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CONTENTS.

INVENTIONS PATENTED.....	333
ILLUSTRATIONS.....	351
INDEX OF INVENTIONS.....	I
INDEX OF PATENTEES.....	II

INVENTIONS PATENTED.

No. 15,705. Improvements on Spring Beds.
(Perfectionnements aux lits à ressorts.)

La Fayette Wildermuth, New Lexington, Ohio, U. S., 26th October, 1882; (Extension of Patent No. 11,867.)

No. 15,706. Improvements on Spring Beds.
(Perfectionnements aux lits à ressorts.)

La Fayette Wildermuth, New Lexington, Ohio, U. S., 27th October, 1882; (Extension of Patent No. 11,867.)

No. 15,707. Improvements on Boxes for Berries. *(Perfectionnements aux boîtes à fruits.)*

The Smith Manufacturing Company, (Assignee of Seth H. Smith.) Delta, Ohio, U. S., 27th October, 1882; for 5 years.

Claim.—1st. The combination, with a bent wooden box of a lining folded from a single uncut sheet and secured in position by means of the hooked ends of the wire bail, or handle. 2nd. The improved box, or bucket having sides G, ends B and flaps I, in combination with the lining folded from a single uncut sheet and having flaps K, and the wire bail or handle having hooked ends M passing through the ends and flaps of the box and lining, which are thereby secured together.

No. 15,708. Improvements on Heating Apparatus. *(Perfectionnements aux calorifères.)*

John F. Pease, Syracuse, and Ephraim K. West, Baldwinsville, N.Y., U. S., 2nd November, 1882; for 5 years.

Claim.—1st. The fire pot A, combustion chamber C and smoke-box C1, superstructured successively one upon the other, the radiator B arranged around the exterior of the combustion chamber and communicating with the smoke-box C1, the boiler B arranged inside of the combustion chamber with the fire passage a between them and provided with flues f, and the steam pipe b, in combination with the inclosing case D provided with hot air ducts P. 2nd. The combination of the combustion chamber C having the smoke-box C1 seated upon the ledge C on the interior of the combustion chamber, the boiler B suspended from said ledge c and having the fire passage a around its sides, and the steam pipes b extended vertically from the centre of the upper end of the boiler, through the top of the smoke-box B1 and provided, above the latter, with the nut n.

No. 15,709. Improvement in Vehicle Dashes.
(Perfectionnement des garde-crotte des voitures.)

William F. Elliott and Shields D. Lance, Columbus, Ohio, U. S., 2nd November, 1882; for 5 years.

Claim.—1st. The combination of a vehicle dash having a solid forged or welded foot and a metal tube, through which to pass a screw bolt clamping to the foot the tube or bearing piece. 2nd. A solid welded foot to admit an ordinary sewing machine to stitch below the bottom rail and to pass between the dash apron and the outside of the vehicle body, vertically and laterally adjustable to vehicle bodies of different

heights and widths. 3rd. A brace or angle iron attached to the bottom sill extending up the corner post and over the top of the body to the dash frame, in connection with a bearing piece or tube extending through the body and against which the foot is clamped. 4th. A dash with a solid foot vertically and laterally adjustable to vehicle bodies of different heights or widths. 5th. The combination of a dash having a solid foot, with an angle iron, an eccentric screw-bolt and a thimble or bearing piece against which to clamp the foot. 6th. A fastening attachment for vehicle dashes having solid feet consisting of a thimble extending through the body, clamping the solid foot to the thimble, a screw-nut clamping an angle iron to the thimble, and a screw bolt passing through the foot, the thimble, the angle iron and the nut.

No. 15,710. Improvements on Brush Holders. *(Perfectionnements aux porte-brosses.)*

William H. Miles, jr., Brooklyn, N. Y., U. S., 2nd November, 1882; for 5 years.

Claim.—1st. In a brush-holder, interiorly projecting elastic supporters located and arranged as explained, so as to bear against the bristles of the brush and prevent wear upon the edges of the brush back, when the brush is inserted or removed. 2nd. In a brush-holder open at top and bottom, for the insertion and removal of the brush, the combination with the brush receptacle of an interior projection located at, or near, the lower mouth of the receptacle and in the path of the brush. 3rd. The combination of the brush supporting springs located and arranged so as to bear against the bristles of the brush, and the series of cleaners located in the path of the brush. 4th. In a brush-holder open at top and bottom and provided with spring supports for the brush, the cleaners located at, or near, the lower mouth of the brush receptacle for the objects named. 5th. The improved brush-holder composed of the back, side walls and face, the spring supports for the brush arranged to bear against the bristles thereof and the cleaners located at, or near, the lower mouth of the brush receptacle. 6th. The back A, the side and front walls B B C, and the comb pocket p cut in the base and covered with the thin plate p1.

No. 15,711. Improvements on Car Brakes.
(Perfectionnements aux freins des chars.)

Samuel Holladay, (Assignee of Amos C. Springer,) San Francisco, Cal., U. S., 2nd November, 1882; for 5 years.

Claim.—1st. A continuous train brake composed of telescopic rack bars, pinion and winding drum attached to each car and connected with the brake lever, the said rack bars of the respective cars of the train being connected together and arranged to be operated at the ends of the train, or intermediately. 2nd. In a car brake device, a series of rack bars adapted to move pinions and winding devices which operate the brake shoes, said rack bars being provided with sliding telescopic connections to take up the slack. 3rd. If a device adapted to brake a series of cars simultaneously, the combination of telescopic rack bars and winding devices, with the spring P interposed between the brake lever D and the shaft I.

No. 15,712. Improvements in Hydraulic Motors. *(Perfectionnements aux moteurs hydrauliques.)*

Nicholas Yagn, St. Petersburg, Russia, 2nd November, 1882; for 15 years.

Claim.—1st. The hydraulic motor apparatus constructed with one, or more endless ropes, provided with parachutes, flaps, or paddles, distending under the pressure of the water and folding or closing together, when moving against the current, and with knots by means of which the ropes or ropes impart motion to a drum or pulley provided with corresponding teeth or projections. 2nd. The combination of the hydraulic motor apparatus, with a towing chain or other contrivance, for moving vessels against the current.

No. 15,713. Improvements on Looms.
(Perfectionnements aux métiers des tissands.)

Alexander Smith and Halcyon Skinner, Yonkers, N. Y., U. S., 2nd November, 1882; (Extension of Patent No. 8160.)

No. 15,714. Improvements on Tongue Supports for Waggon. (*Perfectionnements aux appuis des limons de voitures.*)

Martin Conrad, Chicago, Ill., U.S., 2nd November, 1882; for 15 years.

Claim.—1st. In a waggon tongue support for holding the tongue in a horizontal working position consisting of two general parts connected, one with the tongue and one with the sand-board or adjacent part of the front gear, said parts of the supports being adapted to be engaged and disengaged with each other automatically by raising and lowering the tongue. 2nd. In combination with the automatically engaging and disengaging parts of the support, a spring connected with one of said parts, whereby the tongue is yieldingly upheld. 3rd. In a tongue support of the general description shown, the stationary member provided with a notch and trip block and secured to the tongue, in combination with a spring link attached to the sand-board or adjacent part. 4th. In combination with a stationary notched plate G secured to the tongue, the link F pivotally secured to the sand-board or adjacent part and consisting of two parallel tubes *f*, twin springs E within said tubes, and the bent link-rod *f*. 5th. In a tongue support the two tubes *f* for housing the springs, said tubes being separated by a space *a* and joined by a neck at *b*, in combination with the bolt F threaded through the neck and pivoted to the sand-board or adjacent part. 6th. The combination with a link pivoted to the sand-board or adjacent part, of a plate G adapted to engage the link and provided with arms G' fitted to connect with the queen-bolt. 7th. In combination with the tongue, the member G provided with apertured arms G' and clip seat G₂, the queen-bolt E and the clip H. 8th. In the automatic tongue support, the combination, with the link and with the part G having a notch *g* to receive the link, of the trip-block having a notch in its upper end for carrying the link over the notch.

No. 15,715. Improvements in Umbrellas.

(*Perfectionnements aux parapluies.*)

Joseph Feldman, London, Eng., 2nd November, 1882; for 5 years.

Claim.—1st. In an umbrella stick formed in two parts abutting and connected together by a screw pin, the two parts of the stick where they abut together being reduced in diameter so as to form a groove or countersink, for the reception of a top notch of small dimensions. 2nd. An umbrella stick formed in two parts, the groove or countersink for receiving the top notch formed by the two reduced parts of the stick. 3rd. The combination, with an umbrella stick formed in two parts, of a top notch of small dimensions contained within a groove or countersink, formed by reducing the ends of the two parts of the stick. 4th. An umbrella stick constructed and tapered or reduced in size for a certain distance below the top notch. 5th. An umbrella having a stick constructed as described.

No. 15,716. Improvements on Strap Couplings. (*Perfectionnements aux joints des courroies.*)

Alpheus Van Luyen, Yarker, Ont., 2nd November, 1882; (Extension of Patent No. 13,789.)

No. 15,717. Improvements on Vehicle Dash-Boards. (*Perfectionnements aux garde-crotte.*)

The Guelph Carriage Goods Company, (Assignee of John B. Armstrong,) Guelph, Ont., 2nd November, 1882; (Re-issue of Patent No. 5301.)

Claim.—1st. As an improved dash-board moulding, a metal tube, having a longitudinal opening or slot made in it from end to end, the said opening or slot being of a width corresponding with the thickness of the dash-board leather, in order that the edges shall grasp the said leather, when the tube is slipped over it endwise. 2nd. A metal tube having a longitudinal slot or opening made in it from end to end, in combination with a dash-board, having a projection formed on either side of its top, to constitute a retaining edge for the tube. 3rd. A metal tube having a longitudinal slot or opening made in it to grasp the leather of the dash-board, over which it has been slipped endwise, in combination with metal screws inserted into the dash-board, at either end of the tube, for the purpose of retaining it in position and forming a finish.

No. 15,718. Improvements on Folding Seats.

(*Perfectionnements aux sièges pliants.*)

John L. Kapple, Cleveland, Ohio, U. S., 2nd November, 1882; (Extension of Patent No. 8058.)

No. 15,719. Improvements on Dredging Machines. (*Perfectionnements aux machines à draguer.*)

William Morrison, Toronto, Ont., 2nd November, 1882; for 5 years.

Claim.—1st. A chamber designed to be imbedded in the material to be excavated and having a pipe or tube extending upwardly into a large pipe having its lower end similarly imbedded and its upper end reaching into the top surface of the water, in combination with a pipe leading into the same chamber for the purpose of conveying therein compressed air, steam, or any rapidly moving fluid, which, in escaping up through the small pipe, will create a vacuum in the large pipe causing the material surrounding the bottom end of the pipe to flow through it, which material has been previously loosened by a small jet of fluid escaping from the chamber. 2nd. A large pipe, the bottom end of which is placed in proximity to the material to be excavated, in combination with a small pipe extending upwardly into the large pipe and having an inverted cone-shaped nozzle fixed to its end, so as to act as a deflector on the fluid forced rapidly through the small pipe and direct the said fluid against the interior surface of the large pipe, thereby forming a cone-shaped column of rapidly moving fluid, which

will effectually create the desired flow of material through the large pipe. 3rd. A large pipe having a bell mouthed end placed in proximity to the material to be excavated, in combination with a small pipe placed within the large pipe, so as to direct through the said pipe rapidly moving fluid forced from the small pipe. 4th. A circular chamber B connected to the chamber C by the tubes D, the said chamber C having a small orifice or orifices made in its bottom or sides, and a pipe E extending from it up into the pipe A, in combination with a pipe F leading into the chamber B, for conveying therein any rapidly moving fluid.

No. 15,720. Improvements on Spring Bed Bottoms. (*Perfectionnements aux sommiers élastiques.*)

Theodore Burdick, Grand Haven, Mich., U. S., 3rd November, 1882; for 5 years.

Claim.—The combination, in woven wire spring bed bottoms, of two fabrics of woven wire *a a* attached to grooved end rails D D supported by longitudinal slots C C, with two or more sets of spiral springs B B, one or more sets of the springs B B being placed upon the upper side of the longitudinal slats C C upon cleats E running across the bed and extending to and supporting the upper fabric A, and one or more sets of the springs B B being placed upon the lower side of the longitudinal slats C C in like manner and extending to, and supporting the lower fabric A, as represented by A B B C C D D E.

No. 15,721. Improvements on Cypher Codes and Apparatus Therefor. (*Perfectionnements aux codes à signaux et aux appareils pour cet objet.*)

Robert T. Oney, Huntington, W. V., U. S., 3rd December, 1882; for 5 years.

Claim.—1st. The combination of the rotary head having intelligible characters on it, the enclosing shell thereof having an opening through it, slides which are vertically movable and arranged opposite said opening and cylinders which have characters on them, which are movable about the said vertical axis. 2nd. The combination of a rotary cylinder, an enclosing shell thereof provided with angular opening vertical slides, which are exposed to view through the opening made through said cylinder. 3rd. The means of operating a cypher code by the combination of different characters, which are arranged on movable slides, and cylinders adjustable at right angles to each other, whereby any secret key can be arranged at will. 4th. The combination of the internally screw-grooved rings or cylinders, the intermediate rings or cylinders, the core of shaft E, the shell B₆, the slides which are moved by said screw-grooved rings, the angular plates which are rigid with said slides, the head or cap on the core of shaft E, and the shell surrounding said head. 5th. The combination of the rods A₁ or the equivalent thereof, the head B₇, the shell B₅, the ring B₈, the intermediate rotary internally screw-threaded rings and the adjustable slides actuated by turning said head, the characters on the said slide and head being exposed to view. 6th. As a new and improved article of manufacture, the combination of a column of rotary rings or hollow cylinders independently adjustable and vertically movable slides, which are adjustable by means of the cap, and which are exposed to view through the shell or part surrounding the latter.

No. 15,722. Improvements on Radiating Flues. (*Perfectionnements aux tuyaux rayonnants des cheminées.*)

Frederic B. Nichols and Cathcart Thompson, Halifax, N. S., 3rd November, 1882; (Extension of Patent No. 15,522.)

No. 15,723. Improvements on Radiating Flues. (*Perfectionnements aux tuyaux rayonnants des cheminées.*)

Frederic B. Nichols and Cathcart Thomson, Halifax, N. S., 4th November 1882; (Extension of Patent No. 15,522.)

No. 15,724. Improvements on Wrenches.

(*Perfectionnements aux clés à écrous.*)

George W. Haight and Daniel H. Bailey, (Assignees of William J. Owen,) Nashville, Tenn., U. S., 4th November, 1882; for 5 years.

Claim.—1st. The combination, in a ratchet wrench, of the wrench-bar, the face plate jaws K K', the D, pawls G G' and spring H with the lock bolt M. 2nd. In a ratchet wrench, a pair or jaws K K' constructed in two parts. 3rd. The combination, with the wrench-bar, the ratchet and the jaws K K', of the right and left threaded adjusting screw. 4th. The combination, with the wrench stock, the jaws K K' and the ratchet wheel, of the budge piece D'. 5th. The combination of the wrench bar A having annular head A₁ and shoulder A₂, face plate B having annular head B₁, slotted ratchet wheel D having standards O O', pivoted double jaw F K F' K', screw E having milled heads L L₁, pivoted pawls G G', connected by the spring H and having notches *g g*, and turn-bolt M.

No. 15,725. Improvements on Machinery for Manufacturing Spring Horse Shoes. (*Perfectionnements aux machines pour faire les fers à cheval élastiques.*)

Frederick A. Roe, New York, U. S., 4th November, 1882; for 5 years.

Claim.—1st. The dies B B' having their surfaces curved and grooved and provided with the recess *a*, for forming the calk of the shoe. 2nd. The die D carrying the plunger *d* and provided with blades *d*¹, in combination with the die D' provided with the recessed block *d*₂, the recesses *e*₁, the guide pins E and the groove *e*₂. 3rd. The stationary die F recessed to receive the shoe blank, in combination with the ver-

tical drop die F1 provided with the ribs *d*. 4th. A table or platform provided with the die H, an adjustable guide J, in combination with the formers J1 provided with the friction rollers j1 and the plate H constructed with the spring pin *h*. 5th. The die H in combination with the plate H1, provided with the spring pin *h*. 6th. The die L recessed to receive only the spring portion of the shoe, in combination with the die L1 fitting said recess and provided with a bevelled face. 7th. The die N recessed and provided with protuberance *n* at the point, for forming the toe of the shoe, in combination with the die N1 provided with the concavity *n* on the front of the plunger. 8th. As a new article of manufacture, a spring horse shoe.

No. 15,726. Improvements on Car-Couplings. (*Perfectionnements aux accouplages des chars.*)

Francis Cordrey, Fort Wayne, Ind., U.S., 4th November, 1882; for 5 years.

Claim.—The rock shaft B supported in bearings above the draw-head and bent at, or near its centre, to form the depending crank bend B1, which extends beneath the draw-head of the car, in combination with the curved bail E secured to the horizontal portion of the crank bend and projecting upward through the bottom wall of the draw-head.

No. 15,727. Improvement on Price Ticket Holders. (*Perfectionnement des porte-étiquettes.*)

Ebenezer Whyte, Kansas, Mo., U.S., 4th November, 1882; for 5 years.

Claim.—1st. The combination of the shaft A having slot *a*, thimble A1 and tang *b*. 2nd. A price ticket-holder for securing price tickets.

No. 15,728. Improvements on Belt Shifters. (*Perfectionnements aux embrayages des courroies.*)

Edwin C. Durand, Greenwich, Ohio, U.S., 4th November, 1882; for 5 years.

Claim.—1st. The shifter A composed of the side pieces *a* secured together by the strips *az* and having, journalled between them, the pulleys *a3*, and adapted to be secured to the joint E by the braces *e*. 2nd. The shifter A and its pulleys *a3*, in combination with the pulley B and shifting bar F.

No. 15,729. Improvements on Thrashing Machines and Separators. (*Perfectionnements aux machines à battre et aux séparateurs.*)

Joseph Paradis and Norbert A. Bois, Longueuil, Que., 6th November, 1882; for 5 years.

Claim.—1st. In a portable thrashing machine or separator, the combination of the cylinder A carrying bars or beaters, and concave segment D pivoted at one end and having the other carried on spring, so as to give a yielding resistance. 2nd. The combination, with a thrashing machine or separator, of an elevator placed on one or both sides, said elevator being composed of an open belt or chain, so as to allow the grain to pass through it, and carrying scoops that raise the same to the outlet and then into the grain receptacles. 3rd. The combination, with a thrashing machine or separator, of a grain carrying cylinder Q for replacing the usually employed carrying belt, and cylinder P R for removing thrashed straw. 4th. The combination, with a thrashing machine or separator, of a carrying belt S.

No. 15,730. Improvements on Combined Drills and Broadcast Sowers. (*Perfectionnements aux semoirs en ligne et à la volée combinés.*)

Thomas Galloway, Oshawa, Ont., 6th November, 1882; for 5 years.

Claim.—1st. In a seeding machine, a scattering board suspended from shaft F carrying the distributor wheels E. 2nd. A scattering-board constructed of folding sections and suspended from the shaft carrying the distributor wheels. 3rd. In combination with a scattering-board constructed of sections hinged together and hung from shaft F carrying distributor wheels E, a locking device to secure the sections in a folded position. 4th. A scattering-board hung from shaft F carrying distributor wheels E and having a locking adjustment, to secure the board at any desired inclination. 5th. A scattering-board constructed in sections, hung from distributor shaft F and hinged to fold forward of said shaft, and opening to form a plane surface and be adjustable to any desired inclination and locked thereat. 6th. The combination of notched handle G, slotted link N, pin P and button Q, with the scattering-board sections hung from distributor shaft F, for locking said sections in a plane, at any desired inclination, by the endwise movement of the handle. 7th. A scattering-board constructed in sections having a folding and locking adjustment, one section provided with brackets F for the attachment of cultivator teeth or seed funnels G. 8th. The scattering-board constructed in sections hinged together and hung from shaft F and having adjustability to a greater or less inclination. 9th. The tube seed scatterer U carried by suspension from distributor shaft F and having a swinging adjustability. 10th. The frame B constructed of rolled angle or T-iron in sections.

No. 15,731. Improvements on Boring Machines. (*Perfectionnements aux machines à forer.*)

Nathan Saunders, Westerley, R.I., U.S., 6th November, 1882; for 5 years.

Claim.—1st. In a boring machine, the clutch *b* on the driving shaft combined with the springs *a* and train of mechanism for shifting the latch. 2nd. The spring *c* and *a*, *c* being stronger than *a*, operating on

the shaft E, combined with the shipper *d* and its operating mechanism, for the purpose of connecting and disconnecting the clutch *b* with or from the pinion *t*. 3rd. The shipper *d*, a bent lever pivoted to the carriage at *a3*, combined with the shaft E, spring *c* and latch *e*, whereby the spring *c* is forced back to allow spring *a* to unlock the pinion *t* from the shaft E, which is accomplished when the horizontal arm *t2* of the lever strikes the projection *u*, as the carriage moves up the frame. 4th. The latch *e* in combination with the shipper *d* and worm *g* for releasing said latch, set-screw *m*, spring *n* and spur *w*, which operate to throw said latch into connection with the worm. 5th. The worm *g* upon the end of the shaft E, combined with the plate *f* of the latch *e* and the train of mechanism connecting the clutch, whereby, after a hole has been bored to any required depth, the number of revolutions necessary to break the auger loose and clear out the chips is determined before the carriage runs up the frame. 6th. The gauge K combined with the flanges *x* and *y*, and grooves *x1* and *y1*, pawl *r1* and spring *z*, whereby the auger is stopped when the hole has been bored to the proper depth.

No. 15,732. Improvements on Decoys. (*Perfectionnements aux appeaux.*)

Charles T. Cochel, Uniontown, Md., U.S., 6th November, 1882; for 5 years.

Claim.—1st. In a decoy set or outfit consisting of a flock of floating, a flock of flying and one or more staff decoys. 2nd. The combination, with a boat, of decoys representing flying birds mounted upon arms or levers operated by treadles, so that the said decoys may be swung together over the boat, thus covering its occupant out of sight. 3rd. The boat A having bell-crank levers C provided with arms F, in combination with decoys representing flying birds attached to said arms F. 4th. The combination, with a flock of flying decoys attached to a boat, of one or more staff decoys representing single birds in advance of said flock. 5th. The flock or set of floating decoys having swivelled or iselyoo connected wires carrying weights moving freely upon said wires and provided with annular grooves, to receive the connecting lines, in combination with the anchor ropes having buoys or floats.

No. 15,733. Improvements in the Process of Manufacturing Carbonic Oxide Gas. (*Perfectionnements dans le procédé de production du gaz oxyde de carbone.*)

William Duffield, London, Ont., 6th November, 1882; for 5 years.

Claim.—The application and use of kiln coke in an incandescent state, for the decomposition of steam into carbonic oxide gas.

No. 15,734. Improvements on Instruction Boards. (*Perfectionnements aux tableaux d'école.*)

Thomas Packer, Thamesville, Ont., 6th November, 1882; for 5 years.

Claim.—1st. An improved sectional instruction board, consisting of two longitudinal grooved bars A connected by transverse stays B, two provided with loops C for suspending the frame, in combination with tablets G secured to cleats F sliding in the grooves of bars A and halved at the back, to cover the face of said bars. 2nd. The tablets G having cleats F sliding in a frame A, constructed of grooved bars A connected by stays B.

No. 15,735. Improvements on Eaves Trough Hangers. (*Perfectionnements aux gâches des gouttières.*)

William F. Stoetzel, Omaha, Neb., U.S., 6th November, 1882; for 6 years.

Claim.—1st. The combination, with the plate *b* arranged transversely across and secured to the eaves-trough, of the hanger A with its split or divided end provided with tongues *a* extended in opposite directions and resting upon and secured to the plate or bridge *b*.

No. 15,736. Improvements in Vehicle Axles. (*Perfectionnements aux essieux des voitures.*)

Alfred E. Smith, of Bronxville, N. Y., U.S., 6th November, 1882; for 5 years.

Claim.—An axle for vehicles constructed with a conical-shaped end and an annular groove, combined with a conical-edged collar or ring, a cap seat having an inner tapering bearing surface conforming with the axle end and collar, and an axle box with a screw-threaded end, to receive the cap nut.

No. 15,737. Improvements in Buggy Seats. (*Perfectionnements aux sièges des voitures.*)

Walton A. Eddy, Randolph, N. Y., U.S., 6th November, 1882; for 5 years.

Claim.—The combination of the bottom pieces B1B1 having their inner edges serrated and perforated for the reception of pins Ca, with the sides A secured to the bottom and to each other by the locking pieces *f*.

No. 15,738. Improvements on Wood Working Machinery. (*Perfectionnements aux machines à travailler les bois.*)

William H. Essery, Toronto, Ont., 6th November, 1882; for 5 years.

Claim.—1st. In a machine in which a feed roller is placed in a table adjustably connected to the main frame carrying the driving gear, the combination, with the spindle of the said roller, of a rod connecting the feed roller to the driving gear on the main frame and provided with a flexible joint or joints, for the purpose of permitting the free

adjustment of the table carrying the roller, without straining the gear for driving the said roller. 2nd. In a machine in which a feed roller is placed in a table adjustably connected to the frame carrying the driving gear, a rod flexibly connected at one end to the spindle of the feed roller, in combination with a sleeve formed to receive the other end of the rod, and connected to the spindles of the driving gear by a flexible joint.

No. 15,739. Improvements on Milk Cans.
(*Perfectionnements aux bidons à lait.*)

William H. Haney, Bellevue, Iowa, U. S., 6th November, 1882; for 5 years.

Claim.—The cylindrical milk can having, in one side, the vertical recess extending about two-thirds the way up from the bottom and having a rounded back and an upwardly inclined top.

No. 15,740. Improvements on Machines for Scouring and Polishing Grain.
(*Perfectionnements aux machines à nettoyer et polir les grains.*)

David M. Richardson, Detroit, Mich., U.S., 6th November, 1882; (Extension of Patent No. 11,930.)

No. 15,741. Improvements on Air Compressors.
(*Perfectionnements aux compresseurs d'air.*)

Benjamin T. Babbitt, New York, N. Y., U. S., 6th November, 1882; (Extension of Patent No. 8118.)

No. 15,742. Washboard Leg Planing and Grooving Machine.
(*Machines à raboter et caneler les pieds des planches à savonner.*)

Valancey E. Fuller, Hamilton, (assignee of Charles T. Brandon, James S. McMurray and Thomas R. Fuller, of Toronto), Ont., 6th November, 1882; (Extension of Patent No. 8075.)

No. 15,743. Improvements in Seeding Machines and Cultivators.
(*Perfectionnements aux semoirs-cultivateurs.*)

Joseph W. Thomas and Abraham R. Ludlow, Springfield, Ohio, U. S., 6th November, 1882; for 5 years.

Claim.—1st. The combination, with a hoe or tooth and a lifting roller or shaft for raising and lowering the same, of a jointed pressure-rod hinged to said shaft and provided with a shouldered or locking joint. 2nd. The combination, with the hoe or tooth, of the rock shaft for raising and lowering the same, a jointed pressure rod interposed between said tooth and rock shaft and having a shouldered or locking joint and a spring arranged to exert its tension to straighten said jointed rod. 3rd. The combination of the hoes or teeth, the lifting roller or shaft for raising and lowering the same, the jointed rods connecting said teeth and shaft hinged to the latter and having shouldered or locking joints and means for locking said shaft, whereby the hoes or teeth may be held locked in working position, while at the same time any one tooth is adapted to rise without disturbing the others or the lifting roller or shaft. 4th. The combination of the hoes or teeth, the lifting roller or shaft for raising and lowering the same, the jointed pressure-rods connecting said teeth and shaft, and having a hinged or pivoted connection with the latter, and a lever geared to said shaft for actuating it. 5th. The combination of the hoes or teeth, a lifting roller or shaft connected therewith by jointed pressure rods and provided with a toothed wheel, a lever geared thereto for actuating it, and means for holding said lever at any desired adjustment. 6th. A jointed pressure-rod for connecting the hoes or teeth, and the rock-shaft adapted to be hinged to the latter and the provided with shouldered or locking joints in combination with the distending springs. 7th. The jointed pressure-rods connecting the hoes or teeth, and the rock-shaft hinged to the latter and provided hoes with shouldered or locking joints, distending springs and slots permitting the hoes or teeth to fall and rise within certain limits, each independently of the others. 8th. The jointed and folding pressure-rods connecting the hoes or teeth and the lifting roller or shaft, and having a pivotal connection with the latter, said jointed rods having slots permitting the independent movement of the teeth, perforations and set-screws or bolts adapting them to hold the teeth at any desired adjustment, and self-locking or shouldered joints, in combination with springs. 9th. The jointed and folding pressure rods connecting the hoes or teeth with the lifting roller, provided with shouldered or self-locking joints, in combination with distending springs and means for holding said joints flexed. 10th. The combination, with the hoes or teeth and adjustable drag-bars for changing said teeth from a straight line or single row, to a zigzag position, and vice versa, of the lifting roller hinged to the latter and provided with self locking joints.

No. 15,744. Improvements on Liquid Drainers.
(*Perfectionnements aux transvaseurs.*)

John C. Harlackner and Simon W. Oyster, of Harrisburgh, Penn., U. S., 6th November, 1882; for 5 years.

Claim.—1st. The vessel A provided with the grooves at top and bottom, in combination with the rigidly attached funnel B. 2nd. The vessel A, in combination with the rigidly attached funnel B and strainer C. 3rd. The sectional strainer rings a provided with cans & b, pins c & d, in combination with a strainer.

No. 15,745. Improvements on Car-Couplings.
(*Perfectionnements aux accouplages des chars.*)

Antoine Benoit, Dunham, Que., 6th November, 1882; for 5 years.

Claim.—1st. In combination with the draw-bar head having the recess in its lower side, the vertical coupling-pin and the vertical sustaining-pin provided with arm b. 2nd. The draw-bar head and its coupling pin, in combination with the rotary bar D provided with the arm b and with an external arm or handle, whereby the arm b may be faced against the coupling link. 3rd. In combination with the draw-bar head having the mouth or opening to receive the coupling link, the transverse vertically movable bar E mounted in the head. 4th. In combination with the draw-bar head having the vertical slots and shoulders, the movable bar E arranged to co-operate with the shoulders.

No. 15,746. Improvements on Car Brakes.
(*Perfectionnements aux freins des chars.*)

Aldis H. Marden, Cambridge, Mass., U. S., 6th November, 1882; for 5 years.

Claim.—1st. An iron or steel brake beam having the body a provided with the flanged edge d and ribbed edge x. 2nd. An iron or steel brake beam having the body a provided with the flanged edge d, ribbed edge x and curved outwardly on the line of strain. 3rd. An iron or steel brake beam, either straight or curved, having the body a, flanged edge d and ribbed edge x, in combination with the heads B B and clamp C. 4th. The beam A provided with the notch c, for securing the same in the head B by means of the key m. 5th. The clamp C provided with the diagonally arranged arms t and with a mortise conforming with, or adapted to receive the rib x, body a and flanged edge d.

No. 15,747. Improvements on Stove Lamps.
(*Perfectionnements aux lampes-fourneaux.*)

Bradford F. Lancaster, Leander J. Crooker and Richard W. Black, of Augusta, Me., U.S., 6th November, 1882; for 5 years.

Claim.—A cooking utensil composed of the tube A with its movable joint A', tank B with its section C C and provided with the vertically adjustable rest F having opening f.

No. 15,748. Improvements on Blind Hinges.
(*Perfectionnements aux pentures des persiennes.*)

Hermann Stubbendorff, (assignee of John L. Roy), of Montreal, Que., 6th November, 1882; for 5 years.

Claim.—1st. In a blind hinge, the combination, with the sleeve and fixed pin, of the channel d formed in projection D, to receive and guide the lug E in opening and closing the blind. 2nd. The projection D in which is formed by upper and lower lips D' D'', a channel d and notch d'. 3rd. The projection D with groove d' formed in upper lip D.

No. 15,749. Improvements on Machines for Converting Motion.
(*Perfectionnements aux machines à convertir le mouvement.*)

William B. Munger, Oberlin, Ohio, U. S., 6th November, 1882; for 5 years.

Claim.—1st. The double rack geared to a single pinion, so as to work simultaneously on opposite sides of it. 2nd. The two cogs at each end of each rack for the purpose of producing lateral motion of the racks. 3rd. The wings or guides automatically adjusted, holding the racks always in gear with the pinion. 4th. The combination of the self adjusting racks, pinion and guides.

No. 15,750. Improvements on Machines for Cooling and Drawing Beer.
(*Perfectionnements aux machines à rafraîchir et tirer la bière.*)

Charles Gordon, Rochester, N. Y., U. S., 6th November, 1882; for 5 years.

Claim.—1st. The combination of the ice box D, supply-pipe B, faucet C and the cold air passage H surrounding the supply-pipe. 2nd. The combination, with the ice box D, of the supply-pipe B and faucet C, provided with the non-conducting jacket J. 3rd. The combination, with the ice box D, supply pipe B and faucet C, of the cold air passage H and the non-conducting jacket E. 4th. The combination of the ice box D, supply-pipe B, faucet C, lower chamber F and the cold air passage H communicating between the ice box and the chamber.

No. 15,751. Improvements on Bottle Stoppers.
(*Perfectionnements aux bouchons et aux ligatures des bouteilles.*)

Augustus E. Rich, of Fall River, Mass., U. S., 7th November, 1882; for 5 years.

