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### INVENTIONS PATENTED.

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

#### No. 30,871. Clothes Horse. (*Séchoir à linge.*)

John Emery and Daniel M. Johnston, Hamilton, Ont., 1st March, 1889; 5 years.

*Claim.*—1st. The combination of the pillars B and the arms e, e, etc., substantially as and for the purpose hereinbefore set forth. 2nd. The combination slides D, D, and the wire slides I, I, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the iron plates c, c, c, and the wire pins J, J, J, substantially as and for the purpose hereinbefore set forth.

#### No. 30,872. Motor for Cars, Trams, or similar Vehicles. (*Moteur pour les chars, voitures à ornieres et autres.*)

The National Tramway Motor Company, New York, N.Y. (assignee of William E. Prall, Washington, D.C.) U. S., 1st March, 1889; 5 years.

*Claim.*—1st. In an apparatus for propelling street cars, the combination of a superheated water tank, a heat storage tank provided with evaporating and expanding tubes surrounding the same, and said pipes provided with valves connecting the superheated water tank with said tubes, substantially as shown and described. 2nd. The combination with a superheated water tank, a heat storage tank provided with evaporating tubes surrounding the same, and an evaporating tube or coil within the same, of pipes provided with controlling cocks or valves forming communication between the superheated water tank and the said tubes, substantially as shown and described. 3rd. The combination of the superheated water tanks, the heat storage tank, the evaporating tubes, the pipes connecting the superheated water tank and the evaporating tubes, and the back pressure pipe provided with the back acting valve F, substantially as shown and described. 4th. The combination of the superheated water tank and the heat storage tank provided with evaporating tubes, said tanks being connected by means of pipes communicating with the upper and lower portion of the water tank, said pipes being controlled by a valve or valves, in such a manner as to cause the flow of either superheated water from the bottom or saturated steam from the top of the superheated water tank into the evaporating tubes. 5th. The combination of the superheated water tank and the heat-storage tank, provided with evaporating tubes, pipes connecting the water tank with the evaporating tubes, pipes connecting the evaporating tubes with the engine, and valves controlling said pipes operated by one common lever, in such a manner as to admit water or steam to the evaporating tubes at the same time that steam is admitted from the tubes to the engine, and to shut off the supply of water or steam to the evaporating tubes simultaneously with cutting off the supply of steam to the engine. 6th. The combination, with the superheated water tank, the heat-storage tank provided with the evaporating tubes within and around the same, and pipes connecting the water tank with the evaporating tubes, of a three-way valve placed in said pipes, so arranged that the water or steam from the superheated water tank may be admitted either through the evaporating pipe within the storage tank, or be shut off therefrom and caused to enter the evaporating tubes around the storage tank, substantially as shown and described. 7th. The combination of the superheated water tank, the heat storage tank provided with evaporating tubes, the engine and a condenser connected with the exhaust of the engine, substantially as shown and described. 8th. The combination of the superheated water tank, the storage-tank provided with the evaporating tubes, pipes connecting the water tank with the evaporating tubes, the engine, the condenser, the radiating pipes or coils within the car, and pipes connecting the condenser, the radiating coils and the exhaust of the engine, substantially as shown and described. 9th. A head storage tank provided with evaporating tubes on the outside thereof, said tubes being covered with non-heat conducting material, substantially as shown and described. 10th. A heat storage tank provided with evaporating tubes within and outside of

the same, and non-heat conducting material over the outer tubes, substantially as shown and described. 11th. A heat storage tank provided with an evaporating chamber *b*<sub>2</sub>, evaporating tubes *b* and non-heat conducting material on the outside of said tubes, substantially as shown and described. 12th. A heat storage tank provided with an evaporating chamber *b*<sub>2</sub>, and evaporating tubes *b* and *b*<sub>2</sub>, substantially as shown and described. 13th. The combination of the tank B, the tank A provided with the evaporating tubes, the pipes connecting tank B with said tubes, the three-way valves H and H<sub>2</sub> and the steam valves K<sub>1</sub>, the said valves H and K<sub>1</sub> being operated together, and the pressure reducing valve *h*, substantially as shown and described. 14th. The combination of the tanks B and A, the tank A being provided with evaporating tubes, the pipes c and c connecting the tank B with said tubes, provided with valves H, H<sub>2</sub> and *h*, and the pipe F provided with valve F<sub>1</sub>, substantially as shown and described.

#### No. 30,873. Cork Extractor. (*Tire-bouchon.*)

Bessie Jacobs, New York, N. Y., U. S. (assignee of Louis I. Jacobs, Toronto, Ont.), 1st March, 1889; 5 years.

*Claim.*—An improved cork extractor, consisting of a cord or wire wrapped around the cork, a loop being formed on the end of the cork which protrudes from the bottle, substantially as and for the purpose specified.

#### No. 30,874. Curtain Stretcher.

(*Métier à rideau.*)

Wendell Smith, Truro, N.S., 1st March, 1889; 5 years.

*Claim.*—1st. The adjustable ends working between the sides, by means of which the wire pins will be all on a level. 2nd. The side pieces with the hinge placed in the middle of the underside, by means of which they will be much more convenient to handle by being folded together.

#### No. 30,875. Churn. (*Baratte.*)

James Ingells, Alba, Mich., U.S., 1st March, 1889; 5 years.

*Claim.*—1st. As a means for supporting the operating parts of a churn, the combination of the head or cover B carrying a cylindrical standard C provided with a stub shaft H, with a rotating disk D carrying a cylindrical standard E adapted to rotate within the said standard C, the parts being constructed, arranged and operating substantially in the manner and for the purposes set forth. 2nd. The combination, with the cover and the standard rising therefrom, of the shaft J, having the beaters O at its lower end, and the pinion I at its upper end, the cross bar N, the beaters L, the disk D, the cylindrical standard E rising from said disk and carrying at its upper end the pinion F, and the drive pinion G upon the stub shaft H meshing with the pinions I, F, and provided with a suitable operating handle, substantially as and for the purposes described.

#### No. 30,876. Ensilage or Straw Cutter.

(*Coupe-paille.*)

Charles A. Pettet, Belleville, Ont., 1st March, 1889; 5 years.

*Claim.*—1st. In an ensilage or straw cutter, in combination, of a rotary knife, wheel C, knives A, A and throat D, so placed in their relative positions, one with the other, as for the purpose set forth and heretofore described.

#### No. 30,877. Grain Scourer.

(*Emotteur des grains.*)

August Heine, Silver Creek, N.Y., U.S., 1st March, 1889; 5 years.

