—1st. The described improved method of welding by the electric process, consisting in abutting the pieces to be welded, applying a moderate pressure to force them together, passing the welding-current through the junction of the pieces and subsequently to an incipient welding, increasing the pressure, thereby perfecting the joint or weld between the pieces. 2nd. The herein described improvement in electric welding, which consists in forcing the pieces of metal to be welded together under moderate pressure, and passing the electric current through them until incipient welding takes place, and then increasing the pressure to perfect the joint, as and for the purpose described. 3rd. The herein described improvement in electric welding, which consists in tapering or rounding the pieces to be welded at the point of abutment previously to the application of the electric current. 4th. The herein described improvement in electric welding, which consists in forcing the pieces to be welded together with a moderate pressure, maintaining such pressure while the electric current is passed over the joint for a sufficient time to permit the material to become thoroughly heated, and then increasing the pressure to form the weld.

No. 30,863. Art or Process of Tiring Wheels.

(*Mode ou procédé de bandage des roues.*)

Thomas J. Reid, Gananoque, Ont., 27th February, 1889; 5 years.

Claim.—1st. The above described process of applying the tire to a wheel, consisting in cutting away a portion of the rim, forcing the hub out of line with the rim, and contracting the diameter of the wheel, placing the tire on the wheel, and then forcing the hub in the opposite direction to the desired point, and filling the spaces or opening in the rim with a block, substantially as and for the purpose described. 2nd. The above described process of applying the tire to a wheel to adjust the dish of the wheel, consisting in cutting away a portion of the rim, springing or bending the spokes laterally to contract the rim, fitting on the tire, again expanding the rim and inserting a block in the opening in the rim to hold the wheel in the desired position, substantially as and for the purpose described.

No. 30,864. Arm or Hand Rest.

(*Appui-main.*)

Will. M. Kinnard, Dayton, Ohio, U.S., 27th February, 1889; 5 years.

Claim.—1st. An arm or hand rest attached to the lid of a book, arranged to be adjusted to any convenient height to correspond with the level of the page to be written upon, substantially as and in the manner described. 2nd. A hand or arm rest attached to the lid of a book, constructed substantially as described, to be adjusted to various levels, arranged to be folded or moved into the back out of the way when not in use, substantially as set forth. 3rd. A hand or arm rest for books, incased in the lid of the book, and capable of being drawn out and elevated to any desired height to correspond with the face of the page, substantially as described. 4th. A hand rest for books, consisting of two plates adapted to fold together and fold or slide into an opening in the side of the book when not in use, substantially as and for the purpose described. 5th. A book, provided with a hand rest concealed within the side of the book, arranged to be drawn out and adjusted to any desired height, substantially as described. 6th. A hand rest for books, consisting of two plates C, D, hinged together by the rods F, F, and provided with the pawl G and ratchet H, substantially as described. 7th. A rest for books, consisting of two plates hinged together, as described, and sliding or folding into the side of a book, in combination with a lock or latch for fastening it in or out, substantially as described. 8th. A hand or arm rest for record books, consisting of two plates incased within the lid of the book, and adapted to be drawn out sufficiently to permit the elevation of the upper plate, in combination with the

internal shoulder or stop *b*₁, substantially as described. 9th. A hand rest for books, consisting of two plates hinged together, the upper one adapted to be raised and adjusted to any convenient height, as described, the whole inclosed within an independent frame or casing to be inserted in the lid of a book, substantially as and for the purpose described.

No. 30,865. Circulating Hot Water Apparatus. (*Calorifère à eau.*)

James F. McElroy, Lansing, Mich., U. S., 27th February, 1889; 5 years.

Claim.—The combination in a hot-water circulating apparatus, of a chamber F containing a noise-detering medium I, a steam-supply pipe G, and of an overflow pipe K, substantially as described.

No. 30,866. Electrically Controlled Apparatus for Checking, Extinguishing and Preventing the Spread of Fire, and for Simultaneously Giving the Alarm. (*Appareil électrique pour maîtriser et éteindre un incendie et l'empêcher de se propager, et simultanément donner l'alarme.*)

Thomas R. Douse, Chatham, Eng., 27th February, 1889; 5 years.

Claim.—1st. The apparatus set forth, by which through an electric current operated automatically, or otherwise acting directly on a plunger or a detonator, a bottle B can be broken and an acid be caused to mix with an alkali in the vessel A, and a gas generated, which, under pressure, issues from the spreader E, E, for subduing a fire within a building in which said apparatus A is placed. 2nd. In the described apparatus, the arrangement of appliances by which a plunger C or a fulminate can be automatically or otherwise released electrically, when fitted in connection with a fire subduing gas forming apparatus, as set forth.

No. 30,867. Appliance for Hanging and Exhibiting Boot and Shoe Laces and such like Goods. (*Appareil pour suspendre et exhiber les lacets des chaussures et autres objets semblables.*)

James Patton, Johnstone, Scotland, 27th February, 1889; 5 years.

Claim.—1st. In a hanger for laces and other articles, as described, a rod or wire A having undulating ends A¹¹, and central hanging bow or loop A¹, as set forth. 2nd. In a hanger, as described, the combination, with a rod or wire A having undulating ends A¹¹, of a central bow or loop A¹, substantially as set forth and for the purpose herein described.

No. 30,868. Organ Reed. (*Tuyau d'orgue.*)

Charles N. Rand and Henry Ferris, Galesbury, Ill., U. S., 28th February, 1889; 5 years.

Claim.—1st. A reed-plate, cut from a plate or bar of metal, and having two slots separated by a transverse bar, to which the reed-tongue is secured, substantially as described. 2nd. In an organ reed and in combination in the construction thereof, a reed-plate having two sockets, a transverse bar separating the sockets, and a tongue fixed at its mid-length portion to said transverse bar, whereby its ends may vibrate each in the adjacent socket, substantially as described. 3rd. A reed combining a reed-plate with two sockets, and a tongue fastened at or near its centre to the reed-plate, as described.

No. 30,869. Car Brake. (*Frein de char.*)

The Marden Car Brake Company, Saco, Me. (assignee of Aldis H. Marden, Waltham, Mass.), U. S., 28th February, 1889; 5 years.

Claim.—A car brake, comprising the brake heads B, beam A and clamp C, combined and arranged substantially as hereinbefore set forth.

No. 30,870. Automatic Compressed Air Water Elevator. (*Elevateur d'eau automatique à air comprimé.*)

John K. Leedy, Tom's Brook, Noah W. Solenberger and German Smith, Winchester, Va., U. S., 28th February, 1889; 5 years.

Claim.—1st. The combination, with the storage vessel, the submerged drum provided with a valve opening inwardly, a valve box provided with a connected plunger and valve, and an air vent, pipes connecting the vessel A, the drum D and valve box B, a vibrating beam J provided with a toe *g*₅, adapted to act on plunger *b*₁, a bucket hung from one arm of said beam, and provided with an outlet pipe, a stationary valve for this outlet pipe, and a pipe leading from the drum D and arranged to discharge water into the said bucket, all substantially as described. 2nd. The combination, with a pivoted working beam J, and a bucket G pivoted to this beam and provided with an outlet and a valve seat in its bottom, of a stationary adjustable valve adapted to close upon the valve seat in the bottom of the said bucket, a support for the valve, a support for the beam J, a supply pipe F, emptying into said bucket G, and means for elevating the water, substantially as described. 3rd. The combination, with a pivoted weighted beam J, provided with a toe *g*₅, a bucket G pivoted to the said beam, a rolling counterbalancing weight *l* upon said beam, of a stationary valve *g*, adapted to close upon a valve seat in the bucket G, a valve box B, a reciprocating valve in said box, this valve being opened by the toe *g*₅ on the beam J, air pipes *d, e*, a submerged drum D, provided with an inwardly opening valve, a water supply tube F, leading from the drum D to the said pivoted bucket G, all arranged as and for the purpose herein stated.

**CERTIFICATES OF THE PAYMENT OF FEES FOR FURTHER TERMS HAVE BEEN ATTACHED TO
THE FOLLOWING PATENTS.**

1336. D. S. RICHARDSON 2nd and 3rd 5 years of No. 18,920, from the twentieth day of March, 1889. Improvements on Radiators for Air Warming Furnaces, 5th February, 1889.
1337. E. MORRISON and J. P. HERRON, 2nd and 3rd 5 years of No. 18,719, from the twentieth day of February, 1889. Improvements in Method and Means for Testing Fabrics, 5th February, 1889.
1338. J. A. GAVITT and C. F. WIGHTMAN, 2nd and 3rd 5 years of No. 19,730, from the fourth day of July, 1889. Improvements on Harness Buckles, 5th February, 1889.
1339. G. R. CULLINGWORTH, 2nd 5 years of No. 18,804, from the sixth day of March, 1889. Improvements on Air Compressing Machinery, 8th February, 1889.
1340. W. E. HALE, 2nd 5 years of No. 18,806, from the sixth day of March, 1889. Improvements on Gas Engines, 11th February, 1889.
1341. W. E. HALE, 2nd 5 years of No. 19,704, from the twenty-eighth day of June, 1889. Improvements on Gas Engines, 11th February, 1889.
1342. DE L. KENNEDY, 2nd 5 years of No. 18,683, from the sixteenth day of February, 1889. Improvements in Bicycles, 12th February, 1889.
1343. J. A. BALL, 2nd 5 years of No. 18,662, from the thirteenth day of February, 1889. Improvements in Disintegrating Hoppers for Dredgers and Excavators, 12th February, 1889.
1344. E. and W. J. CLAYTON, 2nd 5 years of No. 18,836, from the tenth day of March, 1889. Improvements on Clothing Samples, 13th February, 1889.
1345. J. MURRAY, A. RITCHIE and R. NICHOLSON, 2nd 5 years of No. 18,866, from the thirteenth day of March, 1889. Improvements in Car Couplings, 15th February, 1889.
1346. M. MCGUIRE, 2nd 5 years of No. 19,024, from the second day of April, 1889. Improvements in Stove Pipe Thimbles, 15th February, 1889.
1347. C. W. CASE, J. O. PATTEE and A. M. LONG, 2nd 5 years of No. 18,739, from the twenty-eighth day of February, 1889. Improvements on Machines for Forming Ditches in Railroad Cuttings, 19th February, 1889.
1348. G. G. HUNT and THE PLANO MANUFACTURING CO. (assignee), 2nd 5 years of No. 18,732, from the twenty-third day of February, 1889. Improvements in Reels for Harvesters, 19th February, 1889.
1349. E. R. DARLING, 2nd 5 years of No. 18,724, from the twenty-second day of February, 1889. Improvements in Cartridge Implements, 21st February, 1889.
1350. J. C. LIGHTHOUSE, 2nd 5 years of No. 19,003, from the first day of April, 1889. Improvements on Halters, 22nd February, 1889.
1351. H. MEREWETHER, and J. H. WRIGHT, 2nd 5 years of No. 18,730, from the twenty-third day of February, 1889. Improvements on Machines for Tying Packages with Wire, 23rd February, 1889.
1352. L. E. WATERMAN, 2nd 5 years of No. 18,774, from the fifth day of March, 1889. Improvement in Fountain Pens, 25th February, 1889.
1353. A. PRIER, C. DOHERTY and P. E. EVERETT, 2nd 5 years of No. 18,771, from the third day of March, 1889. Improvements in Self-Closing Faucets, 26th February, 1889.
1354. S. McCLURE and G. STRANGWAY, 2nd 5 years of No. 18,745, from the twenty-eighth day of February, 1889, 28th February, 1889.
1355. A. EDWARDS, 2nd 5 years of No. 18,805, from the sixth day of March, 1889. Improvements on Combined Butter Dish and Package, 28th February, 1889.
1356. THE BERLIN MACHINE WORKS (assignee), 2nd 5 years of No. 18,917, from the nineteenth day of March, 1889. Improvements on Wood Polishing Machines, 28th February, 1889.
1357. E. A. ARMSTRONG, 2nd 5 years of No. 18,751, from the first day of March, 1889. Improvements on Rock Drills, 28th February, 1889.
1358. J. H. HUMMEL, 2nd 5 years of No. 18,924, from the twentieth day of March, 1889. Improvements in Weather Strips, 28th February, 1889.

FEBRUARY LIST OF TRADE MARKS.

Registered at the Department of Agriculture—Copyright and Trade Mark Branch.

3362. MASON AND RISCH, of Toronto, Ont. Reed Organs and other Musical Instruments, 1st February, 1889.
3363. THE NORTH AMERICAN GLASS CO. (Limited), of Montreal, Que. Fruit Jars, 4th February, 1889.
3364. THE WILLMAN COSSENAS COMPANY, of New York, U.S.A. Wines, 5th February, 1889.
3365. JOHN E. MOYE, of Niagara Falls, Co. of Welland, Ont. Liniment, 5th February, 1889.
3366. THE J. A. POZZONI MEDICATED COMPLEXION POWDER COMPANY, of St. Louis, Missouri, U.S.A. General Trade Mark, 7th February, 1889.
3367. WOOD & LEGGAT, of Hamilton, Ont. Agricultural Implements, 8th February, 1889.
3368. FARWELL & RHINES, of Watertown, New York, U.S.A. Barley Flakes, 9th February, 1889.
3369. WILLIAM BUCK, of Brantford, Ont. Cooking Ranges or Stoves, 12th February, 1889.
3370. WALTER SCOTT HICKS, of Ann Arbor, Co. of Washtenaw, Michigan, U.S.A. A Beverage, 13th February, 1889.
3371. HAZEN MORSE, of International Bridge, Ont. A Medicine for Headache, 16th February, 1889.
3372. DICK, RIDOUT & CO., of Toronto, Ont. School Bags, 19th February, 1889.
3373. DIOS CHEMICAL COMPANY, of St. Louis, Missouri, U.S.A. Medical Preparation, 19th February, 1889.
3374. L. A. HOERNER, of Three Rivers, Que. Cough Medicine, 21st February, 1889.
3375. JOSEPH HALLIDAY, of Toronto, Ont. Tea, 23rd February, 1889.
3376. E. N. CUSSON, de Montreal, Que. Cigares, 23 Fevrier, 1889.
3377. L. A. HOERNER, of Three Rivers, Que. Cholera Medicinc, 27th February, 1889.
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4683. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX., No. 5, January 31, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 1st February, 1889.
4684. ADVERTISING CARD, on which an Italian Organ Grinder and Monkey are depicted. The Grant Lithographing Co., Toronto, Ont., 1st February, 1889.
4685. THE LYRICS OF PEPITA: OR THE QUEEN'S MATE. Comic Opera. Adapted from the French of Chivot and Duru. By Mostyn Tedde. Music by Ch. Lecocq. The Anglo-Canadian Music Publishers' Association (L'd.), London, Eng., 4th February, 1889.
4686. LAW REPORTS CONTAINING DECISIONS OF THE BENCH OF THE SUPREME COURT IN NOVA SCOTIA BETWEEN YEARS 1834 and 1851. 2nd Edition. By J. Thomson. A. & W. Mackinlay, Halifax, N.S., 4th February, 1889.
4687. McKILLOP'S COMMERCIAL AND LEGAL RECORD. January 31, 1889 (periodical). James Jack, St. John, N.B., 4th February, 1889.
4688. FROSTED LEAVES. Waltz. George J. Sheppard, Montreal, Que., 5th February, 1889.
4689. TUQUE BLEUE. March. George J. Sheppard, Montreal, Que., 5th February, 1889.
4690. ST. BASIL'S HYMN BOOK. Rev. L. Brennan, Toronto, Ont., 5th February, 1889.
4691. THE LEE SHORE. Romance. }
 4692. BEFORE THE ALTAR. " } From the Opera " Paul Jones " by
 4693. EVER AND EVER MINE. " } Planquette and Farnie.
 4694. OH, MY HEART. Duet.
 4695. HEAVE HO. Trio.
- Hopwood and Crew, London, England, 6th February, 1889.
4696. THE LADIES' GALLERY. By Justin McCarthy, M. P., and Mrs. Campbell-Praed (book). The National Publishing Co., Toronto, Ont., 8th February, 1889.
4697. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX. No. 6. February 7, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 8th February, 1889.
4698. INSURANCE PLANS OF ALBERT, BUCTOUCHE, BATHURST, CAMPBELLTON, CHATHAM, CENTREVILLE, DALHOUSIE, EDMUNSTON, FREDERICTON, HAMPTON STATION, HAMPTON VILLAGE, HILLSBOROUGH, KINGSTON, MARYSVILLE, MONCTON, NEWCASTLE, PETITCODIAC, POINT DU CHENE, PORT ELGIN, RICHIBUCTO, ST. ANDREWS, ST. GEORGE, ST. STEPHEN, SUSSEX, AND WOODSTOCK, ALL IN NEW BRUNSWICK. Chas. Ed. Goad, Montreal, Que., 9th February, 1889.
4699. THE COBBLER. Song. Words by J. S. Cutler. Music by Rev. E. P. Crawford. A. & S. Nordheimer, Toronto, Ont., 9th February, 1889.
4700. DICTIONNAIRE DU LANGAGE DES NOMBRES. Georges Boucher de Boucherville, Quebec, Que., 9 Fevrier, 1889.
4701. SAINT ANTHONY. Song. (An old Legend amplified). Words by F. E. Weatherly. Music by Stephen Adams. The Anglo-Canadian Music Publishers' Association (Ld.), London, England, 11th February, 1889.
4702. McKILLOP'S COMMERCIAL AND LEGAL RECORD, February 7, 1889. (periodical). James Jack, St. John, N.B., 11th February, 1889.
4703. VITAL QUESTIONS. The Discussions of the General Christian Conference held in Montreal, Que., Canada, October 22nd to 25th, 1883. Wm. Drysdale & Co., Montreal, Que., 13th February, 1889.
4704. CANADA BUSINESS COLLEGE ADVERTISING CARD. Duncan McLachlan, Chatham, Ont., 13th February, 1889.
4705. ENVELOPE AND CARD, on which is printed a hand pointing to the words "BAKER'S COLLECTING AGENCY." Leslie Albert Baker, Toronto, Ont., 13th February, 1889.
4706. PATRONS' MILK PASS BOOK. Thos. J. Dillon, Bluevale, Co. of Huron, Ont., 14th February, 1889.
4707. IF YOU BUT KNEW. Song. Words by Jetty Vogel. Music by Oscar Verne. Sydney Ashdown, Toronto, Ont., 14th February, 1889.
4708. HONOR'S WATCHWORD. Song. Words by G. W. Southey. Music by Theo. Bonheur. Sydney Ashdown, Toronto, Ont., 15th February, 1889.
4709. MISERERE NOBIS. Song. Written and composed by M. Piccolomini. Sydney Ashdown, Toronto, Ont., 15th February, 1889.
4710. THE MERCANTILE TEST & LEGAL RECORD. Vol. XIX. No. 7. February 14, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 15th February, 1889.