Claim.—1st. A bottle stopper-fastening device consisting of a neck band with an outwardly and upwardly projecting latch, in combination with a slotted lever arranged to engage detachably with the ear of a stopper cap, said cap being linked to the neck band, and the lever operating with a downward and inward motion, sliding upon said latch, but not detachable therefrom. 2nd. The metal cap piece with ears a, b, one ear being linked to the neck-band of a bottle, in combination with a flexible valve stopper having an elastic teat. 3rd. In combination, a flexible stopper with upwardly projecting and self-supporting teat formed in one piece, with cap piece having induct through its centre, a means for connecting the cap-piece to the bottle neck, and a neck band having an outwardly and upwardly projecting latch or horn with slotted lever arranged to detachably connect with cap piece and said latch or horn. 4th. In combination with the flexible stopper and cap piece, the link f, neck band e, latch or horn k and slotted lever D having means for detachably engaging the cap piece. 5th. A stopper linked to a neck band of a bottle, in combination with a detachable slotted lever operating on an upwardly and

outwardly projecting latch or horn, the horn being attached to the neck-band. 6th. A neck-band having an upwardly and outwardly projecting latch or horn, in combination with a slotted lever arranged to detachably engage or hook to the stopper and slide upon the horn. 7th. The metal cap piece B in combination with the flexible valve stopper having an elastic teat supported by cross-bars. 8th. A flexible stopper consisting of a rim to fit the mouth of a bottle, and an upwardly projecting teat supported by bars across the bottom, all moulded or formed in one piece. 9th. A valve consisting of an upwardly projecting elastic teat supported by cross-bars, said teat made to fit the hole in the downwardly projecting metal top. 10th. The combination of a flexible stopper having an elastic valve and a supported elastic teat with a metal cap-piece having an aperture. 11th. A flexible stopper consisting of a rim to fit the mouth of a bottle, and an upwardly projecting hollow-valve teat, all moulded or formed in one piece. 12th. The metal cap piece B provided with suitable means for connecting the same with a bottle neck, in combination with a hollow teat flexible valve stopper. 13th. A flexible stopper consisting of a hollow valve teat being supported by sections of cross-bars upon the bottom. 14th. A valve consisting of an upwardly projecting elastic hollow teat, said teat made to fit the hole in a downwardly projecting metal top. 15th. An elastic hollow teat, upwardly projecting and fitting a metal cap piece having an aperture. 16th. A flexible stopper having the parts *z* *y* and *C*, and having the hole *z* provided with a metal top having a downward projection *c* and a tapering induct *d*. 17th. A discharge tube having collar *g*, packing *j* and slits *i*, in combination with a valve stopper.

No. 15,752. Improvement on Saw Handles. (*Perfectionnements aux bras des scies.*)

Carey W. Knapp, Geneva, Ohio, U. S., 7th November, 1882; for 5 years.

Claim.—1st. The arms H I joined to the threaded stem F, in combination with the radial grooved plate and clamp plate. 2nd. In saw handles, the screw stem F extending through the handle provided at one end with a thumb nut, and the other jointed to the arms H I, in combination with a clamping plate on one side and a radial grooved plate on the other. 3rd. The threaded stem F and arms H I, in combination with the thumb nut, radial grooved plate, clamping plate and handle.

No. 15,757. Improvements on Spray Nozzles for Fire-Extinguishers. (*Perfectionnements aux lances-pulvérisateurs des extincteurs d'incendie.*)

Louis C. Desloovere, Salem, Mass., U. S., 7th November, 1882; for 5 years.

Claim.—1st. The improved spray nozzle, the same consisting of the body A, ducts D D D, annular opening C, orifice E, cap G, arms H and springs J.

No. 15,754. Improvements on Packing for Steam Valve Stems. (*Perfectionnements aux garnitures des tiges des soupapes de vapeur.*)

Afram N. Matthews, St. John, N. B., 7th November, 1882; for 5 years.

Claim.—1st. The combination, in a packing for valve stems of the stem A, a detachable thimble D nearly filling the cylinder and abutting against the yoke at end R, and against the riding ring at end P, the latter serving the purpose of the usual follower and the packing rings K E to operate in the cylindrical projection of the steam chest N in the manner described. 2nd. The combination, with the steam chest provided with the cylindrical projection N, of the guide thimble D, one end of which forms the follower, the other end projecting into and beyond the walls of said chest, thereby lessening the resistance of the steam pressure, a riding ring F provided with the usual follower, by which a double recess is formed between said follower and thimble, for the reception of the packing rings and the valve stem and gland. 3rd. The combination, with the steam chest and the cylindrical projection N, of a detachable cylindrical cover or dust cap B, one end fitting with steam tight joint on the cylindrical projection N at C, and the other end slit in several places and provided with a thread and nut enabling the stem to be firmly held from operating as necessity may require, an oil cap on the upper side passing through the cylindrical cover B and a waste or water pipe on the under side of the cylindrical cover. 4th. The combination, in valve stem or piston rod packing, of the working cylinder C, thimble D and the metallic packing. 5th. The combination, in valve stem or piston rod packing, of the cylinder C, thimble D and the metallic packing, said cylinder having on its outer end a screw for the reception of the dust cap, and its inner edge adapted to fit the gland of a stuffing box.

No. 15,755. Improvements in Seeding Machines and Cultivators. (*Perfectionnements aux semoirs-cultivateurs.*)

Joseph W. Thomas, Springfield, Ohio, U. S., 7th November, 1882; for 5 years.

Claim.—1st. In a seeding machine or cultivator, the hoes or teeth in combination with clearers and jointed pressure rods connecting said clearers with a lifting roller. 2nd. The combination, with the hoes or teeth and the devices for adjusting said hoes or teeth from a single line or row to a zigzag position and *vice versa*, of clearers, means for simultaneously adjusting the clearers to conform to such adjustment of the teeth, and jointed pressure rods for holding said clearers down to their work. 3rd. The combination of the hoes or teeth, the clearers arranged to alternate with said teeth, a lifting roller for adjusting said hoes and clearers and independent jointed pressure rods connecting said hoes and clearers with the lifting roller. 4th. The clearers in combination with the lifting roller, jointed pressure rods connecting the clearers with said roller, and means for shifting said clearers from a single line or row to a zigzag position and

vice versa. 5th. The jointed pressure rod connecting the hoe or clearer with the lifting roller provided with the shoulders or locking joint between the parts G and G₁, the part G₁ having a groove or socket for the reception of, and in combination with, the sliding and adjustable extension piece G₂. 6th. The jointed pressure rods composed of the bifurcated and shouldered link G, bifurcated shouldered link G₁ having a socket formed in it, and the sliding extension piece G₂ adjustable in said socket, in combination with the spring I applied to the shouldered joint between the parts G and G₁. 7th. The combination, with the draw-bars, and the hoes or teeth pivoted thereto, of the jointed links composed of the parts K and K₁, bifurcated and shouldered at their adjoining ends and provided with the distending spring I surrounding their connecting pin.

No. 15,756. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

William Y. Allen, Rockland, Mass., U. S., 7th November, 1882; for 5 years.

Claim.—1st. The combination, with the pressure foot having a downwardly projecting guide *g* for the goods, of the cloth plate provided with a recess or slot S into which said guide is adapted to project. 2nd. A presser foot for sewing machines, having a guide *g* for guiding the goods to be sewed, in combination with mechanism to move said presser foot horizontally and laterally relative to the line of sewing as it is, raised and lowered. 3rd. In a presser foot for sewing machines, having a guide *g* for guiding the goods to be served, a stationary plate M with its edge or abutment C, loose and fixed collars I L, spring *f* connecting said collars I L, in combination with the presser bar E and a presser spring J therefor. 4th. The combination, with a presser foot for sewing machines having a guide *g* for guiding the goods to be sewed, of the groove or channel *a'* in and along said guide *g*.

No. 15,757. Improvements in Hoisting Buckets. (*Perfectionnements aux bâches des éleveurs.*)

George W. Calkins, (Co-inventor with John Woodhill,) Cleveland, Ohio, U. S., 8th November, 1882; for 5 years.

Claim.—1st. A hoisting bucket suspended upon pivots located so as to be above the centre of gravity of the empty bucket and below the center of gravity of the loaded bucket, whereby the loaded bucket, when released from its latching devices, will automatically dump and empty itself at either side, and when emptied the bucket will automatically return to and latch itself in an upright position. 2nd. The combination of a pivoted bucket having a notch latch with a bail provided with a recess or slot, and having a spring latch arranged with recess or slot, the devices and combination whereby rapid charging and discharging of the bucket is accomplished. 3rd. The combination, with the body A and bottom D, of the angle iron hoop B. 4th. The combination, with the body A and angle iron hoop B, of the cross bars C C and bottom D.

No. 15,758. Improvements on Fire-Escapes. (*Perfectionnements aux sauteurs d'incendie.*)

William E. Dean and Judson Dean, (Assignees of George W. Smith,) Harlansburg, Penn., U. S., 8th November, 1882; for 5 years.

Claim.—1st. The combination, with the side wall of a house, of a fire escape consisting of a couple of guide-way tubes C, a balcony J fitted to slide on each tube, and a suspending and operating wire rope both of the balconies being attached to and balanced on the rope, said rope being continuous over guide pulleys from one tube to the other at the upper end. 2nd. The combination of a slotted guide-way tube C, balcony J, balancing support I provided with a central web K, and the T-bar F connected to said balcony support. 3rd. The combination of a pair of guide-way tubes C, a supporting and operating rope and slide working in said guide tubes, a pair of balconies sliding on such guide-way tubes and counterbalanced thereon by each other, and a self-acting safety brake L. 4th. A fire escape consisting of a balcony suspended and sliding on a guide way tube C and having a safety brake J, such brake having a cord O connected to it and arranged on the guide R to be worked by said cord from the ground. 5th. A fire-escape consisting of a balcony suspended and sliding on a guide-way tube by a rope G, T-bar F and balcony support I attached to the said bar, the toothed rack S in the tube, and the crank and pinion on the T-bar and balcony support to work the balcony. 6th. The combination, with a building, of a pair of vertical slotted tubes C, the tubular top D connecting the tubes, the guide sheaves or pulleys H, a suitable rope arranged in said tubes for the guide-ways and the suspending and operating device for a fire escape. 7th. A fire escape consisting of balconies balanced at the ends of a suspension rope and sliding on suitable guide-ways, the windlass *a* for connection of the rope and adjustment of the balconies with reference to each other.

No. 15,759. Improvements on Vehicle Wheels (*Perfectionnements aux roues des voitures.*)

John Goble, Ingersoll, Ont., 8th November, 1882; for 10 years.

Claim.—The combination of the steel rim A, wooden hub and malleable iron bands, the steel spokes B with the threads, 18 threads to the inch at the hub end of the said spokes, and 20 threads to the inch where they are screwed into the rim of the wheel.

No. 15,760. Improvements in the Manufacture of Garments. (*Perfectionnements dans la confection des vêtements.*)

Robert H. Anderson, Richmond, Va., U. S., 8th November, 1882; for 5 years.

Claim.—1st. A reinforcing piece for garments, consisting of a seat part having the contracted portion or neck *bz* and the two diverging tongues *bs*. 2nd. A reinforcing piece for drawers or analogous gar-

ments constructed to extend from a point at or below the back slit or opening over the seat and fork to a point on opposite side of the front slit some distance above said fork. 3rd. A reinforcing piece constructed to reinforce the seat of a pair of drawers or other like garment and constitute the facing of the front opening and a portion of the waist band. 4th. The combination with a pair of drawers or other like garment, of the reinforcing piece B. 5th. The combination with the reinforcing piece B of a stiffener, such as cord or piece of fabric rolled into a cord for strengthening the front slit near the fork.

No. 15,761. Improvements in Journal Bearings. (*Perfectionnements aux coussinets des tourillons.*)

Tennis V. LeRoy, Utica, N.Y., U. S., 8th November, 1882; for 5 years.

Claim.—1st. A journal bearing for the axles of cars or other vehicles consisting of a shell A provided with the cavity *a* on the under side, and a series of openings, in combination with lead or other soft metal fillings. 2nd. A journal bearing for car axles consisting of a shell A having a cavity *a*, and a series of diagonal openings *b*, in combination with soft metal filling the cavity and diagonal openings.

No. 15,762. Improvements on Sewing Machines. (*Perfectionnements aux machines à coudre.*)

The Williams Manufacturing Company, Montreal, Que., (Assignee of Eddy T. Thomas, New York, U. S.) 10th November, 1882; for 15 years.

Claim.—1st. The horizontally rotating shaft C and its longitudinally adjustable tapering or conical cam *f*, and cam *g*, combined with the upright lever D₁, the horizontally vibrating lever moved by it, and the feeding device. 2nd. The horizontally rotating shaft C, the hollow cam *f*, its spring and the tapering or conical sleeve cam *g* combined with the feed adjusting or regulating screw *q* fitted into the said shaft. 3rd. The horizontal rotating shaft, the feed adjusting or regulating screw carried thereby, the rib fitted into a slot in the said shaft, and the cam *f* adapted to be moved in one direction by the said screw. 4th. The shaft C, the adjustable tapering or conical cam *f* and cam *g* combined with the upright lever D₂ slotted as described, to both rock and slide on its fulcrum. 5th. The horizontally vibrating shuttle carrying lever combined with the feed-bar moving lever D₁, both arranged to vibrate horizontally about the same stud B₁. 6th. The horizontally vibrating feed actuating lever D₁, the upright lever D₂ connected therewith, shaft C and suitable cams to vibrate the said lever D₂, combined with the horizontally vibrating shuttle carrying lever B, and the stud B₁ arranged to serve as the fulcrum for each of the levers B D₁. 7th. The horizontally vibrating shuttle carrying lever and the lever D, for moving the feeding device, and the stud B₁ common to both, the said levers combined with a conical washer to compensate for wear and the screw. 8th. The feeding device D, the lever D₁ having its forward end extended into the said feeding device, the stud B₁, the loose collar, the point screws and screw *d* combined with a lever D₂ and cam, to both rock the said lever and caused it to be moved longitudinally on its fulcrum. 9th. The feeding device supported near its rear end and provided, near its front end, with an opening combined with the feed actuating lever D₁ provided, at its front end, with the adjustable ball-like termination. 10th. The feeding device and horizontally vibrating lever D₁ and the shaft C and its cams *f*, *g*, combined with the upright lever D₂ and its adjustable shoe *e*. 11th. The main shaft C and its fly-wheel combined with an expansible belt pulley composed of two cones or parts adjustable horizontally with relation to each other and with means to adjust the said cones. 12th. The fly-wheel E, its extended hub, the part *A* of the belt pulley, the opposed part *A* of the belt pulley, the springs and the nut to adjust the parts *A* *A* with relation to each other. 13th. The needle bar actuating shaft C and fly-wheel fast upon it, and the pin or locking device combined with the expansible belt pulley loose with relation to the said fly-wheel and held by the said pin. 14th. The take-up lever pivoted upon the face plate, and the presser bar combined with the rest *p* for the needle thread, between the take-up needle and size of the needle, the said rest being connected and moving vertically with the presser bar, to lower and raise the needle thread with relation to the path of movement of the take up lever, to enable the latter to take up more or less thread, according to variation in the thickness of the material under the presser foot. 15th. The presser foot, its bar and the take-up lever, combined with the thread support connected with, and carried by, and made to rise and fall with the said presser bar, to support the needle thread at a higher or lower level with relation to the cloth plate or bed of the machine, as the presser-foot rides over the material of greater or less thickness. 16th. The presser-bar and its lifting lever *a* combined with the auxiliary lifting lever *m*, and cam to move it at each rotation of the main shaft. 17th. The shaft C, the cam disk thereon, the auxiliary presser-foot lifting lever, its supporting link and means to adjust the same, combined with the lifting lever *a* and the presser-bar. 18th. The foot and its bar, combined with the presser-foot, locking lever or device pivoted upon the presser-bar. 19th. The shuttle provided with the open heel and longitudinal groove combined with the cage fitted to slide in the said groove and having ears to retain the shuttle bobbin in place in the shuttle. 20th. The shuttle shell and its adjustable tension spring provided with the transverse bend, to form an opening for the passage of the shuttle thread under the said spring. 21st. The shuttle shell and its adjustable tension spring provided with the transverse bend or loop *s*, the hook *z* and the prongs *z* *z*. 22nd. The bed *a* and the pivoted horizontally vibrating shuttle lever, and the vertical lever to operate it, and the horizontally vibrating feed actuating lever and its connected vertical lever, combined with the shaft *e* and its cams, to effect the movement of the shuttle and feed.

No. 15,763. Improvements on Pumps. (*Perfectionnements aux pompes.*)

Frederick Ahrens, Big Rapids, Mich., U. S., 10th November, 1882; for 5 years.

Claim.—1st. The double-acting force pump composed of the cylin-

dric barrels A A₁ having valves B B, plungers C C₁ sliding upon the outside of the barrels and provided with pump rods D D₁, pipes G G₁, triangular air chamber F provided with the valves H H₁ seated upon its inclined walls *g g*, and discharge pipe K.

No. 15,764. Improvements on Pumps. (*Perfectionnements aux pompes.*)

John Sanders, Shelburn, Ont., 10th November, 1882; for 5 years.

Claim.—1st. A pump provided with two suction pipes leading into the main delivery pipe, a foot valve placed at the end of each suction pipe, in combination with a cylinder fitting over each suction pipe and having at its bottom end a valve corresponding with the valve on the end of the suction pipe upon which it fits, the said cylinder being connected by suitable rods to the pump handle upon either side of its fulcrum. 2nd. A piston pump operated by a pivoted handle, a stationary cog-wheel placed around the pivotal point of the handle, in combination with a cog-wheel connected to the piston rod and journaled on the short end of the handle so as to mesh with the stationary cog-wheel.

No. 15,765. Improvements on Coffin and Casket Handles. (*Perfectionnements aux poignées des cercueils et des cassettes.*)

The Meriden Britannia Company, (Assignee of William Pothière,) Hamilton, Ont., 10th November, 1882; for 5 years.

Claim.—A coffin or casket handle covered with velvet, cloth or other kindred substance, when the latter is held between the edges of a tube A.

No. 15,766. Improvements in Vehicle Axles. (*Perfectionnements aux essieux des voitures.*)

John B. Armstrong, Guelph, Ont., 10th November, 1882; for 5 years.

Claim.—1st. In an axle bearing in which a joint is formed between the axle box and a collar on the axle, the combination of a bell mouthed extension formed on the free end of the axle box and projecting beyond the collar, for the purpose of protecting the axle-box frame from mud, grit, etc. 2nd. In an axle bearing in which a joint is formed between the axle-box and a collar on the axle, the combination of a bell mouthed extension, formed on the end of the axle box and having the edge of its inner end curved or bevelled outwardly, so as to allow grit, waste oil, etc., to drop off freely from its bottom side. 3rd. In an axle bearing, in which the axle box is fitted closely to the axle, an oil chamber formed in the axle and provided with an upward oil duct G forming a connection between the oil chamber and oil duct and the axle. 4th. In an axle bearing in which a round oil duct connects the oil chamber with an oil duct formed in the axle, the combination of a wick J placed in the round duct. 5th. An open oil duct F formed on top of the axle and extending through the swelled shoulder C to a point near the washer I, where it meets the upward duct G without interfering with the washer.

No. 15,767. Improvements on Rotary Engines. (*Perfectionnements aux machines rotatoires.*)

Alexander C. Gibson and Edmond Armant, Toronto, Ont., 11th November, 1882; for 5 years.

Claim.—1st. A cylinder provided with an inlet and an outlet port and having a segment *e* of its interior, bored out to correspond with the circle of the piston head A journaled within the cylinder, in combination with the wings E extending clear through the piston head A at right angles to each other, and formed with a loop in their centre, in order to permit them to pass the spindle of the piston. 2nd. A rotary engine having a hollow cylindrical piston head A resting on the segment *e* of the cylinder C, which cylinder is provided with an inlet and an outlet port situated respectively at either end of the segment *e*, the wings E passing through the piston head, in combination with the pressure plate *g* fitted into recesses *f* on each side of the wings E and compressed against the sides of the wings. 3rd. A rotary engine having a hollow cylindrical piston head provided with adjustable wings within a cylinder with covers D, the rings H₁ H₂ fitted into recesses formed in the covers D and pressing respectively against the ends of the piston and wings, in combination with the adjusting screws H₁ H₂, for the purpose of adjusting the pressure of the said rings against the end of the piston head and wings. 4th. In a rotary engine having a hollow cylindrical piston head provided with adjustable wings and revolving within a cylinder, the hole *h* connecting the interior of the piston head provided with the recess *f* behind each gib *g*, in combination with the holes K, each hole being provided with a stop or check valve *l*. 5th. In a rotary engine having a hollow cylindrical piston head provided with adjustable wings and revolving within a cylinder provided with an inlet and outlet port, the combination of a groove or channel *d* leading from one side of the inlet port F in order that the steam may find its way into the space between the wing approaching the outlet port and the wing just passing the inlet port. 6th. In a rotary engine having a hollow cylindrical piston head provided with adjustable wings and revolving within a cylinder provided with an inlet and an outlet port, the combination of a groove or channel *n* extending from the side of the outlet port G to the interior surface of the segment *e*.

No. 15,768. Improvements on Hay Elevators. (*Perfectionnements aux monte-foin.*)

William H. Wortman, London, Ont., (Assignee of Frank Ward, Rockford, Ill., U.S., and John Morrow, London, Ont.) 11th November, 1882; (Extension of Patent No. 8090).

No. 15,769. A Chain Straw Carrier for Thrashing Machines. (*Toile sans fin des machines à battre.*)

Anthony Kline, Bond Head, Ont., 11th November, 1882; (Extension of Patent No. 1805.)

No. 15,770. Improvements in Lifting Jacks.*(Perfectionnements aux crics.)*

Hiram R. Terris, Cleveland, Ohio, U. S., 11th November, 1882; for 5 years.

Claim.—1st. The combination, with a lifting shaft provided with ratchet teeth on opposite sides thereof, of grasping devices located on each side of the lifting shaft and adapted to automatically engage the teeth thereon, an actuating lever and devices connecting the lever and grasping devices. 2nd. The combination of a shaft B having a screw-thread and a supporting nut F, with a head D, said head having a grasping device adapted to engage with the said screw-thread and being operated by means of a lever H. 3rd. The head D, said head having the inclines *a b c d* and the jaws E B, said jaws being also provided with inclines adapted to rest on the incline *a b c d*. 4th. The combination, with a lifting shaft provided with teeth on its opposite sides, of two grasping devices located on each side of the lifting shaft, the locking device I and lever J.

No. 15,771. Improvements in the Method of Treating Fibrous Vegetable Substance.*(Perfectionnements dans le traitement des substances végétales fibreuses.)*

Carl D. Ekman, London, Eng., 11th November, 1882; for 15 years.

Claim.—The method of treating fibrous vegetable plants, for wholly or partially resolving their fibrous constituents, which consists in boiling such substances under pressure in a solution containing sulphurous acid and magnesia, or other alkaline equivalent having the properties of magnesia.

No. 15,772. Improvements in Cant-Hooks.*(Perfectionnements aux renards.)*

Albert Sanford, Oshkosh, Wis., U.S., 11th November, 1882; for 5 years.

Claim.—1st. The combination of a divided ferrule having internal projecting ribs, with a nut and bolt for drawing the parts of the ferrule together and causing its ribs to embed in the wood of the staff. 2nd. The ferrule having the longitudinal ribs *g g* at its lower end, the shorter ribs *h h* opposite the hook supporting lugs, and the internal rib *i* extending around the ferrule below the ribs *h h*.

No. 15,773. Improvements on Attrition Mills.*(Perfectionnements aux moulins à broyer.)*

Thomas F. Rowland, Brooklyn, N.Y., (Assignee of Henry A. Duc, jr., Charleston, S.C.) U.S., 11th November, 1882; for 5 years.

Claim.—1st. As an improvement in the process of grinding, the method of withdrawing the reduced material from the mill by a current of air, depositing out of said air the material carried in suspension in it, and returning said air to the mill so that said air flows in a continuous closed circuit from the mill and back to the same. 2nd. The combination, with an attrition mill, of a closed air circuit for withdrawing the air and reduced material from the mill, a blower or exhauster connected with said circuit, and a return pipe from said blower into the mill. 3rd. The combination, with an attrition mill, of a closed air circuit for withdrawing the air and reduced material from the mill, a blower or exhauster connected with said circuit and a return pipe from said blower into the mill, and a pervious bag of fibrous material or its equivalent, for preventing excess of pressure in the pipe leading to the mill. 4th. In an attrition mill provided with a plough or bar which may be continually fed into the mill, for the purpose of compensating for any wear which may occur at the end of said bar. 5th. The combination of a rotating shell open at one side, at or about its axis of rotation, and a slide adapted to enter the rotating shell through said opening and supporting a plough. 6th. The combination of an oblate rotating shell with a curved plough bar adapted to be fed into said shell. 7th. The combination of an attrition mill and a selecting chamber connected therewith, and apparatus allowing the withdrawal of the exhaust channel and plough bar from the mill.

No. 15,774. Improvements on Electric Lamps.*(Perfectionnements aux lampes électriques.)*

James Fyfe, London, Eng., 11th November, 1882; for 5 years.

Claim.—1st. An electric lamp, in which a carbon pencil pressed towards a carbon block is restrained by clamp, which is released by the action of an electro-magnet, in a by-pass circuit. 2nd. An electric lamp, wherein the distance of the carbon is automatically regulated by the action of two solenoid coils upon an iron core having its mass lessened towards its extremities. 3rd. The construction and arrangement of the horizontal carbon lamps. 4th. The construction and arrangement of vertical carbon lamps.

No. 15,775. Improvements on Processes for Tanning Hides.*(Perfectionnements aux procédés de tannage des peaux.)*

William Harris, Forest, Me., U. S., 11th November, 1882; for 15 years.

Claim.—1st. The improvement in the art of manufacturing leather consisting in, first, submitting the hides to any ordinary tanning process and, after they have been drenched, passing them through and between pressure rollers having hard or unyielding surfaces. 2nd. The improvement in the art of manufacturing leather consisting in, first, submitting the hides to any ordinary tanning process and, after they have been tanned and drenched, passing them through and between heated or warmed pressure rollers having hard or unyielding surfaces.

No. 15,776. Improvements on Steering Wheels.*(Perfectionnements aux roues des gouvernails.)*

Stephen B. Greacen, Perth Amboy, N. J., U.S., 11th November, 1882; for 5 years.

Claim.—1st. In combination with a steering wheel D of a hand steering apparatus, a friction becket or lock connected with a hand wheel and uniting screw, and adapted by the turning of said hand wheel to form a locking contact with the friction plate C, the screw F turning in the square hub G and forcing the wheel D sliding on the hub against the plate C. 2nd. In combination with the shaft A having the square hub or boss G and carrying the friction plate C, the steering wheel D having in its inner face a square hole H, adapting it, by the movement of the hand wheel E, to slide upon the square hub G. 3rd. In combination with the shaft A having the square hub and convex friction plate C, the concave face of the steering wheel D adapted, by the movement of the hand wheel E, to form a locking connection with the plate C. 4th. In combination with the shaft A, plate C and steering wheel D, the hand steering wheel E provided with the screw F.

No. 15,777. Improvements on Water Traps.*(Perfectionnements aux soupapes hydrauliques.)*

William J. English and William Wood, Cohoes, N.Y., U.S., 11th November, 1882; for 5 years.

Claim.—1st. A water trap consisting of three substantially parallel limbs *a b c* connected by two bends *d e*, the mouth of the limb *a* and the discharge opening of the limb *c* being in line with each other, whereby the trap can be turned at any angle in a vertical plane and a deep seal still be preserved. 2nd. A water trap consisting of the three parallel limbs *a b c*, the limb *b* being interposed between the limbs *a c* and formed with a laterally projecting side enlargement or channel *h*. 3rd. The combination of three communicating limbs *a b c*, chamber *k*, lineable termination of inlet and discharge limbs *a b*, screw covered opening *l* on suitable neck, and vent *o* made or cast in one piece with limb *c*. 4th. The combination, with the bend *d*, of the neck *h* having opening closed with screw cover *d₂*, and suitable packing ring *d₃*. 5th. The combination, with the discharge limb *c*, of a vent pipe *e* made or cast in one piece with the said limb and forming a continuation of the same.

No. 15,778. Horse Rake.*(Râteau à cheval.)*

German M. Cossitt and Newton Cossitt, Brockville, Ont., (assignees of Charles M. Titus, of Ithaca, N.Y., U.S.) 13th November, 1882; (Extension of Patent No. 1790.)

No. 15,779. Improvements on Hydro-Carbon Furnaces.*(Perfectionnements aux foyers à hydro-carbures.)*

James Mundell, William J. Gordon and John Mundell, of Philadelphia, Penn., U.S., 13th November, 1882; for 15 years.

Claim.—1st. The combination, with a vapourizing apparatus and the fire-box, of wall openings and inwardly projecting adjustable shutters or plates. 2nd. The combination, in a hydro-carbon furnace of a vapourizing apparatus, a fire box having wall openings and inwardly projecting shutters or plates, with means whereby said shutters or plates are adjusted in relation to each other and held in position when set. 3rd. The combination of a vapourizing apparatus, a fire-box having wall openings and inwardly projecting shutters or plates with the pintle rods and the clamps therefor. 4th. In combination, the combustion chamber provided with narrow horizontal openings in its opposite walls, hinged plates or shutters for said openings and end doors, the boiler, the pipes *h e* connected with tying ejectors thereof, the pipes *j d*, the coupling *i* and the spraying ejectors carried by said couplings. 5th. The combination, with the wall openings C provided with shutters or plates adapted to be closed, a vapourizing apparatus and the grate of the furnace, of a removable bed-plate F, whereby the furnace may be converted for the burning of ordinary carbonaceous fuel. 6th. The combination, with the wall openings C provided with shutters or plates D adapted to be arranged upon the grate or further from each other, of a bed plate arranged upon the grate bottom of the furnace. 7th. The combination, with the wall openings C and their inwardly projecting shutters or plates D D, of a bed plate F and their inwardly projecting shutters or plates, having their orifices at or near the same point, one within the other, in combination with the fire box having wall openings and the adjustable spray directing plates or shutters. 10th. A hydro-carbon furnace provided with a grate and a removable grate closing plate or bottom, in combination with a vapourizing apparatus. 11th. The combination in a hydro-carbon furnace, of a combustion chamber provided with narrow horizontal openings in its opposite walls and end doors, with an abutment arranged upon the grate and having its opposite sides concave, the vapourizing ejectors and the hinged plates. 12th. The fire-box of a hydro-carbon furnace for steam boilers having opposite wall openings, a centrally arranged abutment and plates or shutters for said wall openings, in combination with one or more steam spraying orifices connected with the dome of said boiler, and one or more oil ejectors connected with the same supply and arranged in relation to the steam spraying orifice or orifices.

No. 15,780. Improvement on Rock Drills.*(Perfectionnement des forets de mine.)*

John E. Booth, Bangor, Me., U.S., 13th November, 1882; for 5 years.

Claim.—1st. The combination, with the threaded drill-bar H, the threaded sleeve H₁ provided with the collar A₁, the spring *f* and the cam *c*, of the chambered tappet F provided with the ratchet *g* and the adjustable spring actuated pawl J. 2nd. The combination, with the drill-head E provided with the ratchet *g*, of the adjustable spring-ac-

tuated pawl J. 3rd. The combination, with the cam c, drill-bar H, the sleeve H' provided with the collar h', and the tappet F, of the ratchet g and the adjustable spring actuated pawl J. 4th. The combination, with the drill bar H and the bracket or shoulder a', of the ratchet k and spring pawl l. 5th. The combination, with the ratchet k and its engaging pawl l, of the disk c', having the segmental slots f' and pins or screws g' working therein, and spring mechanism bearing on said pins. 6th. The combination of the drill-bar, the ratchet wheel having the bar working through its centre and provided with a circular recess b', the pawls l', the disk c' having a central opening, adapted to the cross section shape of the drill-bar and provided with the segmental slots, the pins or screws g' working in the latter, and the elastic or spring mechanism bearing against the pins. 7th. The threaded sleeve H' and the threaded drill-bar H, in combination with the cams C, pawl J, ratchet g and the cogged wheel I, bent pawl S and movable collar N. 8th. The cogged wheel I and the bent pawl S, in combination with the movable bevelled collar N upon the sleeve H. 9th. The combination, with the threaded sleeve H' provided with the kerf e and the bevelled wheel C' provided with the feather c, of the bevel-wheel K, the crank shaft L, the sleeve L', and the set screw t, whereby the sleeve is adapted to be prevented from turning. 10th. The combination, with the shaft B, the wheels D adapted to turn upon the said shaft, and the body M provided with slots q, of the adjustable legs Q. 11th. The combination, with the bar A and the body M, of the slotted curved arm T and set-screw t.

No. 15,781. Improvements on Washing Machines. (*Perfectionnements aux machines à laver.*)

Russell S. Morse, of East Dixfield, Me., U. S., 13th November, 1882; for 5 years.

Claim.—1st. The combination of the metallic flanged and toothed shoe, with the tub, the stationary spindle, the reciprocating dasher and the series of radial bars. 2nd. In combination with the tub, the stationary spindle and the series of radial bars of the bottom of the tub, the metallic flanged and toothed shoe fixed to, and resting on the said bottom and having its flange extended between such bottom, and the series of radial bars fastened thereto and disposed at their inner ends between the teeth of the shoe.

No. 15,782. Improvements on Methods of Preserving Eggs. (*Perfectionnements aux méthodes de conservation des œufs.*)

Amos M. Bailey, of Marlborough, Alansom B. Williams and Christopher G. Williams, of Cleveland, Ohio, U. S., 13th November, 1882; for 5 years.

Claim.—The process for the preservation of eggs consisting of the following steps: first, heating the eggs and the substance in which they are to be packed to a blood heat; second, packing the eggs in the substance in a close container; third, hermetically sealing the container; fourth, immersing the container with its contents, in a hot bath; fifth, venting the container; sixth, closing the vent.

No. 15,783. Improvements on Type Writing Machines. (*Perfectionnements des machines à écrire en caractères d'imprimerie.*)

Albert G. Shannon, Santa Rosa, Cal., U. S., 16th November, 1882; for 5 years.

Claim.—1st. A type consisting of a body provided on its face with a series of puncturing points representing a letter or character, said type being movable and adapted to fit into a recess in the operating arm of a type-writer, whereby paper may be punctured with said letter or character. 2nd. A puncturing type in combination with the operating arm of a type writer, said arm being provided with a recess adapted to receive the rear end of said type, and provided also with a set screw, which works in a side threaded opening and engages the side of said type, thereby firmly securing it in the arm. 3rd. In a type writer, the combination of the following elements: arm D having recess G, opening F, set screw E and type A provided with puncturing points B. 4th. The method of producing printed impressions in duplicate, consisting in impressing upon paper, types in succession, each of which has a surface of points, so as to perforate the paper and then forcing ink through the perforations upon the sheet to be printed.

No. 15,784. Improvements on Root-Cutters. (*Perfectionnements aux coupes-racines.*)

Herbert W. Fleury, Aurora, (assignee of Richard Field, of King,) Ont., 13th November, 1882; for 5 years.

Claim.—In a root-cutter in which a cone cylinder revolves within a hopper, the pulper knives D fastened to the said cone cylinder, in combination with the slicer knives E also fastened to the cone cylinder, but set so that their cutting edge points in an opposite direction to that of the knives D.