*Claim.*—1st. In a grain scourer, the combination, with the rotating perforated scouring cylinder, of an internal perforated scouring drum secured to said cylinder, so as to rotate therewith, and provided with longitudinal openings extending the length of the drum, and elevators arranged in the space between the drum and the cylinder, substantially as set forth. 2nd. In a grain scourer, the combination, with the rotating perforated scouring cylinder, of an internal scouring drum composed of perforated plates secured to opposite ends of

said cylinder and separated by longitudinal openings, and perforated elevating buckets arranged in the space between the drum and the cylinder, substantially as set forth. 3rd. In a grain scourer, the combination, with the rotating perforated scouring cylinder, of a perforated scouring drum secured within the cylinder and rotating in the same direction and with the same speed as the cylinder, elevators arranged between the cylinders and the drum, and a suction fan having its eye connected with the end of the scouring cylinder, whereby the air is drawn inwardly through the perforations of the scouring cylinder, and through the space between said cylinder and the inner scouring drum of the fan, substantially as set forth. 4th. The combination, with the enclosing casing provided with air inlets, of a perforated rotating scouring cylinder arranged in said casing, a perforated scouring drum arranged within said cylinder and rotating in the same direction and at the same speed as the cylinder, elevators arranged between the cylinder and drum, a suction fan and air spouts connecting the fan with both ends of the securing cylinder, substantially as set forth.

**No. 30,878. Device for Setting, Gauging, etc., the Teeth of Saws.** (*Appareil pour donner la voie, le calibre, etc., aux dents des scies.*)

William N. Harsen and William R. Gillett, Attica, Mich., U. S., 4th March, 1889; 5 years.

*Claim.*—1st. A sawyer's implement made in flat form, consisting of a plate provided on one edge with a flange *b*, said flange being recessed to admit the raker gauge B, and on the other edge with saw sets, a jointer groove and an adjustable saw-tooth gauge consisting of a screw D moving in and out of a slot *d*, all substantially as described. 2nd. A sawyer's implement, provided with the flange *b* and raker gauge B on one edge, and on the other edge with saw-sets, saw-tooth gauges, a jointer groove and a swage F situated in the upper enlarged end of the saw-set C, substantially as described.

**No. 30,879. Carpet Cleaner.** (*Balayeuse de tapis.*)

William P. White, Cincinnati, Ohio, U.S., 7th March, 1889; 5 years.

*Claim.*—1st. A rotatable carpet cleaning cage of a configuration, substantially as shown, and consisting of one continuous slat-work of irregular configuration, as and for the purposes set forth. 2nd. A rotatable carpet-cleaning cage, provided with hollow journals, substantially as set forth. 3rd. A rotatable carpet cleaning cage, provided with hollow journals and flanges, said journals and flanges being cast in one piece, substantially as set forth. 4th. In combination with a carpet cleaning cage, having closed ends, the hollow journals D and flange C, said journals having the collars E and E' and band wheel G, and the blow-pipe H, substantially as set forth.

**No. 30,880. Support for Sliding Doors.**

(*Support de portes roulantes.*)

Reuben Clarke, Toronto, Ont., 7th March, 1889; 5 years.

*Claim.*—1st. A sliding door A having a roller B, or other support connected to its inner lower corner, to rest upon a loose track C extending below the door behind its jamb, in combination with a roller D or other support, connected to its outer upper corner, and resting on a track F extending across the doorway, substantially as specified. 2nd. The bracket D, having jaws *d* combined with the bearing *e* held in said jaws, and provided with a vertical shank, the pin *g* in said shank, the wedge-shaped block G on said shank and resting on said pin, and the adjusting screw H engaging said block, all arranged and operating substantially as shown and described.

**No. 30,881. Galvanic Battery.**

(*Galvanique.*)

Alexander Schanschief, Gipsy Hill, Eng., 7th March, 1889; 5 years.

*Claim.*—1st. A saline preparation composed of mercury and sulphuric acid, forming a salt freely soluble in water to such a degree that two pounds or thereabout of metallic mercury may be held in solution in a gallon of water. 2nd. A saline solution composed of mercury, sulphuric acid and water, so combined, substantially as described, that the water holds in solution one-fifth of its weight or thereabout of metallic mercury.

**No. 30,882. Apparatus for Carburetting Air and Enriching Gas.** (*Appareil à carburer l'air et enrichir le gaz.*)

Conrad Herzog, London, Eng., 7th March, 1889; 5 years.

*Claim.*—1st. An apparatus for carburetting or enriching air or gas, comprising a carburetting chamber *a* containing a number of superposed trays *b*, having openings *e*, *e'* arranged therein in such a manner that air forced through the said chamber is caused to pass in a circuitous direction, whereby it is brought into contact with a large surface of liquid, in combination with a collapsible chamber adapted to be filled with air or gas, and then to be lowered under the action of a weight *k*, or the like, to force the air or gas which it contains through the carburetting chamber *a*, or two or more of such chambers to maintain a continuous current of air or gas. 2nd. In apparatus for carburetting air, or enriching gas, a carburetting chamber *a* containing a series of superposed trays *b*, constructed and arranged substantially as described. 3rd. In air carburetting or gas enriching apparatus, the use of one or more flexible or other extensible and collapsible chambers for containing the air or gas to be carburetted or enriched, substantially as described.

**No. 30,883. Rock Drill.** (*Foret de mine.*)

Henry C. Sergeant, New York, N.Y., U.S., 7th March, 1889; 5 years.

*Claim.*—1st. The combination, with a cylinder, a piston having reversely arranged inclines or shoulders, and a main valve arranged to