4711. THE TELEPHONE CHART. Henry Ryerson Hardy, Toronto, Ont., 15th February, 1889.
4712. CIVIL CODE OF LOWER CANADA. Vol. I. Annotated by W. P. Sharp. Wm. P. Sharp and Amedée Periard, Montreal, Que., 15th February, 1889.
4713. A MISSING HUSBAND. By Geo. R. Sims (book). Wm. Bryce, Toronto, Ont., 15th February, 1889.
4714. INSURANCE PLANS OF ACADIA MINES, AMHERST, ANTIGONISH, LOCKEPORT, MAHONE BAY, NEW GLASGOW, PARRSBOROUGH, SHELBOURNE, SPRINGHILL, TRURO, WESTVILLE AND WEYMOUTH BRIDGE, IN NOVA SCOTIA. ALBERTON, GEORGETOWN, KENSINGTON, MONTAGUE BRIDGE, SOURIS EAST, AND TIGNISH, IN PRINCE EDWARD ISLAND. Chas. Ed. Goad, Montreal, Que., 18th February, 1889.
4715. HER MAJESTY QUEEN VICTORIA, WITH CROWN, VEIL AND ORDERS. Life Size, Measuring 33 inches from Crown to Base (portrait bust). Frederick Alexander Turner Dunbar, Quebec, Que., 18th February, 1889.
4716. YESTERDAY, TO-DAY AND FOR EVER. Song. Words by Knight Summers. Music by Oscar Verne. I. Suckling & Sons, Toronto, Ont., 18th February, 1889.
4717. MCKILLOP'S COMMERCIAL AND LEGAL RECORD, February 14, 1889. (periodical). James Jack, St. John, N.B., 18th February, 1889.
4718. THE EARL'S WIFE, Etc. By Geo. R. Sims (book). Wm. Bryce, Toronto, Ont., 20th February, 1889.
4719. LE FAIVRE'S CONDENSED SYSTEM OF BOOKKEEPING. Oliver James Le Faivre, Hagersville, Ont., 22nd February, 1889.
4720. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX, No. 8, February 21, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 23rd February, 1889.
4721. GENTLEMAN DICK O' THE GREYS, AND OTHER POEMS. Hereward Kirby Cookin, Toronto, Ont., 23rd February, 1889.
4722. BIOGRAPHICAL SKETCH OF THE HONORABLE EDWARD WHELAN, together with a Compilation of his Principal Speeches. By Peter McCourt. P. McCourt, Charlottetown, P.E.I., 23rd February, 1889.
4723. MEDALLION OF WILLIAM O'CONNOR, THE OARSMAN. Frank Henry, Toronto, Ont., 23rd February, 1889.
4724. THE LAWYER'S (PERIODICAL) STATUTORY RECORD. Showing supplementary Amending and Repealing Enactments, since the last Revised Statutes of Canada, and of Ontario. Sessions 1887 and 1888. Compiled by A. H. F. Lefroy, Barrister-at-Law. Augustus Henry Fraser Lefroy, Toronto, Ont., 23rd February, 1889.
4725. THE MAN-HUNTER. By Dick Donovan (book). The National Publishing Co., Toronto, Ont., 23rd February, 1889.
4726. A CROWN OF SHAME. By Florence Marryatt (book). The National Publishing Co., Toronto, Ont., 23rd February, 1889.
4727. MCKILLOP'S COMMERCIAL AND LEGAL RECORD. February 21, 1889 (periodical). James Jack, St. John, N.B., 25th February, 1889.
4728. THE INDIANS, THEIR MANNERS AND CUSTOMS. By John McLean, M.A., Ph. D. Wm. Briggs, Toronto, Ont., 26th February, 1889.
4729. CLASSIFIED ALPHABETICAL DIRECTORY OF OTTAWA BUSINESS HOUSES. (Chart.) John Moore, Ottawa, Ont., 26th February, 1889.
4730. LOVELL'S CANADIAN BUSINESS GUIDE, WITH DIARY, FOR 1889. John Lovell & Son, Montreal, Que., 27th February, 1889.
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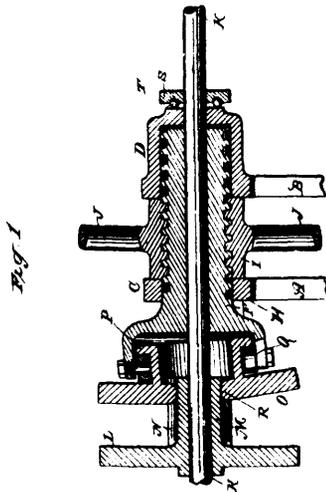
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CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

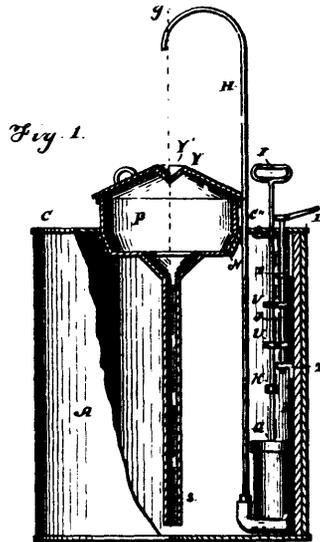
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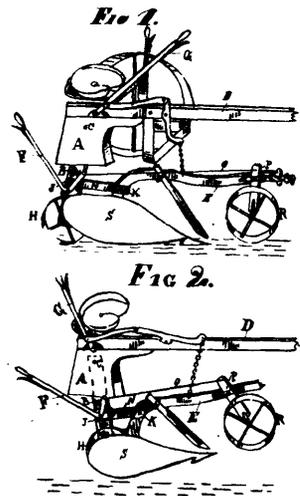
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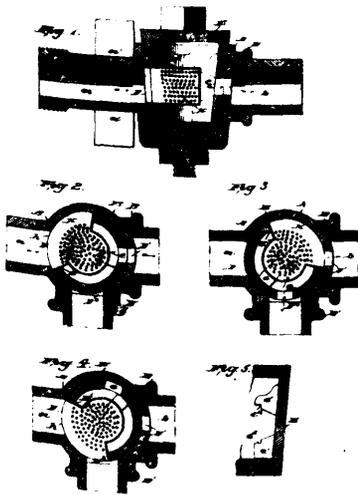
30683 Hart's Hoisting Machine.



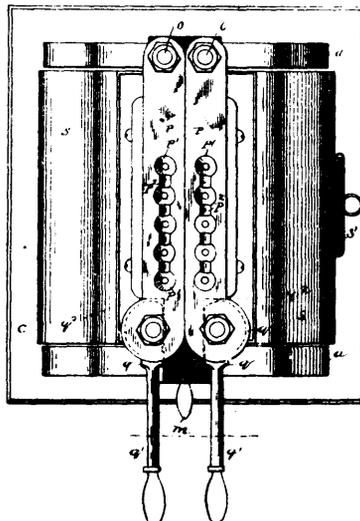
30684 Bowser's Tank.



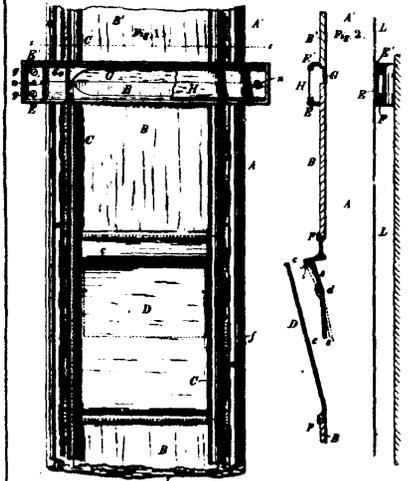
30685 Lampman's Sulky Plough.



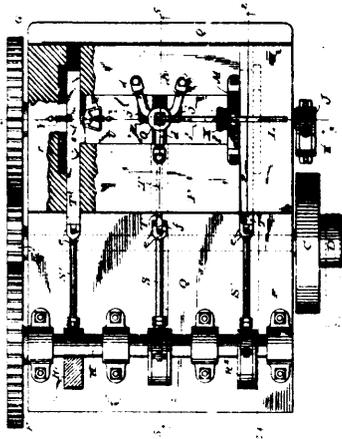
30687 Medrick's Water cock.



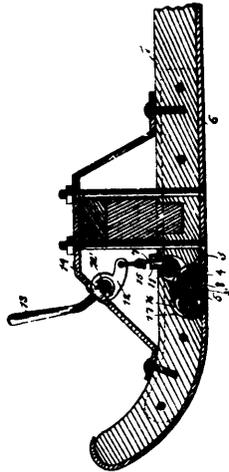
30688 Conners' Apparatus for Casting Lead Seals.



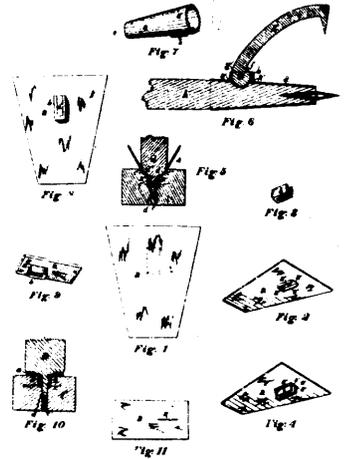
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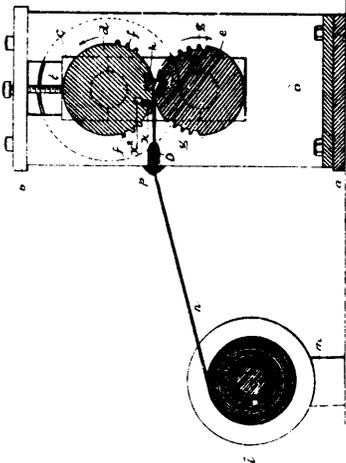
30690 Burdick's Manufacture of Nuts.



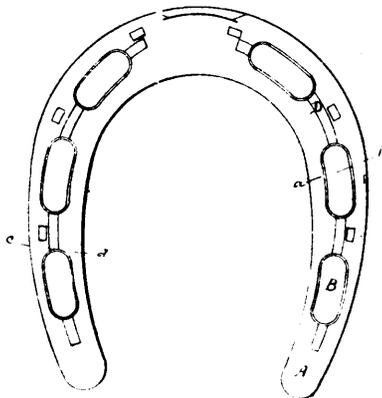
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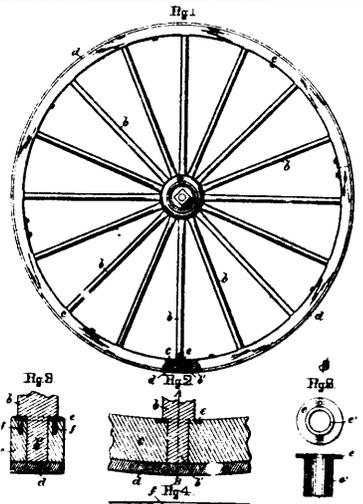
30693 Mansfield's Ferrule for Cart Hooks.



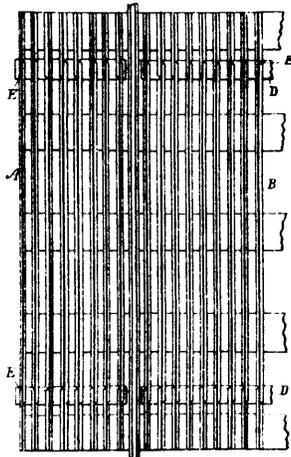
30694 Conners' Wire Cutting and Crimping Apparatus.



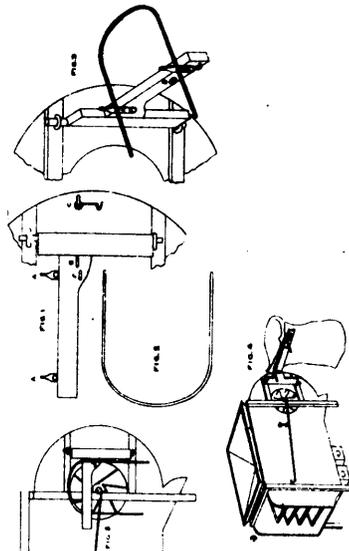
30695 James' Manufacture of Horse Shoes.



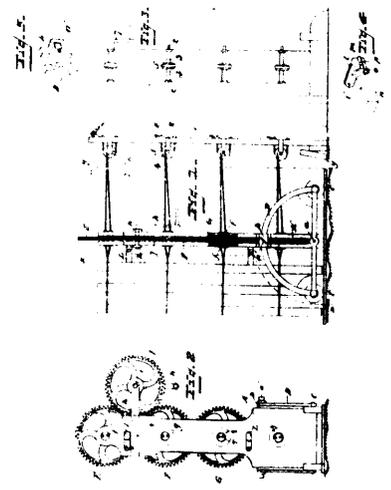
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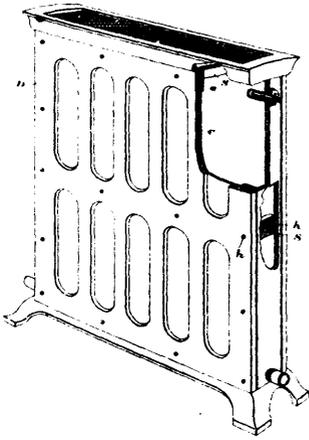
30697 Hall's Cattle Guard.