No. 15,785. Improvements in Boots and Shoes. (*Perfectionnements dans les chaussures.*)

Jean L. Pelletier, Montreal, Que., 17th November, 1882; (Extension of Patent No. 8119.)

No. 15,786. Improvements in Car-Couplings. (*Perfectionnements aux accouplages des chars.*)

Francis M. Hazleton, Duncan's Mills, Cal., U. S., 17th November, 1882; for 5 years.

Claim.—1st. The combination, with the draw-head A provided with the recess a, the coupling pin E and the link M, of the sliding block B provided with the downwardly projecting lug b and a rear-

wardly projecting stem b, the spring c surrounding the said stem and the plate or abutment d contained in the said recess, whereby the link pin is supported when uncoupled and prevented from jolting out of place when coupled. 2nd. The combination, with the draw-head A and the coupling link m, of the spring actuated sliding block B provided with the downwardly projecting lug b', and the side springs L provided with the projections l.

No. 15,787. Improvements in Sewing Machines. (*Perfectionnements dans les machines à coudre.*)

Edward Stern, Boston, Mass., U. S., 17th November, 1882; for 5 years.

Claim.—1st. A hemmer composed of two overlapping flat plates of metal, longitudinally adjustable with respect to each and containing coinciding slots for reception of a common clamp-screw, by which they are secured to a sewing machine, the upper-plate being formed with the ordinary lips in roll for turning the edge of the material. 2nd. The lower plate of the hemmer bevelled upon the edge adjacent to the roll or lip of the upper plate. 3rd. The lower plate of the hemmer with its corner nearest the outlet of the hemmer cut away, to prevent fulling or gathering of the material. 4th. In combination, the plates C D adapted to be secured in place by a screw passing through them, and with the lower plate C formed with a bevelled edge b and the oblique corner d.

No. 15,788. Improvement in Farm Fences. (*Perfectionnement des clôtures de champ.*)

Charles Laufer and Charles H. Zimmer, Lee, N. Y., U. S., 17th November, 1882; for 5 years.

Claim.—The fence consisting in the combination and arrangement, with the posts A, of the rails B arranged at opposite sides of the post and in line with the rails of the adjacent panel, and secured to the post independently of the attachment of the rails of the adjacent panel by a separate wire a, wound completely around each rail and hung on the pins c driven in the side of the post facing the end of the rails.

No. 15,789. Improvements on Thill Couplings. (*Perfectionnements aux joints des limonnières.*)

Charles L. Ferguson, Toronto, Ont., 17th November, 1882; for 5 years.

Claim.—1st. In a thill coupling in which the end of the thill is journalled on a bolt passing through the thill socket, the combination of a hooked finger former on the head of the thill bolt, so that, when the bolt is pressed home, it will fit over the edge of one side of the socket for the purpose of holding the bolt in position. 2nd. In a thill coupling in which the end of the thill is journalled on a bolt passing through the thill socket, a hooked finger formed on the head of the thill bolt, so that, when the bolt is pressed home, the hooked end of the finger will fit over one side of the socket, in combination with a plate pivoted on the side of the bolt head, opposite to that upon which the finger is formed and operated. 3rd. In a thill coupling in which the end of the thill is journalled on a bolt passing through the thill socket, a hooked finger formed on the head of the thill bolt so that, when the bolt is pressed home, the hooked end of the finger will fit over one side of the socket, in combination with a spring plate pivoted on the side of the bolt head opposite to that upon which the finger is formed and provided with a lip arranged to spring over the edge of the socket, to prevent the plate turning upon its pivot.

No. 15,790. Improvement in Combined Rein and Whip-Holders. (*Perfectionnement des porte-guides et porte-fouets combinés.*)

Frank C. Ayer, Columbus, Ohio, U. S., 17th November, 1882; for 5 years.

Claim.—1st. The mode of securing the lock socket by metal bands, or otherwise attaching same to lugs on post C forming of the socket a bearing surface for the reins in conjunction with spring B. 2nd. The washer F, the claws G and the continuous spring B forming a part of the rein and whip-holder and operating the lock. 3rd. The rein and whip holding device consisting of a post C having lugs D and flanges C', the lock socket with clamping claws. 4th. The combination of the post, the whip and rein holding spring and the lock socket constructed and applied to connect the rein holder, the whip and lock socket to the dash frame. 5th. As a new article of manufacture, a whip-holder including provisions by which it is attached to, and forms a part of the rein-holder. 6th. As a new article of manufacture, a lock socket including provisions by which it is attached to, and forms a part of the rein-holder and whip-holder.

No. 15,791. Improvements in the Process for Lining Car Axle Boxes. (*Perfectionnements dans le procédé pour doubler les boîtes à graisse des essieux des chars.*)

Isaac Joseph, Toronto, Ont., 17th November, 1882; for 5 years.

Claim.—The process for lining car-axle boxes in which a lining of sheet lead, after being formed into shape under pressure, has its back surface roughened by the action of a steel brush and then covered, when hot, with a thin coating of solder, the said lining, when thus prepared, being placed in position in the axle box and submitted to pressure, the said axle box having been previously heated and coated with solder.

No. 15,792. Improvement on Steam Boilers. (*Perfectionnement des chaudières à vapeur.*)

The Babcock and Wilcox Company, New York, (assignee of George H. Babcock, Plainfield, N. J., Stephen Wilcox, Nathaniel W. Pratt, Brooklyn, N. Y., and Edwin H. Bennett, Bayonne, N. J.), U. S., 17th November, 1882; for 15 years.

Claim.—1st. A steam boiler having tubes C extending through the furnace and front and back connections therefor, the construction of such connection in two sheets D1 D2 strongly stayed across. 2nd. In a steam boiler having tubes C and connections therefor made in separate sheets D1 D2, the malleable cast-iron M expanded in, and adapted to form an easily finished face for steam-tight contact with the cover N. 3rd. In combination with the plates D1 D2 and tubes C, the malleable casting M M1 M2 expanded into both the sheets and strongly braced across the space adapted to serve for the purposes specified.

No. 15,793. Improvement on Steam Boilers.
(*Perfectionnement des chaudières à vapeur.*)

The Babcock and Wilcox Company, New York, (assignee of George H. Babcock, Plainfield, N.J., Stephen Wilcox and Nathaniel W. Pratt, Brooklyn, N.Y.,) U.S., 17th November, 1882; for 5 years.

Claim.—1st. In a steam boiler, the barrel having a cylindrical horizontal portion A and a tapered end A', in combination with a furnace at a lower level, and with pipes C and connections B D or their equivalents. 2nd. The barrel A A', dome A' and stays A3. 3rd. The sectional water legs E in combination with the barrel A A' and connections, for insuring an efficient circulation of water. 4th. The water bridge G and suitable connections for supplying dense water thereto, in combination with inclined pipes C communicating therewith and with connections B D to a suitable barrel A A'. 5th. The hanging-bridge H and thimbles *es es*, in combination with the barrel A A', tubes C and connections B D. 6th. In a steam boiler having tubes C extending through the furnace, the blow-pipe J having nozzles J2 and a controlling cock J1 arranged to direct strong blasts of steam through the spaces between the pipes C when required.

No. 15,794. Improvements on Flax Threshing Machines. (*Perfectionnements aux machines à battre le lin.*)

Lenard W. Robards, Newton, Ill., U. S., 17th November, 1882; for 5 years.

Claim.—1st. The combination of primary and secondary crushing rollers having elastic surfaces, with the adjustable pressure bars M, endless apron E, stripper and shaker D, and the drawing mechanism. 2nd. The combination of two sets of rollers formed with yielding surfaces, pressure bars M, stripper D, apron E, guide-board G, riddle G provided with teeth F, conveyor I, fan H, elevator J, platform K and the driving mechanism operating to separate the seed from the straw while moving. 3rd. The shaker and stripper D formed of diamond-shaped plates or metal arranged and secured across each other, in combination with the elastic rollers and driving machinery. 4th. The combination and arrangement of the two sets of adjustable flexible rollers, perforated apron extending from one set of rollers to the other, the stripper and shaker D, guide-board fan H and riddle G provided with outwardly inclined teeth F and its outer end.

No. 15,795. Improvement in Hay Racks.
(*Perfectionnement des râteliers à foin.*)

Albert G. Barton, Constantine, and Jacob H. Hahn, Detroit, Mich., U. S., 17th November, 1882; for 5 years.

Claim.—1st. The combination of spread rails A A, bolster plates D D and the connecting rails B B. 2nd. The combination of the side rails F F1, end cross rails H G, supporting cross braces N N1 N2, raisers L and cross-rails H1 R P.

No. 15,796. Improvements on Car Brakes.
(*Perfectionnements aux freins des chars.*)

William B. Guernsey, Norwich, N. Y., U. S., 17th November, 1882; for 5 years.

Claim.—1st. The combination of a double acting draw-bar brake and a reversal governor actuated by brake-shoes having permissible arcs of movement around their respective wheel axles, and causing the draw-bar to apply the braking pressure by a reverse movement, whether the cars are moving forward or backward. 2nd. The combination of the double acting draw-bar 2, transmitting lever 1, governing lever 5, secondary lever 8, pawl or dog 23, brake beams 15 16, shoes 17 18, and balancing arms and rods 19 20 21 22 23 24. 3rd. The combination, with a draw-bar brake, of a governor having brake bars and shoes adapted to be carried around with wheels through limited arcs, for the purpose of determining the direction of motion of the draw-bar, by which the braking pressure shall be applied, and provided with one or more springs or weights tending to keep the said brake shoes on one, or the other side of their centre of permitted motion. 4th. The combination of the draw-bar 2, levers 1 and 5, connecting rods or chains 6 7, dog 23, and pivoted arm 26 connecting said dog with the brake beam attachment, whereby the movement of the dog 23, out of engagement with the lever 5 caused by reversal or direction of wheel friction, shall be accompanied by a pull on the said lever, moving it out of re-engagement with the dog on the same side. 5th. A double acting draw-bar brake, in combination with a reversal governor, actuated by friction on the tread of the wheels and determining, by reversal of the rotation of the wheels, the direction of strain on draw-bar, which shall apply the braking pressure. 6th. In a double acting draw-bar brake, the combination of a transmitting lever and a reversing device governed by a change in wheel rotation, whereby an inward thrust of the draw-bar when the car is moving forward, or a pull on the draw-bar when the car is moving backward, is caused to actuate said transmitting lever in one and the same direction. 7th. The combination, with the transmitting lever 8 and the governing lever 5, of a dog or pawl 23 and reversing device acting to throw said dog or pawl out of its normal position and restore it thereto. 8th. The combination of a main or transmitting lever, a governing lever, a pawl or dog for controlling the latter, and an actuating lever pivoted to the dog in line with the fulcrum of the main lever, so that the movement of the main lever may not affect the position of the pawl or dog relatively thereto. 9th. The combination, with a draw-bar brake of an escapement controlling and determining the action of the draw-bar on the brakes, when such escapement is operated automatically and by each change in direction of wheel rotation.

No. 15,797. Improvements in the Method of, and Apparatus for Extracting Gold and Silver from their Ores by the Combined Action of Electricity and Mercury. (*Perfectionnements dans la méthode et les appareils pour extraire l'or et l'argent de leurs minerais par l'action combinée de l'électricité et du mercure.*)

Richard Barker, London, Eng, 21st November, 1882; for 5 years

Claim.—1st. The method of extracting gold and silver from their ores by the combined action of electricity and mercury. 2nd. The construction, or use of apparatus for the purpose of extracting gold and silver from their ores. 3rd. The combination of the riffles with the various mechanical and electrical appliances. 4th. The construction or use of revolving electrodes (anodes.)

No. 15,798. Improvements in the Method of, and Machines for Mining Coal,
(*Perfectionnements dans la méthode et les machines pour extraire le charbon.*)

John Du Bois, Du Bois, Penn., U.S., 21st November, 1882; for 5 years.

Claim.—1st. The method of undermining coal consisting in, first, boring a hole to the full depth, and subsequently extending a channel laterally from said hole by a succession of rectilinear cuts. 2nd. As an improvement in the art of undermining coal, first, sinking a hole to the depth to which it is to be undermined, and afterward extending a channel from said hole by a succession of straight cuts in lines parallel or substantially parallel therewith. 3rd. The improvement in the art of mining coal consisting in, first, boring a hole into the face of the coal, and subsequently extending a channel laterally therefrom by a succession of cuts in line therewith, the first cut being adjacent to the hole and the others progressing successively therefrom, as the channel is advanced. 4th. In a manual tool for mining coal, the combination of a guide, a reciprocating chisel and a ram for operating the chisel. 5th. The combination of a guide, a sliding chisel, a sliding ram and a handle for operating the ram extending backward therefrom. 6th. The combination, in a hand coal mining machine, of an adjustable guide, a sliding chisel adapted for projection beyond the guide, a weight at the rear of the chisel and a handle, or equivalent device for operating the chisel. 7th. The combination, in a hand mining machine, of a sliding chisel, a sliding ram, a device connecting said parts, but permitting a limited independent motion, and an operating handle. 8th. In combination with the sliding chisel and ram, the connecting device adapted to engage automatically. 9th. In a hand machine for mining coal, the combination of a sliding chisel, a sliding ram and a connecting device which permits the ram to recede from the chisel before acting to withdraw the same, whereby the chisel is jarred, or driven out of the coal. 10th. The combination of the guide, the chisel, the ram and its handle, and the spring hook or catch. 11th. The combination of the guide, the ram and the supporting wheel recessed within the ram. 12th. In combination with the reciprocating chisel, the folding clearer attached thereto. 13th. The combination of the guide, the ram, the chisel and readily detachable connection between the guide and chisel.

No. 15,799. Improvements in Carriage Springs. (*Perfectionnements dans les ressorts des voitures.*)

August J. L. Jantz, Berlin, Ont., 21st November, 1882; for 5 years.

Claim.—The combination of the close coiled wire springs B B and the body bearer A.

No. 15,800. Improvements on Boats and Methods for constructing the Same. (*Perfectionnements aux bateaux et aux modes de les construire.*)

Edward G. Durant, Racine, Wis., U. S., 21st November, 1882; for 5 years.

Claim.—1st. As a new article of manufacture, a wooden boat having its hull or skin composed of uncut unbroken sheets, pressed and set firmly in form, each sheet composed of two or more veneers cemented together with their grain diversified. 2nd. The boat consisting of two longitudinal halves, both joined to the keelson and each joined to a gunwale stripe, said halves being each composed of two or more veneers cemented permanently together and moulded without being cut or incised, into the required form. 3rd. As a new article, a half hull for the boat composed of two or more veneers glued or connected together, and bent and set so as to remain without being held in the proper form for use. 4th. The method of constructing hulls, or part of hulls, consisting in placing two or more wooden veneers with diversified grain one upon another, coating the adjacent surfaces with adhesive material and subjecting them, before the material sets or hardens, to the action of dies of the shape of the boat, whereby the individual veneers are bent, set and united one to another in such manner as to produce a strong and elastic body. 5th. The method of constructing boats, or sections of boats, of laminated material, consisting in coating the laminae with adhesive material, placing them one upon another and subjecting them to immediate and long continued pressure between shaping dies. 6th. The method of preventing the rupture of veneer sheets in pressing the same, in curved moulds, consisting in applying narrow strips of fibrous material thereto transversely of the grain. 7th. A boat having its hull composed of laminae of wood and narrow intermediate strips of fibrous material. 8th. The combination of the laminated hull having the rabbeted gunwale and the covering strip, or bead. 9th. The combination, with the hull having the smooth, interior removable self-sustaining gratings. 10th. A veneer boat constructed as described.

No. 15,801. Improvements on Bee Hives.*(Perfectionnements aux ruches.)*

Hesekiah Bailey, (assignee of Martin Van Ensley,) Willamina, Oregon, U. S., 21st November, 1882; for 5 years.

Claim.—1st. The passages *f g* leading from the upper surplus honey chamber *H* to the lower part of the rear side of the hive, and provided with gates *h* at their lower ends, whereby the bees can escape from the said chamber, when the inlet passages are closed. 2nd. The passages *W X* leading from the front surplus honey chamber *B*, along the floor *I* covered with wire gauze, and provided at their outer ends with closing buttons *Y*, whereby the bees can escape from the said chamber when the inlet passages are closed, and air can be admitted to ventilate the hive. 3rd. The comb frame crates *T* made with an unobstructed aperture in their inner end for the passage of bees, and a gauze covered aperture in their outer ends for the passage of air. 4th. The combination, with the separable parts *A₁ A₂* of the front of the hive, of the stationary cleat *D* and the wed key *C*, whereby the said parts are locked together and in place.

No. 15,802. Improvements on Telephones.*(Perfectionnements aux téléphones.)*

Cyrus V. Stafford and Robert R. Rae, Acton, Ont., 21st November, 1882; for 5 years.

Claim.—1st. In an acoustic telephone, a metallic diaphragm in combination with a lead, or soft metal ring placed between the diaphragm and the diaphragm-holder, in which it is secured. 2nd. A metallic diaphragm, in combination with a metallic vibrator having a lead, or soft metal ring placed between it and the diaphragm. 3rd. A metallic diaphragm having a lead, or soft metal ring placed between it and the diaphragm-holder, in combination with a metallic vibrator having a lead, or soft metal ring placed between it and the diaphragm. 4th. A diaphragm-holder hinged to a plate having a slotted passage way for the bolt employed to receive it in position, in combination with an adjustable nut placed between the diaphragm-holder and wall, or partition it is fastened to.

No. 15,803. Improvements on Brushes.*(Perfectionnements dans les pinceaux.)*

James F. Bartlett, Cleveland, Ohio, U. S., 21st November, 1882; for 5 years.

Claim.—The combination and arrangement of the socket *A* having opening *C*, the wedge or shell *D* in which a nut *F* is soldered or otherwise secured, spaces *a* being left between the sides of the nut and said shell, and the handle *G* having screw *H*.

No. 15,804. Improvements in the Manufacture of Coke. *(Perfectionnements dans la fabrication du coke.)*

John Jameson, Newcastle-on-Tyne, Eng., 21st November, 1882; for 5 years.

Claim.—1st. The manufacture of coke by the extraction, at an early stage of the process, of part of the gaseous products of coal. 2nd. The manufacture of coke by the supply of hydro-carbon gas, or vapour or fluid, at a later stage of the manufacture.

No. 15,805. Improvement on Car Brakes.*(Perfectionnement des frein des chars.)*

James K. Sremain, Milwaukee, Wis., U. S., 21st November, 1882; for 5 years.

Claim.—1st. The combination of a spring, or springs, interposed between the brake-rod or lever and the brake-shoes, with a stop, or stops. 2nd. The stop, or stops *H* projecting from the centre of the truck, towards the end, or ends, of the same. 3rd. The adjustable stop for regulating the pressure of the brake-shoes on the wheels.

No. 15,806. Improvements on Ink Pad Holders. *(Perfectionnements aux boîtes-encriers.)*

Emmor M. Bayne, Philadelphia, Penn., U. S., 21st November, 1882; for 5 years.

Claim.—The combination of the box *A* containing the printed material, and the porous fabric *D*, said fabric held in position over the printing material by an inner retaining sleeve *C*.

No. 15,807. Improvements in Grappels.*(Perfectionnements aux grappins.)*

Samuel Trott and Herbert Kingsford, Halifax, N. S., 21st November, 1882; for 5 years.

Claim.—1st. A grappel provided with a movable plug extending outward through the fluke or arm of the grappel, and with an electric contact plate in connection with a signal, whereby the engagement of the fluke or arm with a body is caused to press the plug inward and complete the circuit, thereby operating the signal. 2nd. The grappel consisting of a body having arms or flukes, one or more of said arms containing an insulated contact plate in electric connection with a signal and a yielding or spring sustained plug, held normally out of contact with said plate, but extending outside of the arm, and adapted to be pressed inward by contact with bodies against which the grappel is drawn, and thereby to complete the circuit and cause the operation of the signal. 3rd. The grappel consisting of body *a*, insulated conductor *a¹*, contact plate *h*, plug *e* having point or needle *f*, and spring *g*. 4th. In a grappel, the combination of insulated conductor *a¹*, contact plate *h*, elastic packing *a*, plug *e* having pointer needle *f*, washer *d* and tubular threaded plug *c*. 5th. In combination with contact surface *h* and spring *g*, plug *e* having threaded stem or pin *f* adapted to be screwed in or out, to lengthen or shorten the distance between its point and the contact surface *h*.

No. 15,808. Improvements in Hame Tugs.*(Perfectionnements aux mancelles.)*

Thomas A. Simmons, Wooster, Ohio, U. S., 21st November, 1882; for 5 years.

Claim.—The body having suitable recess for the reception of the extended arms of the detachable draft iron, the detachable buckle and its connecting strap provided with a recess, to receive the end of the draft iron arm and the detachable loop, all secured in proper position by the rivet.

No. 15,809. Improvements in Means for Attaching Corkscrews to Bottles.*(Perfectionnements dans les moyens d'attacher les tire-bouchons aux bouteilles.)*

Henry W. Simms, Bay, Mich., U. S., 21st November, 1882; for 5 years.

Claim.—1st. In combination with a bottle and a corkscrew, a metal piece having an opening at one end in which the point of the screw is inserted, and a lip at the other end bent around the handle of the corkscrew. 2nd. The flap to turn over and protect the point of the screw.

No. 15,810. Improvements on Self-Winding Clocks. *(Perfectionnements aux horloges à remontoir automatique.)*

Auguste Dardenne, Mariembourg, Belgium, 21st November, 1882; for 5 years.

Claim.—1st. The combination of wheel *A A¹*, pinion *B*, escapement wheel *C C* and anchor *D D¹*, the anchor *D D¹* and wheel *C C¹* being adapted to operate together by aid of their respective position, and the shape and direction of their pawls and teeth so as to form a reversed dead-beat escapement. 2nd. The combination, with a flat wheel *S* fixed on the axle of the helix, of a brake made of rod *T T¹*, lever *R* and block *Q*, the said brake being adapted to act upon the rim of the wheel *P* when the rod *T T¹* is moved upward by the pulley of the weight *X*.

No. 15,811. Electric Motive Engine.*(Machine électrique motrice.)*

Désiré T. Piot, London, Eng., 21st November, 1882; for 5 years.

Claim.—The combination of crank-shaped soft iron cores wound circularly with insulated conducting wire, or forming the coils or bobbins of the armature with similarly shaped electro-magnets.

No. 15,812. Improvements on Door Balances. *(Perfectionnements aux valets des portes.)*

William F. Sexton, sr., and William F. Sexton, jr., Toronto, Ont., 21st November, 1882; for 5 years.

Claim.—1st. In connection with a hinged door, the combination of a weighted lever so connected to the door that the power of the lever shall be directed in holding the door closed. 2nd. In connection with a hinged door, a pivoted lever provided with an adjustable weight and connected by a chain to a lever pivoted to the door jamb, in combination with a lever also pivoted to the door jamb, its other end being connected to the back edge of the door by a link. 3rd. In connection with a hinged door, a pivoted lever provided with an adjustable weight and connected to the door by a chain and lever, in combination with a sheave pulley pivoted upon an arm extending from a casting secured to the door jamb, and arranged for the purpose of directing the chain from a vertical to a horizontal direction.

No. 15,813. Improvements on Feeding Devices for Carding Engines. *(Perfectionnements aux appareils nourrisseurs des machines à carder.)*

John F. Gebhart, New Albany, Ind., U. S., 21st November, 1882; for 5 years.

Claim.—1st. The combination of the traveller *F*, mechanism for reciprocating the same, its toothed drums, a rack bar, a feed table, the shifting plate connected by the pivoted arms to said traveller, and smooth rollers receiving rotation. 2nd. The combination, with the traveller arranged to reciprocate over a feed table and means for moving said traveller, of the toothed drums, the shifting plate bearing feed rollers and an eye piece or guide for the moving, and a spring acting on the curved edge of said plate. 3rd. The combination of the shifting hooks and releasing devices therefor, with a traveller bearing toothed drums, and a shifting plate having feed rollers applied to it. 4th. The combination, with the traveller *F*, of the annular grooved tooth drums *H H*, the rack which engages with the upper teeth of said drums, the smooth edge guide rail or bar applied beneath the rack and receiving the grooved parts of the drums, the smooth feed rollers, a spring for holding said rollers against the drums and shifting devices for the plate *K*. 5th. The combination, with the bar *D* and pins *l* arranged at the ends of said bar, of the traveller and means for reciprocating the same, said traveller being adapted to feed and distribute the roving upon the endless feed apron.

No. 15,814. Improvements on Spring Vehicles. *(Perfectionnements aux voitures à ressorts.)*

George Delker, Henderson, Ky., U. S., 21st November, 1882; for 5 years.

Claim.—In combination with side bars rigidly connected with a front head block and rear axle, and suitable front and rear springs, a phaeton-shaped body having, at its rear or raised portion, downwardly projecting rigid brackets *H*, extending to the rear springs and secured

thereto, and provided near its front with bar or support *C* secured to the front springs.

No. 15,815. Improvements in Musical Instruments. (*Perfectionnements aux instruments de musique.*)

Walter F Abbott, (Assignee of Joseph H. Chase,) Montreal, Que., 21st November 1882; for 5 years.

Claim.—1st. The recesses *S* forming bearings for the journals *t*₂, in combination with the springs *U*₂. 2nd. The supports for its journals constructed on end brackets, and a spring secured to each bracket and arranged to confine the journals in the bracket, and together make a support and bearing therefor. 3rd. The combination of a music roller having a journal at each end, and bearings or supports for such journals, each composed of a spring constructed and arranged to confine its journal to the other and stationary part of the support, and the said spring to have an outward movement therefrom and be susceptible of adjustment to control the outward movement of the said spring. 4th. The combination, with a music roller, of the end journals *t*₂ thereto, and of stationary bracket *p*₃, each having a recess on its edge, and a spring *U*₂ having an opening through which passes a headed screw-pin *V*₂ in the edge of the bracket. 5th. The combination of the crank or feed roller shaft, with a screw-threaded hub having a groove provided with a groove *a* and a projection *b*₃, all united in one piece. 6th. A movable box or swell chamber or box located above, and to rest upon the perforated music sheet, as it passes over the throat *d*. 7th. A movable box or swell chamber provided with apertures opening into it, in combination with the slide *V*, which has similar apertures and is arranged to open and close the apertures to the swell chamber or box. 8th. In a movable reed box located above, and to rest on the perforated music sheet as it passes over the throat *d*, and constructed to act as a swell box in the sounding of the reeds. 9th. A tremulant valve *r* attached to a movable box or chamber, to vibrate with the passage of the air through the reeds. 10th. A tremulant valve attached to a movable box or chamber, to vibrate with the passage of the air through the reeds, and to be placed into and out of such operation. 11th. A movable box or chamber having attached to it a tremulant valve to vibrate with the passage of the air, and constructed and arranged to act as a swell box, and to be opened and closed for tremulant and swell effects. 12th. A movable frame constructed and arranged to carry a box or chamber for either swell or tremulant effects, or both. 13th. A movable reed box located above, and to rest upon the perforated music sheet as it passes over the throat, and provided with a valve and otherwise arranged to act as a tremulant box in the sounding of the reeds. 14th. A removable reed box, constructed and arranged for either swell or tremulant effects, or both. 15th. The combination of a removable frame of a reed box within it, and guided and supported by said frame. 16th. The combination, with bellows *g*₂, of exhausters *h*₂ located, in pairs, above said bellows and having the exhausters of each said pair, the one above the other, and connected together to work alternately. 17th. The combination, with bellows *g*₂, of exhausters *h*₂ located in pairs, the one exhauster of each pair being above the other and connected together to work alternately, and the said pairs being set to work alternately, the one pair with the other, or otherwise. 18th. In combination with the bellows or feeders of a mechanical musical instrument provided with openings *g*₃, the sheet of flexible material *i* secured in position at its central portion, and left free to vibrate at its outer portion. 19th. The combination of the side or wall *β* of a bellows or exhauster of a musical instrument provided with perforations *g*₃, flexible sheet *i* and fender or guard *K*₃. 20th. The combination, in a mechanical musical instrument operated by a perforated music strip, a reed box having its reeds *g*₃ arranged without an intervening space between them, with a cell-board *l* provided with corresponding cells for the reeds. 21st. The combination of a reed box having its reeds arranged immediately adjacent to each other, and each reed provided with a separate cell. 22nd. The combination, in a mechanical musical instrument operated by a music sheet, of a removable reed box having its reeds arranged immediately adjacent to each other, that is, without intervening spaces or partitions between the reed blocks with a removable cell board. 23rd. A reed box *C* having a guiding and retaining frame in combination with plate *S*, projections *q*₁ and springs *u*₁. 24th. A removable frame, in combination with the reed box *C*, which it retains against accidental displacement. 25th. The combination, in a mechanical musical instrument provided with reeds set alternately, the one reed a bass, and the next or adjacent reed a treble, throughout the scale, with a music strip provided with longitudinal rows of notes set also alternately, the one row a bass, and the next or adjacent row a treble, throughout the rows of notes. 26th. A perforated music strip provided with longitudinally parallel, or nearly parallel rows of perforations or notes, said rows of perforations or notes being alternately a bass and a treble row. 27th. A reed box retained in position by journals *S*₄. 28th. The combination of a reed-board arranged to swing on journals, adjustable rails *g*₄ and friction rollers *h*₄. 29th. The combination of the rail *a*₄, feed roller *K*₄, adjustable rails *g*₄ and friction roller *h*₄. 30th. A reed box having cap *l*₄ of considerable gravity, thereby dispensing with the necessity of a spring, in combination with a reed-board *m*₄ and reeds *q*₄. 31st. In combination with the mechanism for propelling a music sheet in a mechanical musical instrument, a motor consisting of the wheel *c*₆, axle *a*₆, frame *d*₆, shoe *f*₆ maintained in place and operating as described. 32nd. In combination with the mechanism for propelling the music sheet in a mechanical musical instrument, a motor consisting of a wheel *c*₆, axle *a*₆, frame *d*₆, pawls *a*₇ having wedge-shaped projections *b*₇, and shoe *c*₇.

No. 15,816. Improvements on Electric Motors. (*Perfectionnements aux moteurs électriques.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 21st November, 1882; for 15 years.

Claim.—In combination with an electro-motor, a resistance included in its circuit normally, or in a state of rest, and means operated by the motor and arranged to gradually cut out the resistance, as the motor speeds up, and to entirely cut it out, when the motor reaches a desired predetermined speed.

No. 15,817. Improvements in Hoop Cutting Machines. (*Perfectionnements aux machines à tailler les cercles.*)

Fitzland L. Wilson, Saginaw, Mich., U.S., 26th November, 1882; for 5 years.

Claim.—1st. The mode of cutting hoops from a log fed with a rolling feed motion to a reciprocating knife, which separates the hoops therefrom, by the concentric action of the two cutting edges of the same. 2nd. The knife *V* provided with the upturned lip *p*, and the inclined cutting edges *q*₁ *q*₂. 3rd. The toggle levers *m* *m*₁, as a means for imparting to the feed screw *o* a gradually decreasing motion. 4th. The combination of the toggle levers *M* and *M*₁, actuated by the rod *L*, of a stationary pivot *N*, lever *N*₁, ratchet *Q*, feed screw *O* and spiral wheel *P*. 5th. The combination of the swinging frame *S*, carrying the feed screw *O*, and the retractable pin *l*. 6th. The trimmer knife *V*₁, in combination with the hoop cutting knife *V*.

No. 15,818. Improvements on Automatic Musical Instruments. (*Perfectionnements aux instruments de musique automatiques.*)

Gustavus W. Ingalls, Worcester, Mass., U. S., 21st November, 1882; for 5 years.

Claim.—1st. A music sheet for an automatic musical instrument having an opening adapted to allow the feed roll of said instrument to turn therein, without taking hold of said music sheet. 2nd. A music sheet having a buckle at one end, in combination with a winding roll having a strap for attachment to the buckle, and a recess to receive said buckle when said music sheet is wound on said roll. 3rd. In combination with a winding roll and a music sheet attached at one end thereto, a rewinding roll consisting of a sleeve, a shaft and a friction clutch operating as described. 4th. In a rewinding roll, the combination of an outer sleeve, a pair of detachable end pieces, and a shaft with a block set into a recess of said shaft, and a spring which forces said block against said sleeve. 5th. The combination of the winding and rewinding rolls, both on the same side of the reed board, with the music sheet and with the detachable guide roll on the other side of the reed board. 6th. In combination with the feed rolls, winding and rewinding rolls and the music sheet, a spring tension device which holds the music sheet against the winding roll. 7th. A roller journaled in a movable bar, in combination with a winding roll, a music sheet and springs which act on said bar to force said roller against said music sheet and winding roll. 8th. In combination with a music sheet and the body of a musical instrument, a movable rack or frame, an upper feed roll, a presser roll or bar and a spring or springs operating to hold both of said rolls simultaneously against the music sheet. 9th. In combination with a pair of brackets, a rack frame or cap provided on each side with two pivots, both near one end of the frame, a presser roll attached to the other end of the frame, an upper feed roll located above a line between the two forward and the two rear pivots, and springs bearing on said feed roll so as to hold both rolls down, when the rack is in operative position. 10th. A presser roll in combination with a trough-shaped bar to which it is journaled, and a hinged cap or frame to which said bar has a pivotal attachment. 11th. A frame or rack having a presser roll or bar at one end of it, a spring pressed feed roll at the other end and an intervening pivot, in combination with a stop which prevents said presser bar from being forced down against said music sheet beyond a certain point. 12th. A presser roll or bar held by yielding pressure, in combination with a stop which prevents it from being forced against the body of the instrument. 13th. A presser bar provided with means for preventing it from being pressed toward the instrument beyond a certain point. 14th. In combination with a reed-board having two parallel sets of reeds and reed chambers, and a single intervening set of reed ducts, a spring pressed automatic cut-off for one of the sets of reeds, and a push-pin provided with a bevelled block for opening said cut-off. 15th. In combination with a reed-board, a valve bar adapted to be held against the mouths of the reed ducts to close the same. 16th. In combination with a reed-board and external valve-bar, means for locking said bar against the mouths of the reed ducts. 17th. In combination with the reed-board and valve-bar, a spring which holds said bar away from the reed ducts. 18th. A pair of pivoted arms, and a crank shaft or cam shaft for operating upon them, in combination with a reed-board and a valve-bar attached to said arms. 19th. A valve bar journaled in pivotal supports, in combination with a reed-board and devices for moving said bar and supports toward and from said reed-board. 20th. In a reed-board, a valve bar for closing the reed ducts and pivoted supports for said bar, in combination with a feed-roll on the other side of the pivots of said supports, and a rock shaft with cams and spring operating to lock down either said feed-roll, or said valve-bar. 21st. In a pair of pivoted arms provided on one side of their pivots with a valve-bar, and on the other side with a feed-roll, in combination with springs for forcing said roll down and said valve bar up, and a rock shaft provided with cams which are adapted to lock said valve-bar down and said feed-roll up, or to lock both of them in a raised position. 22nd. In combination with the reed-board, a sounding-board hinged above the same, and means for vibrating said sounding-board. 23rd. An upper feed roll for an automatic musical instrument in combination with means for positively raising it from the lower feed roll. 24th. An upper feed roll in combination with pivotal arms to which it is journaled, and a cam shaft operating against said arms. 25th. A movable lower feed roll in combination with the upper feed roll, the case and the operating devices of a musical instrument. 26th. A lower feed-roll journaled in a hinged piece, in combination with a spring which forces said feed-roll toward the upper feed-roll. 27th. A lower feed roll movable away from the upper feed roll, in combination with a lever, whereby said removal is effected. 28th. In a movable lower feed roll, in combination with a spring which forces the same towards the upper feed roll, and a lever which forces it away therefrom. 29th. A rack having detachable side plates, in combination with a crank shaft feed-roll and valve-bar, all attached to said plates. 30th. In a musical instrument adapted to be operated at will either by a keyboard or a music sheet, a pair of brackets attached to the back of the

instrument case on the front face of the upper part thereof, in combination with a music sheet and its winding rolls supported by said brackets. 31st. In a musical instrument adapted to be operated at will either by a key-board or a music sheet, a pair of brackets attached to the back of the instrument on the front face of the upper part thereof, in combination with a music sheet and its winding rolls supported by said brackets, a reed-board governed by said music sheet, and a vertical passage leading from the bellows to said reed-board, said passage being arranged against the back wall of the casing. 32nd. In a musical instrument adapted to be operated at will either by a key-board or a music sheet, the vertical music sheet in combination with the casing, and means for supporting said music outside of said casing, but in proximity to the back wall thereof. 33rd. In combination with a music sheet and the casing and operative parts of a duplex instrument, means for supporting said sheet outside of the casing, the said means being attached to the back wall thereof.