move by pressure upon its end, of a supplemental valve which is actuated by the inclines or projections of the piston to serve the sole purpose of placing the ends of the main valve chest alternately in connection with the exhaust, whereupon the valve will be moved by the pressure in the opposite end of the chest, substantially as herein described. 2nd. The combination, with a cylinder, a piston having reversely arranged inclines or shoulders, and a main valve arranged to move by pressure upon its end, of a supplemental valve which controls the operation of the main valve, and which is moved in opposite directions alternately by the inclines or shoulders on the piston, substantially as herein described. 3rd. The combination, with the main cylinder, a piston having reversely arranged inclines or shoulders, and a main valve arranged to move by pressure upon its end, of a supplemental arc-shaped slide-valve fitted to a corresponding seat, and arranged to be moved in opposite directions alternately by the inclines or shoulders of the piston, to control the operation of the main valve, substantially as herein described. 4th. The combination, with the main cylinder, a piston having reversely arranged inclines or shoulders, and a main valve arranged to move by pressure upon its end, of a supplemental arc-shaped valve fitted to a corresponding seat, arranged to be moved in opposite directions alternately by the inclines or shoulders of the piston, and having a port or cavity in its flat side or surface for controlling the operation of the main valve, substantially as herein described. 5th. The combination, with the cylinder A having a cavity or opening *b*, the piston B having inclines or shoulders *c*, *c'*, and the main valve chest and its valve D, of the renewable bed F for the valve chest provided with the projection F' having formed therein the arc-shaped valve-seat *d*, and ports *f*, *f*, *f*, *f*, and the arc-shaped supplemental valve E fitting said seat, and arranged to be moved by the inclines or shoulders on the piston, substantially as herein described. 6th. The combination, with the cylinder and piston of a rock drill, of rotating devices comprising two members, one of which consists of a sleeve or ring held by friction within the cylinder, and the other of which is locked to turn the piston and arranged within the sleeve or ring, one member being provided with ratchet-shaped teeth and the other with pawls engaging therewith, substantially as herein described. 7th. The combination, with the cylinder and piston of a rock drill, of a sleeve or ring clamped by friction within the cylinder constituting one member of the rotating devices, and provided upon its interior surface with ratchet-shaped teeth extending lengthwise of the cylinder, of a head or piece constituting the other member of the rotating devices arranged within the sleeve and locked to the piston, and pawls carried by the last mentioned member of the rotating devices and engaging with the ratchet-teeth of said sleeve, substantially as herein described. 8th. The combination, with the cylinder and piston of a rock drill, of a spirally grooved bar fitting a nut in the piston and having upon it a head, a sleeve encircling the head, and clamped and held by friction within the cylinder, the sleeve and head constituting the two members of the rotating devices, and one being provided with ratchet-shaped teeth extending lengthwise of the cylinder, and the other carrying pawls engaging with said teeth, substantially as herein described. 9th. The combination, with the cylinder and piston of a rock-drill, of a spirally grooved bar fitting a nut in the piston and having a cylindrical head carrying pawls, and a sleeve encircling said head clamped and held by friction in the cylinder, and provided upon its interior surface with ratchet-shaped teeth with which the pawls of the head engage, substantially as herein described. 10th. The combination, with the cylinder and piston of a rock-drill, of rotating devices consisting of the sleeve or member G clamped and held by friction within the cylinder, and provided upon its interior surface with ratchet-shaped teeth *g*, and the member I locked to the piston and provided with tangential slideways *h* and sliding spring-actuated pawls H fitting said slideways, and engaging with the teeth of the sleeve or member G, substantially as herein described. 11th. The combination, with a cylinder and piston of a rock-drill, of the sleeve G, clamped and held by friction within the cylinder and provided with ratchet-shaped teeth *g*, the spiral bar I fitting a nut in the piston and having a head I' in which are tangential slideways or pawl-seats *h*, and spring-actuated sliding pawls H fitting said seats or slideways, substantially as herein described. 12th. The combination, with the cylinder and piston of a rock-drill, of the sleeve G provided with teeth *g* upon its inner surface, and clamped and held by friction within the cylinder, the member I' constructed with tangential slideways or seat *h*, and with sockets or holes *i* extending inward therefrom, and the sliding pawls H provided with inwardly-projecting stems or studs *h*, and spring *i* arranged in the sockets or holes *i* and acting upon said pawls, substantially as herein described. 13th. The combination, with a drill-back or frame P provided with lugs *p*, *p*, of the standards Q provided with collars *p* fitted cylindrically to the lugs *p*, *p* and screwed into the lugs *p*, and having a portion of reduced diameter lifted free between the lugs *p*, *p*, substantially as herein described.

**No. 30,884. Apparatus for the Manufacture of Peat Fuel.** (*Appareil pour la préparation de la tourbe combustible.*)

Archibald A. Dickson, Côte St. Antoine, Qué., 7th March, 1889; 5 years.

*Claim.*—1st. In apparatus for the manufacture of peat fuel, the combination, with means for delivering the peat from the bog to the stick-catching mechanism, such stick-catching mechanism, carriers and hoppers, of rollers between which the peat passes for partially removing the moisture from it, and means for rotating such rollers, all as herein described. 2nd. In apparatus for the manufacture of peat fuel, the combination, with means for delivering the peat after passing through the stick-catching mechanism, and means for partially expelling moisture therefrom, of mechanism for compressing the peat consisting of a chamber composed of a cylinder proper, and the frustum of a cone with inlet and outlets for the peat, and a helix mounted axially in such cylinder for forcing the peat from inlet and to outlets, and means for rotating such helix, all as shown and described. 3rd. In apparatus for the manufacture of peat fuel, the combination, with means for delivering the peat after passing through the stick-catching mechanism, and means for partially expelling moisture from the peat, of mechanism for compressing and drying

the peat consisting of a chamber composed of a cylinder and a frustrum of a cone with inlet and outlets for the peat, a helix mounted axially in such chamber, and means for rotating same, of a steam jacket encircling such cylinder, and a source of supply of superheated steam with connections between it and said jacket, all as shown and described. 4th. The chamber 11, 12 with steam jacket *i*, and tubes *e*, *s* connecting interior of said cylinder with outer air, as and for the purposes set forth. 5th. In combination with the chamber 1 formed as above described, one or more open tubes communicating with same and carried in a cylinder secured at the forward end of said chamber 1, all as and for the purposes described. 6th. In combination with the forming cylinder *L* carrying tubes as above described, and with the steam jacket *i* of the chamber 1, of a steam jacket encircling the cylinder *L* and communicating with steam jacket *i*, as shown and described. 7th. The combination of the hopper *H*, chamber 1, steam jacket *i*, helix *J* and means whereby same may be rotated, cylinder *L*, steam jacket *L* and tubes 11, and diaphragms *p*, *p*, *pi*, and connections for introducing into the said steam jacket, helix shaft and cylinder *L*, substantially as herein set forth, 8th. The combination, with the cylinder *L* carrying tubes *l*, of an automatic variable cut-off, as and for the purpose described.

**No. 30,885. Whiffletree Hook.**  
(*Crochet de palonnier.*)

Targe G. Mandt, Stoughton, Wis., U.S., 7th March 1889; 5 years.  
*Claim.*—As a new article of manufacture, a whiffletree hook consisting of a socket piece *B*, a rounded shank *E* formed on the outer end of the said socket, a crescent-shaped piece *C* formed integral with the said shank, and having its rear lower curved end *D* of a greater width than its upper curved end *F*, and terminating in an outwardly extending stud or bolt *G*, substantially as described.

**No. 30,886. Steam Radiator.**  
(*Calorifère à vapeur.*)

Thaddeus C. Joy, Titusville, Penn., U.S., 7th March, 1889; 5 years.  
*Claim.*—In a steam radiator, in combination, a plurality of steam circulation sections *A*, *A* for heating air, said sections being hollow formed with steam inlet and outlet openings connected by thimbles, and provided with oppositely placed upright ribs which form vertical uninterrupted air column ways between the sections of uniform cross sectional area from bottom to top of the sections, substantially as and for the purpose described.