30698 Lepage's Bag Holder for Fan Mills.



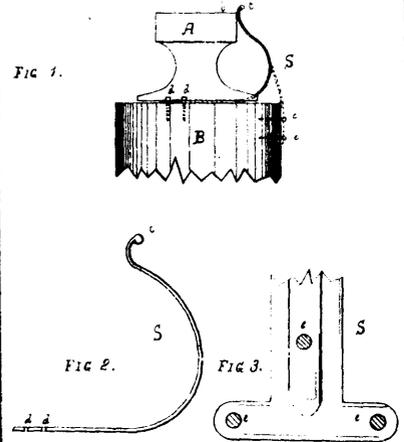
30699 Allen's Machine for Constructing Fences.



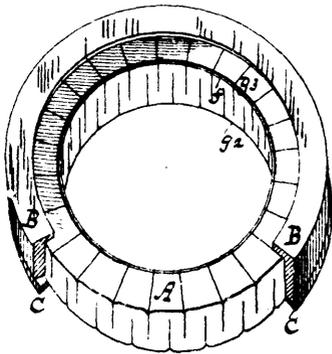
30700 Baines' Hot Water Radiator.



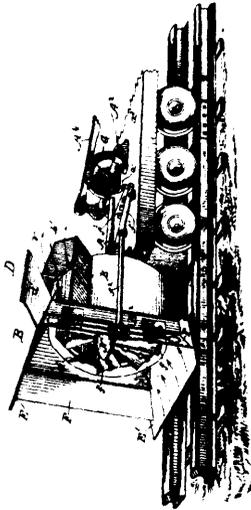
30701 Pomphrey's Manufacture of Woven Gloves.



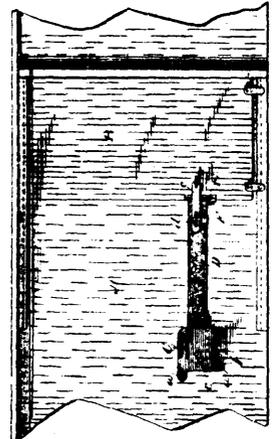
30702 Morgan's Apparatus for Holding Horse Shoes.



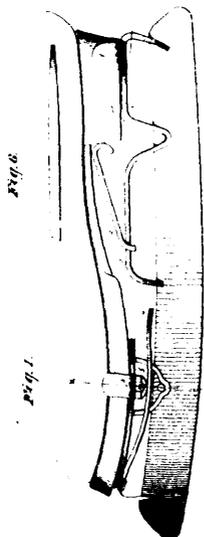
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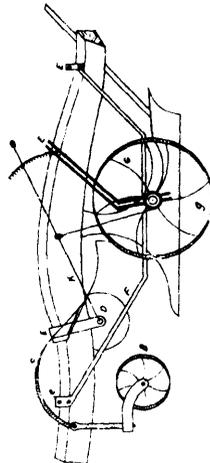
30704 Bergendahl's Railway Track Cleaner.



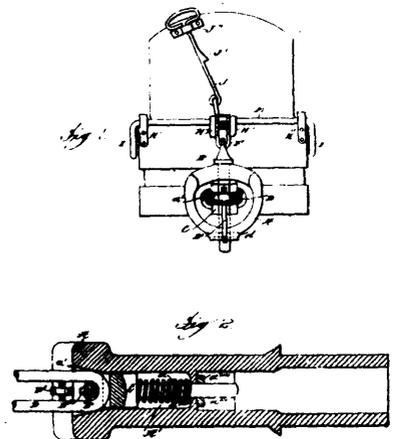
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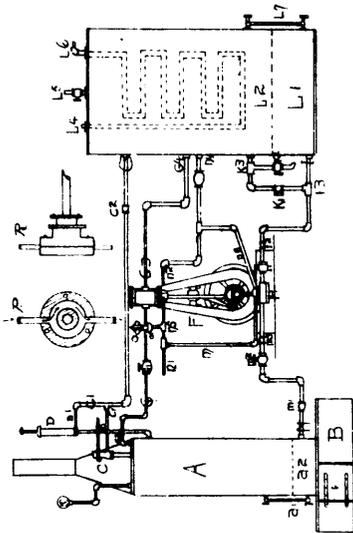
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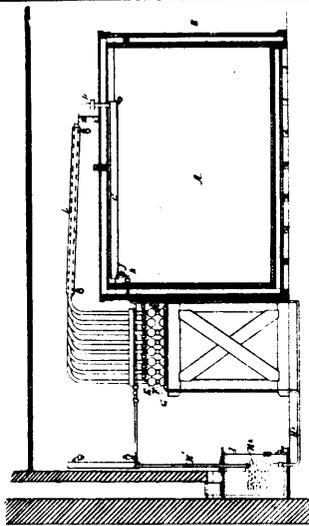
30708 Marr's Sulky Plough.



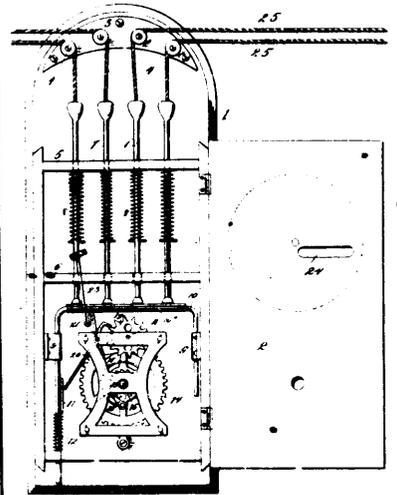
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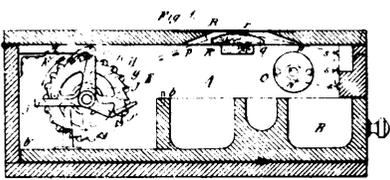
30710 Blumrich's Motive Power.



30711 Perkins' Refrigerating and Freezing Apparatus.



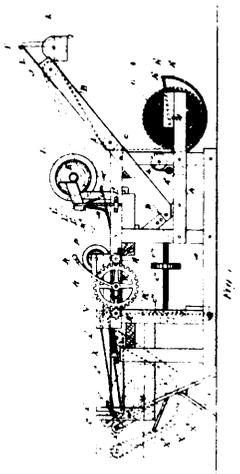
30712 Bunker's Fire and Burglar Alarm.



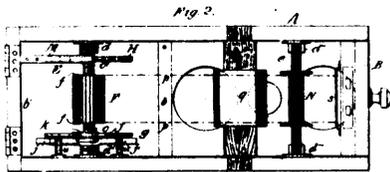
30713 Stokes, Loney and Favell's Cash Till.



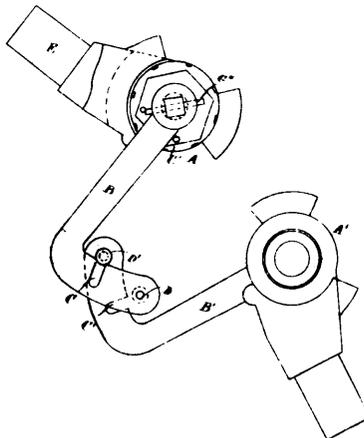
30714 Coburn's Horse Blanket Fastener.



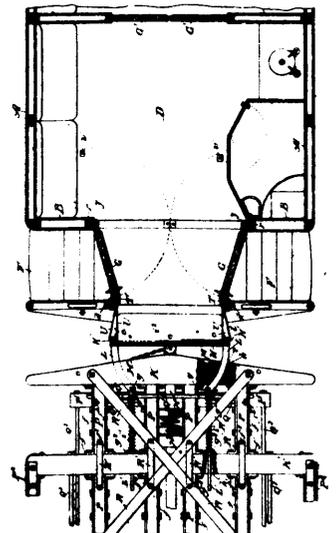
30715 Bolduc's Machine for Making Paper Bags.



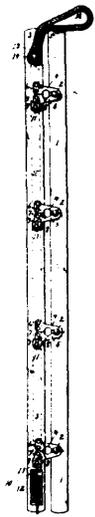
30718 Tonkin's Cut-off for Steam Engines.



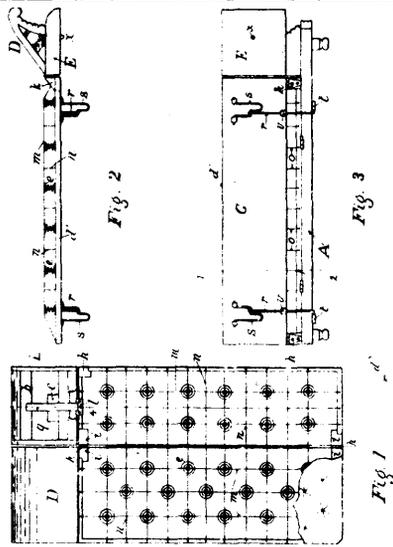
30717 Porter & Grosvenor's Device for Opening and Closing Valves.



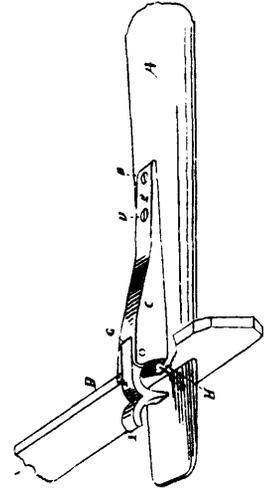
30718 Thompson's Vestibule Car.



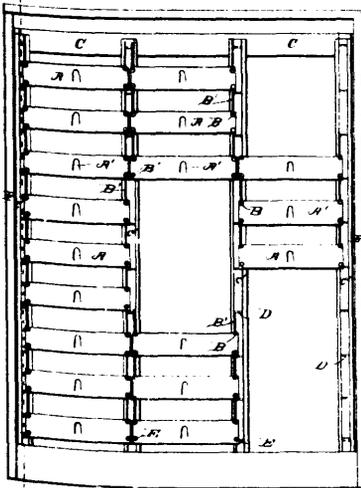
30719 Henius' Corset Clasp.



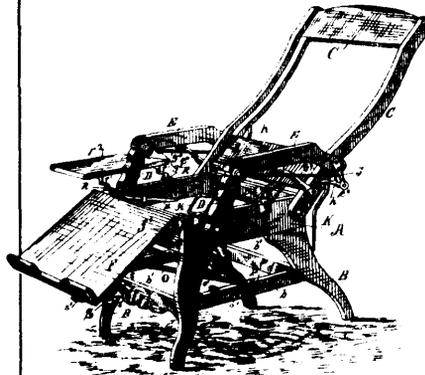
30720 Langlois' Sofa Bed.



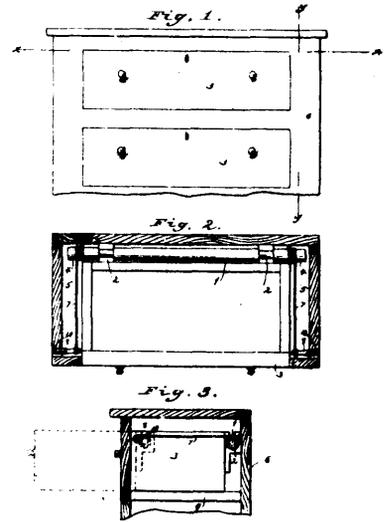
30721 Wilson's Whiffletree Hook.



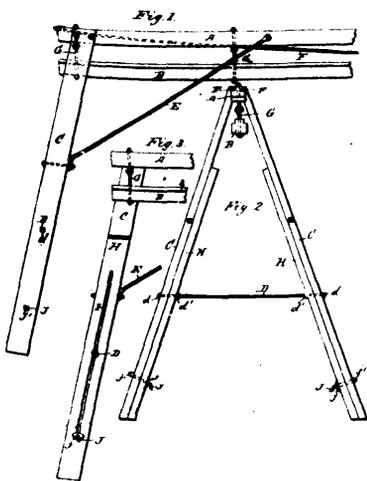
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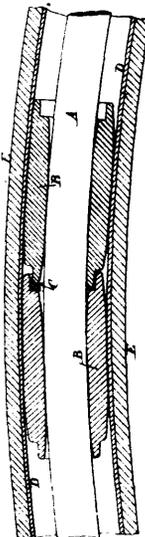
30723 Roberts, Allison & Elbreg's Chair.



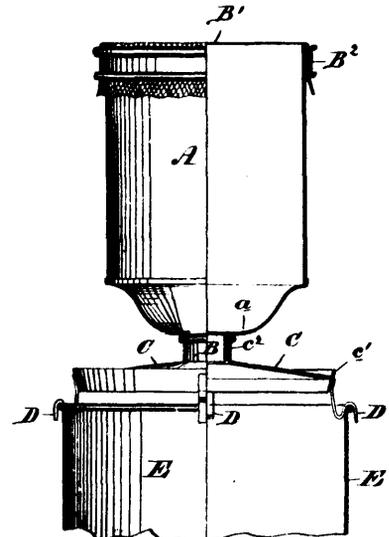
30724 Bower's Furniture Drawer.



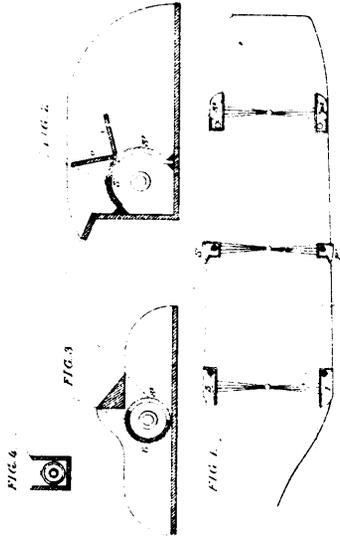
30725 Rabbitt's Portable Derrick.



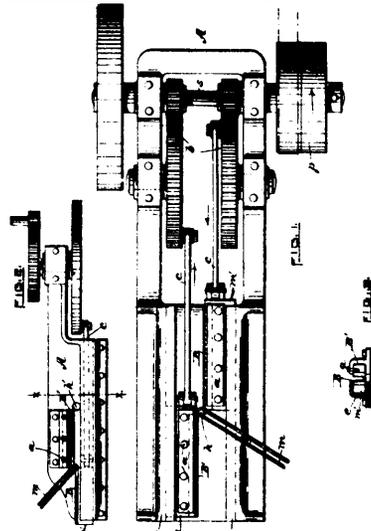
30726 Leoffler's Submarine Telegraphic Cable.



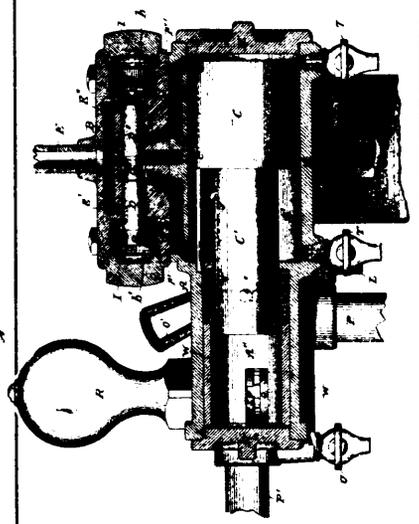
30727 Millar's Milk Aerator, etc.