No. 15,819. Improvement on Wear Clips for Harness Irons. (*Perfectionnement des cosses des boucles de harnais.*)

James H. Philpott and George C. Buck, of Rising, Neb., U. S., 21st 1882; for 5 years.

Claim.—1st. An improved wear clip for rings, staples, cock-eyes and other harness irons, adapted to fit the worn portion of the said irons and to be secured thereto. 2nd. A wear clip consisting of wear iron C, filling piece E and attaching ear or wing clips D.

No. 15,820. Improvements on Self-Binding Harvesting Machines. (*Perfectionnements aux moissonneuses-lieuses.*)

Andrew C. Miller, Sparta, Ill., and David M. Osborne, of Auburn, N. Y., U. S., 21st November, 1882; for 15 years.

Claim.—1st. In combination with the double elevating canvas aprons and the grain receiving table located over the main driving wheel, the raking and packing fingers or teeth working above said table. 2nd. The combination of the raking and packing fingers with the intermittent revolving separator T and grain receiving table D. 3rd. The combination of the intermittent revolving separator T with the binding mechanism, having a reciprocating as well as rising and falling movement of its cord carrying and binding arm. 4th. The combination of the raking and packing fingers, the intermittent revolving separator and the reciprocating rising and falling cord carrying binding arm. 5th. The inclined receiving table arranged over the driving wheel, the inclined binding table, the intermittent revolving separator and the packing spring bars *j j j k k k* projecting over the binding table. 6th. The combination of the double elevating canvas aprons, the inclined grain receiving table over the driving wheel, raking and packing fingers working over said table, the intermittent revolving separator, an inclined binder table, and the binding mechanism having a reciprocating and rising and falling motion of its needle, and cord carrying binder arm. 7th. In combination with the intermittent revolving separator, a yielding stop mechanism consisting of the cross-head Y and its latch Z, and adjusting devices. 8th. The combination of the raking and packing fingers arranged to operate above the receiving table D, the revolving separator also working above and over the discharging edge of said table, and the shield boards arranged above said table and on either side of said raking and packing fingers, and said revolving separator. 9th. The combination of the intermittent revolving separator with its cross head Y, sprocket wheel X and its clutch G, and intermediate shifting devices operated by the cross-head to throw it out of gear and by the coil spring *h* to throw the same into action. 10th. The raking and packing teeth, the intermittent revolving separator and the binding arm having a reciprocating and rising and falling motion, arranged and combined for joint operation. 11th. The double elevating canvas aprons, the raking and packing fingers, the intermittent revolving separator and the binding devices, the cord carrying arm of which has a reciprocating and rising and falling motion. 12th. The double elevating canvas aprons, the receiving platform arranged over the driving wheel, the raking and packing fingers working over said platform, the intermittent revolving separators and the binding mechanism located outside of the driving wheel, the cord carrying and binding arm of which has a movement to and from the revolving separator. 13th. In combination with the intermittent revolving separator, the locking bolt for holding the same in a fixed position against the action of the needle arm and the grain. 14th. The combination of the cam wheel *p* and cam lever *q* and its connecting devices, with the clutch *g g* and sprocket wheel *i i*. 15th. The combination of the inclined receiving table located over the driving wheel, the inclined binding table located outside of the driving wheel and on a plane below that of the receiving table, and the binding arm, having a rising and falling and reciprocating motion. 16th. The combination of the raking and packing fingers working above the receiving table, the double elevating canvas aprons and the vibrating butt-board. 17th. The double elevating canvas aprons, the receiving table located over the driving wheel, the raking and packing fingers working above said receiving table, the vibrating butt-board and the intermittent revolving separator. 18th. The double elevating canvas aprons, the receiving table over the driving wheel, the raking and packing fingers working above said receiving table, the vibrating butt-board, the intermittent revolving separator, and the binding mechanism having a cord-carrying arm that has a rising and falling and reciprocating motion. 19th. In combination with the double elevating canvas aprons and the vibrating butt-board, the rod *z z* and its connecting devices within reach of the driver in his seat. 20th. In combination with the double elevating canvas aprons, the vibrating butt-board operated by a crank rotated by intermediate gearing and receiving motion from the upper roller of the lower elevating canvas aprons. 21st. In combination with the vibrating butt-board and its operating mechanism, the receiving table below and the shield board above it. 22nd. In combination with the intermittent revolving separator and its shafts O, the ratchet wheel *k k* and its pawl. 23rd. Imparting motion to the shaft, which operates the raking and packing fingers, by a sprocket wheel on said shaft connected by a driving chain with the sprocket wheel on the shaft of the upper roller of the upper ele-

vating canvas apron. 24th. Imparting motion to the revolving separator shaft by a sprocket wheel thereon connected by a chain to the sprocket wheel on the raking and packing finger shaft. 25th. The double elevating canvas aprons, the receiving table at the mouth of said aprons and over the driving wheel, the automatic and intermittent revolving separator working above said table, the raking and packing fingers working over said table between said elevating aprons and separator, an intermittent automatic binder arranged to operate outside of said receiving table and separator having a reciprocating cord carrying-arm, arranged to carry the cord over the gavel and form the knot on the under-side of the bundle. 26th. In combination with the clutch *g g* for drawing the binding mechanism into action, the push-bar lever *a a* with its intermediate connections, and the lug *r r* on the gear-wheel *q q*. 27th. The combination of the cam-wheel *p*, the cam lever *q* and its intermediate connections, with the levers *x* having pivot *y* and stud *z*, and operating the push-bar lever *a a*.

No. 15,821. Apparatus for the Manufacture of Starch. (*Appareil pour la fabrication de l'amidon.*)

Anthony Atkinson, New York, N. Y., U. S., 21st November, 1882; for 5 years.

Claim.—1st. The combination, with starch troughs, of adjustable gates or dams. 2nd. The adjustable gates C combined with trough A. 3rd. The combination of trough A, spout C, sliding gates c and adjusting screws d.

No. 15,822. Improvements on Electro-Magnetic Motors. (*Perfectionnements aux moteurs électro-magnétiques.*)

Thomas A. Edison, of Menlo Park, N. J., U. S., 21st November, 1882; for 15 years.

Claim.—1st. The combination, with an electric motor, of a resistance, a lever included in the motor circuit and adapted to be operated by hand or foot, for throwing the resistance in or out of circuit, and means for normally holding the lever at the point to throw in the maximum resistance. 2nd. The combination, with the electric motor, of the resistance, the lever, the retracting spring, the foot treadle and switch.

No. 15,823. Improvements on Fire-Extinguishers. (*Perfectionnements aux extincteurs d'incendie.*)

Micialo Walker, Port Huron, Mich., U. S., 21st November, 1882; for 5 years.

Claim.—1st. As a means for extinguishing fires in railroad cars, a tank having air and water inlets with pipe connections, a water outlet and a pendant pipe extending from the water outlet to the interior of the tank, and of sufficient length to reach any portion of the tank whatever its position. 2nd. The tank A having air inlet *a*, water inlet *b* and water outlet *d*, combined with the hose *e f* and the cut-off *e*.

No. 15,824. Improvements on Self-Lubricating Packing for Steam and other Engines. (*Perfectionnements aux boîtes à étoupe à graissage automatique pour les machines à vapeur et autres.*)

Robert Morrison, St. Louis, Mo., U. S., 21st November, 1882; for 5 years.

Claim.—The method of making self-lubricating packing for steam and other engines by spinning together equal quantities of hemp and cotton fibre into strands, having pulverized plumbago dusted into the fibre while being spun into strands, and which strands are afterwards saturated in a hot mixture of bees wax and tallow.

No. 15,825. Improvements in Electrical Signalling for Telephone Lines. (*Perfectionnements aux signaux électriques des lignes téléphoniques.*)

Thomas D. Lockwood, Malden, Mass., U. S., 21st November, 1882; for 15 years.

Claim.—1st. The combination, with the series of subscribing lines, of a signalling circuit with normally open branches entering the sub-stations, a source of electricity such as a battery, a dynamo or a magneto-electric machine in said circuit, and switches or circuit changes at said sub-stations for connecting the subscriber's lines with said branches, so that the subscriber's signals are over his own line. 2nd. The combination of the subscriber's lines, the signalling circuit with normally open branches entering the sub-stations, the source of electricity such as a battery, a dynamo or a magneto-electric machine, an automatic or gravity telephone switch at each sub-station, and contacts and connections, whereby the mere act of removing the telephone, at any sub-station, from its support establishes an electric connection at that station between the subscriber's direct line and the branch of the signalling circuit, and causes the signalling current to traverse the said direct line. 3rd. The combination, with a switch permanently connected to line, of three contact pieces or points for said switch, connected one through a signal bell to ground, another with a normally charged circuit, and the third to ground through a telephone. 4th. In a telephone exchange system, the combination of a series of subscriber's direct lines, each at its outer terminal normally connected through a signal bell to ground, a dynamo-electric machine or other source of electricity, a supply wire constantly charged with electricity from said source, common to a number of sub-stations, and provided with an open branch extending to each sub-station of the series, and a key or switch, at each station, adapted when operated, either manually or automatically, by the removal of the telephone from its support, to transfer the private line circuit from its normal

ground connection to the branch of the charged wire. 5th. The combination, of a constant source of electricity having one terminal normally grounded, the said source being common alike to the central station and to each substation, normally open, main and branch wires extending from the said source of electricity to each sub-station and to the signalling key or circuit closer, at the central station, and means as indicated for transferring the current from the open branch wires to either end of the subscriber's lines. 6th. The combination, in a telephone exchange system, with a series or subscriber's lines, of a separate signalling circuit, a continuous current dynamo or magneto-electric machine in a branch of said circuit, a battery in another branch, and a switch for connecting at will in said circuit said electric machine or said battery. 7th. In a telephone exchange system, a continuously operating dynamo or magneto-electric machine, or equivalent source of electricity, located at any suitable point and adapted, by means of main and branch conducting wires, to supply all the necessary currents for signalling purposes to the central station, and to each substation connected with the said exchange system. 8th. The combination, in an electrical system, with a series of lines, of a branch containing a dynamo-electric machine having its field excited in said branch, and switches or connectors for joining said branch to said lines individually for the purpose of signalling. 9th. The combination of a series of subscriber's lines, signalling devices in the several lines at the central office, a distinct signalling circuit, or circuits, a battery or other generator of electricity, such as a dynamo or magneto-electric machine, electrically connected with said signalling circuit or circuits, and also with the central office terminals of the subscriber's lines, and switches or circuit changes at the substations, for altering thereat the circuit connections of the aforesaid generator, so as to operate for each station the signal device in the line, whereon said station is placed. 10th. The combination of the subscriber's lines, the signal devices or call bells at the substations, the signalling devices, or annunciators at the central office, one or more generators of electricity, a signalling circuit or circuit switches, or circuit changes at the substations for altering the circuit connections of a generator, so as to operate for each station the signal device or annunciator in its own line at the central office, and switches or circuit changers, at the central office, for altering the circuit connections of a generator so as to operate the signal devices, or call bells at the substations, the generator circuit as well in the case of a subscriber calling the central office, as of the latter calling the former, being composed in part of the signalling circuit, and in part of the direct line of the subscriber calling or called. 11th. The combination, with the movable telephone support and switch, the spring for shifting the same when the telephone is removed, and a line wire or conductor connected with said switch, of the contact piece connected with the signal or call bell, the contact piece connected with the telephone, and the intermediate contact piece connected with a generator of electricity or means for operating a signal device, said switch being adapted to make contact with all said pieces, so that, when the telephone is on the support, the call bell is connected in with the line wire or conductor aforesaid, and when the telephone is removed, the switch is shifted, cutting out the call bell and connecting in the telephones, and its movement temporarily connecting in the generator or signalling means.

No. 15,826. Improvements on Electric Lamps.

(*Perfectionnements aux lampes électriques.*)

William Crookes, London, Eng., 21st November, 1882; for 15 years.

Claim.—1st. The use of hydrofluoric acid, with or without other acids, in the manufacture of carbons for electric lamps, and more especially the carbon filaments, of incandescent lamps by exposing cellulose to the action of the acid or acids, and then carbonizing the same. 2nd. The use of hydrofluoric acid, with or without other acids, in the manufacture of the various forms of carbon disks, sticks, or rods, employed in electric lamps by exposing carbon after carbonization to the action of the acid or acids, such carbon being in the shape of thin sheets, or filaments, or fine powder. 3rd. The use of free chlorine, or hydrochloric acid gas in the manufacture of the various forms of carbon employed in electric lamps to purify the carbon. 4th. The preparation of a superior kind of carbon for use in electric lamps and otherwise, especially for the filaments used in incandescent lamps, by carbonizing cellulose that has been dissolved in, or acted on, by a solution of oxide of copper in ammonia. 5th. The application of a solution of oxide of copper in ammonia to paper, thread, or other form of cellulose, and afterwards carbonizing the same for the purpose of rendering the carbon produced therefrom, closer in texture, denser and more elastic and homogeneous. 6th. The preparation of carbon, either in a pure state or containing copper, from cellulose dissolved in a solution of oxide of copper in ammonia, and subsequently reduced to a solid and structureless form. 7th. The manufacture of filaments for use in incandescent lamps out of a film or skin, prepared from cellulose dissolved in a solution of oxide of copper in ammonia and then reduced to a solid and structureless form. 8th. The method of making a strong and electrically perfect junction between the ends of the filament in an incandescent lamp and the conducting wires, by electro-plating with copper, nickel, platinum or other suitable metal. 9th. The method of making a strong and electrically perfect junction between the ends of the filament in an incandescent lamp and the conducting wires, by painting the junction with a solution of cellulose in a solution of oxide of copper in ammonia and subsequent carbonization. 10th. The method of diminishing the resistance of carbon filaments for use in incandescent lamps, by electrically heating them in an atmosphere of chloroform vapour. 11th. The method of diminishing the resistance of carbon filaments for use in incandescent lamps, by electrically heating them in a vessel exhausted of air, which is in connection with a vessel containing a solid or liquid hydro-carbon, whose boiling or volatilizing point is high and whose vapour density, at ordinary temperature, is low. 12th. The use of cored wires with an external platinum surface, for conducting wires at the points where they pass through the glass of the bulbs of incandescent lamps. 13th. The method of forming the glass enclosures for the filaments of incandescent lamps. 14th. The introduction into the bulbs of incandescent electric lamps, or into chambers in connection therewith and forming part of the lamps, of substances having a general power of absorbing gases for the purpose

of getting rid of the residual gas after the exhaustion by the pump is completed. 15th. The method of obtaining a good exhaustion by the introduction into the bulbs of incandescent electric lamps, or into chambers connected therewith, forming part of the lamps, of substance having a selective power of absorbing gases, whilst ensuring, by the means herein above described, or equivalent means, that the residual gas, after the exhaustion by the pump is completed, is of a nature to be readily absorbed by such substances. 16th. The method of getting rid of the residual gas by the use of substances having a generator selective power of absorbing gases, the absorbing substances being placed in a chamber permanently connected with the pump used for exhausting the bulbs and not in the bulbs themselves, or in chambers connected therewith forming part of the lamps, and thus getting rid of the residual gas before the sealing of the bulb of the lamp. 17th. The introduction of mercury vapour in a highly rarefied state into the bulbs of incandescent lamps, as a protective atmosphere.

No. 15,827. Apparatus for filtering liquids.

(*Appareil pour filtrer les liquides.*)

The Sinclair Rectifying Machine Company, (assignee of Thomas R. Sinclair,) New York, U. S., 21st November, 1882; (Extension of Patent No. 1850.)

No. 15,828. A Gang Plough.

(*Charrue à plusieurs socs.*)

Lewis F. Bungay and Thomas Merritt, Norwich, (Assignees of Brooks W. Walton, of Fergus,) Ont., 21st November, 1882; Extension of Patent No. 1843.)

No. 15,829. Improvements in Harrows.

(*Perfectionnements aux herbes.*)

Peter Patterson and Alfred S. Patterson, Patterson, Ont., (Assignees of D. C. and H. C. Reed & Co., of Kalamazoo, Mich., U. S.,) 21st November, 1882; (Extension of Patent No. 8266.)

No. 15,830. Improvements on Underground Conductors.

(*Perfectionnements aux conducteurs souterrains.*)

Thomas A. Edison, Menlo Park, N. J., U. S., 22nd November, 1882; for 15 years.

Claim.—1st. The combination, with an inclosing tube and electrical conductors contained therein, of washers made of manilla, or paste board, supporting the conductors and separating them from the tubes and from each other, and notched upon their exterior edges to permit the flow throughout the tube of liquid insulating material. 2nd. A compound electric conductor in which the individual conductors are solid metallic bars formed each as a segment of a circle, and both separated from each other and supported, within an inclosing tube, by disks or washers of insulating material. 3rd. A circuit for electric currents in which one conductor is a hollow tube, and the other a solid circular rod passing through the said tube, and insulated therefrom and supported therein, and separated therefrom by insulating disks or washers. 4th. A metallic circuit for electric lights consisting of two semi-circular rods supported by, and separated from each other, in a metallic pipe, by a series of insulating washers, the pipe being filled with a suitable insulating material. 5th. In a metallic circuit composed of semi-circular rods secured within, but insulated from a metallic containing tube, the arcs of the conductors and the tube being concentric.

No. 15,831. Improvements on Electrical Distribution Systems.

(*Perfectionnements aux systèmes de distribution électrique.*)

Thomas A. Edison, Menlo Park, N. J., U. S., 22nd November, 1882; for 5 years.

Claim.—1st. In a system of electrical distribution employing complete metallic circuits, the combination of the positive conductors and the negative conductors crossing each other at the corner of the blocks, like conductors being connected together at the points of crossing and service or junction boxes, wherein such connection is made. 2nd. The combination, with the intersecting positive and the intersecting negative conductors connected together in pairs, of the safety catches between the points of intersection. 3rd. The combination, with the main conductors arranged in pairs, intersecting each other, and properly connected together at corners, or branching points, of safety catches placed at the points of intersection, in boxes adapted to protect them and receive the ends of the conductors for union thereto. 4th. The combination, with the conductors and the junction boxes, wherein the appropriate conductors are united to each other, of the bow-shaped connecting pieces.

No. 15,832. Improvements on Electrical Distribution Systems.

(*Perfectionnements aux systèmes de distribution électrique.*)

Thomas A. Edison, Menlo Park, N. J., U. S., 22nd November, 1882; for 15 years.

Claim.—1st. The conductors A B forming a complete metallic circuit inclosed in separate pipes C D. 2nd. The conductors A B forming a complete metallic circuit, in combination with separate inclosing pipes C D, and notched pasteboard washers a. 3rd. The corner junction box, wherein the main conductors of like kind are coupled together in pairs, in combination with the feeding conductors entering each box, and connected with the positive and negative main conductors.

No. 15,833. Improvements on vacuum Pans.

(*Perfectionnements aux chaudières à vide.*)

Christian Wahl, Chicago, Ill., U.S., 22nd November, 1882; for 5 years.

Claim.—1st. The liquid pan C having the continuous descending channel *e*, in combination with the shell A, forming a vacuum chamber. 2nd. The liquid pan C having the continuous descending channel or groove *e*, in combination with the shell A and steam jacket B. 3rd. In a continuously operating vacuum pan, the continuous and descending channel *e* in combination with the steam coil, or passage C. 4th. In a continuously operating vacuum pan, the liquid pan C having the channel *e* and coil *c*, in connection with the jacket B. 5th. In a continuously operating vacuum pan, the combination of the liquid pan C having the descending channel *e*, with the pipe *j* and a suitable trap receiver or pump, for taking off the treated liquid. 6th. The combination and arrangement of the shell A B and liquid pan C, having the channel *e*, with the coil *c*, feed tube *b* and discharge tube *j*.

No. 15,834. Improvements on Draft and Buffing Mechanism for Railroads. (*Perfectionnements aux appareils de traction et de choc pour les chemins de fer.*)

James P. Coulter, Aurora, and Thomas Hibbert, Cochran, Ind., U. S., 22nd November, 1882; for 5 years.

Claim.—1st. A yielding draw-head provided, at its rear end, with a transverse slot, and a bar passing through said slot, which bar serves the double purpose of limiting the inward movement of the draw-head, when compression is exerted thereon, and of receiving the draw-bars which connect the bumpers of the respective ends of the car. 2nd. The longitudinal sills or beams of a railroad car, transversely slotted, combined with plates or abutments, at the rear ends of the slots. 3rd. The longitudinal sills or beams of a railroad car, transversely slotted, combined with angular plates, the transverse member of each which is placed at the of a slot of a sill or beam, and its longitudinal member let in flush with the inner surface of said sill or beam. 4th. In two parallel longitudinal beams of a car frame, transversely slotted, combined with slot plates or abutments inserted within said beams, and with a transverse support or plate having a central perforation or opening. 5th. The combination, with the slotted frame of a railroad car having a transverse centrally perforated plate inserted therein, of a draw-head provided with a cross-bar supported and guided by the slots of the frame and further provided, at its rear end, with a pin or cylindrical portion supported and guided by the transverse plate, the said pin being surrounded by a spring confined between the said transverse plate and the front or larger part of the draw-head. 6th. The combination, with the frame work of a railroad car, of a yielding draw-head provided, at its rear end, with a transverse slot and a bar inserted therein, the frame being furnished with stop plates or abutments, at the rear ends of the slots. 7th. A draw-head having a transverse bar extending beyond the support beams, combined with draw-bars, each having an elongated slot fitting over an end of said transverse bar. 8th. A draw-head having a transverse bar extending at each side beyond its outer limits, combined with draw-bars, each having an elongated slot adapted to fit over an end of the transverse bar. 9th. The frame of a railroad car transversely slotted, combined with a yielding draw-head having a cross-bar, and draw-bars having slotted ends fitting over the cross-bar, the said bar, when in its normal condition, occupying a central position in the slots of the frame, and the slots of the ends of the draw-bars being extended beyond the rear edge of the cross-bar, when in said position. 10th. The frame of a railroad car slotted, and two yielding draw-heads or bumpers, each provided with a transverse bar, combined with intermediate draw-bars, each having elongated slotted ends fitting over the ends of the respective transverse bars. 11th. The frame of a railroad car slotted and having plates or abutments, and two yielding draw-heads or bumpers, each provided with a transverse bar combined with intermediate draw-bars, each having elongated slotted ends fitting over the ends of the respective transverse bars.

No. 15,835. Improvements on Entrenching Tools. (*Perfectionnements aux instruments de fossage.*)

Nesbit W. Wallace, Harley Place, Clifton, Eng., 22nd November, 1882; for 5 years.

Claim.—1st. As a new article of manufacture, a spade or shovel blade A attached to a shaft B having projections J, by straps CD, the latter swelled out to cover said projection, T-shaped handle F on end of shaft B, and armoured by straps G having solid steel points of any desired form covering the extremities of the handle, and secured to the shaft B by rivets H and a band or ring I. 2nd. The spade blade having a cutting edge for use as a bill hook and provided with a T-shaped armoured head. 3rd. In a shovel or spade having the projection or swell J at the junction of the blade, and shaft at the rear. 4th. A shovel or spade having the inwardly curved flanges E at the foot tread.

No. 15,836. Improvements in Methods of, and Machines for Bending Springs. (*Perfectionnements dans les modes de courber les ressorts, et aux machines pour cet objet.*)

Josiah Fowler, St. John, N. B., 22nd November, 1882; for 5 years.

Claim.—1st. As an improvement in the art of manufacturing springs, the method of using leaves curved in cross section and subjecting the whole series forming one spring to sudden and continued pressure between suitable dies for bending and setting the same. 2nd. As an improvement in the art of manufacturing springs, the method of using leaves which, in cross section, are thinner in the centre than at the edges, and subjecting the series forming one spring, supported throughout their entire width on a suitably formed anvil, to sudden and conti-

nued pressure from a narrow die to bend and set the same. 3rd. In a machine for bending springs, the combination of a solid press frame A, convex broad bottom die or anvil B having punch or protuberance *b*, concave narrow upper die D having recess *c* corresponding to punch *b*, also screw *c*. 4th. In a spring bending machine, the combination of the two curved dies, one having a broad and the other a relatively narrow face.

No. 15,837. Improvements on Machines for Barbing Wires. (*Perfectionnements aux machines à barbeler le fil de fer.*)

David G. Wells, Joliet, Ill., U.S., 22nd November, 1882; for 5 years.

Claim.—1st. The combination and arrangement of the frame A, shaft S, pinions F *z*, cam *g*, sleeve *f*, pinion B₅, cam *a*, lugs *p*, pinion B₁, coiling pins *z*, cutting dies *d d*, die frame B, hinged die frame R₇, plates *r*, stops *i*, arms H₂ P₂, friction roller R₆, lug *f*, spring L₂ and boxing L. 2nd. The combination and arrangement of the reciprocating carriage H, die frame B, hinged die frame R₇, plates T having guide grooves, and bolts *w* having the wedge-shaped head *w* holding in the cutting dies *d d*. 3rd. The combination of the plates *r* having the straightening stops *i*, with the carriage H, for the purposes of straightening the points of the barbs. 4th. The combination of the carriage H, stationary die frames B carrying the stationary dies *d*, hinged frame R₇ carrying the cutting dies *d*, cam *f* and friction rollers R₆, and to operate the lower cutting dies *d*. 5th. The combination and arrangement of the frame A, carriage H, plate E attached to the carriage H, link *z*, bell crank *v*, link *u*, crank V, sleeve *x*, rod Y, bolt *z*, die *m* and arm E₁, for the purpose of feeding the barb wire *o* into the machine.

No. 15,838. Improvement in Boots.

(*Perfectionnement dans les bottes.*)

Robert Thompson, San Francisco, Cal., and Charles W. Clement, Boston, Mass., U.S., 22nd November, 1882; for 5 years.

Claim.—1st. In a boot, the front thereof and quarters cut in a single piece on parallel perpendicular lines down the sides to the height of the ankle bone, and thence at that height around the heel, in combination with the rear portion D. 2nd. In a boot, the upper front of the leg and quarters formed in a single piece cut on parallel perpendicular lines, down the sides to the height of the ankle bone, and thence on that level around the heel, in combination with the rear leg portion D and stiffening piece F extending up the leg above the quarters.

No. 15,839. Improvements on Sleds.

(*Perfectionnements aux traîneaux.*)

Charles M. Hinman, Sauk Centre, Minn., U.S., 22nd November, 1882; for 5 years.

Claim.—1st. A knee for sleds composed of the standards *a* having their lower ends flared outward on the top of the runner, and having the cross-bar *a* *a* arranged to provide an eye or opening A₁ to receive the end of the beam, and having one or more supports *a*₂ under the cross bar *a* and resting on the runner. 2nd. The combination, with the knee A provided with an eye or opening A₁, and the beam C, of the beam plates *d d* provided with jaws *d*₁ *d*₁ arranged to embrace the upper and under cross-bars of the knee and hold the end of the beam. 3rd. The beam plates *d d* constructed with the jaws *d*₁ *d*₁ and with the transverse convex bearing surface *d*₂, in the space or channel between the jaws, in combination with the beam *c*, and a knee A provided with an eye or opening A₁, the said knee being held so that it has a rocking or swinging motion on the end of the beam. 4th. A sled knee constructed to hold the end of the cross beam and provided with a horn, or curved projection *a*₆, arranged about on a level with the upper side of the cross beam.

No. 15,840. Improvements on Wear Plates for Railway Ties. (*Perfectionnements aux plaques de protection des traverses de rail-route.*)

David Sennis, Sennett, N.Y., U.S., 22nd November, 1882; for 5 years.

Claim.—The flange or flanges D formed upon the lower side of the plate C, to adapt the wear plate to be driven in between a rail and a tie or sleeper, without displacing the said rail.

No. 15,841. Improvement in Bottle Stoppers. (*Perfectionnement des bouchons de bouteilles.*)

James McGuire and John Rogers, Belleville, Ont., 22nd November, 1882; for 5 years.

Claim.—1st. The combination, with the spring *a*, of the unyielding plug *b* and the rubber cap *c*. 2nd. The combination, with the plug *b*, of the hollow rubber plug or cap *c* and a bottle having a contracted neck.

No. 15,842. Improvements in Steam Engine Governors. (*Perfectionnements aux gouverneurs des machines à vapeur.*)

Frank H. Ball, Erie, Penn., U.S., 22nd November, 1882; for 5 years.

Claim.—1st. The combination of the following elements: a centrifugal governing device mounted upon the main shaft and having its frame firmly attached thereto, a drive wheel mounted loosely upon said shaft and connected therewith so as to receive its motion therefrom, by being flexibly connected with said governor frame, and finally a valve moving eccentric, mounted to move upon said shaft and geared to be so moved by both the flexible movement of said drive wheel and the centrifugal movement of said governing device. 2nd. The combination of the following elements: a centrifugal governing device connected with, or receiving its motion from the main shaft of the en-

gine, and geared to operate upon the steam supply valve, and a drive wheel or driving shaft, which is connected to said main shaft or receives its motion therefrom, by being connected with said centrifugal governing device, whereby the resistance of the load acts against, or opposes the centrifugal force of said centrifugal governing device for the purpose mentioned. 3rd. The combination of the following elements: a centrifugal governing device mounted upon the main shaft and operating concentrically therewith, and a drive wheel mounted to move concentrically with said main shaft and connected therewith, so as to receive its motion therefrom by being connected with the centrifugal moving parts of said governing device, whereby the resistance of the load opposes the centrifugal movements of the balls of said governing device for the purposes mentioned. 4th. The combination of the following elements upon the main shaft of the engine: a frame or cross-head B keyed upon said shaft, a disk D having an eccentric D₁ mounted loosely upon said shaft, centrifugal balls F F connected by their arms F₁ F₂ to said disk, a drive wheel C mounted loosely on said shaft and, finally, bars *f* F₂ F₄, levers F₃ F₃ and springs S S arranged in connection with said cross-head disk and drive wheel. 5th. The combination, with frame fixed upon the main shaft, of a disk D with eccentric D₁, centrifugal balls F connected by arms to said disk and adapted to move said disk upon the shaft, a yoke D₃ upon said eccentric D₁, an eccentric E having an elongated shaft opening and connected to said yoke D₃, a pendant E₃ for suspending said eccentric E from the frame, and finally springs S S for opposing the centrifugal movement of said balls F F.

No. 15,843. Improvements on Current Regulators for Dynamo-Electric Machines. (*Perfectionnements aux régulateurs du courant des machines électro-dynamiques.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 23rd November, 1882; for 15 years.

Claim.—1st. The method of controlling or regulating the generative force of a dynamo or magneto-electric machine, consisting in throwing into the field magnet circuit a variable and controllable counter electro-motive force. 2nd. The combination, with a generator, of an electro-motor included in, and regulating the field magnet circuit by its counter electro-motive force. 3rd. The combination of a generator, an electro-motor included in the field magnet circuit and a magnet in the supply or consumption circuit, controlling the rate of rotation of the motor. 4th. The combination, with a motor, of a disk driven thereby, and a magnet between whose poles, or in whose field the disk rotates, to vary and control the rate of rotation of the motor. 5th. The combination of a generator, an electro-motor in the field magnet circuit carrying a disk upon its rotating shaft, and a magnet in the supply circuit in whose field the disk rotates, whereby the rate of the motor and the strength of the field circuit are varied and controlled.

No. 15,844. Improvements on Electric Lamps. (*Perfectionnements aux lampes électriques.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 23rd November, 1882; for 15 years.

Claim.—1st. The method of manufacturing incandescent electric lamps by forming the enclosing bulb or globe directly from molten, or pot glass, forming separately the supporting tube or neck for the incandescent conductor, sealing therein the leading-in wires, attaching the carbon thereto and then hermetically uniting the parts by welding together, prior to the exhaustion of the lamp. 2nd. A leading-in wire composed of a central platinum section for sealing into the glass an outer section, and an inner section having a clamping device formed integral therewith.

No. 15,845. Improvements on Electric Lamps. (*Perfectionnements aux lampes électriques.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 23rd November, 1882; for 15 years.

Claim.—1st. The leading-in conductor for an incandescent electric lamp, consisting of a central platinum piece for sealing into the glass envelope of a lamp and terminals attached thereto of cheaper metal, the one for union with the incandescent conductor, the other for connection to the exterior conductors. 2nd. The combination of a piece of platinum sealed into the glass and terminals of other metals affixed thereto, one extending into the lamp for union with the incandescent conductor, the other protruding therefrom for connection to the ordinary conductors.