**No. 30,887. Harness.** (*Harnais.*)

John Gray, Jefferson, Iowa, U.S., 7th March, 1889; 5 years.  
*Claim.*—The combination, with the hame staple and with the tug-clip twisted at right angles as set forth, of an elongated draft link interposed between the staple, and clip to insure a direct draft and a flexible double-jointed connection.

**No. 30,888. Machine for Squeezing the Juices out of Lemons.** (*Pressoir à citron.*)

James Ferguson, Barrie, Ont., 7th March, 1889; 5 years.  
*Claim.*—The combination of the lever *E* with pinion on one end working in a rack, toothed piston rod moving in the box *D* containing the openings *I* in the base *F*, all arranged and combined as shown and described for the purpose set forth.

**No. 30,889. Spring Seat.** (*Siège élastique.*)

Henry S. Hale, Philadelphia, Penn., U.S., 7th March, 1889; 5 years.  
*Claim.*—The combination of a series of coil-springs with a wide, thin, flexible metallic plate covering a large area of the seat, and directly supporting the upholstery and secured to the tops of said springs, the said parts being adapted to fit between the support on the bottom of the seat, and the upholstery on top, the wide plate offering an extended surface for support of said upholstery.

**No. 30,890. Electric Thermostat.**  
(*Thermostat électrique.*)

Etna H. Davis and Reuben Westervelt, Elmira, N.Y., U.S., 7th March, 1889; 5 years.

*Claim.*—1st. In a thermostat, an expansible piece forming a terminal of an electric circuit, a contact piece forming the opposite terminal, and an automatic cut-out for the terminals, the said cut out being brought into operation when contact is made, whereby the contact-points will be automatically short circuited at each contact. 2nd. In a thermostat, an expansible piece forming a terminal of an electric circuit, a contact piece forming the opposite terminal, and an electric magnetic cut-out which is brought into operation when contact is made, whereby the contact points will be automatically short circuited at each contact. 3rd. In a thermostat, an expansible piece forming a terminal of an electric circuit, contact pieces forming corresponding terminals, each located in a separate branch circuit, and an electro-magnetic cut-out which is brought into operation when contact is made between the expansible piece and either of the other terminals, whereby the contact points will be automatically short circuited at each contact, as for the purpose set forth. 4th. The combination, with an electro-magnetic motor and a pair of branch circuits connected therewith, of a thermostat adapted to close one branch or the other, on an increase or decrease of the temperature, and an electro-magnetic cut-out for closing a short circuit around the thermostat contacts, as and for the purpose set forth.

**No. 30,891. Side Spring for Vehicles.**  
(*Ressort de côté pour les voitures.*)

James F. Thomas, Alexandria, Neb., U.S., 7th March, 1889; 5 years.  
*Claim.*—The combination, with the vehicle body and its front and

rear axles, of the side springs *G*, *G*, bowed laterally inward, and constructed with an inwardly curving central portion *g*, thence diverging in straight lines outward and clipped to the head block and rear axle, the bolts *d*, *d*, and the central hook-shaped bolts *e*, *e*, arranged upon the exterior of the apex sides of the curved portions *g*, *g*, and engaging at their hook ends with said curved portions of the springs, and uniting them with the frame work of the body of the vehicle, substantially as and for the purposes specified.

**No. 30,892. Fish Weir.** (*Parc de mer.*)

Joseph O'Brien, Carleton, Saint John, N.B. 7th March, 1889; 5 years.  
*Claim.*—1st. The second or landing pound *C*, provided with an open floor or grating, wholly or partially covering the area, and elevated seaward to allow small fish to pass through the meshes into open water and escape capture, in combination with a great pound *B* having a plank floor *I*. 2nd. In a fish weir, the second or landing pound having a gate *N* seaward, provided with a grating, as set forth.

**No. 30,893. Meter for Measuring Electrical Currents.** (*Compteur des courants électriques.*)

William H. Douglas, Stourbridge, Eng., 7th March, 1889; 5 years.  
*Claim.*—1st. An improved meter for measuring electrical currents, consisting of two thermometers, one of which is effected by the electrical current. 2nd. Connecting two thermometers by a differential gearing of wheel work, whereby the quantity of electrical current passing is indicated by means of a hand upon a dial or with lever. 3rd. In electrical meters, the snail in combination with the duplicate racks or levers, and indexing mechanism for registering its movement, substantially as and for the purpose herein set forth. 4th. The general combination of thermometers and clock work or motor, substantially as herein set forth, for the purpose of measuring electrical currents.

**No. 30,894. Petroleum Oil Stove.**  
(*Poêle à pétrole.*)

Jacques A. Vagner, Paris, France, 7th March, 1889; 5 years.  
*Claim.*—1st. In a petroleum or oil stove, the two superposed rings *q*, *q*, combined and arranged to form a wick cooler, substantially as described and shown. 2nd. In a petroleum or oil stove, the single ring *q* forming a wick cooler, substantially as described and shown. 3rd. In a petroleum or oil stove, the plate or basin *q* having the holes *s* and forming wick cooler, substantially as described and shown. 4th. In a petroleum or oil stove, the plate or basin *q* having the holes *x*, *x*, and the rings *q*, *q*, or their equivalent, and attached to the plate *q* supporting the chimney *t*, in combination with the lamp and the whole enclosed within a covering or body, substantially as described.

**No. 30,895. Electric Temperature Regulator.** (*Régulateur électrique de la température.*)

Edna H. Davis and Reuben Westervelt, Elmira, N. Y., U. S., 7th March, 1889; 5 years.

*Claim.*—1st. The combination, with a main supply pipe for steam or other fluid in a heated state, of a valve in the said pipe, a branch pipe leading to a fluid box or chamber, a second branch pipe leading from the said chamber to the said valve, and an electric motor controlling the passage of the fluid through the chamber, as and for the purpose set forth. 2nd. The combination, with a main supply pipe for conveying steam or other heating fluid, of a valve in the said pipe, and a branch pipe leading from the main pipe to the said valve through a chamber, and an electric motor for controlling the passage of the fluid through the chamber, as and for the purpose set forth. 3rd. The combination, with a tilting arm extending into a fluid chamber, of a diaphragm surrounding the arm and sealing the end of the chamber, and a pair of valves in operative connection with the inner end of the arm, whereby the chamber may be gas or air-tight, and still admit of the valves being operated, as set forth. 4th. In a valve controller, the chamber *V*, inlet and outlet pipes 2 and 5, and exhaust *L*, valves 3 and 4 and levers *Y* and *Z*, in combination with the rod or arm *T* and the head *X*, as and for the purpose set forth.