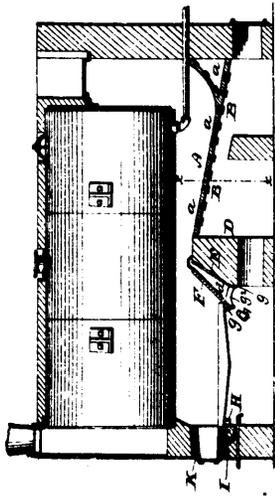
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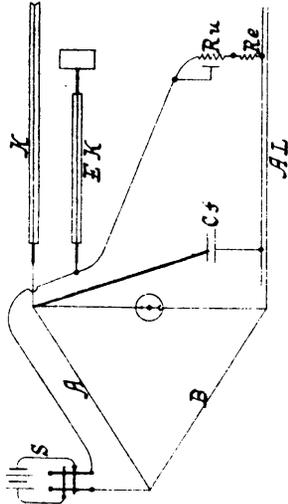
30729 Rogers' Machine for Rolling Screw Threads.



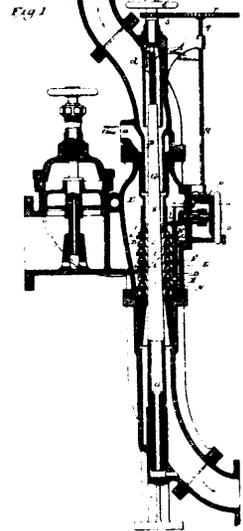
30730 Marsh's Steam Pump.



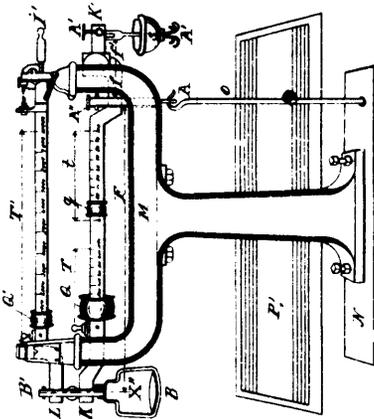
30731 Hershey's Steam Boiler Setting.



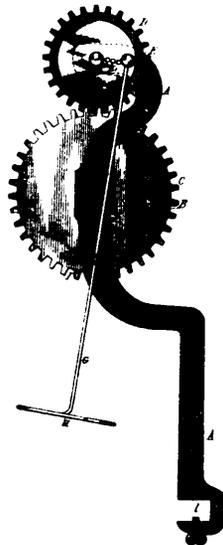
30732 Jacob's Duplex Telegraphy.



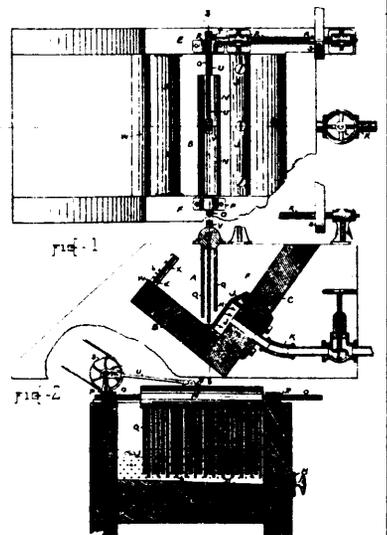
30733 Schutte's Ejector Condenser.



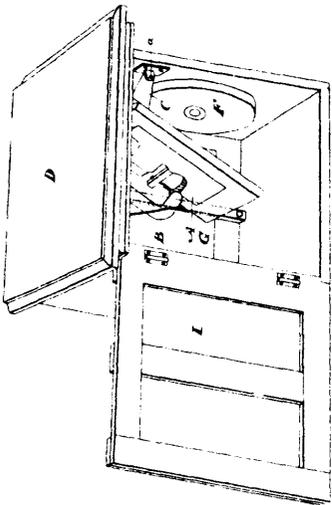
30734 Guillaumin's Weighing Bridge, etc.



30735 Winter's Egg Beater.



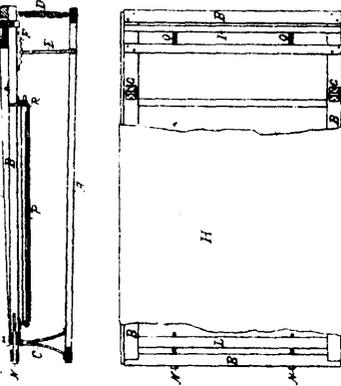
30736 Newcomb's Ore Separator, etc.



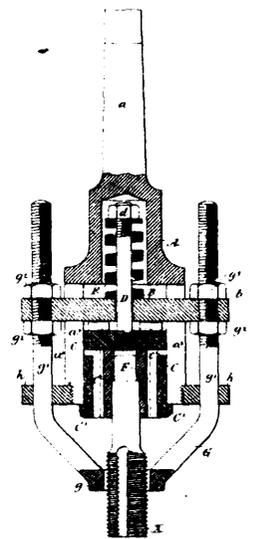
30737 Raymond's Cabinet for Sewing Machines.

Fig. 1.

Fig. 2.



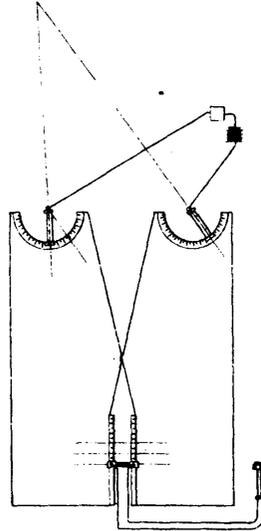
30739 Wolfhard's Bed Spring.



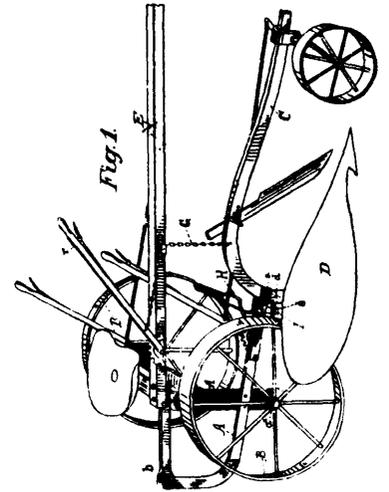
30740 Halsey's Drilling Machine.



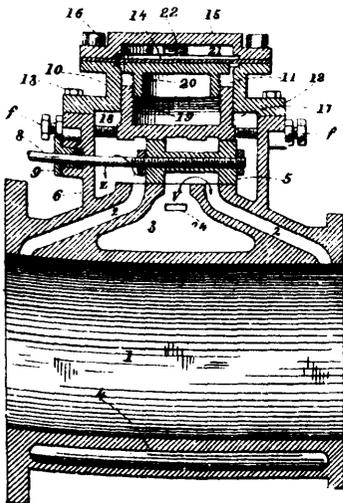
30741 Huggins' Cultivator, Scraper and Roller.



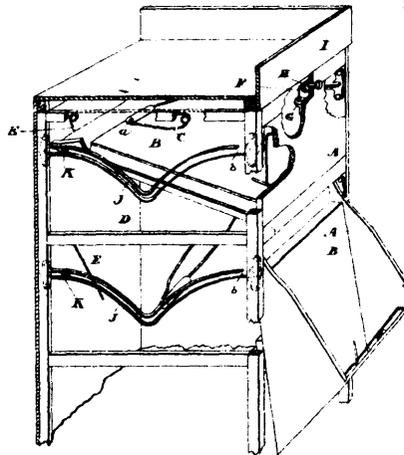
30742 Fiske's Range and Position Finder.



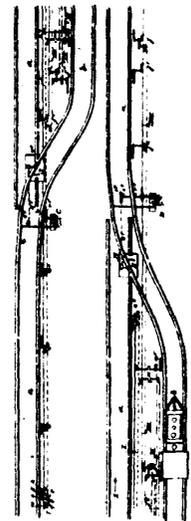
30743 Lampman's Plough.



30744 Farrar's Balanced Valve.



30746 Robertson's Document File.



30747 Parsons' Railroad Switch, Signal, etc.

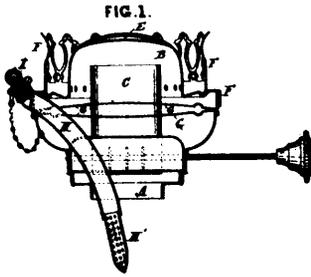
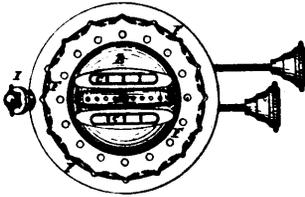
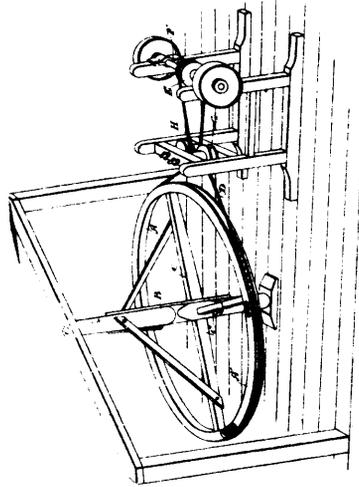


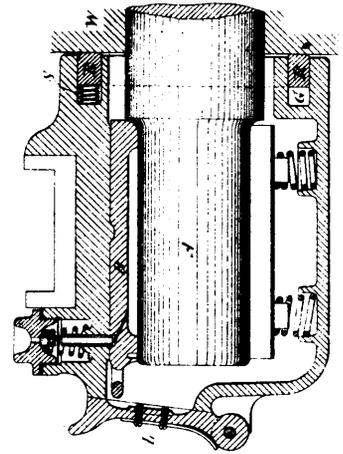
FIG. 2.



30748 Fitzgerald's Lamp Burner.



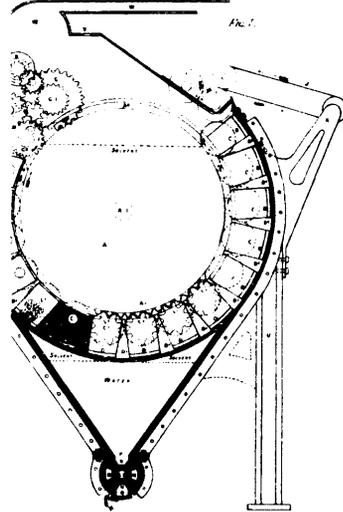
30749 McDonald's Horse Power.



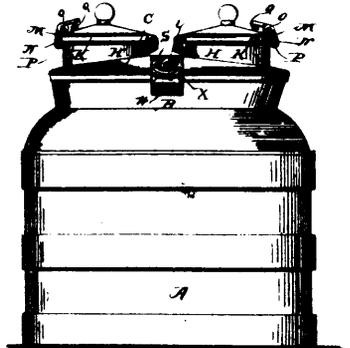
30750 Macnee's Axle Box.



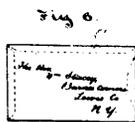
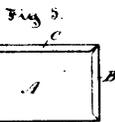
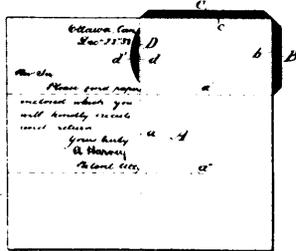
30751 Parsons' Railway Switch, etc.



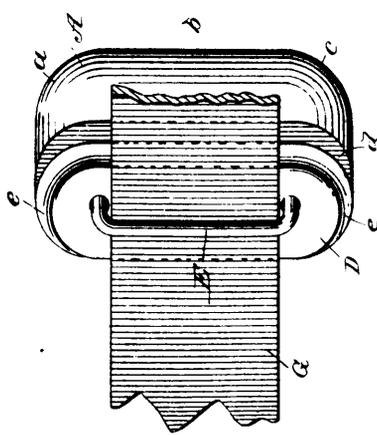
30752 Burnell's Apparatus for Cleansing Wool, etc.



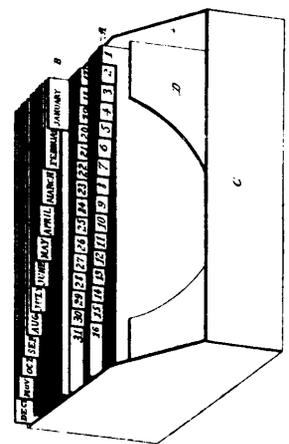
30753 Shuman's Can



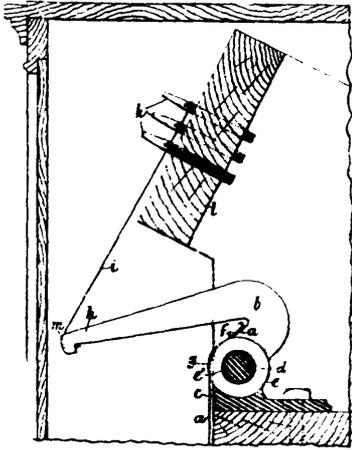
30754 Stacey's Letter Sheet and Envelope.



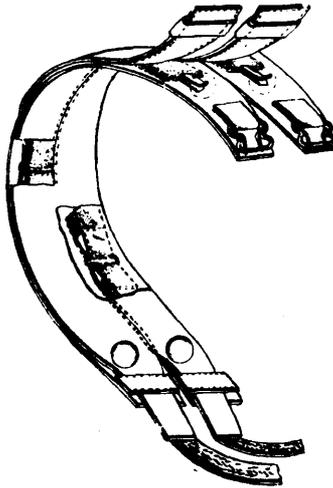
30755 Meloney's Truss.



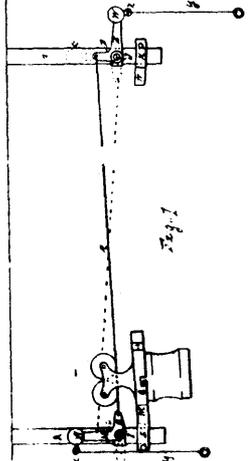
30756 Smith's Office Tickler.



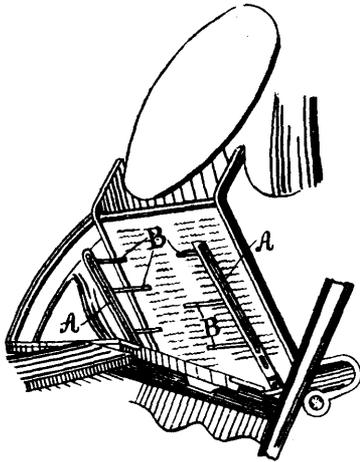
30758 Nunn's Pianoforte, etc.



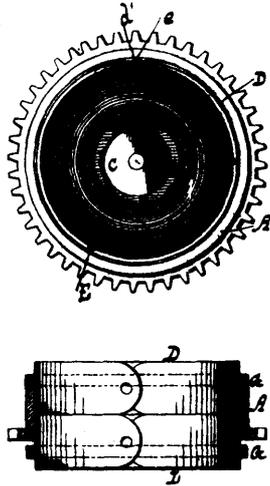
30759 Totman's Electric Belt.



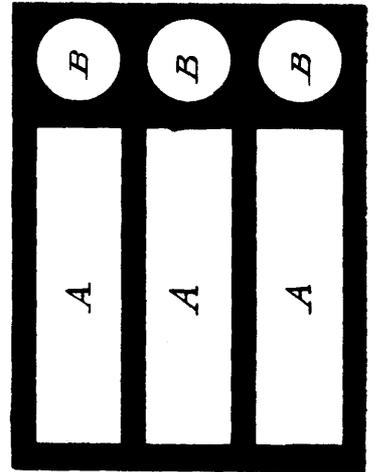
30760 Springsteen's Store Service Apparatus.



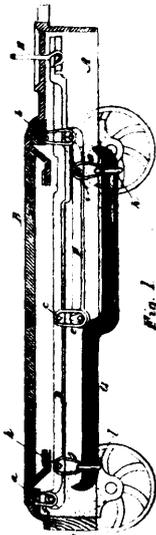
30761 Mingay's Gripper for Platen Printing Presses.