No. 15,846. Improvements on Regulators for Magneto or Dynamo-Electric Machines. (*Perfectionnements aux régulateurs des machines électro-magnétiques ou dynamiques.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 23rd November, 1882; for 15 years.

Claim.—1st. The combination, with an electric generator, or battery, of electrical generators, of one magneto or dynamo-electric machine, furnishing the current for the field circuit of the generator or battery, and an engine driving said magneto or dynamo-electric machine, and means for adjustably regulating the governor of the engine. 2nd. The combination, with an electrical generator, of an engine, a governor controlling the cut-off mechanism of the engine and means for adjustably controlling the governor so as to vary the speed of the engine. 3rd. The combination, with an electric circuit containing translating devices, of a condenser.

No. 15,847. Improvements on Regulators for Dynamo or Magneto-Electric Machines. (*Perfectionnements aux régulateurs des machines électro-dynamiques ou magnétiques.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 23rd November, 1882; for 15 years.

Claim.—1st. The combination, with a generator of a variable resistance in its field circuit, a magnet in a derived circuit to the main or supply circuit of the generator, and a movable contact arm controlled by the magnet, for effecting an automatic regulation of the field of the generator. 2nd. The combination of a generator, a resistance in its field circuit, an axial magnet composed of a helix and an electro-magnet as a core thereto, both included in one circuit derived from the main or supply circuit, and a movable contact arm controlled by the magnet and contacting with the resistance.

No. 15,848. Improvements on Regulators for Magneto or Dynamo-Electric Machines. (*Perfectionnements aux régulateurs des machines électro-magnétiques ou dynamiques.*)

Thomas A. Edison, Menlo Park, N.J., U.S., 23rd November, 1882; for 15 years.

Claim.—1st. The combination, with each generator of a battery of magneto or dynamo-electric machines arranged in multiple arc of a resistance in its field circuit and a switch controlling equally and simultaneously all the resistance of the generators of the battery. 2nd. The combination of a battery of dynamo or magneto electric machines, a series of equal resistances, one series for each generator, a switch, a circuit to the switch and resistances and special circuits, one for the field of each generator, from the resistances to the field of force coils of the generators. 3rd. The combination of a battery of magneto or dynamo generators, a series of resistances in the field circuits, one for each generator, and means for automatically controlling equally and simultaneously the resistances of the field circuits of all the generators.

No. 15,849. Improvements on Screw Nails. (*Perfectionnements aux vis.*)

Charles D. Rogers, Providence, R. I., U. S., 23rd November, 1882; for 15 years.

Claim.—A screw nail having a pointed or driving end, a shank portion provided with threaded or serrated longitudinal sections *a*, and intermediate plain longitudinal groove-sections *b*, and a head adapted to be engaged by a screw-driver or equivalent instrument, for turning the nails axially.

No. 15,850. Improvement in Horse Shoes. (*Perfectionnement des fers à cheval.*)

Thomas M. Marshall, Truro, N. S., 23rd November, 1882; for 5 years.

Claim.—The steel springs D with the disk A, made of rubber or any suitable material, when used in combination with a horse shoe.

No. 15,851. Improvement in the Method of Erecting Temporary Buildings. (*Perfectionnement dans la méthode de construire des bâtiments temporaires.*)

Joseph Westman, Toronto, Ont., 23rd November, 1882; for 5 years.

Claim.—1st. In a frame building, vertical studs bound together by a series of transverse timbers, in combination with ropes of hay, grass, straw or flax, soaked in a solution of alum, copperas and vegetable ashes, the said ropes being arranged to form a covering over the frame buildings. 2nd. In a frame building in which vertical studs of frame buildings, the said ropes being arranged to form a covering over the frame buildings. 2nd. In a frame building in which vertical studs of unheven timber are bound together by a series of transverse timbers also unheven, the combination of a covering composed of ropes made from prairie grass or other fibrous material, and thatched with thatching of similar material.

No. 15,852. Improvements on Hydraulic Motors. (*Perfectionnements aux moteurs hydrauliques.*)

Frederick W. Tuerk, jr., Chicago, Ill., U. S., 23rd November, 1882; for 5 years.

Claim.—1st. In a water motor, the wheel D having the angular projections *r* upon its periphery, in combination with the trough like buckets F, inverted upon, and secured to the said projections. 2nd. In combination with the case A, having the inlet pipe *v* and discharge pipe *u*, and the wheel D having the buckets F, of the flange B formed, partly on the back, and partly on the lid of the case, and recessed to receive the wheel. 3rd. The combination, with the case, wheel and buckets of a water motor, of the conical valve G passing through a cylindrical orifice *o* in said case, whereby the entering water follows the surface of the valve and leaves the end thereof in a solid stream. 4th. In combination with the case, wheel and buckets of a water motor, the adjustable conical valve G passing through a cylindrical orifice *o* in said case, and the governor H. 5th. In combination with the shaft-bearings in a water motor, the funnel-shaped projections I I, around and extending over the wheel hubs. 6th. A chambered bushing T, through which a movable stem W passes, for the purpose of being lubricated, and preventing water from passing outside without packing.

No. 15,853. Improvements on Car-Couplings.*(Perfectionnements aux accouplages des chars.)*

Duncan McKinnon, (assignee of Samuel Brown,) Manton, Mich., U.S., 23rd November, 1882; for 5 years.

Claim.—The combination, with the operating-rod K, sliding in keepers L secured to the end of a car, and the lever I pivoted to the end of the car, of the angular rod G F passing through the guide H, secured to the end of the car and provided with the hook a at its outer end, and coupling-pin E.

No. 15,854. Improvement in Lubricating Compounds.*(Perfectionnement dans les composés lubrifiants.)*

Edmund Smalley, Spark Hill, N. Y., and Edwin D. Merritt, Jersey, N. J., U. S., 23rd November, 1882; for 5 years.

Claim.—1st. A lubricating compound containing tallow, pine-tar and sulphur. 2nd. The lubricating compound composed of tallow, sulphur, pine-tar, chloride of sodium and bichlorate of soda.

No. 15,855. Improvements in Devices for Digging and Lining Wells with Cement.*(Perfectionnements dans les appareils à creuser et doubler les puits en ciment.)*

William H. H. Davis, Oakfield, Mich., U. S., 23rd November, 1882; for 5 years.

Claim.—1st. The method of constructing cement wells by, first, inserting in the well, as it is dug, sections of circular and collapsible and expandible curbing, then, after bricks are settled into water in the usual manner, removing the lower section of curbing from the well, then lowering into the well and upon the tier of brick an inner collapsible and expandible core or cylinder, then lining the well with suitable cement in the space between the core and the earth wall to within a short distance of the top of the core, then removing the next section of collapsible curbing, raising the core and continuing the cementing in this manner until the well is completed. 2nd. The adjustable cylinder B provided with the cross piece K, in combination with the supporting rope R, so constructed and arranged that the cylinder B may be supported, raised and lowered, entirely independent of the windlass and ropes used to hoist the earth, or lower the cement. 3rd. The combination of an outer collapsible and expandible curbing cylinder constructed in sections, and an inner collapsible and expandible cylinder or core. 4th. The outer collapsible and expandible cylinder A, constructed in sections and provided with keys S. S. 5th. The inner collapsible and expandible cylinder or core B, provided with lapping edges and eye pins, and adjustable cross bar K and bottom L.

No. 15,856. Improvements in Shingle Machines.*(Perfectionnements aux machines à bardeau.)*

Isaie Fréchette, St. Hyacinthe, Que., 23rd November, 1882; for 5 years.

Claim.—1st. The combination of the cam cylinder R, travelling frame or carriage C and saw I. 2nd. The combination of the saw I, table e, planing disk b₁, casing c₁ having slot f₁, and table g₁. 3rd. The combination of the cam cylinder R with carriage C. 4th. The combination of the table e₁, planing disk or wheel b₁, casing c₁ having slot f₁, and table g₁. 5th. The combination of the planing disk or wheel b₁, casing c₁ having slot f₁, and table g₁. 6th. The combination of the planing disk or wheel b₁, casing c₁ having slot f₁, and table g₁. 7th. The combination of the cam cylinder R, carriage C, saw I, table e₁. 8th. The combination of the cam cylinder R, carriage C, saw I, table e₁, planing disk or wheel b₁, casing c₁ having slot f₁, and table g₁.

No. 15,857. Improvement in Car Wheels and Journal Bearings.*(Perfectionnement dans les roues des chars et les coussinets des tournillons.)*

Gibson W. Fairman, William H. Gray and William R. Austin, New York, N. Y., U. S., 24th November, 1882; for 5 years.

Claim.—1st. A car wheel bearing, formed of semi-annular bushing pieces fitted tightly into the hub of the wheel and having their concave journal bearing surfaces grooved to fit corresponding V-shaped circumferential grooves and ridges, on the periphery of the axle journal. 2nd. The axle B provided with a series of circumferential bevel edged grooves and intervening ridges extending over the entire wearing surface of the journal bearing, to prevent and take up the longitudinal movement of the axle in its bearings. 3rd. In combination with a suitably apertured wheel and grooved axle, the semi-annular tapering bushing and journal bearing provided with internal V-shaped grooves and ridges, and formed with a flange at its widest or inner end, and suitable screw-threads at its outer end, and a nut or cap screwed thereon. 4th. The circumferentially grooved journal provided with a continuous series of V-shaped grooves and ridges, combined with a correspondingly grooved journal box. 5th. The lubricating magazine d₁ in the outside securing nut D₂, provided with an inwardly opening check valve d₂, in combination with the journal bearing B D D₁.

No. 15,858. Improvements on Force Pumps.*(Perfectionnements aux pompes foulantes.)*

William A. Bickford, Hamilton, Ont., 27th November, 1882; (Extension of Patent No. 13,594.)

No. 15,859. Improvements on Force Pumps.*(Perfectionnements aux pompes foulantes.)*

William A. Bickford, Hamilton, Ont., 27th November, 1882; (Extension of Patent No. 13,594.)

No. 15,860. Improvements on Seed Planters.*(Perfectionnements aux semoirs à grains.)*

John A. Houser, Fort Valley, Ga., U. S., 27th November, 1882; for 5 years.

Claim.—The seed planter composed of a frame having covering-roller D, provided with crank J, connecting rod I, crank or transverse arm H, oscillating vertical shaft F, bucket wheel G composed of a central conical disk D, having radial arms or partitions I, connected by annular rim M, forming a circumferential series of buckets, two of which are covered, the bed of the frame provided with discharge openings PP, and the seed tubes SS extending from the latter to the ground.

No. 15,861. Improvements on Ditchers.*(Perfectionnements aux fosseuses.)*

James Clement, Grand Forks, Dak., U. S., 27th November, 1882; for 5 years.

Claim.—1st. The combination, in a carrier for ditching machines, of the carrying roller D, leather or rubber belt I, slats J and canvas cover K. 2nd. The combination, in a carrier for ditching machines, of the intermeshing carrying rollers D, leather or rubber belt I, slats J and canvas cover K.

No. 15,862. Improvements on Book Racks.*(Perfectionnements aux bois des bibliothèques.)*

Thomas Gilfillan, (Co-inventor with Edwin J. Bonnett and Albert W. Flanders.) Barnet, Vt., U. S., 27th November, 1882; for 5 years.

Claim.—A portable book rack composed of two side frames, consisting each of parallel standards a a, connected by cross bars d d and having shoulders or offsets c c midway between said cross-bars, detachable connecting-rod or hanger-roll m, and detachable shelves K notched at the corners, as shown at r.

No. 15,863. Improvements on Ploughs.*(Perfectionnements aux charrues.)*

Jesse S. Felt, Greenwood, Me., U. S., 27th November, 1882; for 5 years.

Claim.—1st. In a reversible plough, the combination, with the rotary mould boards d d, of the two-faced hinged mould-boards e e pivoted with pivots g, the long bearing s projecting through the rotary mould-boards and the button u. 2nd. The combination of the standards b, foot a having point w, mould-boards d d, pivot bolt f and bevel disks k, forming an adjustable stop for the point w to cause the plough-shares to take more or less land. 3rd. The combination of the rotary mould-boards d d, bevelled disks k, landside a b, the extensible hook g vertically adjustable, and the hinged mould-boards e e. 4th. The combination of the rotary mould boards d d, slot p and bottom u, with the landside a b and pivot bolt f, and adapted to be used with or without the hinged mould-boards.

No. 15,864. Improvements on Car Couplings.*(Perfectionnements aux accouplages des chars.)*

James McCree, Lansing, Mich., U. S., 27th November, 1882; for 5 years.

Claim.—1st. In combination with a draw-bar and concealed within the head thereof, a pivoted hook, which will be compelled to disclose the link entrance by the pressure of the entering link thereon, until the point of the hook will engage with the link. 2nd. In combination with a draw-bar within which an entire link is secured out of the way of an entering link, a coupling hook pivotally secured and adapted to move radially and vertically, in combination with a dog also pivotally secured within the draw-bar.

No. 15,865. Improvements on Metrical Carburetters.*(Perfectionnements aux carbureteurs métriques.)*

Walter M. Jackson, Providence, R. I., U. S., 27th November, 1882; for 15 years.

Claim.—1st. The feed mechanism for supplying continuously a thin film of hydro-carbon to the carburetter, in combination with a meter and connecting operating mechanism, whereby the volume of gas, or air flowing to the burner controls the quantity of carburetting fluid exposed to the passing current of gas or air. 2nd. In combination with a valve provided with recess on its face, a valve casing provided with induction and eduction ports, and a meter and connecting mechanism, whereby the carburetting fluid may be supplied from a suitable reservoir to the carburetter continuously. 3rd. The combination, in a carburetter, of a single valve provided with recesses of a given capacity with a valve casing in which said valve is adapted to rotate, the valve casing being provided with induction and eduction ports communicating with a supply reservoir and a carburetter respectively, and mechanism operating in conjunction with the metrical mechanism of the apparatus, to supply the carburetter continuously with the hydro-carbon in regulated quantities. 4th. The combination, with a valve having a bevelled conoidal or inclined face, and provided with suitable recesses, of a valve seat having an oppositely bevelled conoidal, or inclined face and provided with suitable induction and eduction ports and mechanism for operating the said valve. 5th. The combination, with a valve having a bevelled conoidal or inclined face provided with recesses, of a valve seat provided with suitable induction and eduction ports, for the purpose of metrical supplying the hydro-carbon contained in a suitable reservoir to the measured gas or air. 6th. A recessed valve for distributing carburetting fluid to a passing current of gas or air, the said valve being actuated by a suitable device for measuring the gas or air. 7th. The combination, with the valve and valve casing, of a valve shaft, slotted at its inner end, and the shaft of the actuating mechanism provided with a transverse pin,

with which the slot is adapted to engage, and the actuating mechanism connected by suitable gearing with the measuring or indicating mechanism. 8th. The combination with the valve shaft and the valve casing, of a gland and packing whereby the carburetting fluid is confined to the valve casing and prevented from escaping to the meter. 9th. The combination with the valve set horizontally in the valve casing, of a vertical slotted valve stem connecting with the mechanism, whereby the valve is positively operated by the meter without the use of cog wheels, bands, pulleys or other similar gearing. 10th. The combination with a horizontal valve having recesses on its face, and a valve seat provided with suitable ports, of a shield secured to the valve stem. 11th. The combination of the rotary shaft provided with a horizontal arm, with a swivelled head attached to an arm on the rotating shaft of the meter, whereby the measuring devices are actuated positively and the usual gearing dispensed with.

No. 15,866. Gas Governor. (*Régulateur à gaz.*)

John C. Fisk and George S. Woodruff, Grand Rapids, Mich., U. S., 27th November, 1882; (Extension of Patent No. 8143.)

No. 15,867. Improvement in Bureaux.

(*Perfectionnement dans les commodes.*)

George F. Richardson and Edward K. Patten, Utica, N.Y., U.S., 27th November, 1882; for 5 years.

Claim.—1st. The combination, in a bureau or other similar article of case work, of receptacles or compartments arranged alternately on opposite sides, so that, when opened, the contents of each receptacle will be readily accessible, and, when closed, the spaces between each receptacle will be filled by the opposite receptacles.

No. 15,868. Improvements in Trestles.

(*Perfectionnements aux tréteaux.*)

Daniel E. Teal, Oneida, N.Y., U.S., 27th November, 1882; for 5 years.

Claim.—1st. A knock down trestle composed of posts provided with straps, or tie-rods adapted to be set at various points in the length thereof and a cross beam extended from post to post and supported by the adjustable straps of the post. 2nd. The combination of the post A and cross beam B provided respectively with a shoulder or shoulders *a a*, and the strap or tie-rod *c* removably connected with said shoulders. 3rd. The combination of the posts A provided, at their outer side, with notches *a a* at various points of their height, the cross beams B and braces C provided respectively, at their under side, with the notch *a*, and the straps *c c* hooked in two of the notches of the post, and in the notch of the cross beam and its brace respectively. 4th. The combination of the sill S provided with holes *d*, the posts

A provided with dowels *l* and with notches or shoulders *a a*, the cross beam B and braces C provided with notches or shoulders *a a*, and the removable straps *c c* embracing the post and the cross beam and its brace, and adapted to engage the shoulders thereof. 5th. The combination of the post A provided with stud bolts *h h* and nuts *i*, and the metal straps *f f* provided, at their extremities, with an eye *g* and adapted to be connected thereby to said stud bolts, diagonally to each other. 6th. The combination of the posts A provided with notches *a a*, the beam B and brace C provided respectively with the notch *a*, the adjustable straps *c c* engaged with said notches, the plate K placed over the notches of the post, the metal straps *f f* provided with eyes *g* and the bolts *h h* connecting said plate and straps detachably on the post. 7th. The combination of the posts A provided with holes *l l*, and the rods *m* having their ends *n* bent at right angles and detachably connected with the holes *l*. 8th. In combination with the posts A and cross beam B, the track stringer E having on its side the clip or shoe *o*, with flanges *p* engaging opposite sides of the post, and the stay *r* adjustably connected to the beam B.

No. 15,869. Improvements on Hasp Locks.

(*Perfectionnements aux serrures à morillon.*)

John E. Youngs, Bridgeport Ct., U.S., 27th November, 1882; for 5 years.

Claim.—The combination of case I, spring Q, spring P and spring K provided with bolts.

No. 15,870. Improvements on Sash Balances.

(*Perfectionnements aux contre-poids des châssis.*)

Charles E. Bogle, Milton, Calvin B. Bertolette, Morristown, and William J. Moodie, Philadelphia, Penn., U. S., 27th November, 1882; for 15 years.

Claim.—1st. In a window sash, the lower sash M provided with the pulleys *e e*, in combination with the stationary pulleys F, the weight and the rope or chain having one end fastened to the casing. 2nd. The combination with the two sashes of the pulleys, the weights G and the chains or ropes extending from one sash to the other. 3rd. The combination, with the upper sash and the lower sash, each provided with pulleys, of the stationary pulleys in the casing, a chain extending continuously from one sash to the other, and the weights G carried by said chain. 4th. The combination, with the window sash and a cord having two strands *d d* connected with the sash, of the pulley *g* detachably secured to the sash and the removable holding strips or beads *a*. 5th. The combination, with the window sash, of the removable holding strips or beads arranged to form a way for the sash.

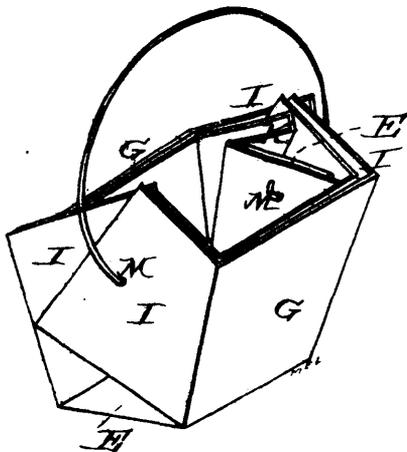
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ILLUSTRATIONS.

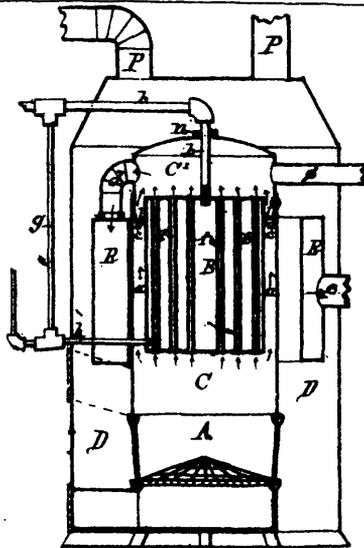
Vol. X.

DECEMBER, 1882.

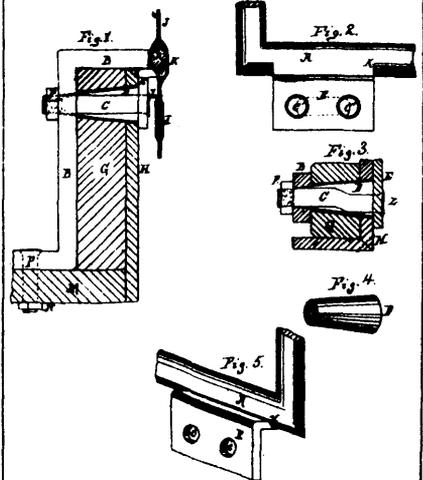
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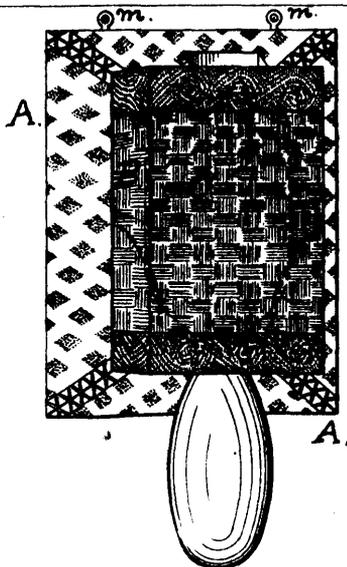
15707 Smith's Improvements on Boxes for Berries.



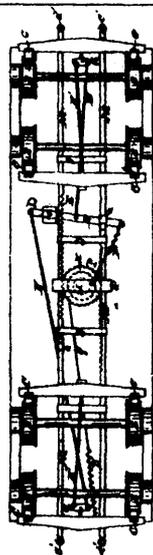
15708 Pease's Improvements on Heating Apparatus.



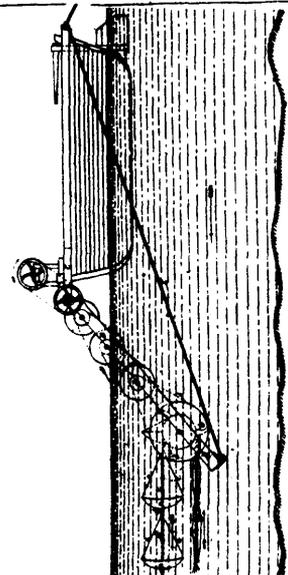
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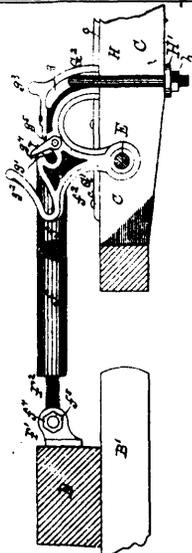
15710 Mile's Improvements on Brush-Holders.



15711 Springer's Improvements on Railway Brakes.



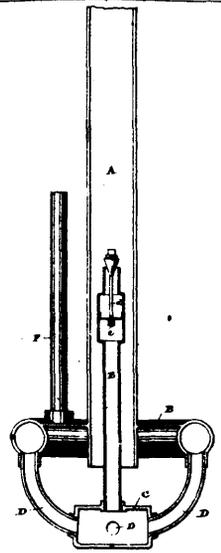
15712 Yagn's Improvements in Hydraulic Motors.



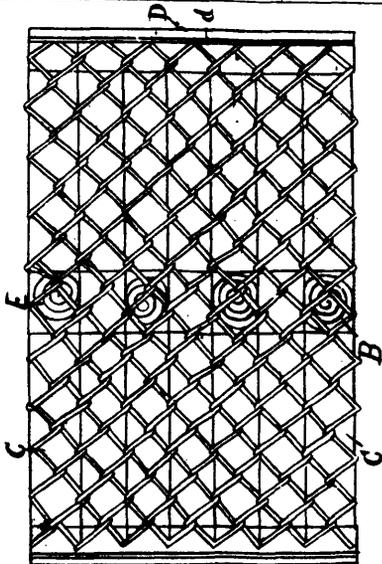
15714 Conrad's Improvements on Tongue Supports for Waggons.



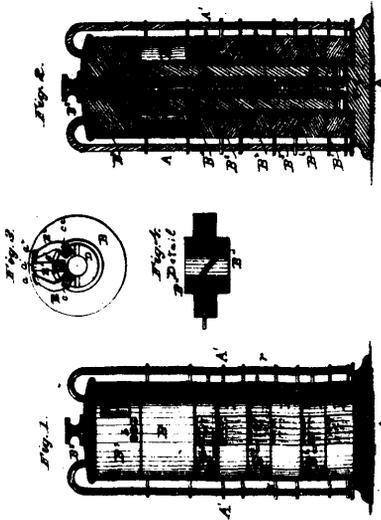
15715 Feldman's Improvements in Umbrellas.



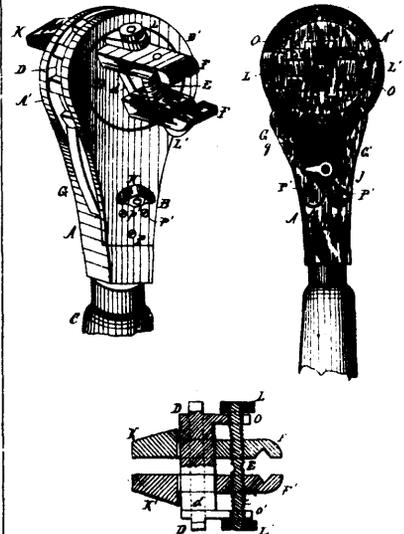
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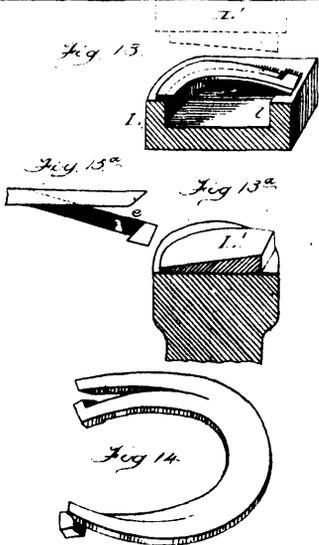
15720 Burdick's Improvements on Spring Bed Bottoms.



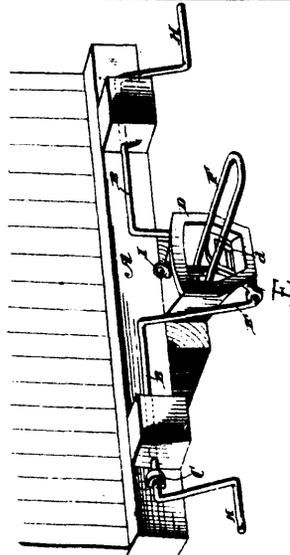
15721 Oney's Improvements on Cypher Codes and Apparatus Therefor.



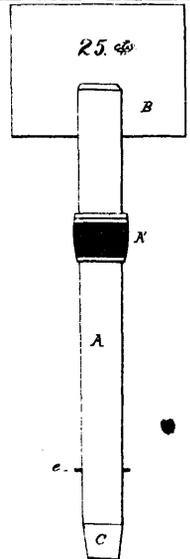
15724 Owen's Improvements on Wrenches.



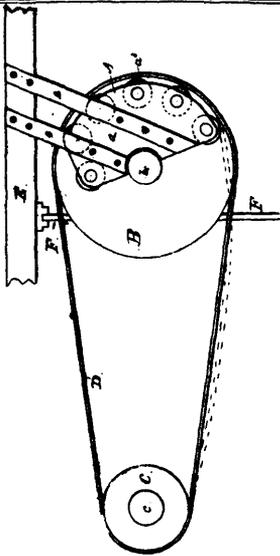
15725 Roe's Improvements on Machinery for Manufacturing Horse Shoes.



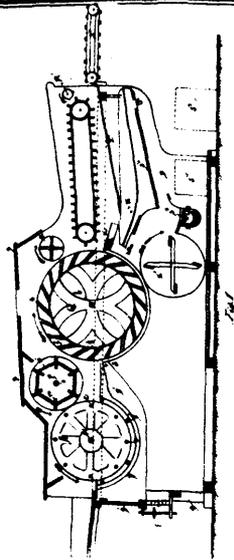
15726 Cordrey's Improvements on Car-Couplings.



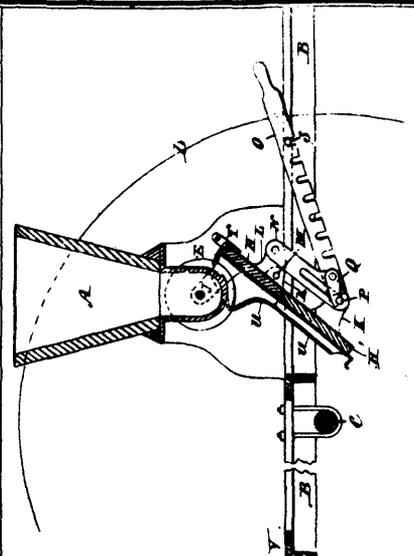
15727 Whyte's Improvements on Price Ticket Holders.



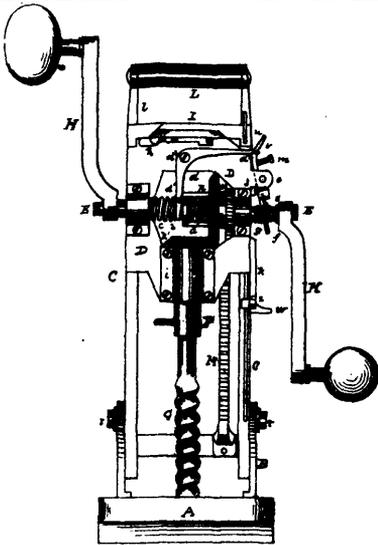
15728 Durand's Improvements on Belt Shifters.



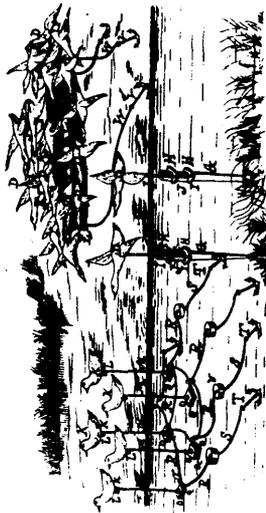
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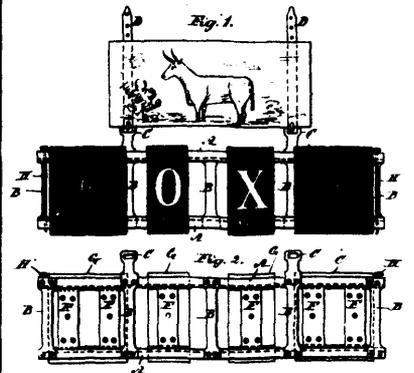
15730 Galloway's Improvements on Combined Drill and Broadcast Sowers.



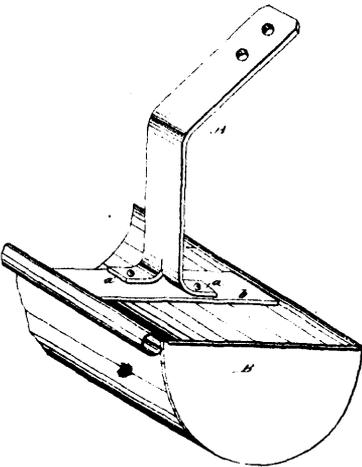
15731 Saunders' Improvements on Boring Machines.



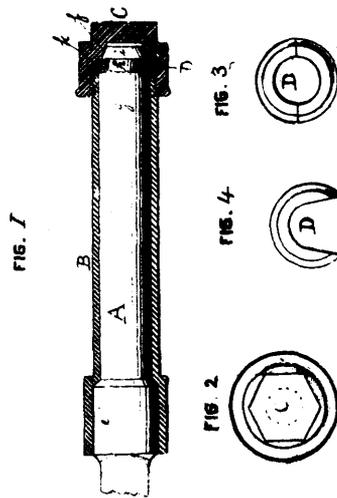
15732 Cochel's Improvements on Decoys.



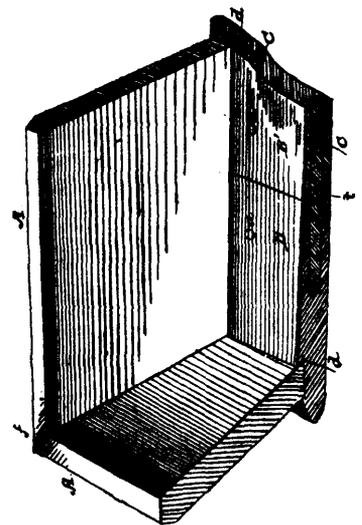
15734 Packer's Improvements on Instruction Boards.



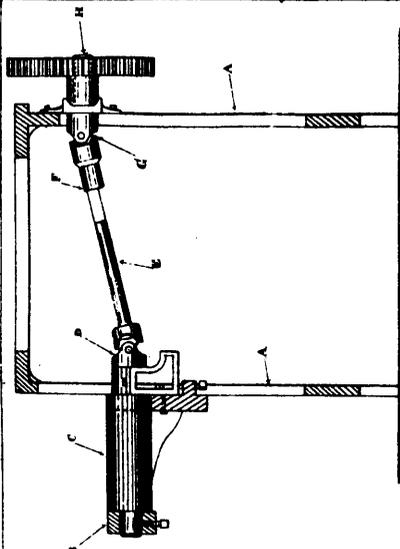
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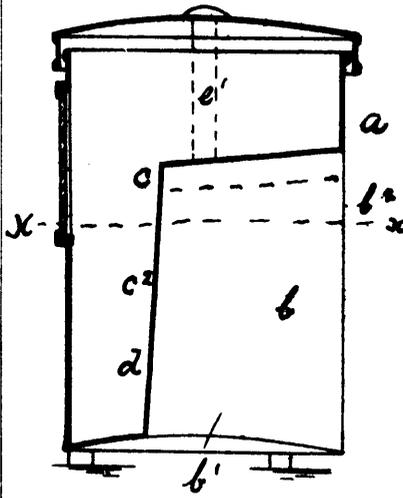
15736 Smith's Improvements in Vehicle Axles.