**No. 30,896. Manufacture of Artificial Compound in Imitation of Wood.**  
(*Fabrication d'imitation de bois.*)

Bruno Harrass, Böhlen, Germany, 7th March, 1889; 5 years.  
*Claim.*—1st. The method herein described of making an artificial wood compound that is impervious to moisture and withstands the attacks of rodents, which consists in mixing with wood or similar fibre a resinous compound, binding the fibre together with a glutinous material which is rendered insoluble in water by means of bichromate of potash, and subsequently adding solutions of resin soap and alum, and a small quantity of slacked lime, substantially as herein described. 2nd. The method herein described of making an artificial wood compound that is impervious to moisture and withstands the attacks of rodents, which consists in, first mixing wood fibre or cellulose with a solution of resin in caustic soda lye, to which mixture resin powder is added, then incorporating with this mixture a binding material consisting of an agglutinating substance mixed with cellulose and bichromate of potash, the compound thus formed having afterwards added thereto solutions of resin soap and alum, and a small quantity of slacked lime, as described. 3rd. The method herein described of preparing wood or cellulose fibre for forming an artificial wood compound, by first mixing the same with a heated solution of resin in caustic soda lye, and then adding pulverized resin, substantially as set forth. 4th. As a new article of manufacture, an artificial wood compound that is impervious to moisture and

that will withstand the attacks of rodents composed of wood fibre or cellulose, mixed with a resinous compound and with a glutinous material, rendered insoluble in water by means of bichromate of potash, the dough-like compound thus produced being then mixed with resin soap and alum solutions and slacked lime, substantially as set forth.

### No. 30,897. Adjustable Thermostat.

(*Thermostat mobile.*)

Etna H. Davis and Reuben Westervelt, Elmira, N. Y., U. S., 7th March, 1889; 5 years.

*Claim.*—1st. In a thermostat, an expansible element, a pair of insulated contact pieces co-operating therewith and supported upon a common base, in combination with a shaft independent of the base, and a rack and pinion gearing between the shaft and the base, as and for the purpose set forth. 2nd. In a thermostat, an expansible element, a pair of insulated contact pieces co-operating therewith and supported upon a common base, in combination with a shaft independent of the base, and a rack and pinion gearing between the shaft and the base, the said shaft carrying a pointer to co-operate with a suitable scale, as and for the purpose set forth. 3rd. In a thermostat, an expansible bar and a case enclosing the same, a front plate marked with a vertical scale and supporting a thermometer tube alongside the scale, a pair of insulated contact pieces, one on each side of the bar, and supported on a common base, in combination with a shaft independent of the said base, and a rack and pinion connection between the shaft and the base, the said shaft carrying a pointer which sweeps over segmental scale on the front plate, as and for the purpose set forth.

### No. 30,898. Electric Valve Controller.

(*Souape à contrôle électrique.*)

Etna H. Davis and Reuben Westervelt, Elmira, N. Y., U. S., 7th March, 1889; 5 years.

*Claim.*—1st. In an electro-magnetic motor, the combination, with an electric magnet and its armature, of a circuit breaker operated by the latter, and a pawl also connected with the armature, the said pawl acting on the ratchet secured to the motor shaft, as and for the purpose set forth. 2nd. In a valve operating apparatus, the combination, with a motor box having inlet and outlet passages for a fluid under pressure, of a pair of bars respectively controlling said passages, and an eccentric attached to a shaft between the two bars, and a suitable motor for the shaft, as and for the purpose set forth. 3rd. In a valve-operating apparatus, the combination, with a motor box having inlet and outlet passages for a fluid under pressure, of a pair of bars respectively controlling said passages, and an eccentric attached to a shaft between the two bars, and a suitable motor for the shaft, and a ratchet on the shaft, and an electro-magnet whose armature is provided with a pawl for operating the ratchet, as and for the purpose set forth. 4th. In a heat regulating system, a thermostat controlling two branch circuits, an electro-magnet connected with each branch, and an automatic out-for breaking the circuit of either branch, after it has been closed at the thermostat, as and for the purpose set forth. 5th. In a heat regulating system, a thermostat and two branch circuits controlled thereby, an electro-magnet connected with each branch, and a pair of springs, one in each branch, the said springs bearing upon a rotating disk, a shaft to which the said disk is attached, and a pawl and ratchet for operating the shaft, the pawl being connected with the magnet armature. 6th. In a heat regulating system, a thermostat and two branch circuits controlled thereby, an electro-magnet connected with each branch, and a pair of springs, one in each branch, the said springs bearing upon a rotating disk, a shaft to which the said disk is attached, and a pawl and ratchet for operating the shaft, the pawl being connected with the magnet armature, and the said disk having an insulating portion, as and for the purpose set forth. 7th. An airtight box, having inlet and outlet passages for a fluid under pressure, the said box containing a pair of bars respectively controlling the said passages, the said bars being mechanically connected at corresponding ends, and being operated upon at the opposite ends by an eccentric secured to a shaft between the said opposite ends, as and for the purpose set forth.

### No. 30,899. Universal Metal Joint.

(*Joint métallique universel.*)

Jotham C. Haggatt, Dunkirk, N. Y., U. S., 7th March, 1889; 5 years.

*Claim.*—1st. The combination of the case 1, having a socket-seat 2, a cover 16 adapted to screw on to the head of the case, and having an inward-projecting piece 19 and a semi-spherical hollow portion 3 adapted to fit the seat 2, and provided with a cross-bar having a depression 15 to receive the end of the projecting portion 19, and having a screw-thread at the opposite end for attachment to a pipe, substantially as described. 2nd. In a universal metal joint, the combination of a socket case, having a socket seat at one end and a cover at the opposite end, provided with a projecting piece 19 to keep the ball portion in place, a ball portion having at the large end a cross-bar provided with a depression to receive the projecting piece from the cover, and a packing ring secured in a groove surrounding the ball portion, substantially as described. 3rd. In a universal metal joint, the combination of a socket case having a projecting internal screw-threaded portion on one side, a socket-seat at one end and a screw-threaded portion at the opposite end to receive the cover, a semi-spherical ball portion adapted to fit the socket seat, having at one end an internal screw-threaded portion, and at the ball end a cross-bar provided with a recess or depression, and a cover having an inner projecting portion reaching down into the recess in the cross-bar, substantially as described. 4th. In a universal metal joint, a socket-case having a socket-seat at one end and a cover at the opposite end, provided with a projecting piece to keep the ball portion in place, in combination with a ball portion having at the large end a cross-bar provided with a depression to receive the projecting piece from the cover, and a packing ring secured in a circular groove be-

tween the seat and the ball portion, a supplementary groove leaving an opening between the side of the packing groove and packing, and holes for admitting steam thereto, substantially as and for the purposes described. 5th. In a universal metal joint, the combination, with a ball and socket joint, of a packing ring of yielding material, secured in a groove between the socket and ball portion, for the purposes described.