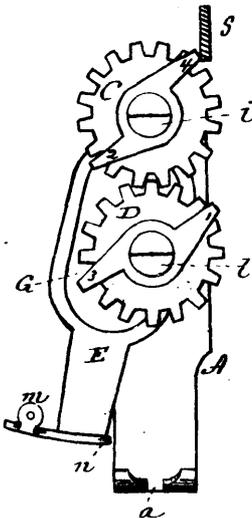
30763 Karthaus' Mainspring for Watches.



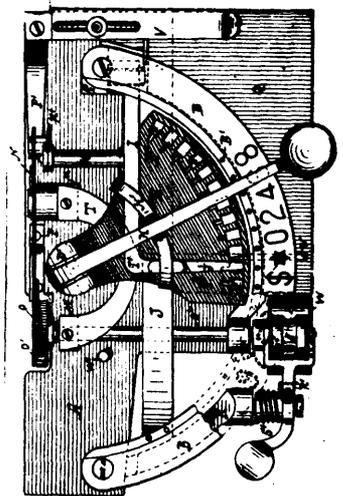
30764 Durocher's Ballot Slip.



30765 Milburn's Scale.



30766 Johnson's Embroidery Attachment.



30767 Randall's Machine for Punching Checks.
etc.



Fig. 1

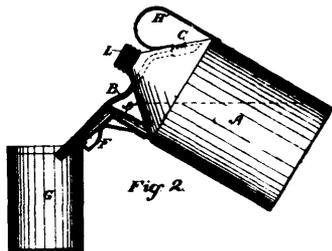
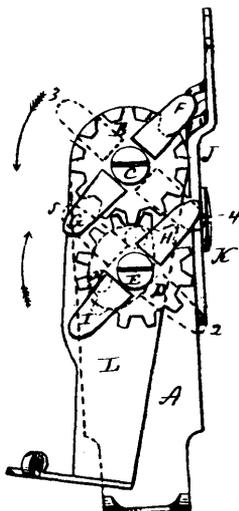


Fig. 2

30768 Spear's Overflow Check Nozzle



30770 Johnson's Mechanical Movement.

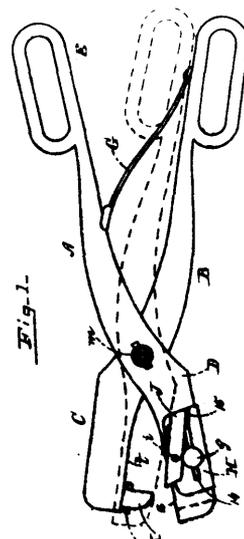


Fig. 1.

30771 Pattison's Shears.



Fig. 1.

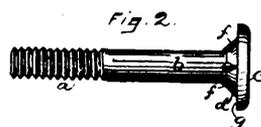


Fig. 2.

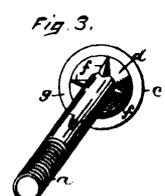
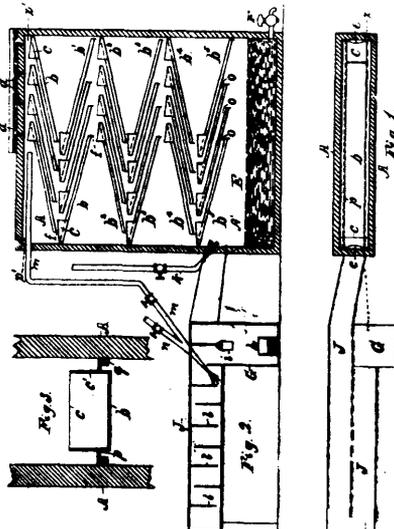
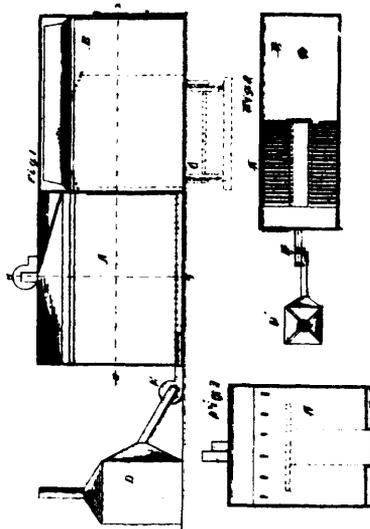


Fig. 3.

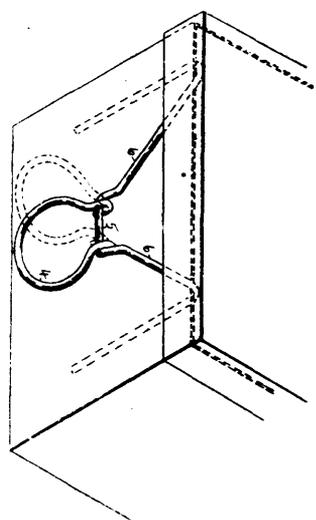
30772 Woodford's Bolt.



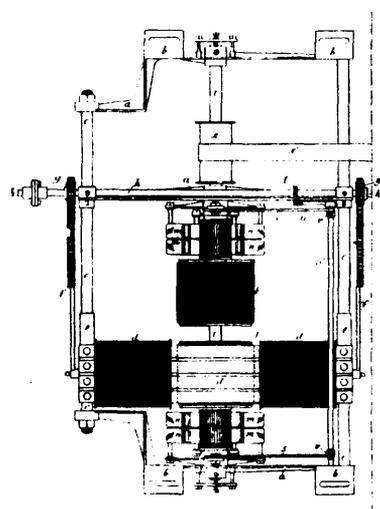
30773 Carlisle's Apparatus for the Absorption of Gases.



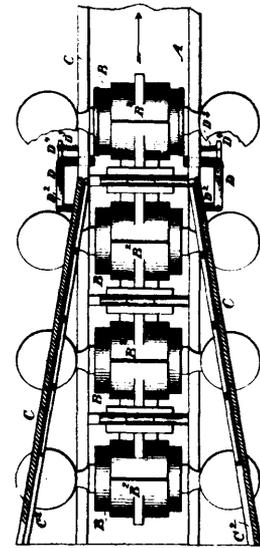
30774 Street's Process for Treating Meat.



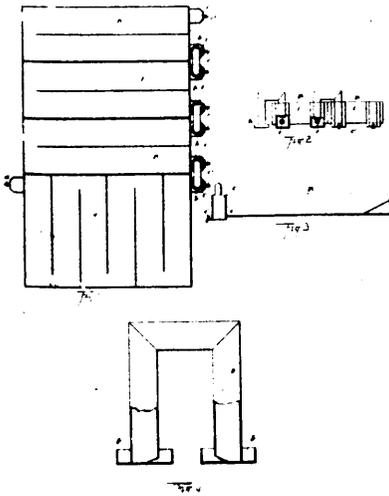
30775 Traut's Box Handle.



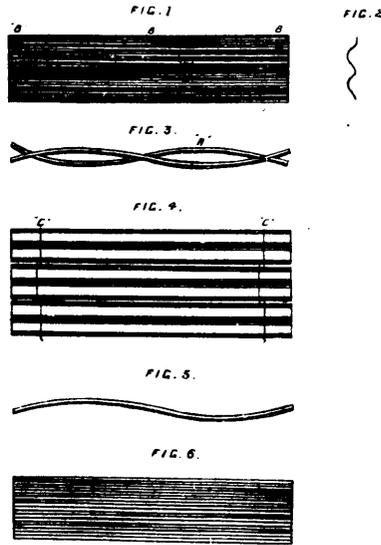
30776 Sandwell's Dynamo Electric Machine, etc.



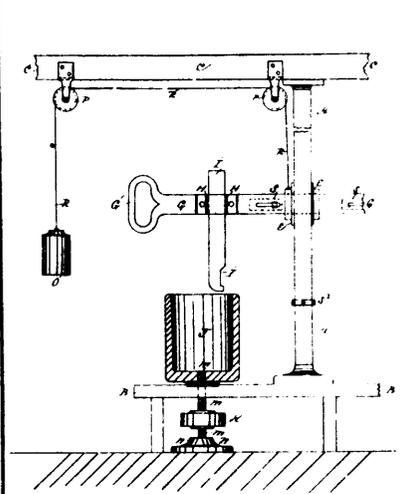
30777 Dolan's Can Assembling Machine.



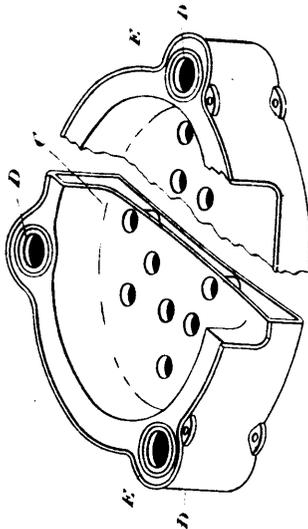
30778 Grimm's Evaporating Pan.



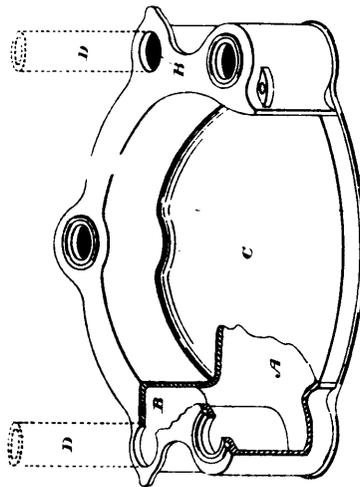
30779 Kinney's Metallic Lathing



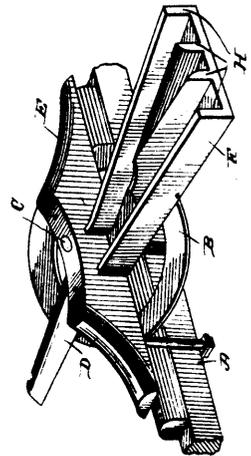
30780 Campbell & James' Machine for Making Hollow Ware Pottery.



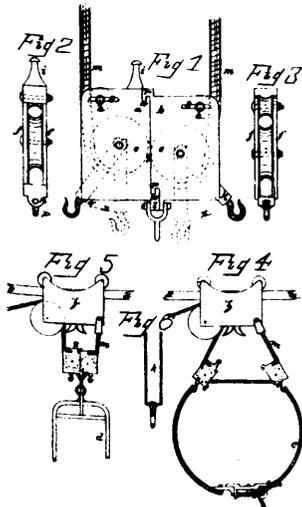
30781 Gurney's Hot Water Boiler.



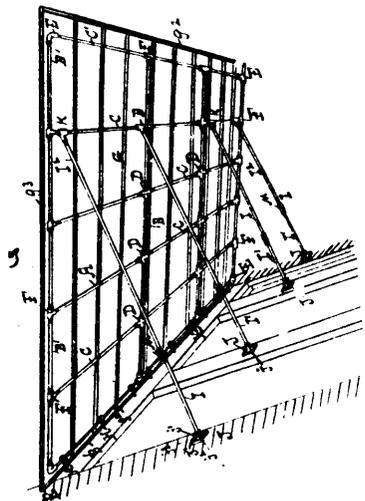
30782 Gurney's Hot Water Boiler.



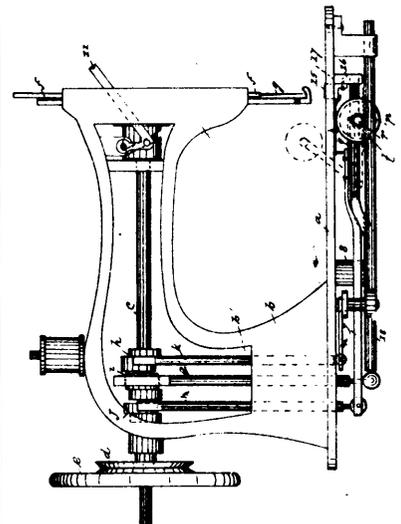
30783 Cheatham's Fifth Wheel.



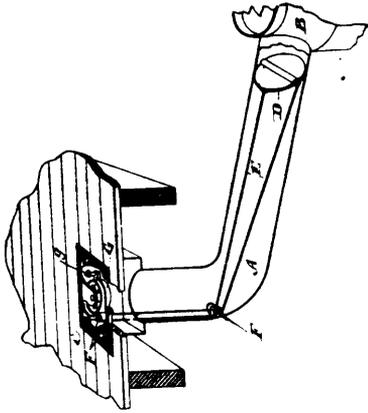
30784 Emerson's Pulley.



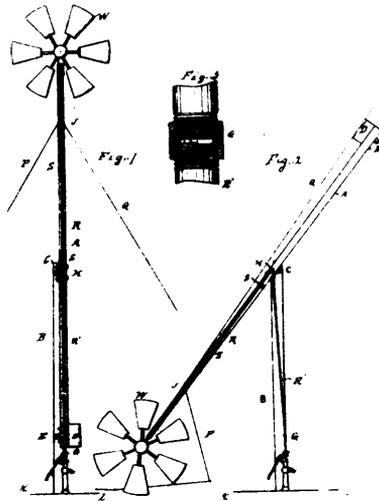
30785 Knoblauch's Awning.



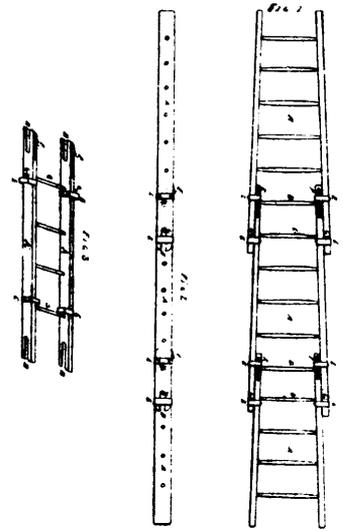
30786 Boppel's Sewing Machine.



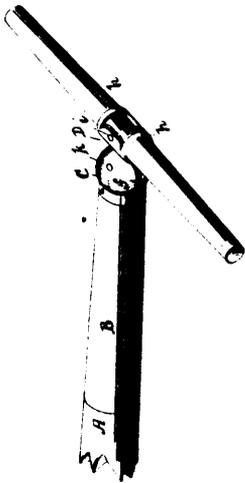
30787 Wanless' Regulating Device for Furnaces.



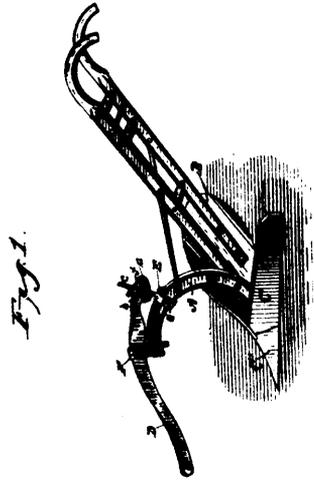
30788 Perry's Wind Mill Derrick.



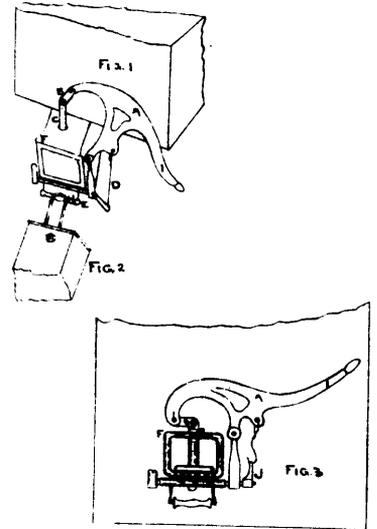
30789 Bowker's Ladder.



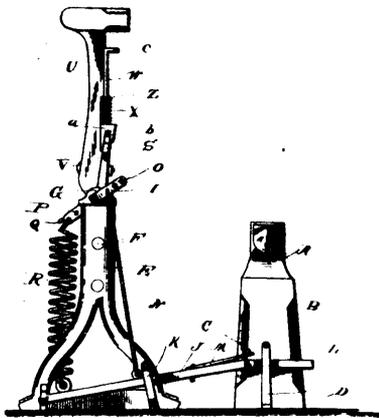
30790 Shatto's Neck Yoke.