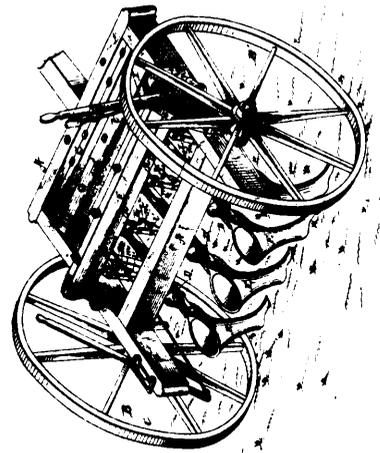
15737 Eddy's Improvements in Buggy Seats.



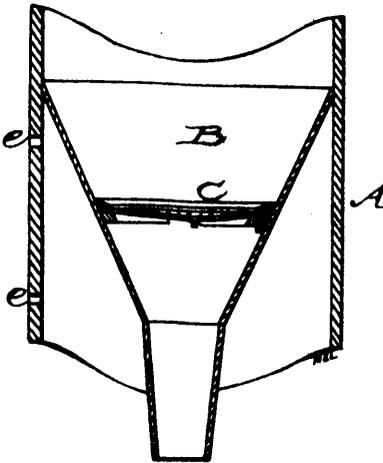
15738 Essery's Improvements on Wood Working Machinery.



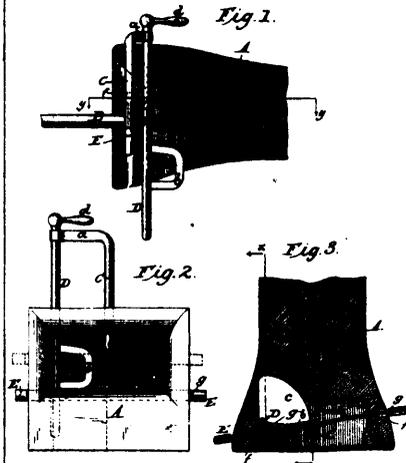
15739 Hansy's Improvements on Milk Cans.



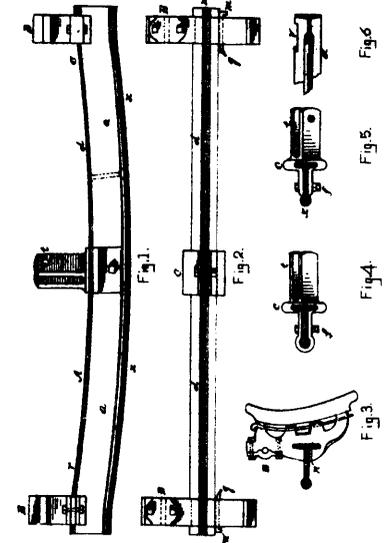
15743 Thomas & Ludlow's Improvements on Seeding Machines and Cultivators.



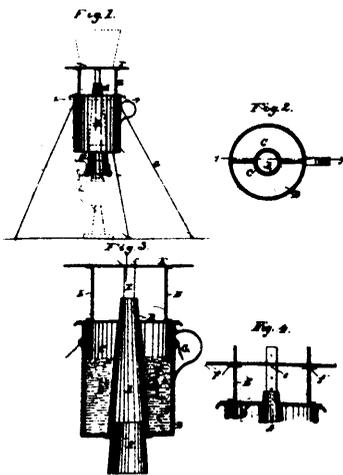
15744 Harlocker und Oyster's Improvements on Liquid Drainers.



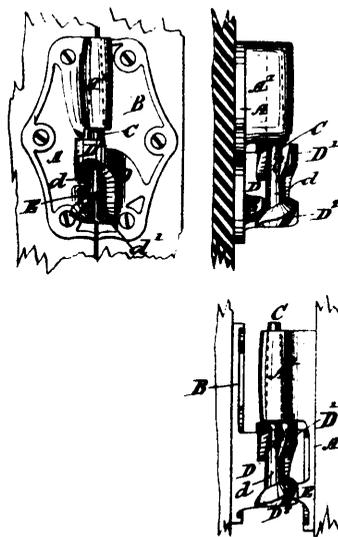
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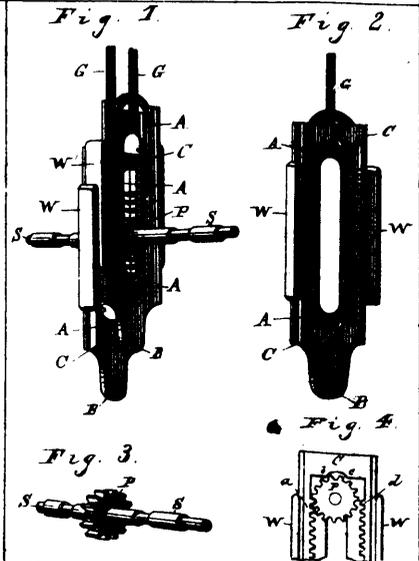
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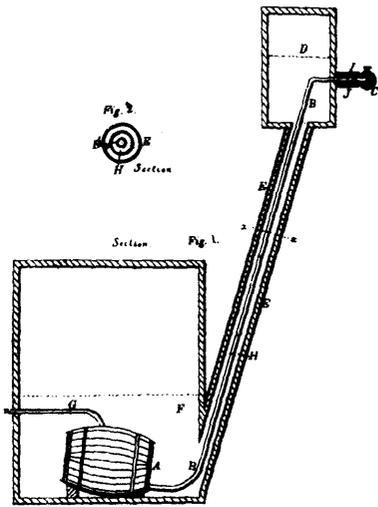
15747 Lancaster's Improvements on Stoves Lamp.



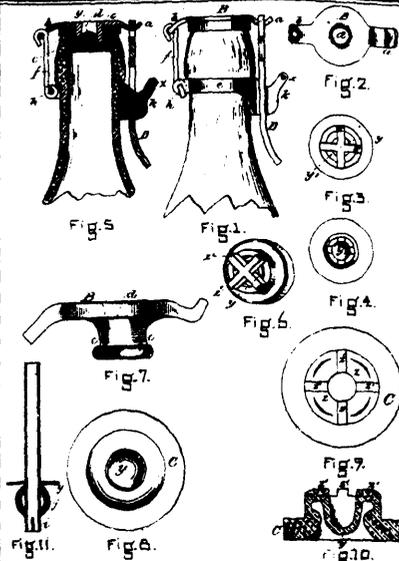
15748 Roy's Improvements on Blind Hinges.



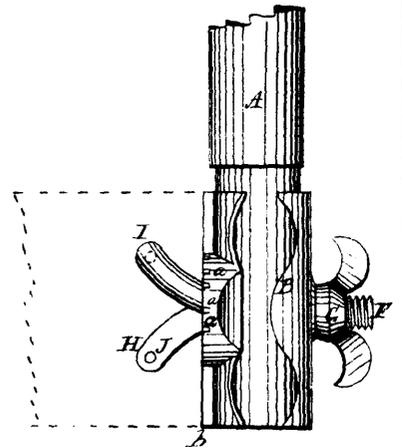
15749 Munger's Improvements on Machines for Converting Motion.



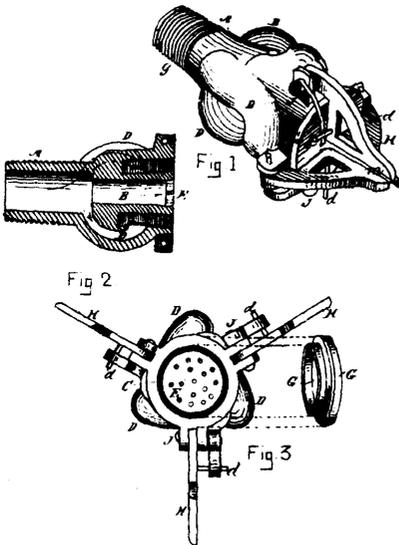
15750 Gordon's Improvements on Cooling and Drawing Beer.



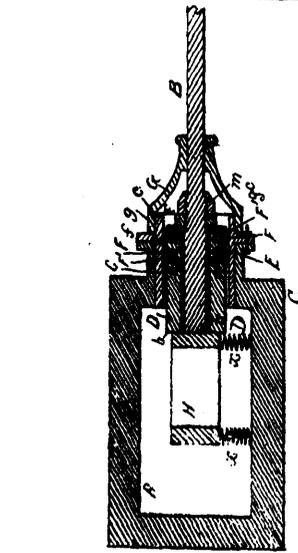
15751 Rich's Improvements on Bottle Stoppers and Fasteners.



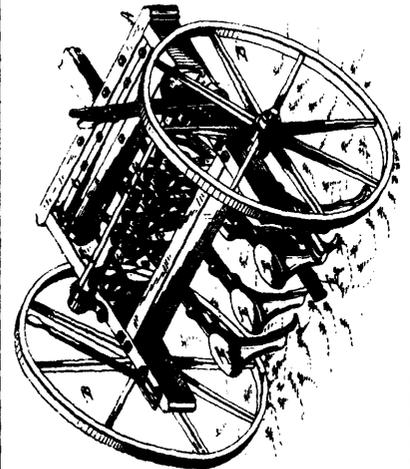
15752 Knapp's Improvements on Saw Handles.



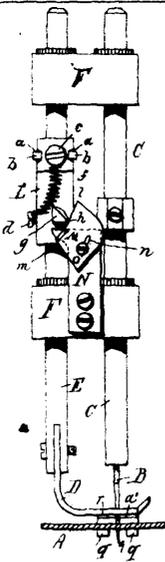
15753 Deslovere's Improvements on Spray Nozzles for Fire-Extinguishers.



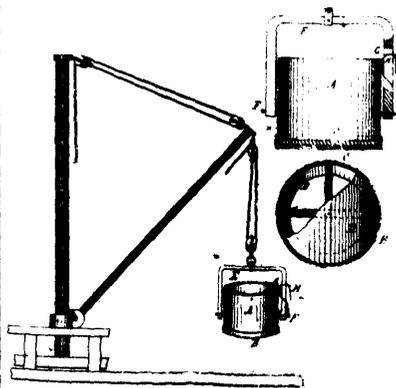
15754 Mathew's Improvements on Packing for Steam Valve Stems.



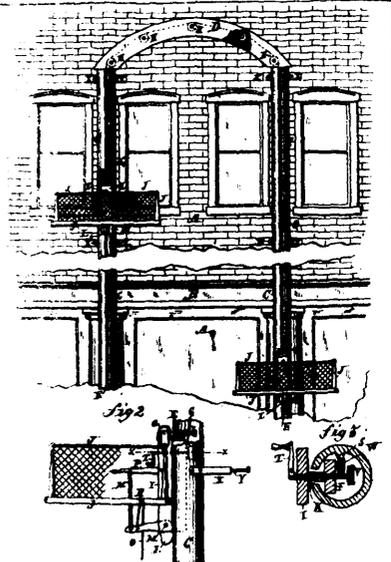
15755 Thomas' Improvements in Seeding Machines and Cultivators.



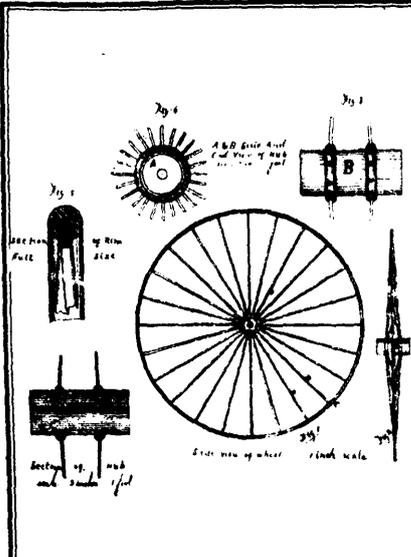
15756 Allen's Improvements on Sewing Machines.



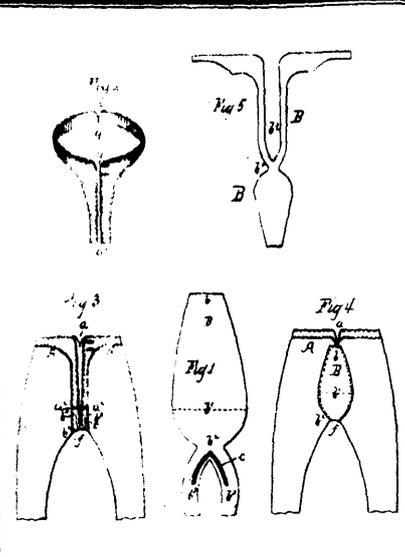
15757 Calkin's Improvements on Hoisting Buckets.



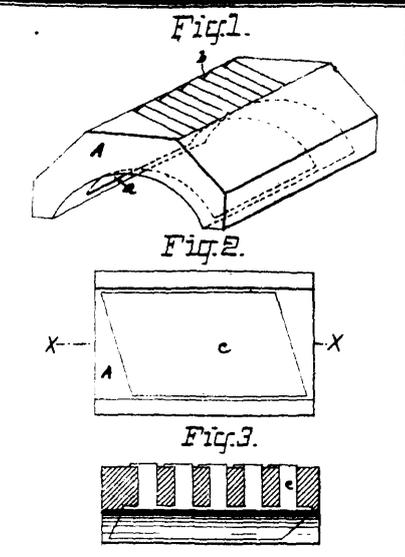
15758 Smith's Improvements on Fire-Escapes.



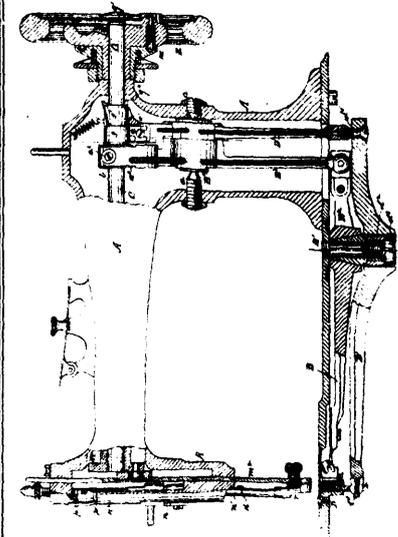
15769 Goble's Improvements on Vehicle Wheels.



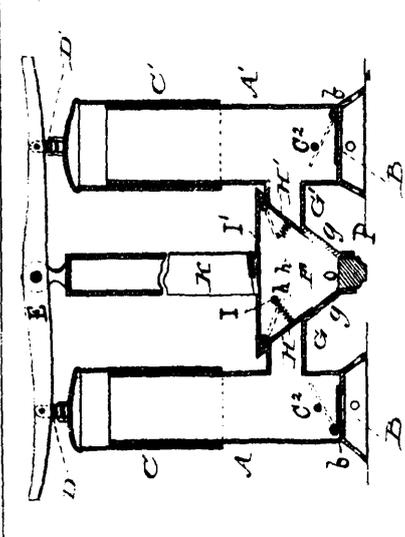
15780 Anderson's Improvements in the Manufacture of Garments.



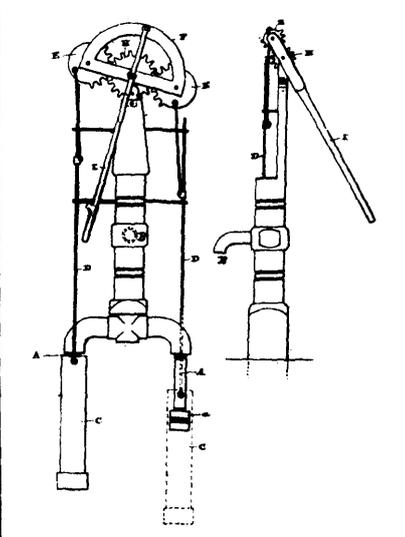
15781 LeRoy's Improvements in Journal Bearings.



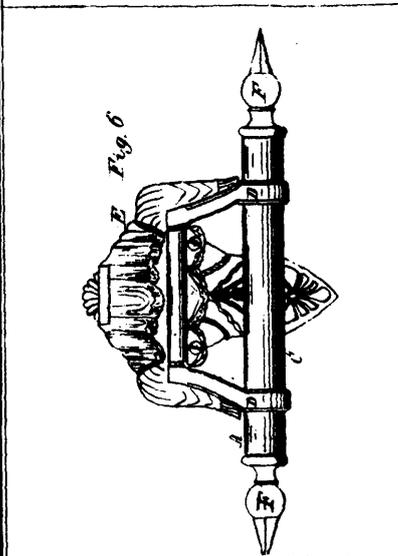
15782 Thomas' Improvements on Sewing Machines



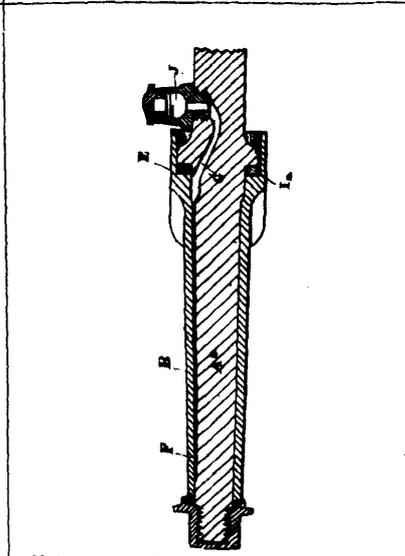
15783 Ahrens' Improvements on Pumps.



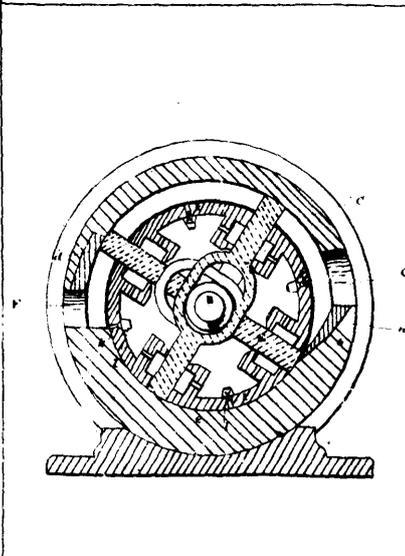
15784 Sanders' Improvements on Pumps.



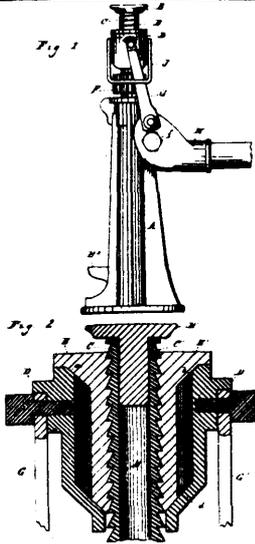
15765 Pothiere's Improvements on Coffin and Casket Handles.



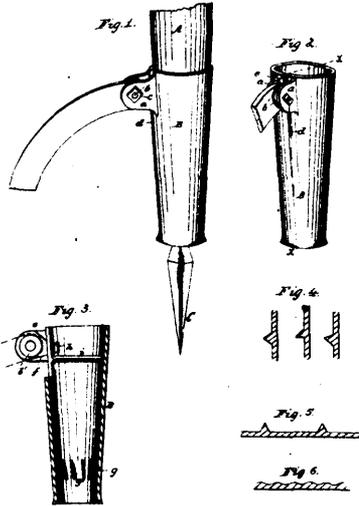
15768 Armstrong's Improvements in Vehicle Axles.



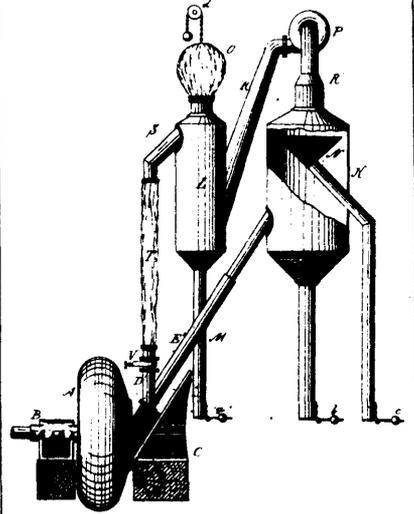
15787 Gibson's Improvements on Rotary Engines.



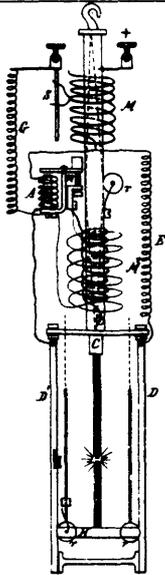
15770 Terris's Improvements in Lifting Jacks.



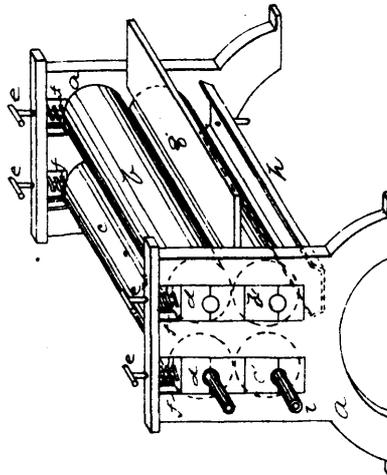
15772 Sanford's Improvements in Cant-Hooks.



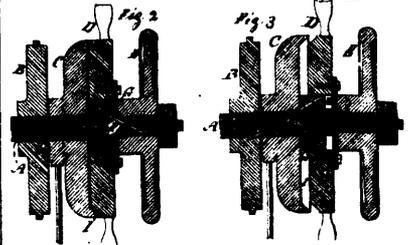
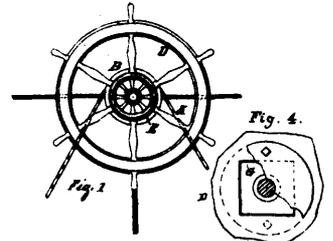
15773 Duc's Improvements in Attrition Mills.



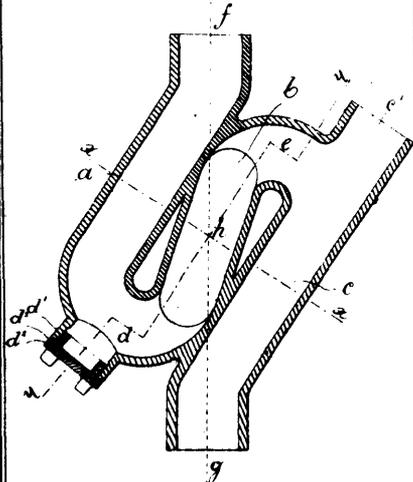
15774 Fyfe's Improvements on Electric Lamps.



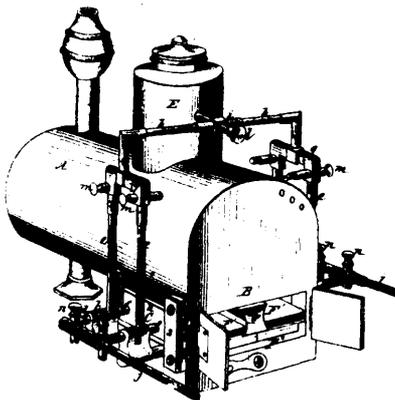
15775 Harris' Improvements on Processes for Tanning Hides.



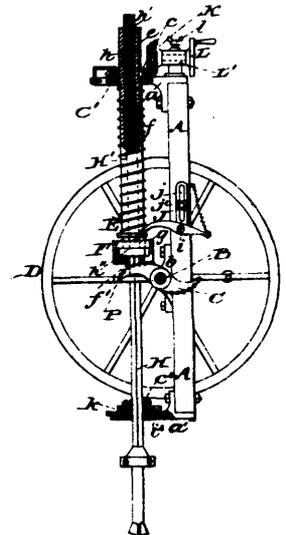
15776 Greacen's Improvements on Steering Wheels.



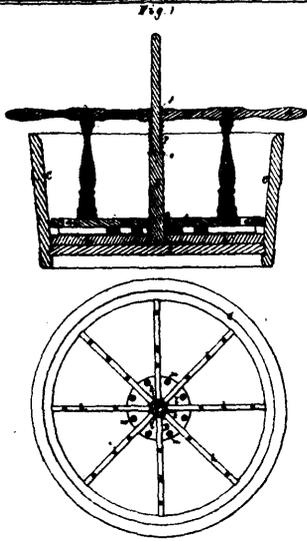
15777 English's Improvements on Water Traps.



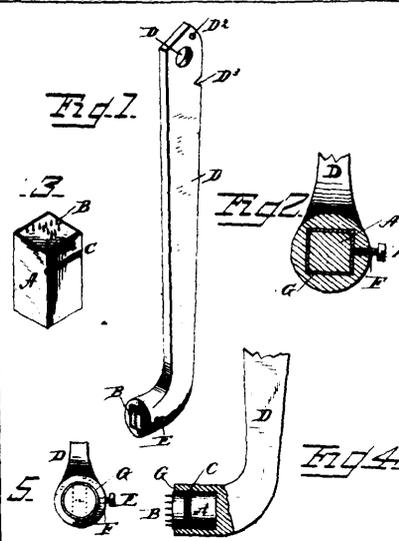
15778 Mundell and Gordon's Improvements on Hydro-Carbon Furnaces.



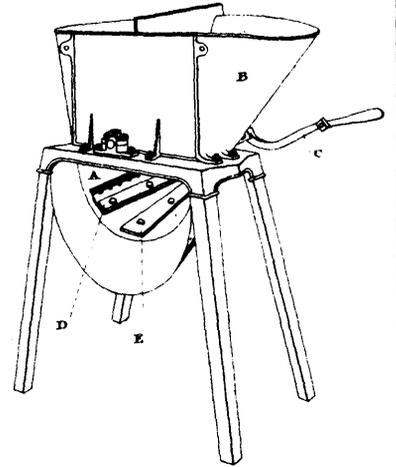
15780 Booth's Improvements on Rock Drills.



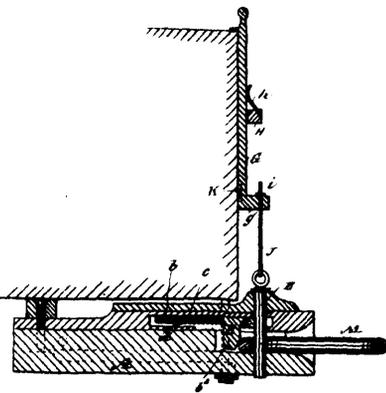
16781 Morse's Improvements on Washing Machines



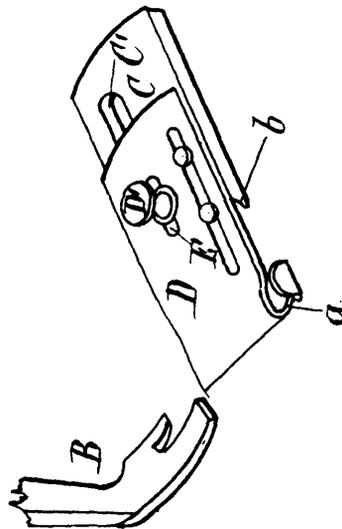
15783 Shannon's Improvements on Type Writing Machines.



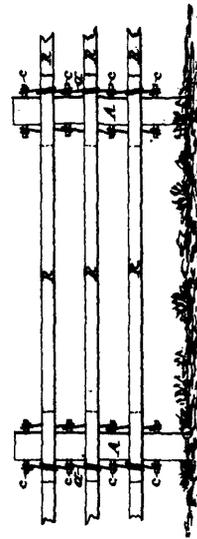
16784 Field's Improvements in Root-Cutters.



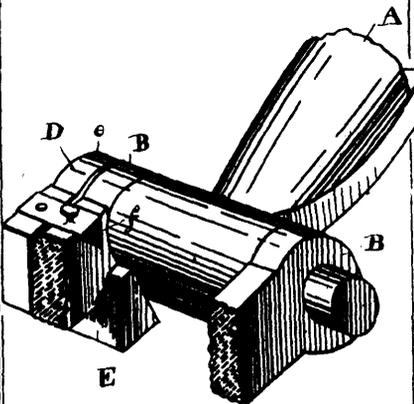
16786 Hazleton's Improvements in Car-Couplings.



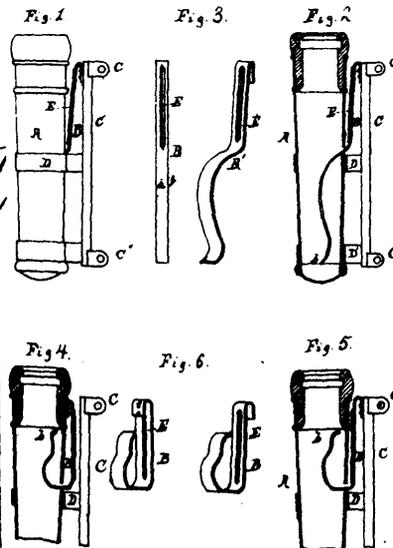
15787 Stern's Improvements in Sewing Machines.



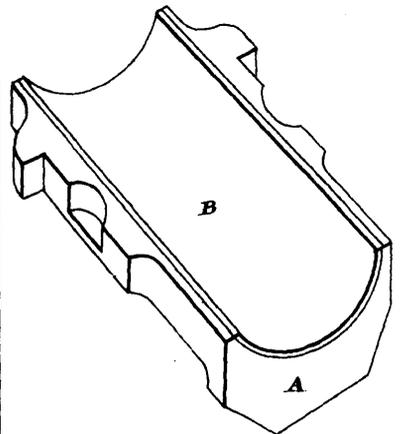
15788 Lauer & Zimmer's Improvements in Farm Fences.



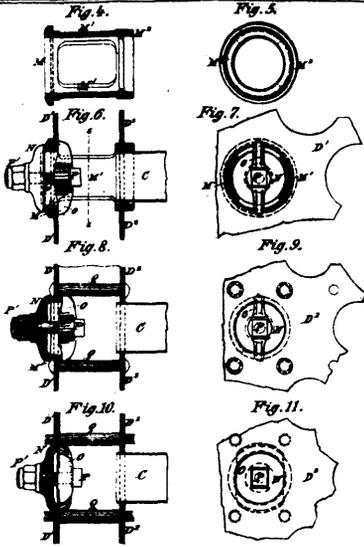
16789 Ferguson's Improvements on Thill Couplings.



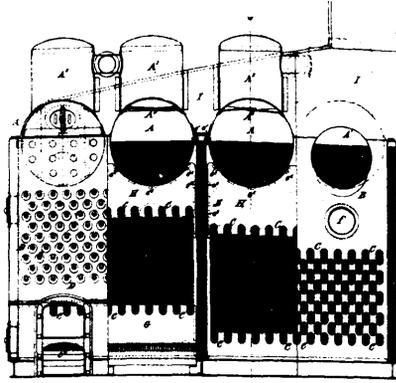
16790 Ayer's Improvements in Combined Rein and Whip Holders.



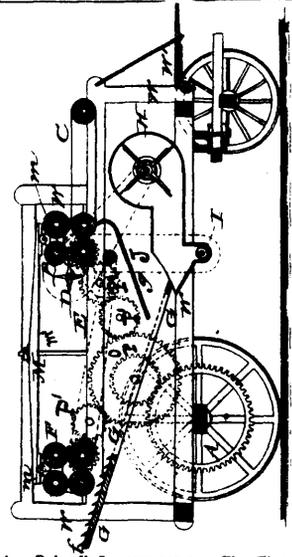
15791 Joseph's Improvements in the Process for Lining Car Axle Boxes.



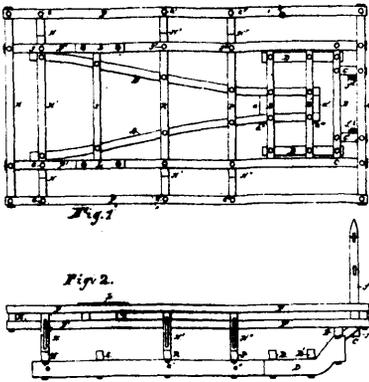
15792 Babcock & Wilcox's Improvements on Steam Boilers.



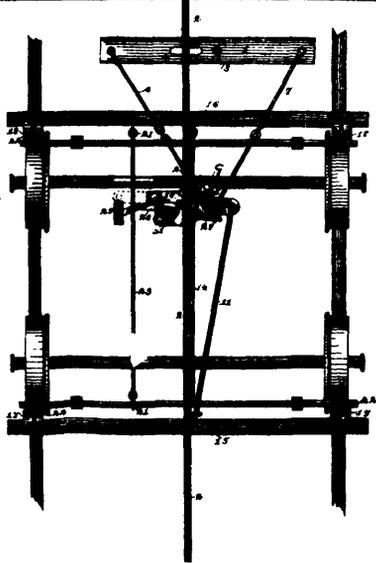
15793 Babcock & Wilcox's Improvement on Steam Boilers.



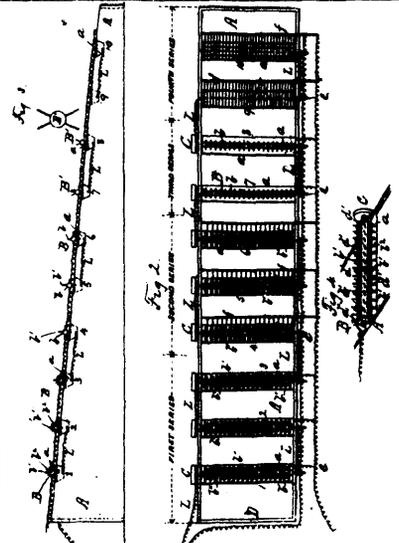
15794 Robard's Improvements on Flax Thrashing Machines.



15795 Barton's Improvement in Hay Racks.



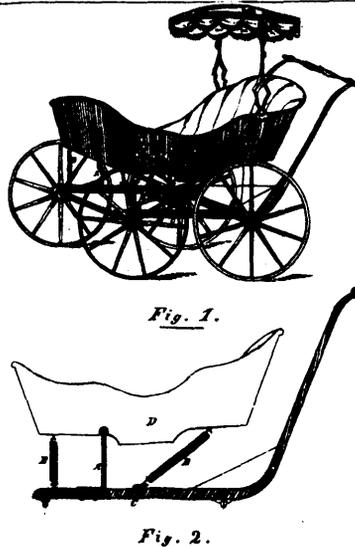
15796 Guernsey's Improvements on Car Brakes.



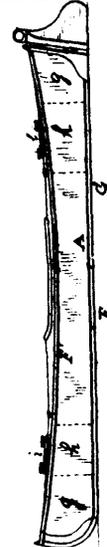
15797 Barker's Improvement in the method of, and Apparatus for Extracting Gold and Silver from their Ores.