### No. 30,900. Round About or Merry-go-Round, and other Riding Toys.

(*Tourniquet ou autre manège-jouet.*)

Frank W. Allchin, Northampton, Eng., 7th March, 1889; 5 years.

*Claim.*—1st. In or in connection with round-abouts, sets of arms fixed upon outwardly projecting ends of radiating spindles which are carried by the revolving framings, and which are themselves caused to revolve on their own axis as they are carried around the central axis of the round-abouts, said arms carrying pins which project from the outer ends thereof, and from which are suspended boats, cars or corresponding parts capable of carrying riders, substantially as described for the purpose set forth. 2nd. In or in connection with round-abouts, sets of arms fixed upon the outwardly projecting ends of radiating spindles which are carried by the revolving framings, and which are themselves caused to revolve on their own axis as they are carried around the central axis of the round-abouts by means of toothed wheels gearing into a fixed circular rack, and fixed upon spindles which are connected direct by means of radiating rods with the inner ends of the spindles carrying the sets or arms, said arms carrying pins which project from the outer ends thereof and from which are suspended boats, cars or corresponding parts capable of carrying riders, substantially as described for the purpose set forth. 3rd. In or in connection with round-abouts, frames mounted upon platforms or framings which are carried upon wheels running on circular rails or trams laid upon the ground (or upon suitable sleepers thereon) such frames carrying each a spindle upon which are mounted arms, in the outer ends of which are fixed pins which carry swing boats (cars or corresponding parts) motion being imparted to said spindles to cause them to revolve around their own axis (as the platforms or framings of the round-abouts revolve their vertical axis) from the rolling movement of wheels on which the platforms or framings run, or of wheels which run in racks laid upon the ground (or upon suitable sleepers thereon), substantially as described for the purpose set forth. 4th. In or in connection with a round-about, the combination of a frame B<sub>2</sub>, B<sub>2</sub> carried upon the revolving framing B<sub>3</sub> with a spindle *g* carrying two sets of arms D, the opposite arms of which are connected by pins carrying swing boats (cars or corresponding parts) motion being imparted to said spindle *g* from the spindle *c*, so as to cause such spindle *g* to revolve around its own axis as the round-about revolves around its central axis, substantially as described with reference to figure 7 of the drawings herewith for the purpose set forth. 5th. A truck or trolley upon which is mounted a spindle which is driven from an axle, and which carries sets of arms having pins projecting from the outer ends thereof, to which are suspended swing boats, cars or corresponding parts, substantially as described, with reference to figures 8 and 9, for the purpose set forth.

### No. 30,901. Rubber Shoe or Golosh.

(*Soulier ou galoche de caoutchouc.*)

William S. Smith, Thomas H. Smith, Galt, Ont., and John A. Smith, Chicago, Ill., U. S., 8th March, 1889; 5 years.

*Claim.*—A rubber shoe or golosh having a copper rivet A, or other good electrical conductor, inserted in its heel or sole, substantially as and for the purpose specified.

### No. 30,902. Method of and Apparatus for Compiling Statistics. (*Mode et appareil de compilation des statistiques*)

Herman Hollerith, New York, N. Y., U. S., 8th March, 1889; 5 years.

*Claim.*—1st. The herein described improvement in the art of compiling statistics, which consists in first forming or arranging a standard or template indicating the relative position in which each item or characteristic of the individual is to be recorded, secondly forming a record of each individual or thing by locating index points upon a strip or tablet, said index points representing the characteristics of the individual and bearing a determinate relation to each other and to the standard, and finally submitting said separate records successively to the action of circuit controlling devices for operating the registering devices representing the statistical items to be compiled, whereby each statistical item, or combination of items when contained in the record of any individual, is accurately registered. 2nd. The herein described method of compiling statistics, which consists in recording separate statistical items pertaining to the individual, by holes, or combinations of holes punched in sheets of electrically non-conducting material and bearing a specific relation to each other and to a standard, and then counting or tallying such statistical items separately or in combination by means of mechanical counters operated by electro-magnets, the circuits through which are controlled by the perforated sheets, substantially as and for the purpose set forth. 3rd. The combination with perforated sheets of electrically non-conducting material, said perforations representing statistical items of electro-magnets, and mechanical counters in circuits controlled by said perforated sheets, substantially as and for the purpose specified. 4th. The combination with a series of electro-magnets, and the series of mechanical counters actuated thereby, said electro-magnets being arranged in circuits controlled by relays of a perforated sheet of electrically non-conducting material, said perforations representing statistical items controlling the circuit through the electro-magnets of the relays above referred to, substantially as and for the purpose described. 5th. In a system such as described for automatically compiling and recording statistics, the combination, with a series of electric circuits, a series of electro-magnets connected thereto, a recording mechanism for each electro-magnet,

and a series of circuit breakers controlling the flow of electricity in the before-mentioned circuits, of a movable record strip provided with means such as described for actuating the circuit breakers, whereby each item or combination of items represented upon said record strip are automatically distributed and recorded substantially as described. 6th. The improvement in the art of compiling statistics, which consists in first assigning to each item entering into the proposed series of compilations one or more designated points or spaces, secondly, forming a complete record of each individual or subject upon a single card by applying a circuit controlling index point or points to each space appropriated to or indicative of each separate item in the given series which pertains to the individual or subject, and finally feeding said cards successively to an apparatus operated by the index points on each card to designate the particular division to which it belongs, and depositing each card in a place or receptacle corresponding to the division thus indicated, substantially as described. 7th. The hereinbefore described improved system for compiling statistical matters, consisting essentially in the combination with a series of circuits and operating electro-magnets, and a series of pins controlling said circuits, of a series of separate record cards, each card bearing circuit controlling index points indicative of items characteristic of an individual or subject. 8th. The combination to form a system for compiling statistical matters, as hereinbefore described, of a series of separate cards, each card bearing a series of index points representing the items or characteristics of one individual or subject, an apparatus provided with a series of circuit controlling devices corresponding and co-operating with the index points on the cards, a system of electro-magnets connected to said pins or circuit controlling devices, and a series of operating electro-magnets forming part of said system, substantially as described. 9th. In a system such as described, the combination, with a record card or strip, circuit controlling devices, and a system of circuits connected thereto, of operating magnets controlled by said circuits, and a series of boxes provided with lids controlled by said operating magnets, substantially as described. 10th. In a system such as described, the combination, with separate record cards, circuit controlling devices co-operating with index points on the cards, a system of circuits, one or more boxes or receptacles for cards, a movable lid or section controlling the entrance to each box or receptacle, and actuating devices for the movable lid or section, said devices being controlled by the index points on the record cards to designate the proper receptacle for each card, substantially as described. 11th. In a system such as described, the combination, with the perforated record cards and a system of circuits controlled thereby, a bed plate and platen between which the cards are successively fed, a series of yielding pins mounted upon the platen, and a corresponding series of mercury cups in the bed plate, substantially as described. 12th. The combination, with a perforated record card, of a circuit closing device controlled by said record card, electro-mechanical counters in circuit with said circuit closing device, and an integrating device, substantially as described. 13th. The combination, with a perforated record card, of contact points adapted to form electric circuits through the perforations of said record card, electro-mechanical counters in circuit with said contact points, and an integrating device adapted to transmit one or more electrical impulses to said counters according to the value of said record punch marks.