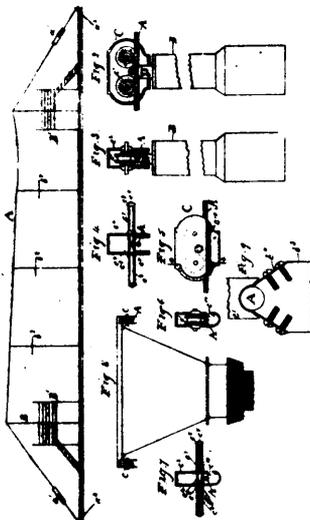
30791 Fafbanks' Plough.



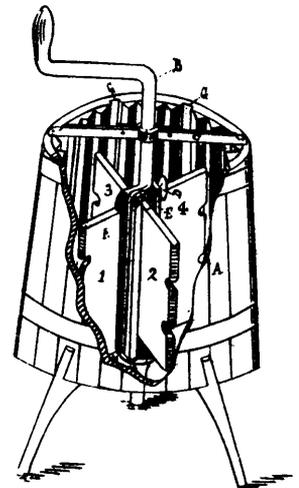
30792 Thomson's Car Coupling.



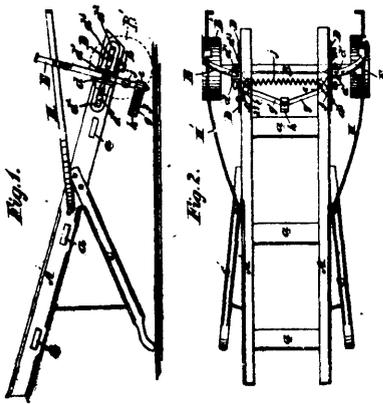
30793 Stevens' Oliver.



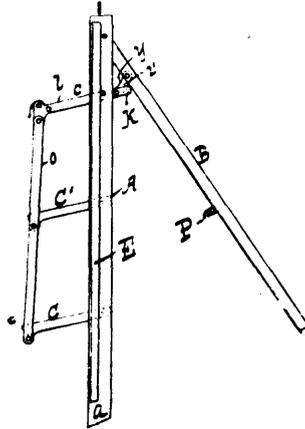
30794 Perry & MacKenzie's Aerial Cable Railway.



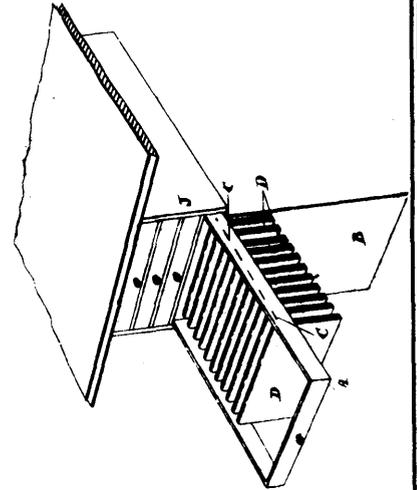
30795 Jones' Washing Machine.



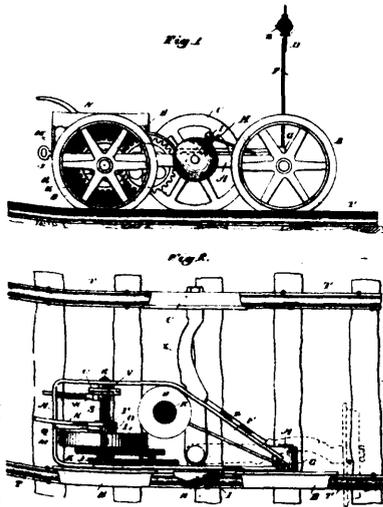
30796 Macpherson's Hand Truck.



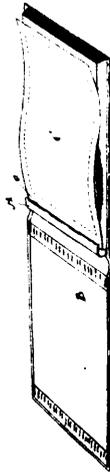
30797 Dormitzer's Step Ladder.



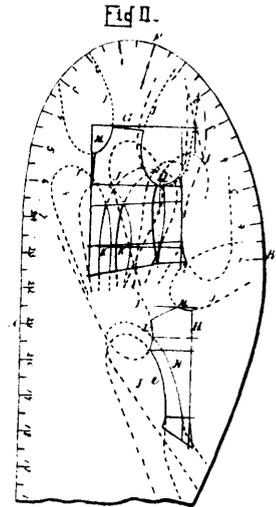
30798 Vardon's Case for Paper.



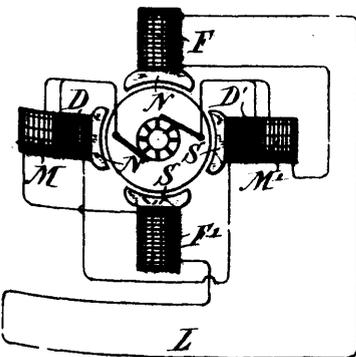
30799 Prince's Danger Signal.



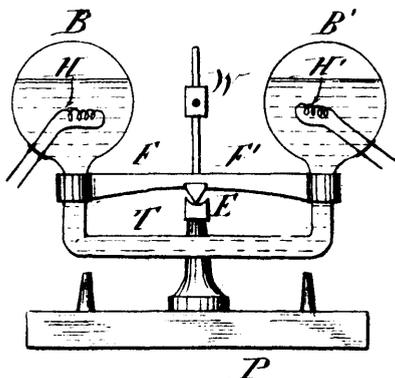
30800 Anderson's Book Cover.



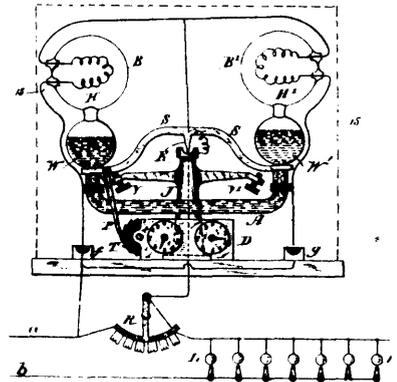
30801 Hurdle's Dress Cutter's Scale.



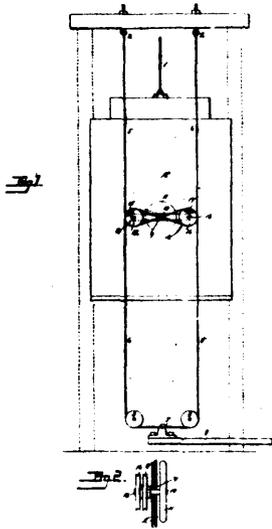
30802 Thomson's Electric Machine.



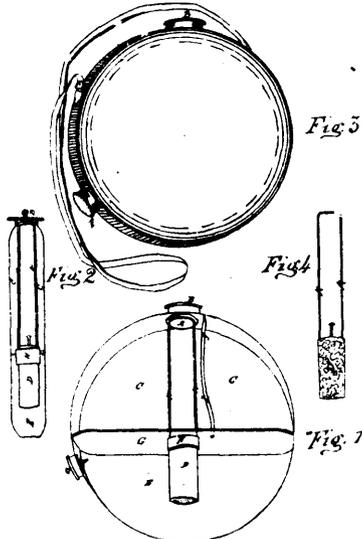
30803 Thomson's Electro Mechanical Movement.



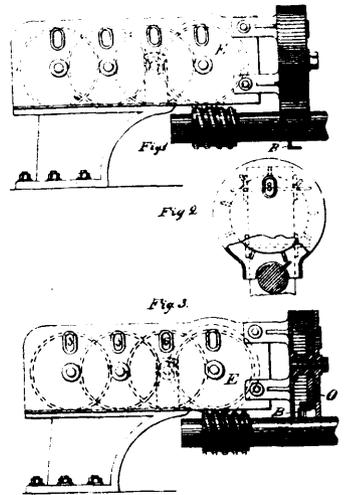
30804 Thomson's Electric Meter.



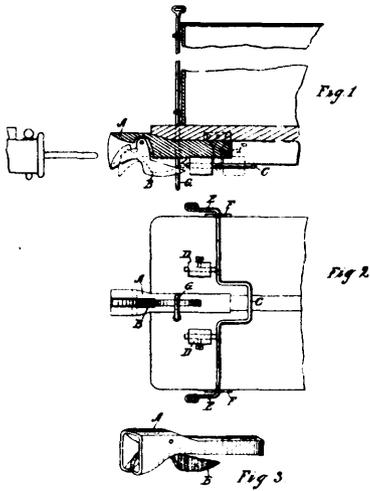
30805 Bassett's Elevator.



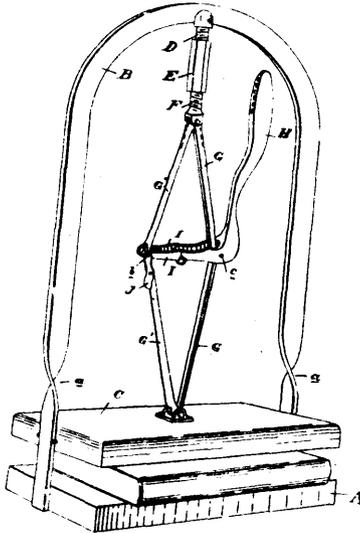
30806 Lewis' Field Filtering Water Bottle.



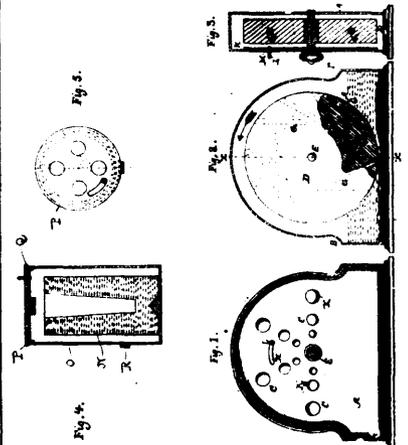
30808 Filgen's Control Apparatus for Counters.



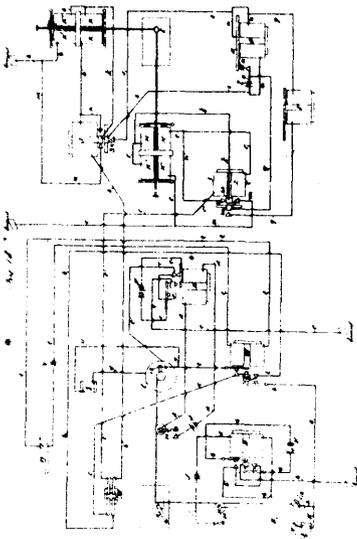
30809 Hughes' Car Coupler.



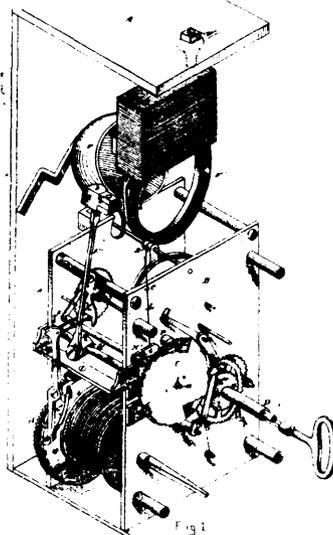
30810 Johnson's Copying Press.



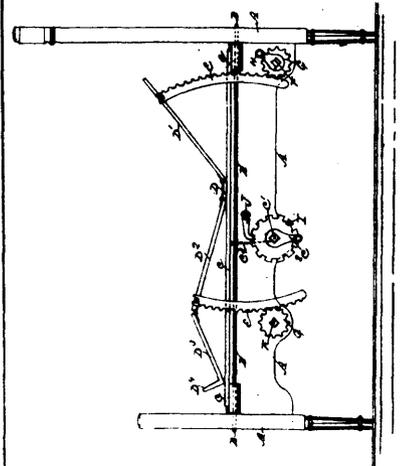
30811 Sherman's Vaporizer



30812 Gray's Telegraphy.

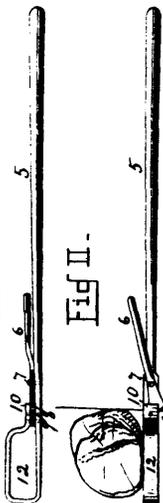


30813 Ethridge & Waite's Time Piece.

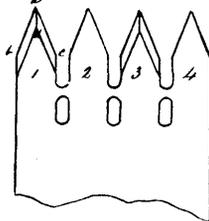
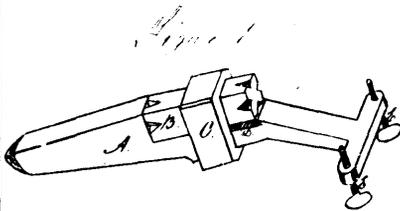


30814 Scribner's Invalid Bed.

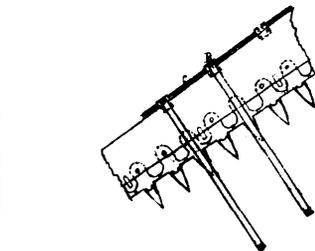
Fig I.



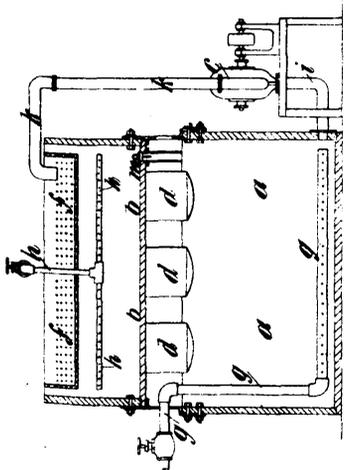
30815 Warner's Wire Stretcher.



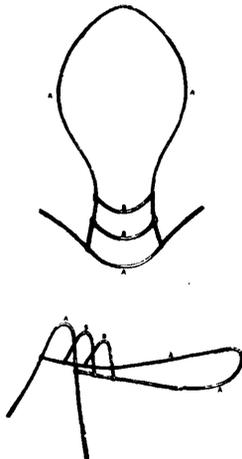
30816 Stewart's Saw Set.



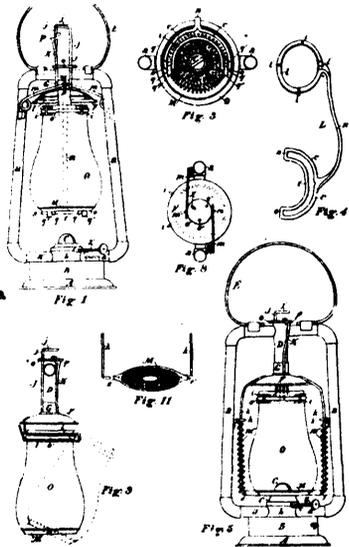
30817 Richmond's Cutter Bar for Reapers, etc.



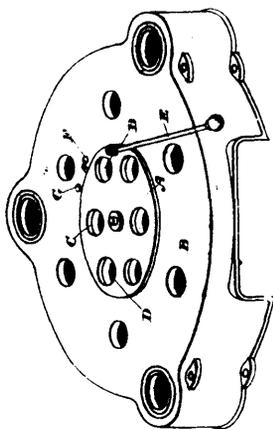
30818 Lee & Bradshaw's Apparatus for Dyeing Textile Materials.



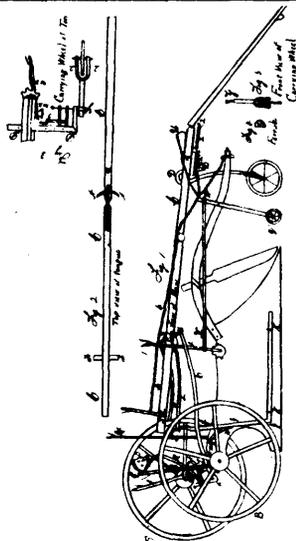
30820 Keen's Saddle-Tree and Panel.