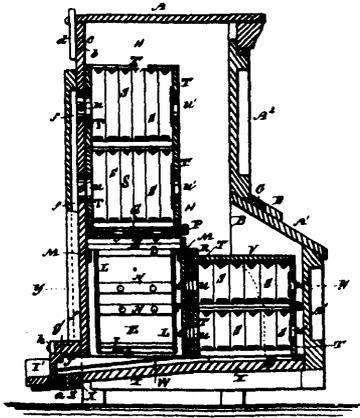
15798 DuBois's Improvements in the Method of, and Machines for Mining Coal.



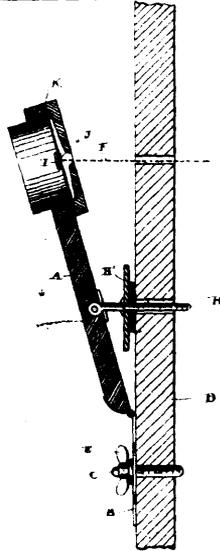
15799 Jantz's Improvements in Carriage Springs.



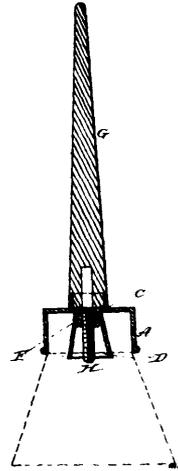
15800 Durant's Improvements on Boats and Method for Constructing the same.



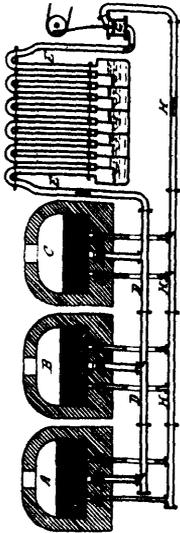
15801 Van Ensley's Improvements on Bee Hives.



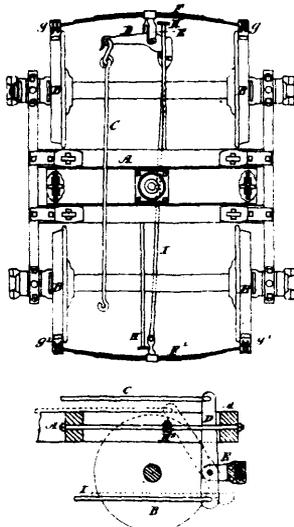
15802 Stafford's Improvements on Telephones.



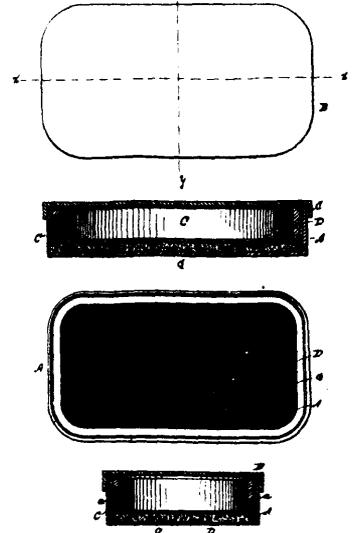
15803 Bartlett's Improvements on Brushes.



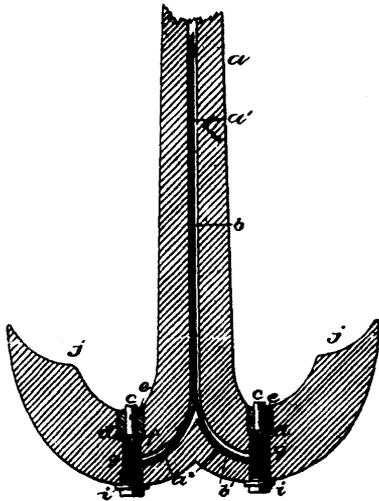
15804 Jamieson's Improvements in the Manufacture of Coke.



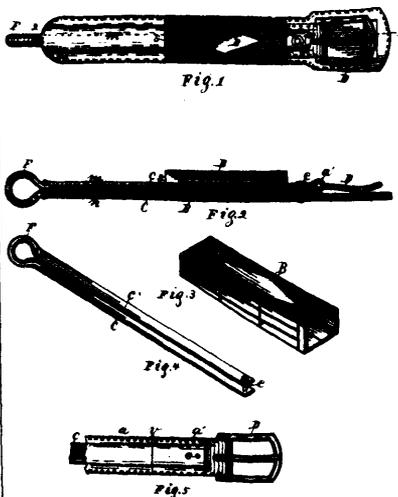
15805 Tremain's Improvement on Car Brakes.



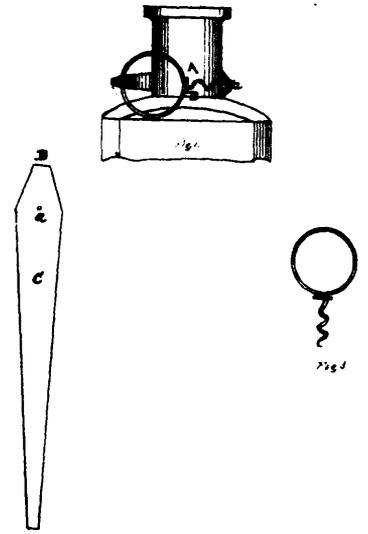
15806 Bayne's Improvements on Ink Pad Holders.



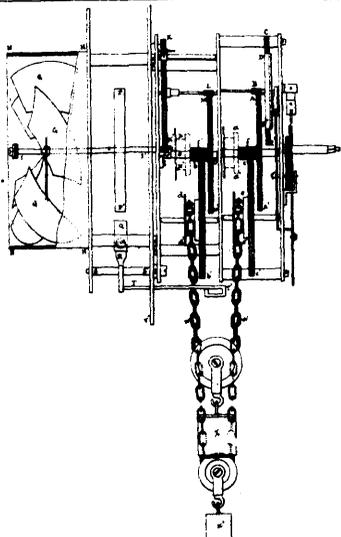
15807 Trott & Kingsford's Improvements in Grappels.



15808 Simmons' Improvements in Hame Tugs.



15809 Simms' Improvement in Means for Attaching Corkscrews to Bottles.



15810 Dardenne's Improvements on Self-Winding Clocks.

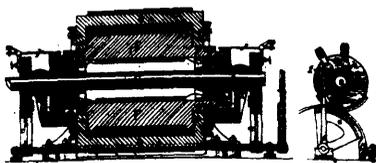


FIG. 1.

FIG. 5.

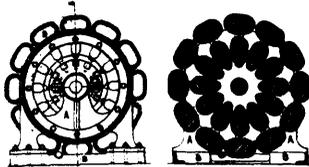


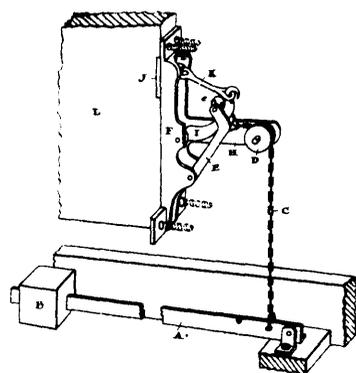
FIG. 2.

FIG. 3.

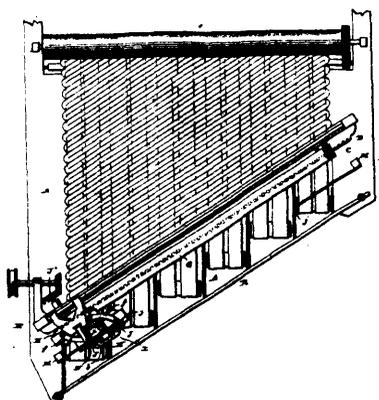


FIG. 4.

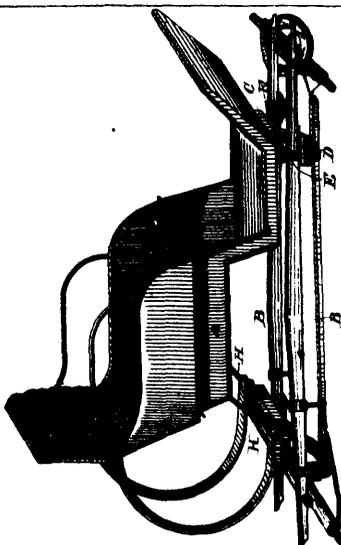
15811 Plot's Electric Motive Engine.



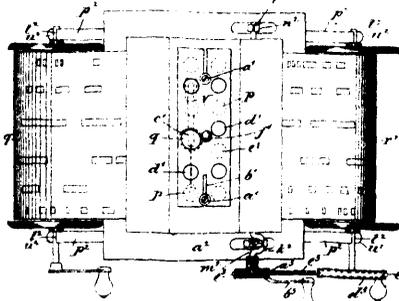
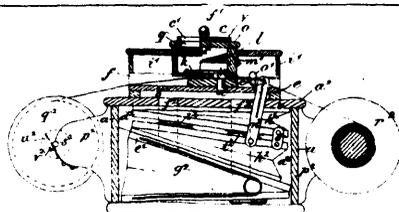
15812 Serton's Improvements on Door Balances.



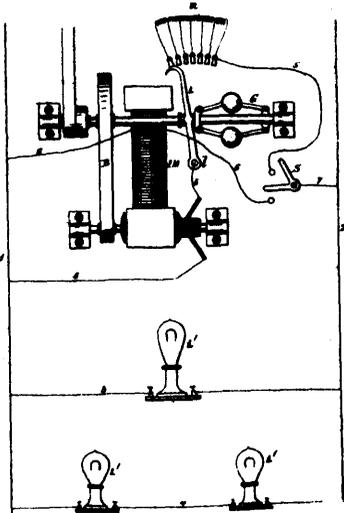
15813 Gebhart's Improvements on Feeding Devices for Carding Engines.



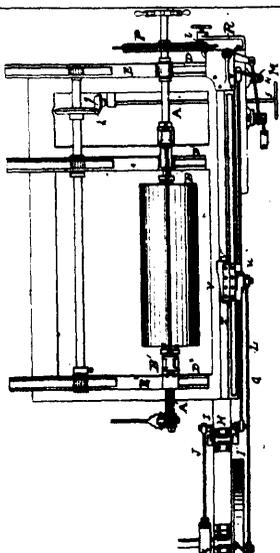
15814 Deiker's Improvements on Spring Vehicles.



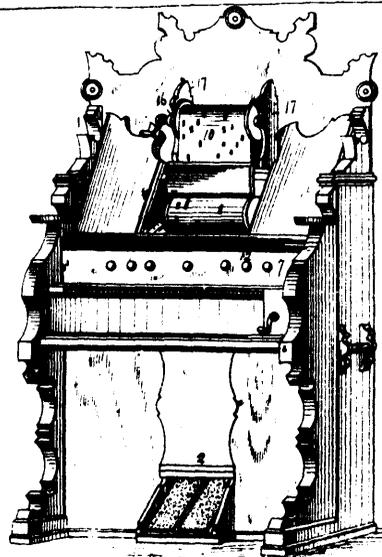
15815 Chase's Improvements in Musical Instruments.



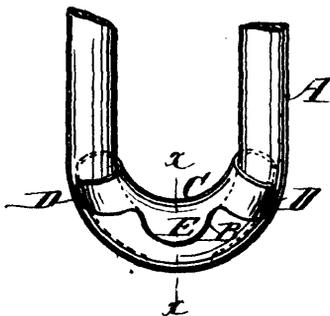
15816 Edison's Improvements on Electric Motors.



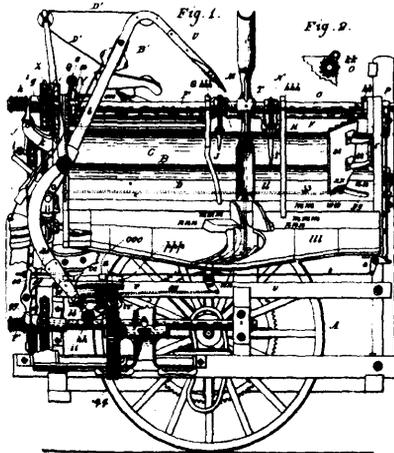
15817 Wilson's Improvements in Hoop Cutting Machines.



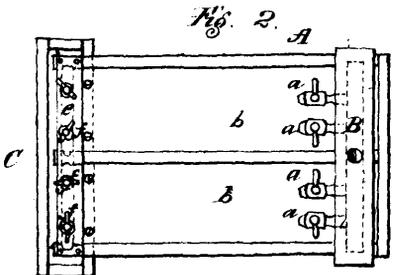
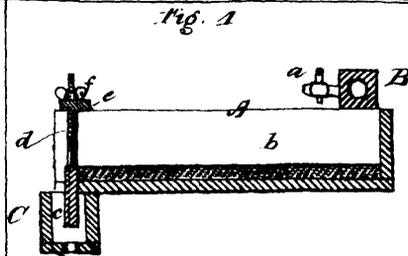
15818 Ingall's Improvements on Automatic Musical Instruments.



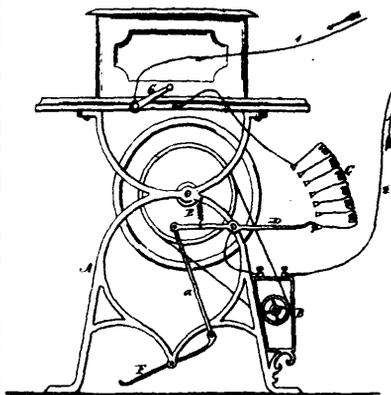
15819 Philpot's Improvement on Wear Clips for Harness Irons.



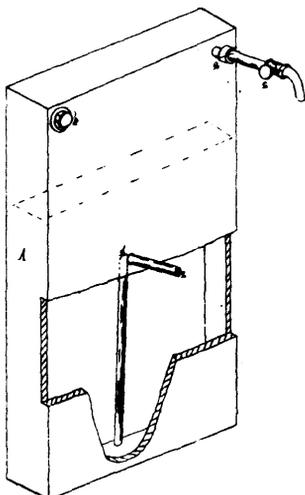
15820 Miller's Improvements on Self-Binding Harvesting Machines.



15821 Atkinson's Apparatus for the Manufacture of Starch.



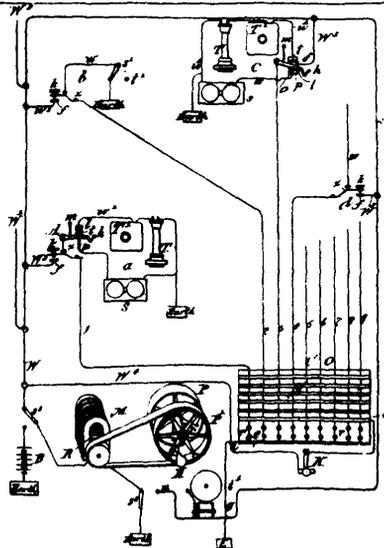
15822 Edison's Improvements on Electro-Magnetic Motors.



15823 Walker's Improvements on Fire Extinguishers.



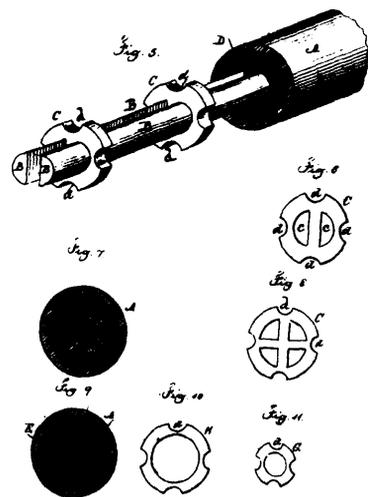
15824 Morrison's Improvements on Self-Lubricating Packing for Steam and other Engines.



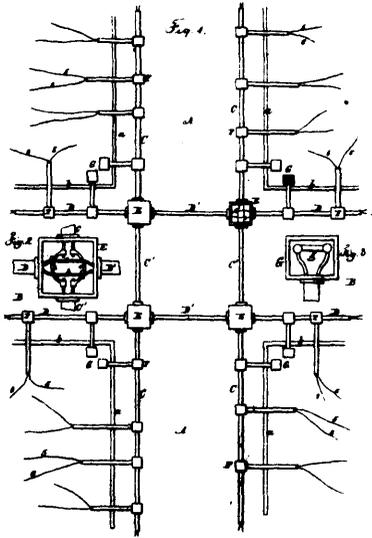
15825 Lockwood's Improvements in Electric Signalling for Telephone Lines.



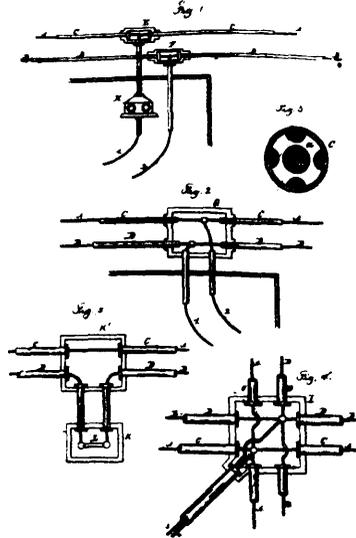
15826 Crookes' Improvements on Electric Lamps.



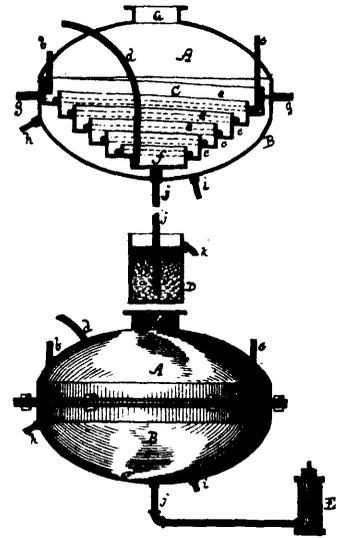
15830 Edison's Improvements on Underground Conductors.



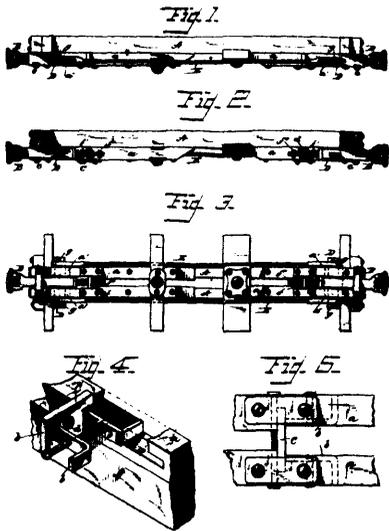
15831 Edison's Improvements on Electrical Distribution Systems.



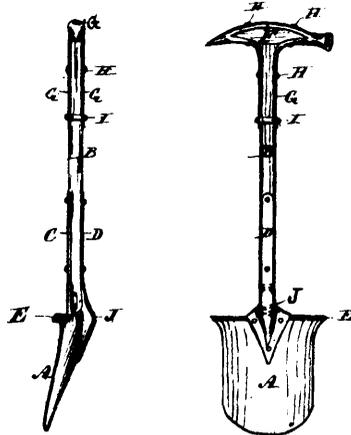
15832 Edison's Improvement on Electrical Distribution System.



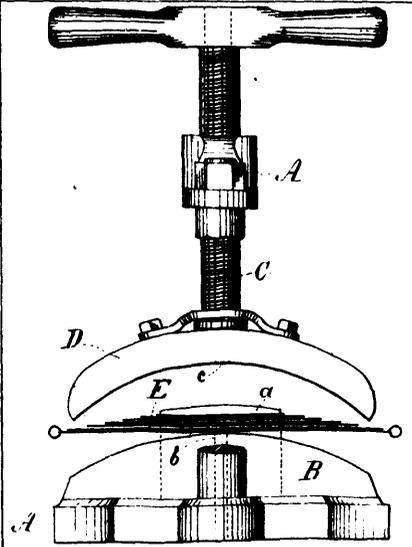
15833 Wahi's Improvements on Vacuum Pans.



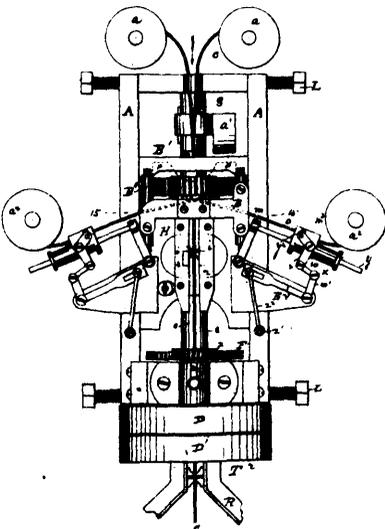
15834 Coulter & Hibbert's Improvement on Draft and Buffing Mechanism for Railroads.



15835 Wallace's Improvements on Entrenching Tools.



15836 Fowler's Improvements in Methods of, and Machines for Bending Springs.



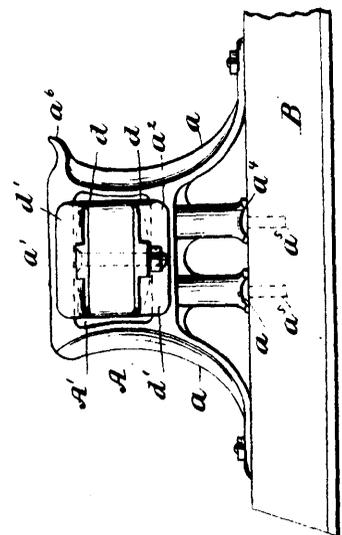
15837 Wells' Improvement on Machines for Barbing Wires.



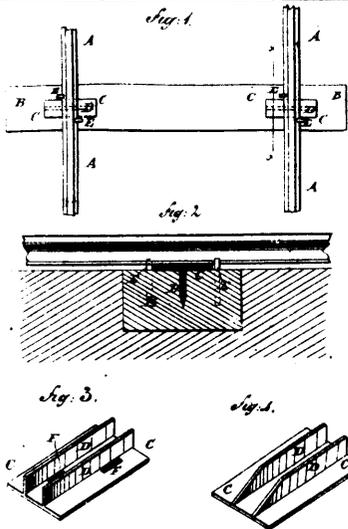
Fig. 1.

Fig. 2.

15838 Thompson's Improvement in Boots.



15839 Hinman's Improvements on Sleds.



15840 Servia's Improvements on Wear Plates for Railroad Ties.

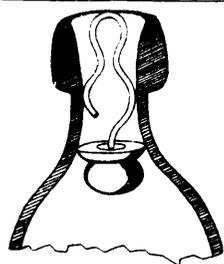


Fig. 1.

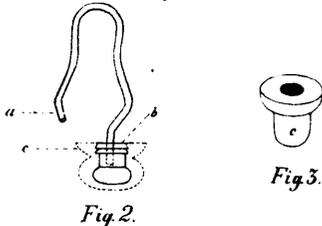
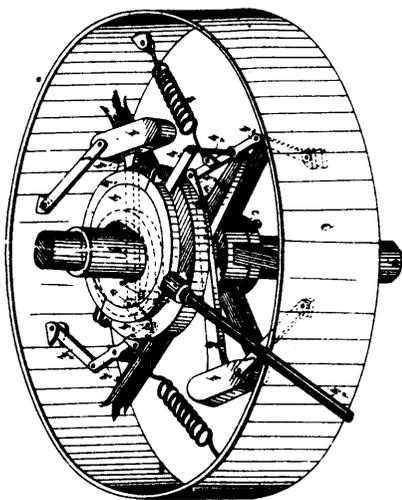


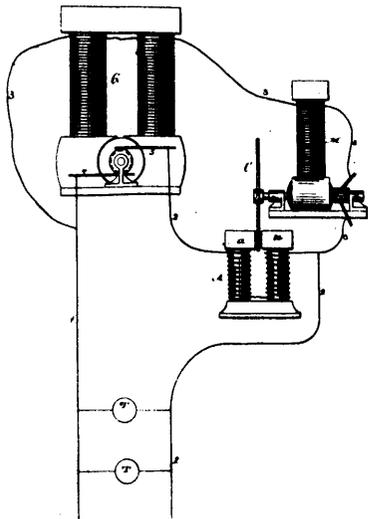
Fig. 2.

Fig. 3.

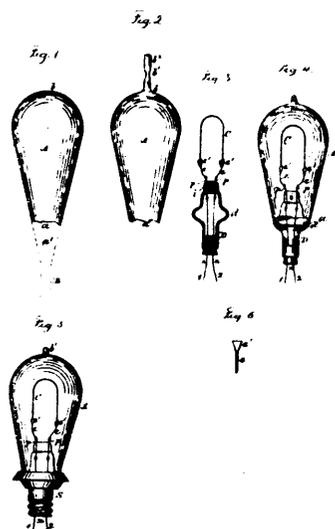
15841 McGuire & Rogers' Improvement in Bottle Stoppers.



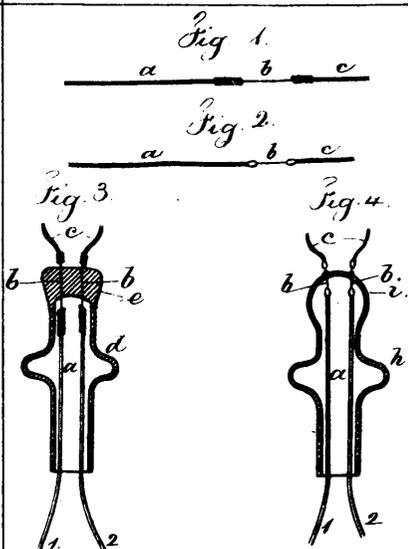
15842 Ball's Improvements in Steam Engine Governors.



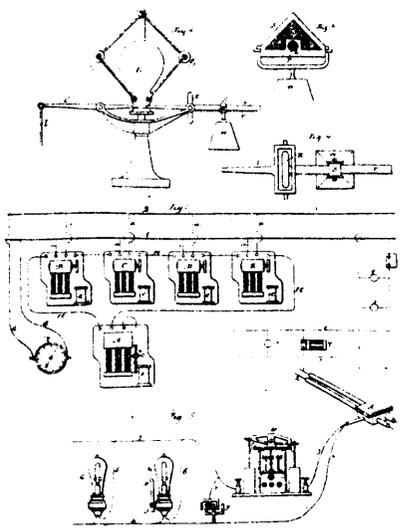
15843 Edison's Improvements on Current Regulators for Dynamo-Electric Machines.



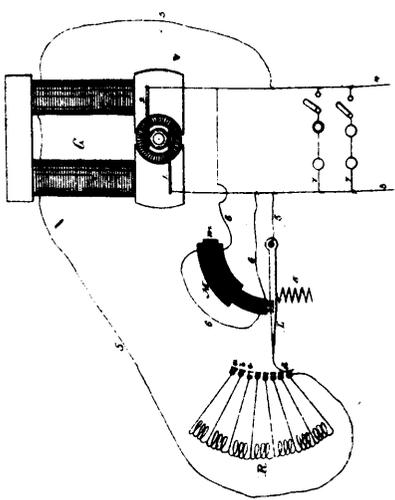
15844 Edison's Improvements on Electric Lamps.



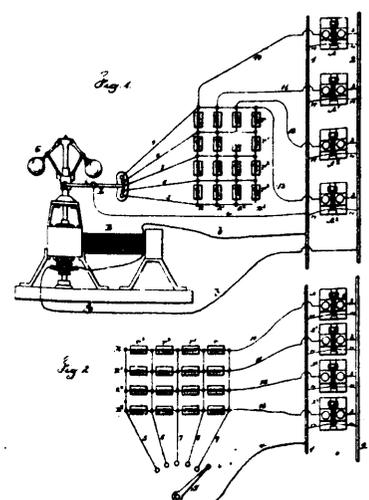
15845 Edison's Improvements on Electric Lamps.



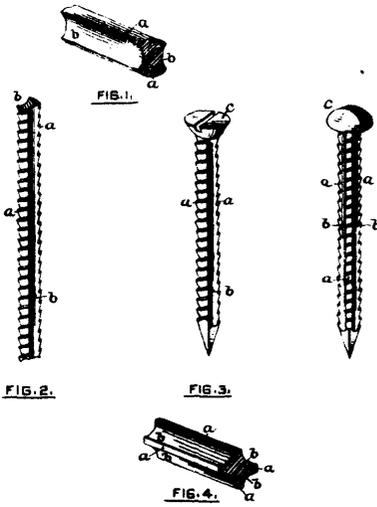
15846 Edison's Improvements on Regulators for Magneto or Dynamo-Electric Machines.



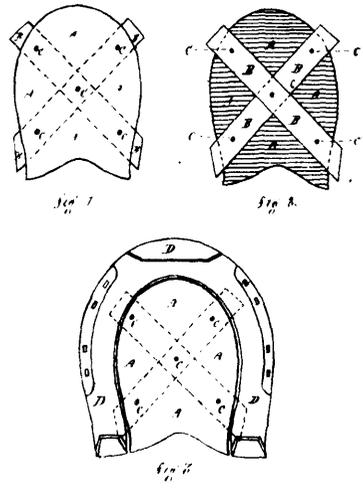
15847 Edison's Improvements on Regulators for Dynamo or Magneto-Electric Machines.



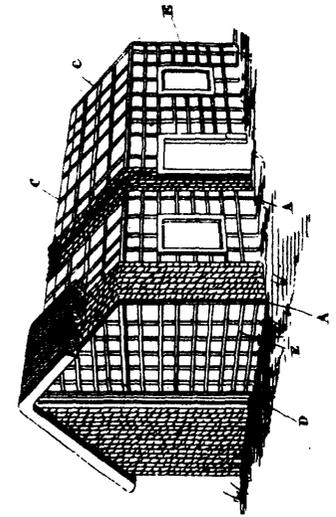
15848 Edison's Improvements on Regulators for Magneto or Dynamo-Electric Machines.



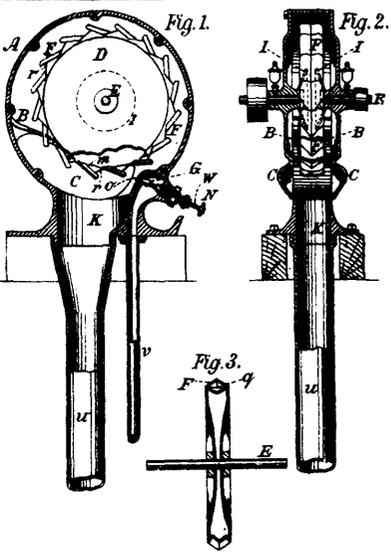
15849 Rogers' Improvements on Screw Nail.



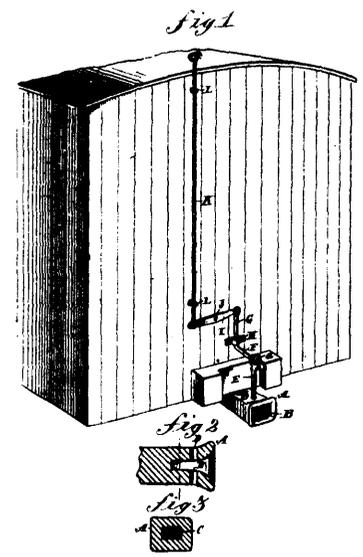
15850 Marshall's Improvement in Horse Shoes.



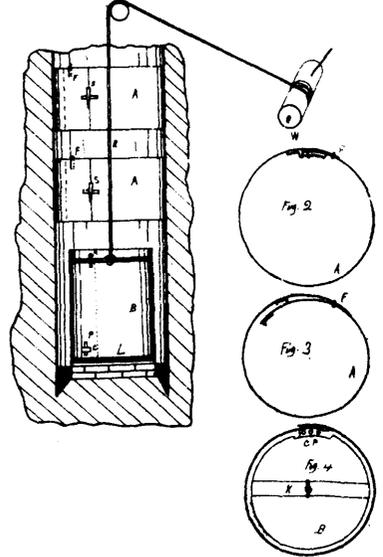
15851 Westman's Improvement in the Method of Erecting Temporary Buildings.



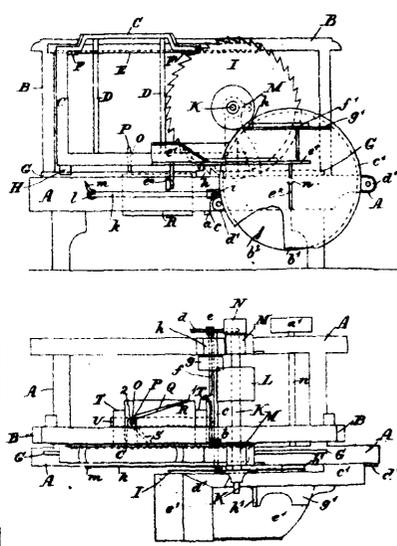
15852 Tuerk's Improvements on Hydraulic Motors.



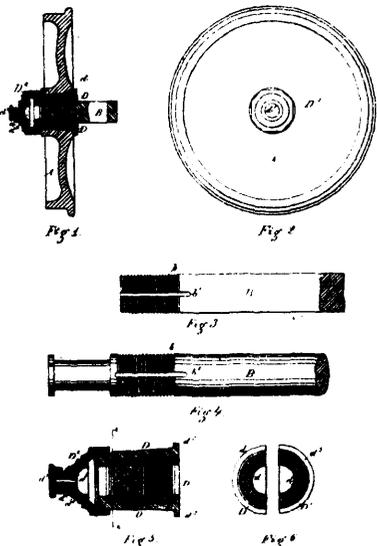
15853 Brown's Improvements on Car-Couplings.



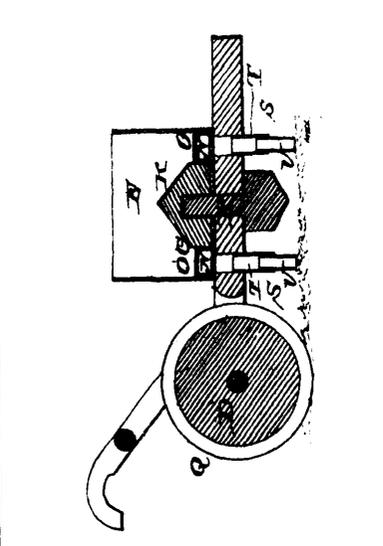
15855 Davis' Improvements in Devices for Digging and Lining Wells with Cement.



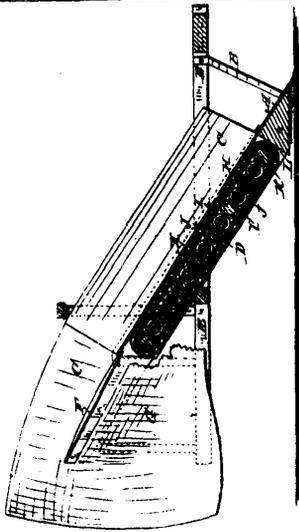
15856 Frechette's Improvements in Shingle Machines.