### No. 30,903. Chimney Cap. (*Souche de cheminée.*)

Harald M. Hansen, Chicago, Ill., U.S., 8th March, 1889; 5 years.

*Claim.*—The chimney-pot C having notches *g* in its lower edge, in combination with the coping B consisting of sections provided with flanges *f*, and having an interior flange *e*, shoulder *c* and a lower inclined edge, substantially as and for the purpose specified.

### No. 30,904. Steam Engine. (*Machin à vapeur.*)

Franklin D. Child, West Newton, Mass., U.S., 8th March, 1889; 5 years.

*Claim.*—1st. In a steam engine or other motor, a cylinder provided with inlet and exhaust pipes, inlet and exhaust chambers communicating with said inlet and exhaust pipes respectively, annular inlet passages communicating with either end of said inlet chamber, annular exhaust passages communicating with either end of said exhaust chambers, and inlet and exhaust ports communicating respectively with said inlet and exhaust passages as to admit steam or other motive force to, and exhaust it from, said cylinder on all sides thereof, in combination with ring valves at each end of said cylinder adapted to alternately open and close said inlet and exhaust ports, and having frusto-conical surfaces on the inside and a cylinder head at each end of said cylinder which is provided with an internally projecting frusto-conical extension, the sides of which are parallel with the inner sides of said valves, and are in contact therewith or nearly so when said valves have reached the extreme end of their movement toward the cylinder heads. 2nd. In a steam engine or other motor, a cylinder provided with annular inlet and exhaust ports at both ends thereof, ring slide valves in both ends thereof having seating surfaces parallel to the axis of the cylinder, and adapted to alternately open and close the said inlet and exhaust ports, and also provided with frusto-conical surfaces on the sides furthest from said ports, in combination with cylinder heads provided with frusto-conical surfaces opposed to and parallel with the frusto-conical surfaces of the valves. 3rd. In a steam engine or other motor, a pair of ring slide valves arranged one in each end of the cylinder, and each having a circular seating surface parallel to the axis of said cylinder, which valves are adapted to alternately open and close the ports of said cylinder, and are also provided with frusto-conical surfaces on the inside thereof, in combination with cylinder heads provided with frusto-conical surfaces opposed to and parallel with the frusto-conical surfaces of the valves.

### No. 30,905. Fire Escape. (*Sauveteur d'incendie.*)

Charles W. Allen, Toronto, Ont., 8th March, 1889; 5 years.

*Claim.*—1st. In a fire escape, the combination of a ladder having

its rungs pivotally connected with the stringers, one of the stringers being made fast and the other having attached to it means for raising and folding it against its fellow stringer and dropping it into position for use, brackets secured to the building and forming with a recess at each end adapted to receive said ladder open, and having one of the stringers firmly secured therein, a lifting chain attached to the movable stringer and passing over pulleys into the interior of the building and secured to a lever, a lever for operating the lifting chain and securing it upon a slip hook, a cord for disengaging the lifting chain from the slip hook, and an alarm signal set in operation by the ladder falling into position for use, substantially as set forth. 2nd. In a fire escape, the combination of the flat bar stringers A, the flat bar rungs B, having twisted ends *b* pivotally secured between the stringer bars A, the shouldered riveted pivots C passing through the stringers and rungs, and the washers *c* between each stringer bar and rung, substantially as set forth. 3rd. In a fire escape, the combination of the stringer bars A, the flat rungs B having twisted ends pivoted between the stringer bars A, the shouldered riveted pivots C connecting said stringers and rungs, washers *c* between each rung, and stringer bar eyes *g* secured to said stringer bars, and hand rail G secured in said eyes, substantially as set forth. 4th. In a fire escape, the combination of the folding ladder A B, brackets D secured to a building and having a recess *d* in which one of the stringers of the ladder is permanently secured, and a recess *d'* to support the movable stringer when the ladder is open, the lifting chain H terminating in a ring I and secured to a lever, the friction pulleys H<sub>1</sub>, H<sub>11</sub>, H<sub>111</sub>, H<sub>1111</sub> over which said chain passes, the lever I for operating said lifting chain, a hook I<sub>1</sub> to engage the ring I, and the cord J attached to the end of said lifting chain and guided over a pulley J<sub>1</sub>, substantially as set forth. 5th. In a fire escape, the combination of the folding ladder A B, brackets D having a recess *d*, an electric circuit *k* having in it a battery and bell, and provided with a contact maker K placed in said recess *d*, and adapted to be pressed by the movable stringer of the unfolded ladder, substantially as set forth. 6th. In a fire escape, the combination of the folding ladder A B, brackets D having recesses *d*, *d'* and having one of the stringers A secured in said recess *d*, a cord or chain F passing over a pulley *f* and having suspended thereon a weight F<sub>1</sub>, substantially as set forth. 7th. In combination with the folding ladder hereinbefore described, and secured at one side of a window, a balcony V secured to or near the window sill, substantially as set forth.

### No. 30,906. Steam Injector.

(*Injecteur de vapeur.*)

Thomas J. Sweeney, Detroit, Mich., U.S., 8th March, 1889; 5 years.

*Claim.*—1st. In a steam injector, the combination of the lifting valve H and the combining tube E, the lifting valve H being supported directly upon the combining tube, substantially as and for the purpose set forth. 2nd. In a steam injector, the combination of the lifting valve H, the combining tube E and its vacuum chamber and the lifting tube D, the lifting valve being supported directly upon the combining tube, and seated wholly by the action of the vacuum in the vacuum chamber *d* of the lifting tube or chamber, substantially as and for the purpose set forth. 3rd. In a steam injector, the combination of the integral delivery-tube F and combining tube E and the valve H, the washer or ring *e*, the overflow chamber *e* and the flange *f* on the overflow chamber, said combining and delivery tube resting against said flange, the combining tube having unenclosed spill apertures *e* and a shoulder F<sub>1</sub> carrying the valve H, substantially as set forth.

### No. 30,907. Boot. (*Botte.*)

Benjamin F. Whitney, Portland, Me., U.S., 8th March, 1889; 5 years.

*Claim.*—The shoe, having the usual heel and outer sole, vamp and quarter, and the inner sole B turned up all round its edges, and supporting the upper, thus dispensing with the usual heel-stiffening.