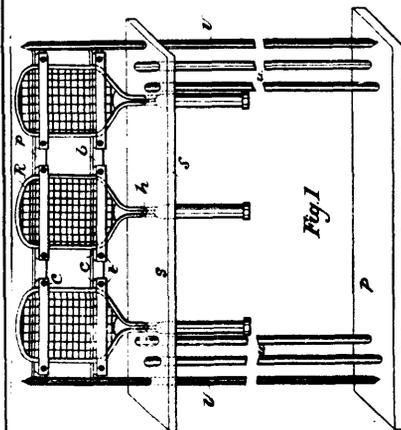
30821 Jewell's Lantern.



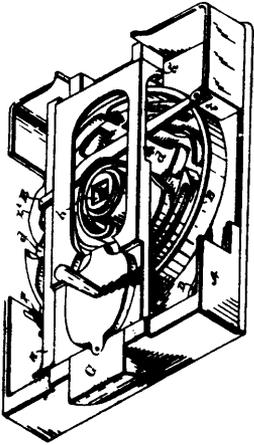
30822 Gurney's Hot Water Boiler.



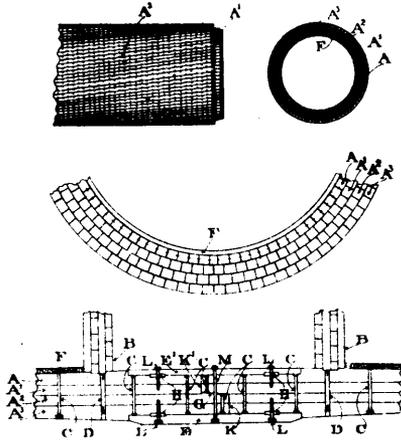
30823 Coon's Sulky Plough.



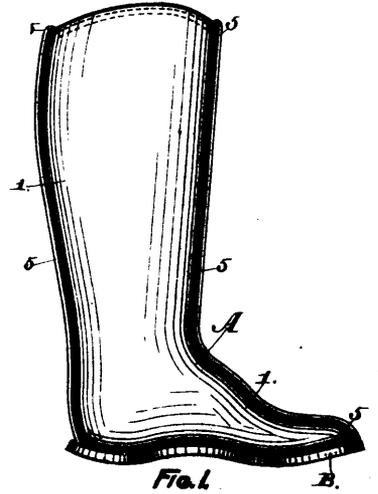
30824 Holmes' Racket Holder and Press.



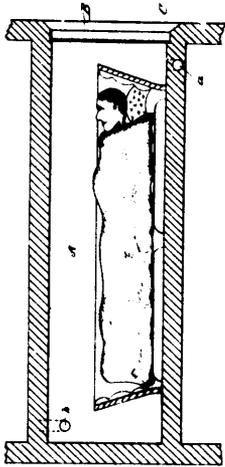
30825 Douds' Lock.



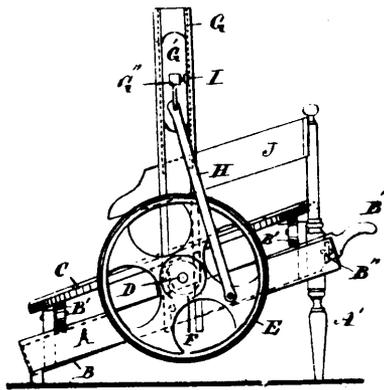
30826 Wetmore's Tunnel.



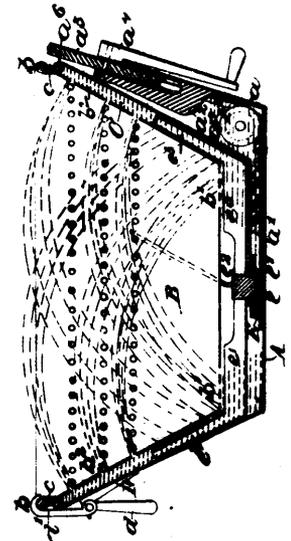
30827 McKie's Boot.



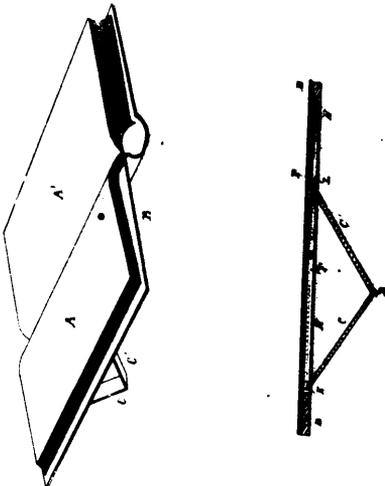
30828 Meyer's Art of Preserving Dead Bodies.



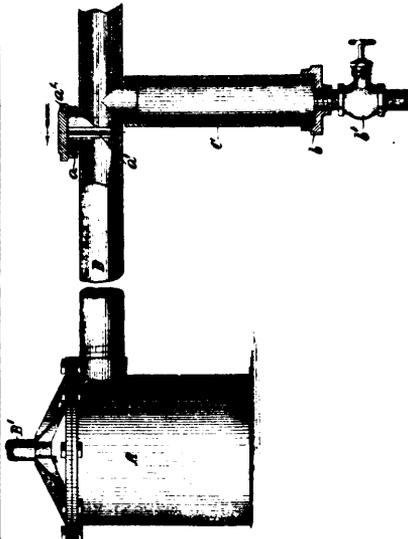
30829 Hamlin's Dog Power.



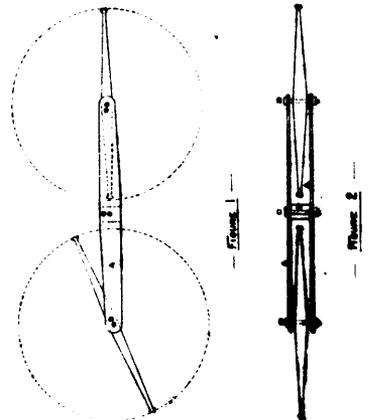
30830 McCausland's Washing Machine.



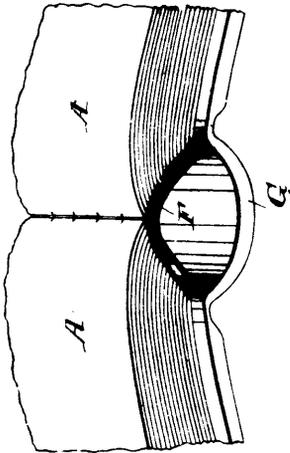
30831 Kinnard's Book Leveler.



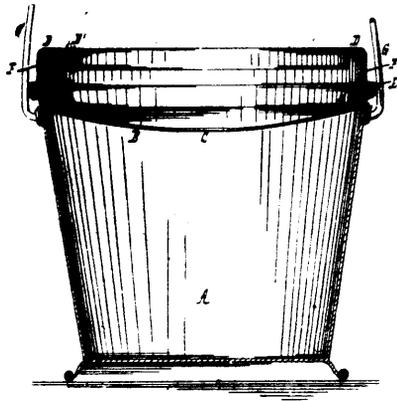
30832 Haythorn's Straining Device.



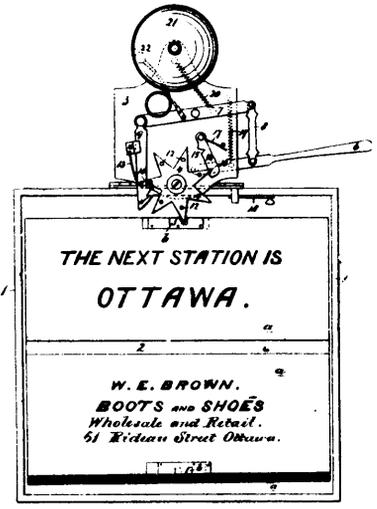
30833 Markie's Doubletree.



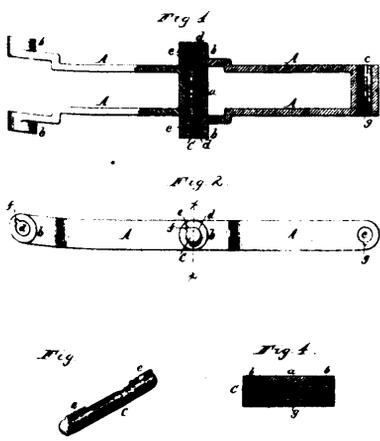
30834 Kinnard's Bookbinding, etc.



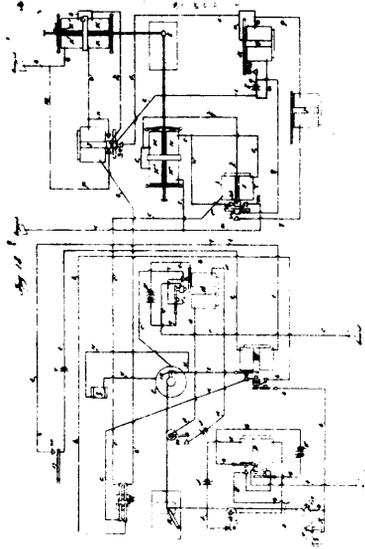
30835 Haberman's Slop Jar.



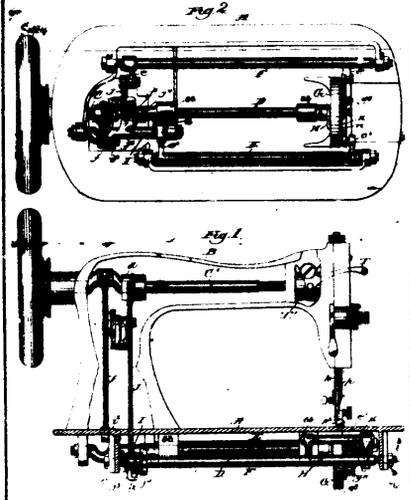
30836 O'Brien's Station Indicator



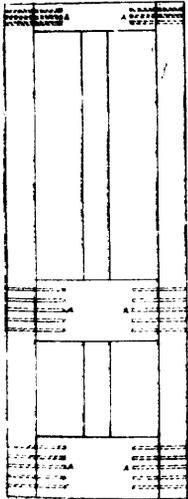
30837 Mey's Drive Chain.



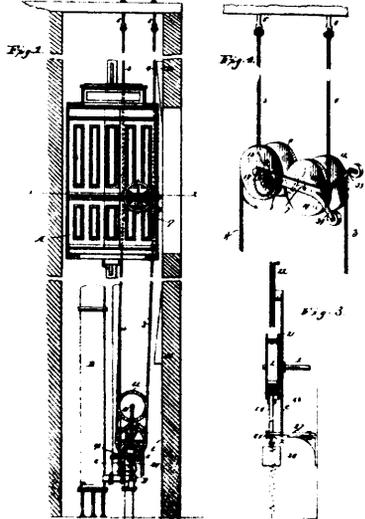
30839 Gray's Telautograph.



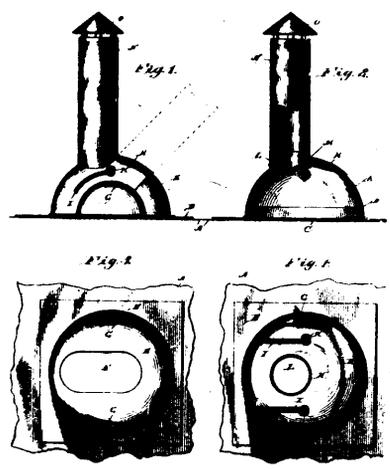
30840 Diehl's Sewing Machine.



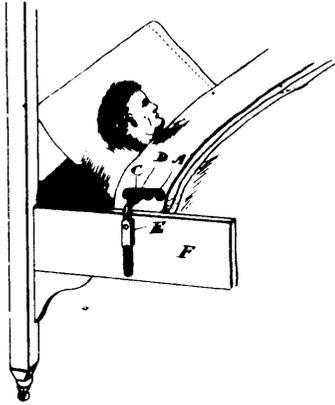
30841 McKay's Panel Door.



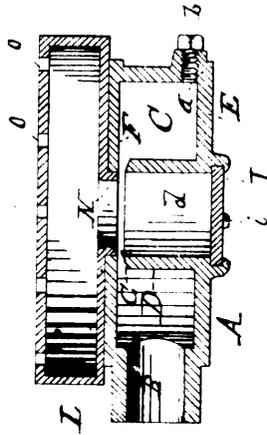
30842 Baldwin's Elevator.



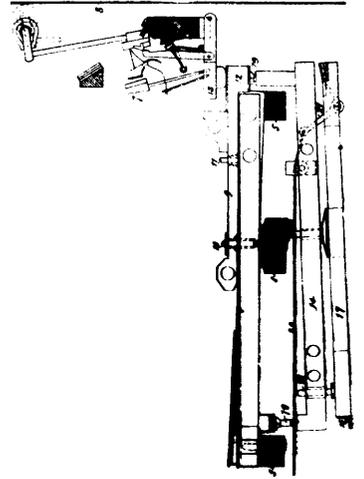
30843 Jones' Chimney.



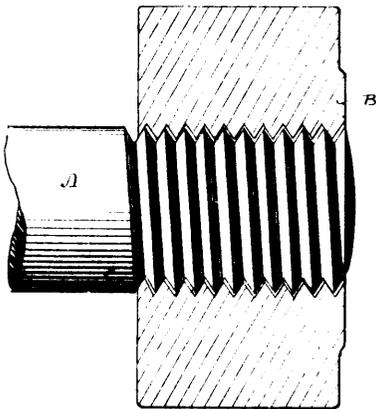
30844 Wicks' Bed Clothes Holder.



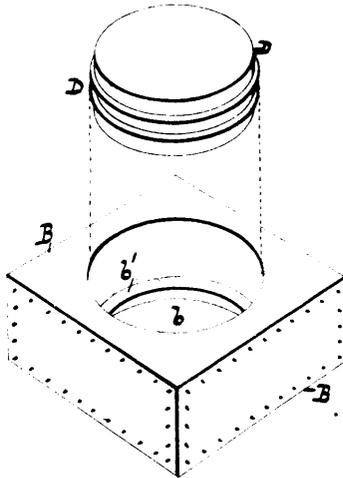
30845 Cumming's Blacksmith's Tuyere.



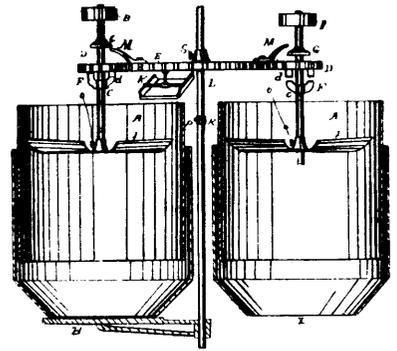
30846 Thompson & Shackell's Octave Coupler.



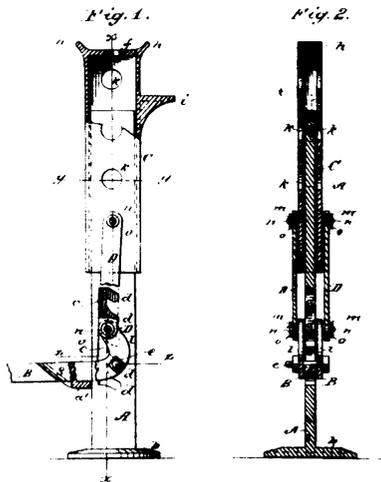
30847 Bardick's Nut.



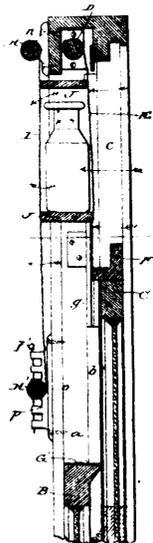
30848 Jacobs' Illuminating Tile.