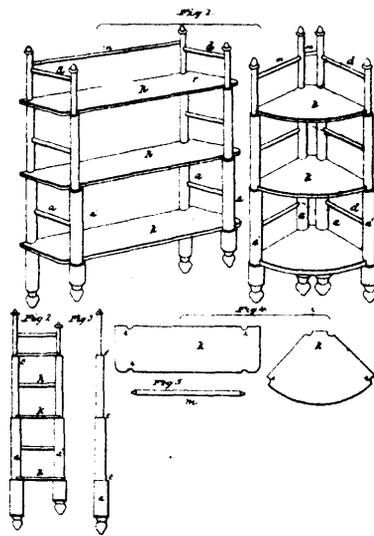
15857 Fairman's Improvement in Car Wheels and Journal Bearings.



15860 Houser's Improvements on Seed Planters.



15861 Clement's Improvements on Ditchers



15862 Flander's Improvements on Book Racks.

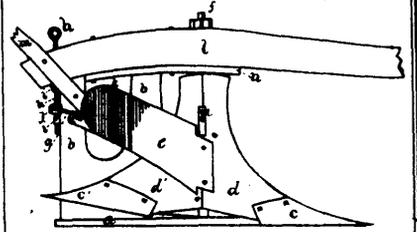


FIG. 1.

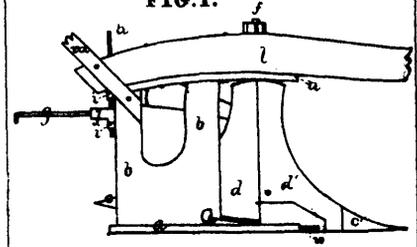
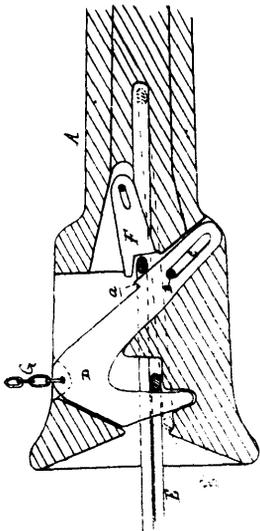
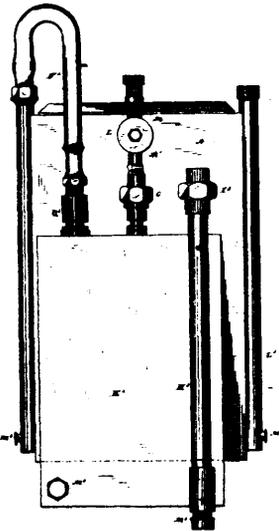


FIG. 2.

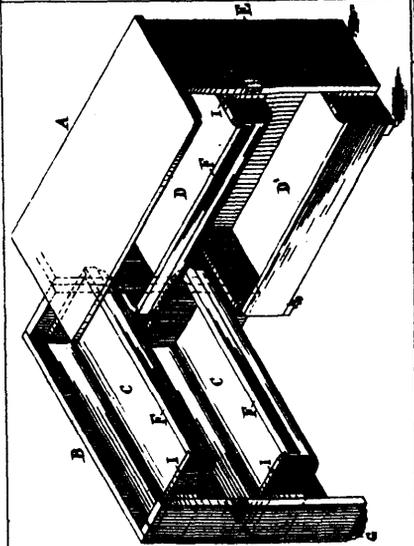
15863 Felt's Improvements on Ploughs.



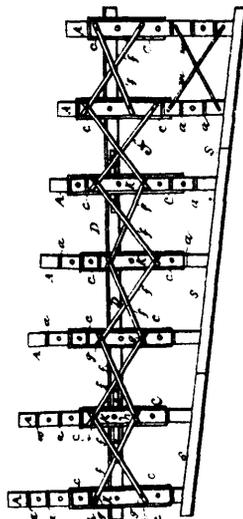
15864 McCree's Improvements on Car-Couplings.



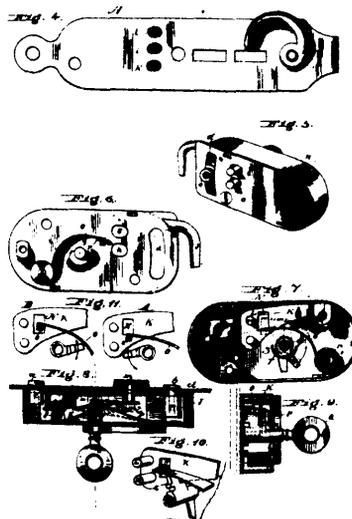
15865 Jackson's Improvements on Metrical Carburetters.



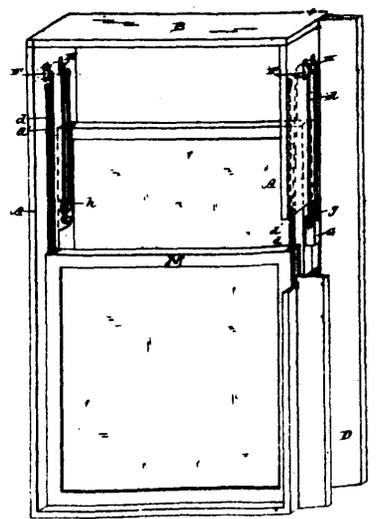
15867 Richardson's Improvement in Bureaux.



15868 Teal's Improvements in Trestles.



15869 Young's Improvements on Hasp Locks.



15870 Bogle's Improvements on Saab Balances.

Supports, waggon tongue, M. Conrad.....	15,714
Tanning process, W. Harris.....	15,775
Telephones, C. V. Stafford et al.....	15,802
Telephone lines, T. D. Lockwood.....	15,825
Thrashing machines, A. Kline.....	15,769
“ “ J. Paradis et al.....	15,729
“ “ flax, L. W. Robards.....	15,794
Ticket-holders, price, C. Whyte.....	15,727
Ties, railroad, D. Sernis.....	15,840
Tongue supports, waggon, M. Conrad.....	15,714
Tools, entrenching, N. W. Wallace.....	15,835
Traps, water, W. J. English et al.....	15,777
Trestles, D. E. Teal.....	15,868
Trough hangers, eaves, W. F. Stoetzel.....	15,735
Tugs, hame, T. A. Simmons.....	15,808
Umbrellas, J. Feldman.....	15,715
Vehicles, spring, G. Delker.....	15,814
Washing machines, R. S. Morse.....	15,781
Wells, devices for digging, W. H. H. Davis.....	15,855
Wheels, car, G. W. Fairman et al.....	15,857
“ steering, S. B. Greacen.....	15,776
“ vehicle, J. Goble.....	15,759
Whip and rein holders, F. C. Ayer.....	15,790
Wires, machines for barbing, D. G. Wells.....	15,736
Working machinery, wood, W. H. Essery.....	15,738
Wrenches, G. W. Hight et al.....	15,724
Writing machines, type, A. G. Shannon.....	15,783

INDEX OF PATENTEES.

Abbot, W. F., musical instruments.....	15,815
Ahrans, F., pump.....	15,763
Allen, W. Y., sewing machines.....	15,756
Anderson, R. H., garments.....	15,760
Armant, E., et al., rotary engines.....	15,767
Armstrong, J. B., vehicle axles.....	15,766
“ “ dash-boards.....	15,717
Atkinson, A., manufacture of starch.....	15,821
Austin, W. R., et al., car wheels.....	15,857
Ayer, F. C., rein and whip holders.....	15,790
Babbitt, B. T., air compressors.....	15,741
Babcock and Wilcox (The) Co'y., steam boilers.....	15,792
Babcock, G. H., et al., steam boilers.....	15,792
Bailey, A. M., et al., egg preserving.....	15,782
Bailey, D. H., et al., wrenches.....	15,724
Bailey H., bee hives.....	15,801
Ball, F. H., engine governors.....	15,842
Barker, R., gold extracting.....	15,797
Bartlett, I. F., brushes.....	15,803
Barton, A. G., et al., hay racks.....	15,795
Bennett, E. H., et al., steam boilers.....	15,792
Benoit, A., car-coupling.....	15,745
Bertolette, C. B., et al., sash-balances.....	15,870
Biskford, W. A., force pumps.....	15,859
Black, R. W., et al., stove lamps.....	15,747
Bogle, C. E., et al., sash-balances.....	15,870
Bois, N. A., et al., thrashing machines.....	15,729
Bonnett, E. I., et al., book racks.....	15,862
Booth, I. E., rock drills.....	15,780
Brandon, C. T., et al., planing machine.....	15,742
Brown, S., car-couplings.....	15,853
Buck, G. C., et al., harness irons.....	15,819
Bungay, I. F., et al., gang plough.....	15,828
Burdick, T., bed bottoms.....	15,720
Calkins, G. W., hoisting buckets.....	15,757
Chase, I. H., musical instruments.....	15,815
Clement, C. W., et al., boots.....	15,838
Clement, I., ditchers.....	15,861
Coebel, C. T., decoys.....	15,732
Conrad, M., waggon tongue supports.....	15,714
Cordrey, F., car-couplings.....	15,726
Cossitt, G. M. and N., horse rake.....	15,778
Coulter, I. P., et al., draft mechanism.....	15,831
Crooker, L. I., et al., stove lamps.....	15,747
Crookes, W., electric lamps.....	15,826
Dardenne, A., self-winding clocks.....	15,810
Davis, W. H. H., devices for digging wells.....	15,855
Dean, W. E. and J., fire-escapes.....	15,758
Delker, G., spring vehicles.....	15,814
Desloovere, L. C., fire-extinguishers.....	15,753
DuBois, J., coal mining.....	15,798
Duc, H. A., attrition mills.....	15,773
Duffield, W., carbonic oxide gas.....	15,733
Durand, E. C., belt shifters.....	15,728
Durant, E. G., boats.....	15,800
Eddy, W. A., buggy seats.....	15,737

Edison, T. A., dynamo-electric machines.....	15,843	15,844
Edison, T. A., electric lamps.....	15,847	15,848
“ “ electric motors.....	15,816	15,816
“ “ electro-magnetic motors.....	15,822	15,822
“ “ electrical distribution system.....	15,831	15,832
“ “ underground conductors.....	15,830	15,830
Ekman, C. D., fibrous substances.....	15,771	15,771
Elliott, W. F., et al., vehicle dashes.....	15,709	15,709
English, W. I., et al., water traps.....	15,777	15,777
Essery, W. H., wood working machinery.....	15,738	15,738
Fairman, G. W., et al., car wheels.....	15,857	15,857
Feldman, J., umbrellas.....	15,715	15,715
Felt, J. S., ploughs.....	15,868	15,868
Ferguson, C. L., thill couplings.....	15,789	15,789
Field, R., root-cutters.....	15,784	15,784
Fisk, J. C., et al., gas governors.....	15,866	15,866
Flanders, A. W., et al., book racks.....	15,862	15,862
Fleury, H. W., root-cutters.....	15,784	15,784
Fowler, J., machines for bunding springs.....	15,836	15,836
Fréchette, I., shingle machines.....	15,856	15,856
Fuller, T. R., et al., planing machine.....	15,742	15,742
Fuller, V. E., planing machine.....	15,742	15,742
Fyfe, J., electric lamps.....	15,774	15,774
Galloway, T., drills and broadcast sowers.....	15,730	15,730
Gebhart, J. F., carding engines.....	15,813	15,813
Gibson, A. C., et al., rotary engines.....	15,767	15,767
Gillfillan, T., book racks.....	15,862	15,862
Goble, J., vehicle wheels.....	15,759	15,759
Gordon, C., beer cooling and drawing machines.....	15,750	15,750
Gordon, W. I., et al., hydro-carbon furnaces.....	15,779	15,779
Gray, W. H., et al., car wheels.....	15,857	15,857
Greacen, S. B., steering wheels.....	15,776	15,776
Gueiph (The) Carriage Goods Co'y., vehicle dash-boards.....	15,717	15,717
Guernsey, W. B., car brakes.....	15,796	15,796
Hahn, J. H., et al., hay racks.....	15,795	15,795
Halladay, S., car brakes.....	15,711	15,711
Haney, W. M., milk cans.....	15,739	15,739
Harlacker, J. C., et al., liquid drainers.....	15,744	15,744
Harris, W., tanning process.....	15,775	15,775
Hazleton, F. M., car-couplings.....	15,786	15,786
Hebbert, T., et al., draft mechanism.....	15,834	15,834
Highe, G. W., et al., wrenches.....	15,724	15,724
Hinman, C. M., sleds.....	15,839	15,839
Houser, J. A., seed planters.....	15,860	15,860
Ingalls, G. W., musical instruments.....	15,818	15,818
Jackson, W. M., metrical carbureters.....	15,865	15,865
Jamieson, J., manufacture of coke.....	15,804	15,804
Jantz, A. J. L., carriage springs.....	15,799	15,799
Joseph, J., lining axle boxes.....	15,791	15,791
Kaple, J. L., folding seats.....	15,718	15,718
Kline, A., chain straw carrier.....	15,769	15,769
Knapp, C. W., saw handles.....	15,752	15,752
Lancaster, B. F., et al., stove lamps.....	15,747	15,747
Lancé, S. D., et al., vehicle dashes.....	15,709	15,709
Laufer, C., et al., farm fences.....	15,788	15,788
Lelroy, T. V., journal bearings.....	15,761	15,761
Lockwood, T. D., electric signalling.....	15,825	15,825
Ludlow, A. R., et al., cultivators.....	15,743	15,743
McTree, J., car-couplings.....	15,864	15,864
McGuire, J., et al., bottle stoppers.....	15,841	15,841
McKinnon, D., car-couplings.....	15,853	15,853
McMurray, J. S., et al., planing machine.....	15,742	15,742
Marden, A. H., car brakes.....	15,746	15,746
Marshall, T. M., horse shoes.....	15,850	15,850
Matthews, A. N., valve stem packing.....	15,754	15,754
Merriden (The) Britannic Co'y., coffin handles.....	15,765	15,765
Merritt, E. D., et al., lubricating compounds.....	15,854	15,854
Merritt, T., et al., gang plough.....	15,828	15,828
Miles, W. H., brush-holders.....	15,710	15,710
Miller, A. C., et al., harvesting machines.....	15,820	15,820
Moodie, W. J., et al., sash-balances.....	15,870	15,870
Morrison, R., self-lubricating packing.....	15,824	15,824
Morrison, W., dredging machines.....	15,719	15,719
Morrow, J., et al., hay elevators.....	15,768	15,768
Morse, R. S., washing machine.....	15,781	15,781
Mundell, J., et al., hydro-carbon furnaces.....	15,779	15,779
Munger, W. B., motion converting machines.....	15,749	15,749
Nichols, F. B., et al., radiating flues.....	15,722	15,722
Oney, R. T., cypher codes.....	15,721	15,721
Osborne, D. M., et al., harvesting machines.....	15,820	15,820
Owen, W. J., wrenches.....	15,724	15,724
Oyster, S. W., et al., liquid drainers.....	15,744	15,744
Packer, P., instruction boards.....	15,734	15,734
Paradis, J., et al., thrashing machines.....	15,729	15,729
Patterson, P. and A. S., harrows.....	15,829	15,829
Patten, E. K., et al., bureaus.....	15,807	15,807
Pease, J. F., et al., heating apparatus.....	15,708	15,708

Pelletier, J. L., boots and shoes	15,785	Stern, E., sewing machines	15,787
Philpott, J. H., et al., harness irons.....	15,819	Stoetzel, W. F., eaves trough hangers.....	15,735
Plot, D. T., electric motive engine.....	15,811	Stubbendorff, H., blind hinges.....	15,748
Pothière, W., coffin handles.....	15,765	Teal, D. E., trestles.....	15,868
Pratt, N. W., et al., steam boilers.....	15,792	Terrie, H. R., lifting jacks.....	15,770
Rae, R. R., et al., telephones.....	15,802	Thomas, E. T., sewing machines.....	15,762
Reed, D. C. and H. C., and Co'y., harrows.....	15,829	" J. W., seeding machines.....	15,765
Rich, A. E., bottle stoppers and fasteners.....	15,751	" J. W., et al., cultivators.....	15,743
Richardson, D. M., grain polishing machines.....	15,740	Thompson, R., et al., boots.....	15,838
Richardson, G. F., et al., bureaus.....	15,867	Thompson, C., et al., radiating flues.....	15,723
Robards, L. W., flax thrashing machine.....	15,794	Titus, C. M., horse rake.....	15,778
Roe, F. A., horse shoe machinery.....	15,725	Tremain, J. R., car brakes.....	15,805
Rogers, C. D., screw nails.....	15,849	Tuerk, F. W., hydraulic motors.....	15,852
Rogers, J., et al., bottle stoppers.....	15,841	Van Ensley, M., bee hives.....	15,801
Rowland, T. F., attrition mills.....	15,773	Van Luven, A., strap couplings.....	15,716
Roy, J. L., blind hinges.....	15,748	Wilcox, S., et al., steam boilers.....	15,793
Sanders, J., pumps.....	15,764	Williams, A. B. and C. G., egg preserving.....	15,782
Sandford, A., cant hooks.....	15,772	Williams (The) Mfg Co'y., sewing machines.....	15,762
Saunders W., boring machines.....	15,711	Wilson, F. L., hoop cutting machines.....	15,817
Saunders, D., wear plates.....	15,840	Wahl, C., vacuum pans.....	15,833
Sexton, W. F., Sr., and Jr., door balances.....	15,813	Walker, M., fire extinguishers.....	15,823
Shannon, A. G., type writing machines.....	15,783	Wallace, N. W., entrenching tools.....	15,835
Simmons, T. A., hame tugs.....	15,806	Walton, B. W., gang plough.....	15,828
Simms, H. W., means of attaching corkscrews.....	15,809	Ward, F., et al., hay elevator.....	15,768
Sinclair, (The) Rectifying Co'y., filtering apparatus.....	15,827	Wells, D. G., machines for barbug wires.....	15,837
Stuclair, T. R., filtering apparatus.....	15,827	West, E. K., et al., heating apparatus.....	15,708
Skinner, H., et al., looms.....	15,713	Westman, J., temporary buildings.....	15,851
Smalley, E., et al., lubricating compounds.....	15,854	Whyte, E., price ticket-holders.....	15,727
Smith, A. E., vehicle axles.....	15,736	Wood, W., et al., water traps.....	15,777
Smith, A., et al., looms.....	15,738	Woodhill, J., hoisting buckets.....	15,757
Smith, G. W., fire-escapes.....	15,758	Woodruff, G. S., et al., gas governors.....	15,866
Smith, S. H., boxes for berries.....	15,707	Wortman, W. H., hay elevators.....	15,768
Smith (The) Mfg Co'y., boxes for berries.....	15,707	Yagn, N., hydraulic motors.....	15,712
Springer, A. C., car brakes.....	15,711	Young, J. E., hasp locks.....	15,869
Stafford, C. V., et al., telephones.....	15,802	Zimmer, C. H., et al., farm fences.....	15,788

Patents issued up to 19th December, 1882, Claims and Drawings of which will appear in a subsequent number of the Patent Record.

- No. 15,870. C. E. Bogle, Milton, C. B. Bertolette, Morristown, and W. J. Moodie, Philadelphia, Penn., "Sash Balance," 27th Nov. 1882.
- No. 15,871. S. T. Gaty, O'Fallon, Miss., assignee, "Stump Extractor," 27th Nov. 1882.
- No. 15,872. W. W. Williams and W. A. Williams, San Francisco, Cal., "Soldering machine," 27th Nov. 1882.
- No. 15,873. J. H. Davis, Ypsilanti, Mich., "Fire Kindler," 27th Nov. 1882.
- No. 15,874. W. Mills and F. B. Mills, Brooklyn, N. Y., assignees, "Fishing Reel," 27th Nov. 1882.
- No. 15,875. P. and A. S. Patterson, Ont., "Harrows," (Ext. of Patent No. 9104), 27th Nov. 1882.
- No. 15,876. T. Rowan, London, Eng., "Warming and ventilating apparatus," 1st Dec. 1882.
- No. 15,877. I. Brooke, Roger's Ford, Penn., "Door shutter, or sash Fastener and alarm," 1st Dec. 1882.
- No. 15,878. G. C. Williams, Ellenville, N. Y., "Steam Injector," 1st Dec. 1882.
- No. 15,879. E. W. Kelley, Lowell, Mass., "Machine for the manufacture of roving," 1st Dec. 1882.
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- No. 15,881. A. J. McDonald, Springfield, Ohio, "Invalid lounge," 1st Dec. 1882.
- No. 15,882. D. Clinton, Wellington, Ont., "Plow shares," 1st Dec. 1882.
- No. 15,883. T. Holland, Troy, N. Y., "Lubricating devices," 1st Dec. 1882.
- No. 15,884. B. F. Brown, Houghton, Mich., "Sleigh knees," 1st Dec. 1882.
- No. 15,885. O. B. Olmsted, Beloit, Wis., "Drive well point and strainer," 1st Dec. 1882.
- No. 15,886. A. L. Farewell, East Whitby, Ont., "Wash stands," 1st Dec. 1882.
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- No. 15,888. W. G. Hoover, Pittsburg, Penn., "Removable Insoles for hob nail shoes," 1st Dec. 1882.
- No. 15,889. G. S. Roath, Greenville, Conn., "Show stands," 1st Dec. 1882.
- No. 15,890. A. F. Woodham, Minnesota, Minn., "Ice velocipedes," 1st Dec. 1882.
- No. 15,891. W. F. Hood, Deerfield, Mich., "Adjustable barrel and pail cover," 1st Dec. 1882.
- No. 15,892. The Einstein Manufacturing Co's Philadelphia, Penn., assignees, "Stove polish," 1st Dec. 1882.
- No. 15,893. E. S. May, Detroit, Mich., G. R. Sutherland, Campbell, N. J., "Cigar holder," 1st Dec. 1882.
- No. 15,894. F. C. Henshaw, assignee, Montreal, Que., "Lubricator," 1st Dec. 1882.
- No. 15,895. J. G. Hill, Newark, N. J., and J. L. Lee, Slaatsburgh, N. Y., "Packing," 1st Dec. 1882.
- No. 15,896. G. J. B. Rodwell and T. Snell, Toronto, Ont., "Hand stamps," 1st Dec. 1882.
- No. 15,897. T. Robertson, Toronto, Ont., "Lozenge machinery," (Ext. of Patent No. 8173), 5th Dec. 1882.
- No. 15,898. T. Robertson, Toronto, Ont., "Lozenge machine," (Ext. of Patent No. 3920), 5th Dec. 1882.
- No. 15,899. J. Mills, Terre Haut, Ind., "Centrifugal bolts," 5th Dec. 1882.
- No. 15,900. J. B. and O. B. Johnson, Boston, Mass., "Electric railway signal," 5th Dec. 1882.
- No. 15,901. J. H. Wright, Keene, N. H., "Impervious package," 5th Dec. 1882.
- No. 15,902. T. E. Davis, Range, Ohio, "Guide for mill stone paint staffs," 5th Dec. 1882.
- No. 15,903. H. Roberts, Pittsburg, Penn., "Means for finishing zinc-coated wire," 5th Dec. 1882.
- No. 15,904. R. E. Chambers, New Glasgow, N. S., "Gate," 5th Dec. 1882.
- No. 15,905. G. F. Ransom, Cleveland, Ohio, "Electro-magnetic watchmen's registers," 5th Dec. 1882.
- No. 15,906. M. Bourke, Youngstown, Ohio, "Boat lowering apparatus," 5th Dec. 1882.
- No. 15,907. A. Cox, New York, N. Y., "Bed clothes fasteners," 5th Dec. 1882.
- No. 15,908. A. W. Clark, Orangeville, Ind., "Car coupler," 5th Dec. 1882.
- No. 15,909. D. O. Holman and C. A. Macfarlane, Knowlton, Que., "Reciprocating force pump," 5th Dec. 1882.
- No. 15,910. H. Berger, Milwaukee, Wis., "Process of manufacturing pillows, bolsters, etc.," 5th Dec. 1882.
- No. 15,911. U. H. Hillman, Osterville, Mass., "Process of manufacturing albumen from fish spawn," 5th Dec. 1882.
- No. 15,912. The Toledo Mower and Reaper Co's, assignees, Toledo, Ohio, "Grain carriers," 5th Dec. 1882.
- No. 15,913. J. E. Woodbridge and F. N. Gardner, Hartford, Conn., "Metal working tools," 5th Dec. 1882.
- No. 15,914. C. M. Amsden, Wooster, Ohio, "Wrought iron sled," 7th Dec. 1882.
- No. 15,915. A. D. Canfield, Arlington, Vermont, "Car wheel," 7th Dec. 1882.
- No. 15,916. C. E. Rider, Rochester, N. Y., "Method for uniting wood for floor coverings etc.," 7th Dec. 1882.
- No. 15,917. E. Thompson, New Britain, Conn., "Electro-magnetic device," 7th Dec. 1882.
- No. 15,918. L. E. McKinnon, St. Catharines, Ont., "Vehicle dashes," 7th Dec. 1882.
- No. 15,919. T. Fletcher, Warrington, Eng., "Gas burners," 7th Dec. 1882.
- No. 15,920. G. W. Smith, Rock Falls, Ill., "Thimble skein and axle box," 7th Dec. 1882.
- No. 15,921. B. Greig, New York, N. Y., "Animal traps," 7th Dec. 1882.
- No. 15,922. A. L. Colton, Milwaukee, Wis., "Scrap books," 7th Dec. 1882.
- No. 15,923. H. C. Crowell, Erie, Penn., "Dead pulley rigs," 7th Dec. 1882.
- No. 15,924. W. J. H. Kappe, Bellville, Ill., "Hay presses," 7th Dec. 1882.
- No. 15,925. H. S. Higginbotham, Allegan, Mich., "Whiffletree hooks," 7th Dec. 1882.
- No. 15,926. G. W. Nichols and W. Taylor, "Lath trimming machines," 7th Dec. 1882.
- No. 15,927. S. Gibbs, Blue Mound, Miss., "Movable fence post," 7th Dec. 1882.
- No. 15,928. L. Fitzgerald, New York, N. Y., assignee, "Means for conveying heating or motive agents through a train of cars," 7th Dec. 1882.
- No. 15,929. L. Fitzgerald, New York, N. Y., assignee, "Apparatus for heating cars," 7th Dec. 1882.
- No. 15,930. W. H. Bailey, Minneapolis, Minn., "Spikes," 9th Dec. 1882.
- No. 15,931. J. F. and H. G. Chandler and H. F. Paul, Concord, N. H., "Saw guides," 9th Dec. 1881.
- No. 15,932. B. N. Shelley, Anderson, Ind., "Vehicle wheels and axles," 9th Dec. 1882.
- No. 15,933. J. J. Deal and W. M. Johnston, Wilmot, Ohio, "Corn cultivator," 9th Dec. 1882.
- No. 15,934. L. K. Johnson, Brooklyn, N. Y., "Type and space holders," 9th Dec. 1882.
- No. 15,935. M. Covel, Chicago, Ill., "Automatic power saw swage," 9th Dec. 1882.
- No. 15,936. Z. A. Willard, Boston, Mass., "Process for desulphurizing Ores," (Ext. of Patent No. 8228), 9th Dec. 1882.
- No. 15,937. D. Hambleton, Lachute, Que., "Bobbins," 9th Dec. 1882.
- No. 15,938. W. E. Sergeant, Minneapolis, Minn., "Self-adjusting Mill burr driver," 10th Dec. 1882.
- No. 15,939. J. W. Norcross, Boston, Mass., "Tackle blocks," (Ext. of Patent No. 8203), 10th Dec. 1882.
- No. 15,940. J. Pattullo, Orangeville, Ont., "Perpetual draw line kiln," (Ext. of Patent No. 1867), 10th Dec. 1882.
- No. 15,941. A. H. Horsnell and W. Murphy, Montreal, Que., "Filtering apparatus," 11th Dec. 1882.
- No. 15,942. J. G. Baker and T. H. Asbury, Philadelphia, Penn., "Sad iron," (Ext. of Patent No. 8237), 11th Dec. 1882.
- No. 15,943. J. G. Baker and T. H. Asbury, Philadelphia, Penn., "Sad irons," (Ext. of Patent No. 8237), 12th Dec. 1882.
- No. 15,944. B. C. Brown, Clinton, Iowa, "Machine for sawing shingles," (Ext. of Patent No. 8342), 12th Dec. 1882.
- No. 15,945. A. Day, Detroit, Mich., "Track cleaner," (Ext. of Patent No. 1911), 12th Dec. 1882.
- No. 15,946. J. G. Baker, Philadelphia, Penn., "Sad iron grinder," (Ext. of Patent No. 8244), 12th Dec. 1882.
- No. 15,947. J. G. Baker, Philadelphia, Penn., "Sad iron grinder," (Ext. of Patent No. 8244), 13th Dec. 1882.
- No. 15,948. H. Ashley, Thurton, Ont., "Side spring waggons," 13th Dec. 1882.
- No. 15,949. J. Byfield, Georgetown, Ont., "Knitting machine," 13th Dec. 1882.
- No. 15,950. J. Pratt, Montreal, Que., "Grinding mill," 14th Dec. 1882.
- No. 15,951. C. S. Smith, Leicester, and T. Moore, Shipley, Eng., "Steam generating incombustible cartridge," (Ext. of Patent No. 13,928), 14th Dec. 1882.
- No. 15,952. C. S. Smith, Leicester, and T. Moore, Shipley, Eng., "Steam generating incombustible cartridge," (Ext. of Patent No. 13,928), 15th Dec. 1882.
- No. 15,953. S. H. Walz, Trois Rivieres, Mich., "Velocipede car," 15th Dec. 1882.
- No. 15,954. C. Cluthe, Toronto, Ont., "Trusses," 15th Dec. 1882.

No. 15,955. J. Bruce, Prince Albert, Ont., "Stump Extractor," 15th Dec., 1882.

No. 15,956. J. W. Bell, Conowingo, Maryland, "Watch Hands," 15th Dec., 1882.

No. 15,957. W. G. Cummins, McMinville, Tenn., "Trace Detaching Device," 15th Dec., 1882.

No. 15,958. J. Tye, Toronto, Ont., "Wire Coiling Machine," 15th Dec., 1882.

No. 15,959. H. Frasch, Cleveland, Ohio, "Process for the Distillation of Hydro-carbon," 15th Dec., 1882.

No. 15,960. H. Frasch, Bay City, Mich., "Petroleum Stills," 15th Dec., 1882.

No. 15,961. J. Kurtis and J. Bray, Springfield, Ohio, "Stove Pipe Self," 15th Dec., 1882.

No. 15,962. F. B. Nichols and C. Thomson, Halifax, N. S., "Fish Drying Houses and Apparatus," 15th Dec., 1882.

No. 15,963. C. J. Scheetky, Martinsburg, Virginia, "Sash Balance Block," 15th Dec., 1882.

No. 15,964. The Washburn and Moen Manufacturing Co., assignees, Worcester, Mass., "Bale Tie Machine," 18th Dec., 1882.

No. 15,965. The Washburn and Moen Manufacturing Co., assignees, Worcester, Mass., "Bale Tie Blank Forming Machine," 18th Dec., 1882.

No. 15,966. A. Hershey, Bertie, Ont., "Feed Cutter," (Ext. of Pat. No. 8228), 18th Dec., 1882.

No. 15,967. J. H. Branson, Belmont, N. Y., and B. Branson, Flushing, Ohio, "Double Acting Pumps," 18th Dec., 1882.

No. 15,968. P. Sehan, Kalamazoo, W. B. Stronger, and C. A. Glynn, Portage, Mich., "Railway Frog Protector," 18th Dec., 1882.

No. 15,969. R. W. Turner, Boston, Mass., assignee, "Culinary Forks or Domestic Implements," 18th Dec., 1882.

No. 15,970. A. Behr, Chicago, Ill., "Process of Manufacturing Crystallized Anhydride of Grape Sugar from a Watery Solution of Grape Sugar," 18th Dec., 1882.

No. 15,971. A. Behr, Chicago, Ill., "Method of Refining Grape Sugar," 18th Dec., 1882.

No. 15,972. J. Kinney, Windsor, Ont., "Wrench and Pipe Cutter," 18th Dec., 1882.

No. 15,973. J. B. and O. B. Johnson, Boston, Mass., "Signalling System for Railways," 18th Dec., 1882.

No. 15,974. C. A. Way, North Charlestown, N.H., "Snow Shovels," 18th Dec., 1882.

No. 15,975. W. P. Kirkland, San Francisco, Cal., "Vehicle Devices for Checking Horses," 18th Dec., 1882.

No. 15,976. J. G. Whittier, Attica, Ind., "Sole and Upper Protectors," 18th Dec., 1882.

No. 15,977. E. W. Grant, Ypsilanti, Mich., "Rubber Basket for Chain Pumps," 18th Dec., 1882.

No. 15,978. G. Leve, N.Y., "Berths for Passenger Steamers," 18th Dec., 1882.

No. 15,979. T. R. Pangle and R. G. Holloway, N. Y., "Hame Attachments," 18th Dec., 1882.

No. 15,980. A. J. Lytle, Millsborough, Ohio, "Shears," 18th Dec., 1882.

No. 15,981. G. M. Mills, Phil., Penn., "Candy Whistles and Molds therefor," 18th Dec., 1882.

No. 15,982. A. Tigniere, Wichita, Ks., "Punch for Marking Cattle," 18th Dec., 1882.

No. 15,983. T. G. Lealie, Hay, Ont., "Spark-Arrester and Extinguishers," 18th Dec., 1882.

No. 15,984. R. R. Osgood, Troy, N. Y., "Friction Clutch," 18th Dec., 1882.

No. 15,985. T. Crispin, Detroit, Mich., "Saw Clamp and Bench Iron," 18th Dec., 1882.

No. 15,986. R. M. Lowne, East End Finchley, Eng., "Electric Logs," 18th Dec., 1882.

No. 15,987. J. S. Baker, Hanover Junction, Penn., "Fertilizer Distributor and Grain Drill," 18th Dec., 1882.

No. 15,988. J. N. Burdy, St. John, N. B., "Anchor Cutter," 18th Dec., 1882.

No. 15,989. F. B. Smith, Wilmot, Ohio, "Sprinkler Nozzle," 18th Dec., 1882.

No. 15,990. The Atwood Railway Wheel Co., New York, (assignee), "Draw-Bar," 18th Dec., 1882.

No. 15,991. W. S. Lamson, Lowell, Mass., "Cash Carrier," (Ext. of Pat. 15,138), 19th Dec., 1882.

No. 15,992. W. S. Lamson, Lowell, Mass., "Cash Carrier," (Ext. of Pat. 15,138), 19th Dec., 1882.