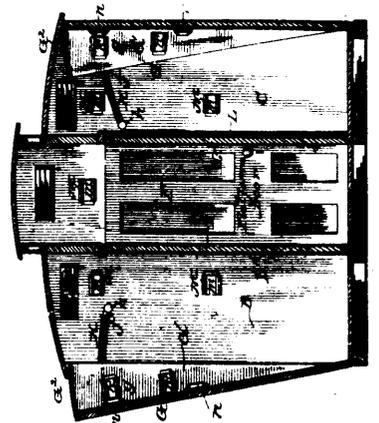
30849 Hadley's Grain Measuring Machine.



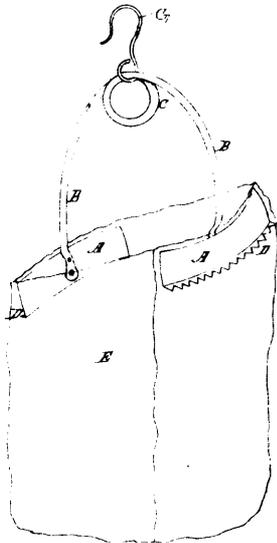
30850 Smith's Lifting Jack.



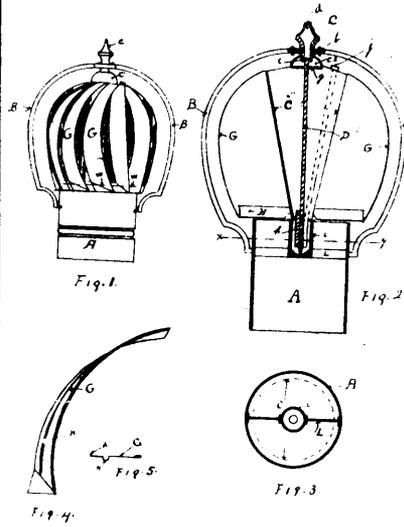
30851 Stevenson's Ventilating Device.



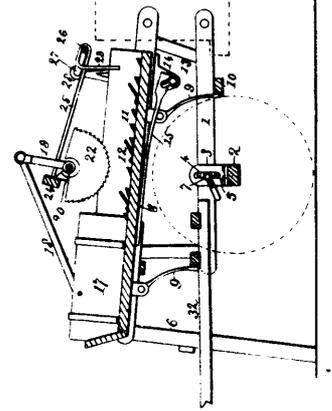
30852 Warren's Railway Car.



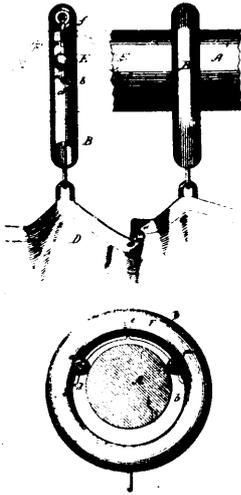
30853 Asselin's Appliance for Filling Bags.



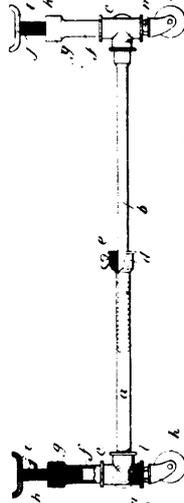
30854 Lipsett's Chimney Cowl.



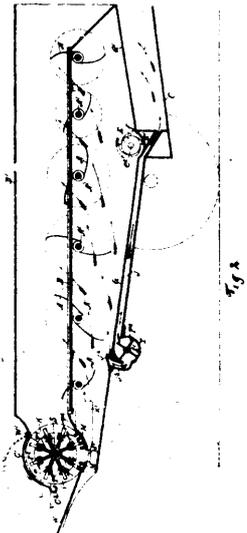
30855 Anderson's Band Cutter and Feeder.



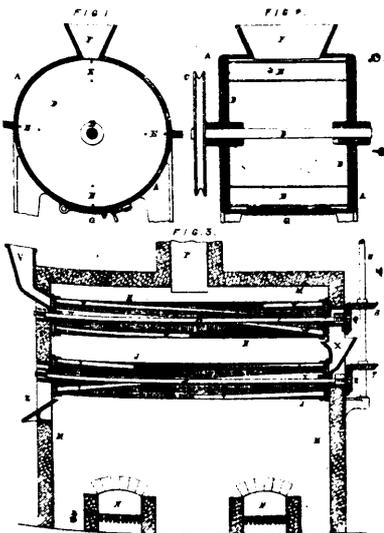
30856 Day's Curtain Ring.



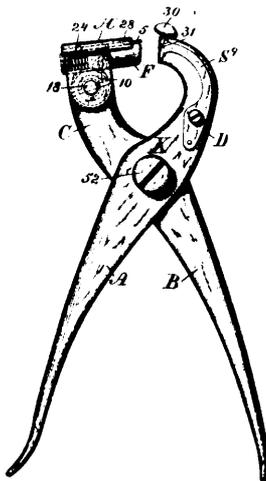
30857 Beekert's Waggon Jack and Truck.



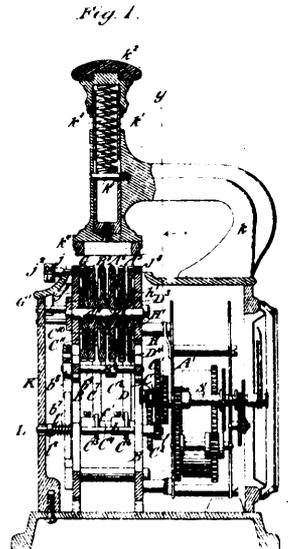
30858 White's Machine for Thrashing and Separating Grain.



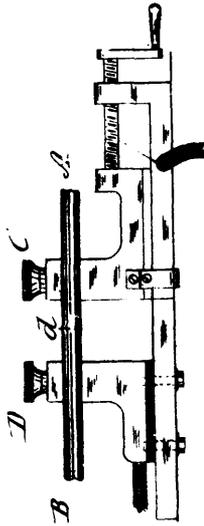
30859 Baxter & Macdougald's Apparatus for the Removal of Cotton Fibre.



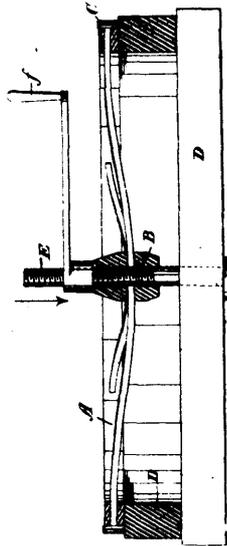
30860 Richards' Button Setting Instrument.



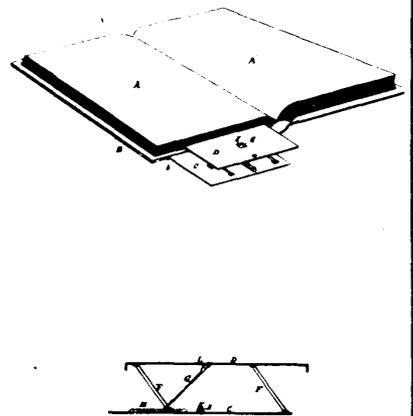
30861 Rogers' Time Stamp.



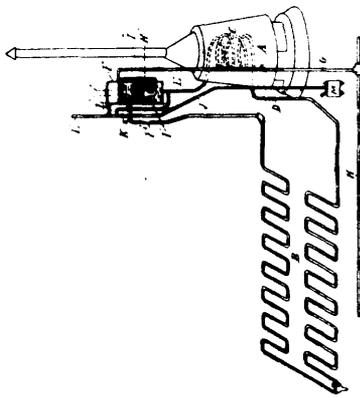
30862 Thomson's Electric Welding.



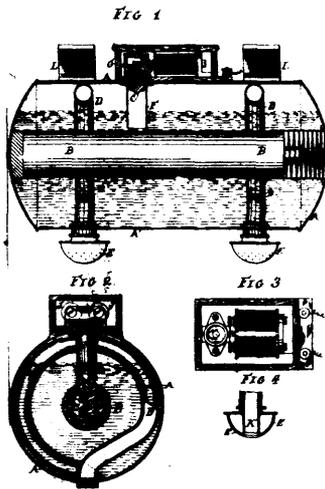
30863 Reid's Art of Tiring Wheels.



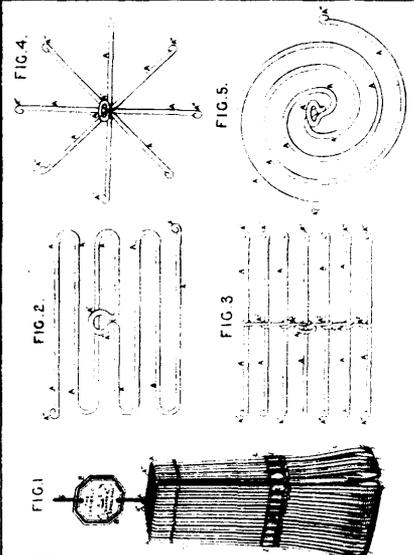
30864 Kinuard's Arm or Hand Rest.



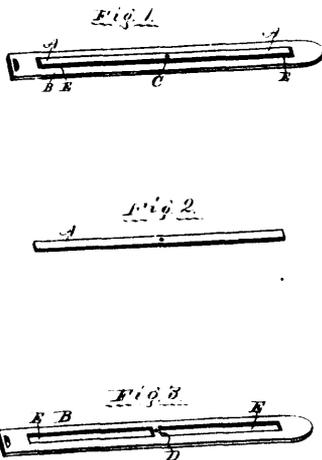
30865 McElroy's Hot Water Apparatus.



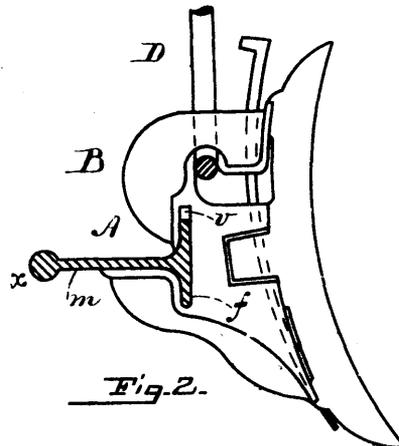
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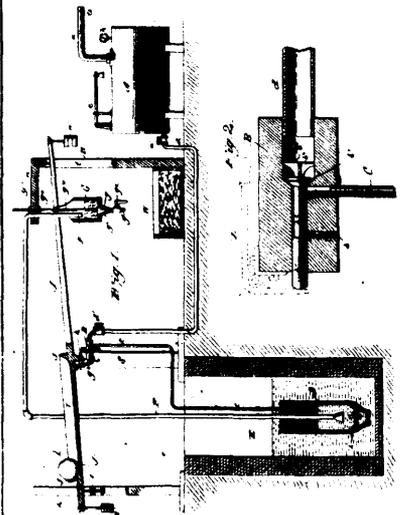
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Holmes, G. P. C. Racket holder and press.....	30,824	Potts, T. W. T. Substitute for ivory, etc.....	30,807
Huggins, W. Cultivator, scraper and roller.....	30,741	Pratte, A. F. Composition of matter for cleaning and removing dandruff from the scalp, etc.....	30,738
Hughes, F. J. Car coupler.....	30,809	Prince, J. Signal for railways.....	30,799
Hurdle, R. Dress cutters' scale.....	30,801	Prout, G., et al. Coating iron or steel with copper, etc.....	30,769
Hydraulic Elevator Co. Elevator.....	30,805	Rabbit, P. Portable derrick.....	30,725
Jacob, F. Duplex telegraphy.....	30,732	Rand, C. N. Organ Reed.....	30,868
Jacobs, J. Illuminating tile.....	30,848	Randall, C. A. Machine for punching checks, etc.....	30,787
James, C., et al. Machine for making hollowware pottery.....	30,780	Raymond, C. Cabinet for sewing machines.....	30,737
James, R. E. R. & C. W. Manufacture of horse shoes.....	30,695	Reid, T. J. Art of tiring wheels.....	30,863
Jewell, H. L. Lantern.....	30,821	Richards, F. H. Button setting instrument.....	30,860
Jones, J. H. Washing machine.....	30,795	Richmond, J. Attachment to cutting bars of reapers and mowers.....	30,817
Jones, I. N. Adjustable chimney.....	30,843	Roberts, R. B., et al. Reclining and operating chair.....	30,723
Johnson, A. J., et al. Steam and hot water radiator.....	30,700	Robertson, W. Letter and document file.....	30,746
Johnson, A. W. Embroidery attachment.....	30,766	Robertson, W. Solidified jelly.....	30,819
Johnson, A. W. Mechanical movement.....	30,770		
Johnson, J. P. Copying press.....	30,810		
Karthauss, E. Mainspring for watches, etc.....	30,763		
Keen, A. W. McL. Saddle tree and panel.....	30,820		
Kingsford, T. Cut off for steam engines.....	30,716		

Rogers, C. D. Machine for rolling screw threads.....	30,729	Thompson, S. Octave coupler for pianofortes.....	30,846
Rogers, E. H. Time stamp.....	30,861	Thompson, T. E., et al. Vestibule car.....	30,718
Ronald, G. F. Book cover.....	30,800	Thomson, E. Dynamo electric motor.....	30,802
Ross, G. Railway coupon ticket rack.....	30,722	Thomson, E. Electric welding.....	30,862
Sandwell, W. D. Dynamo electric machine, etc.....	30,776	Thomson, E. Electro mechanical movement.....	37,803
Schafer, C. & A. Compound for improving steel.....	30,745	Thomson, E. Electric meter.....	30,804
Schutte, L. Ejector condenser.....	30,733	Thomson, R. F. Car coupling.....	30,792
Scribner, J. M. Invalid bed.....	30,814	Thomson Houston International Electric Co. Dyna- mo Electric motor.....	30,802
Shackell, W. Octave coupler for pianofortes.....	30,846	Thomson Houston International Electric Co. Elec- tro mechanical movement.....	30,803
Shatto, J. Neck yoke.....	30,790	Thomson Houston International Electric Co. Elec- tric meter.....	30,804
Sherman, G. M. Vaporizer.....	30,811	Tonkin, J. J. Cut off for steam engines.....	30,716
Shuman, A. D. Can.....	30,753	Totman, G. W. & P. C. Electric belt.....	30,759
Siemens Brothers & Co. Duplex telegraphy.....	30,732	Traut, J. A. Box handle.....	30,775
Singer Manufacturing Co. Sewing machine.....	30,840	Waite, H. E., et al. Time piece.....	30,813
Smillie, G. W. Car coupling.....	30,709	Wanless, T. G. Regulating device for distributing pipes of hot air furnaces.....	30,787
Smith, F. E. Office tickler.....	30,756	Warden, M. M. Case for containing and displaying reams of sheet paper.....	30,798
Smith, G. Elevator.....	30,870	Warner, J. F. Fence wire stretcher.....	30,815
Smith, J. L., et al. Overflow check nozzle.....	30,768	Warren, G. P. Railway car.....	30,852
Smith, J. M. Lifting jack.....	30,850	Wetmore, C. W. Tunnel.....	30,826
Solenberger, N. W. Elevator.....	30,870	White, G. Machine for thrashing and separating grain	30,858
Spear, E. W., et al. Overflow check nozzle.....	30,768	Wicks, R. C. and T. Bed clothes holder.....	30,844
Springeteen, N. E. Store service apparatus.....	30,760	Wilson, G. T. Whiffletree hook.....	30,721
Stacey, W. Letter sheet and envelope.....	30,754	Winter, D. T. Egg beater.....	30,735
St. Cyr, E., et al. Machine for making paper bags.....	30,715	Wolfhard, F. G. Bed-spring.....	30,739
Stevens, W. J. Oliver.....	30,793	Woodford, W. W. Bolt.....	30,772
Stevenson, A. C. Ventilating device.....	30,851		
Stewart, D. Saw set.....	30,816		
Stokes, G. R., et al. Cash till.....	30,713		
Street, J. W. Process for treating meat.....	30,774		
Thompson & Shackell. Octave coupler for pianofortes	30,846		