### No. 30,908. Plough. (*Charrue.*)

Garland B. St. John, Kalamazoo, Mich., U.S., 8th March, 1889; 5 years.

*Claim.*—1st. In a plough, substantially as described, the combination of an iron or steel beam, composed of two straight parallel bars with intervening thimbles, and connecting bolts or rivets passing through said bars and thimbles, and iron or steel handles, substantially as described, secured to the rear end of the beam, whereby the connection of the two parts of the beam at the rear end is utilized in securing the handles thereto, and the parts are made cheaper and stronger, as described. 2nd. In a plough, substantially as described, the combination with the hand-lever of the rear axle and the shifting mechanism of the forward axle, of a secondary lever, a notched quadrant therefor pivoted to said rear lever, and a rod or bar connecting said secondary lever with the shifting mechanism of the forward axle and movable upon said quadrant, whereby both of said axles may be shifted simultaneously, or the forward axle independently of the rear one, and its position fixed at any desired point. 3rd. In a plough, substantially as described, the combination of the hand-lever 20, the connecting-rod 18, the hand-lever 19, the notched quadrant 20 and the slotted guide 21, substantially as and for the purpose set forth. 4th. In a plough, the combination, with tilting-arm which supports the forward wheel and the hand-lever, and connection with said tilting arm, substantially as described, of a castor-standard having a notched plate adapted to receive a suitable holder, a holder adapted to automatically engage with said notch, substantially as and for the purpose set forth. 5th. In a plough, the combination, with a suitable support therefor, of a castor-standard for the forward wheel, a cam on said standard, substantially as described, with a notch therein to receive the traveller of a spring, a spring substantially as described, with a traveller mounted in its free end and bearing on the periphery of said cam and adapted to engage with the notch therein and hold the castor in normal position, as set forth. 6th. In a plough, the combination, with a tilting arm of the bifurcated bracket 23, the spring 25 mounted between the members of said bracket and having traveller 27, the castor-standard 24 and the

cam 25 secured thereto between the members of said arm, substantially as and for the purpose set forth. 7th. In a plough, substantially as described, the combination, with landward wheel and its cranked axle having a bearing on its spindle for a suitable box, a box mounted thereon, a longitudinal bar connected with said box, and forming at one extremity and normally above said spindle, a support for the seat, and at its forward end having a movable connection with the plough, substantially as and for the purpose set forth. 8th. In a plough, substantially as described, the combination, with the cranked axle of the landward wheel, of a longitudinal bar pivotally mounted on the spindle of said axle, and forming a support for the seat at the rear end and above said spindle, the slotted tilting arm supporting the forward wheel, and the traveller mounted on the forward lateral extension of said bar and within said slot, substantially as and for the purpose set forth. 9th. In a plough, substantially as described, the combination of a longitudinal seat-supporting bar, having a pivotal connection with the spindle of the rear axle, and a movable connection with the tilting support of the forward wheel, and a longitudinally-adjustable foot-rest, substantially as described. 10th. In a plough, the herein described mounting for the wheels, consisting of the spindle 31, the bolt 42 connecting the spindle with the axle-arm, the leather washers 45 and 46 to exclude dirt and retain oil, and the cavity 47 near the end of the hub (which in the case of the inclined wheel is the higher) adapted to hold packing for the retention of oil, substantially as described.

### No. 30,909. Tubular Guide Drill.

(*Guide-foret tubulaire.*)

James T. Connelly, Huntington, W. V., U.S., 8th March, 1889; 5 years.

*Claim.*—1st. The tubular drill-guide, substantially as described. 2nd. The combination of the tubular drill-guide, having its bore extending its entire length, with a drill having its stem passing therethrough, so as to work and be guided therein, substantially as described. 3rd. The combination of the tubular drill-guide, its jamnut and the drill passing through said guide, substantially as described.

### No. 30,910. Straw Cutter. (*Coups-paille.*)

Albert La Marsh, Dundas, Ont., 8th March, 1889; 5 years.

*Claim.*—In a straw-cutter, the combination, with a fly-wheel and cutter-bar, of a cutting knife C having its edge formed somewhat sickle-shaped or arched, to cut from the heel outwards and from the point inwards, at the same time finishing the cut near the centre of the cutting edge, substantially as and for the purpose specified.

### No. 30,911. Coupling for Gas and Electric Light Fixtures. (*Joint de garnitures de lumière à gaz et électrique.*)

Reinhold Herman, Crafton, Penn., U.S., 8th March, 1889; 15 years.

*Claim.*—1st. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, and a bearing ball formed of insulating material arranged between said nipples, substantially as set forth. 2nd. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, a bearing ball formed of insulating material interposed between said nipples, and bolts for adjusting the nipples in proper relation to each other, substantially as set forth. 3rd. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, and perforated bearing ball formed of insulating material arranged between said nipples, substantially as set forth. 4th. In a coupling or joint for gas or electric light fixtures, the combination of two threaded nipples, each provided with circular seats at their adjacent ends, and an angularly-perforated bearing ball formed of insulating material arranged between said nipples, substantially as set forth.

### No. 30,912. Treating Sparkling and Effervescent Beverages. (*Traitement des boissons mousseuses et effervescentes.*)

Frederich A. Reihlen, Stuttgart, Germany, 8th March, 1889; 5 years.

*Claim.*—1st. The combination of the double-walled generating vessel A, the elevated double-walled transmitting vessel E, the elevated shipping vessel F, the double-walled charging vessel G, a carbonic acid conduit H extending from the generating vessel past the transmitting, shipping and charging vessels, and returned to the generating vessel, branch tubes connecting the conduit respectively with the inner and outer walls of the vessel, a pipe B connecting the inner walls of the generating and transmitting vessel, a pipe C connecting the inner wall of the transmitting with the shipping vessel, a pipe D descending from the shipping to the charging vessels a feed pipe R leading from the lower portion of the inner wall of the charging vessel to the inner wall of the generating vessel, a force pump in said feed pipe between the charging and generating vessels for drawing the liquid from the charging vessel, forcing it into the generating vessel, and lifting it to the transmitting vessel, and a valve Z in the feed pipe between the force pump and the generating vessel, substantially as described. 2nd. The combination of the double-walled generating vessel A, a double-walled transmitting vessel E elevated above the same, a pipe-connection between the inner walls of said vessels a branch U in said pipe connection containing a manometer, a pipe O for connecting the transmitting vessel to an elevated shipping vessel, a double-walled charging vessel G below the transmitting vessel and adjacent to the generating vessel, a tube I for connecting the inner wall of the charging vessel with the inner wall of the shipping vessel, a branch J on said tube containing a manometer, a carbonic acid conduit H extending from the generating vessel, passing the transmitting and charging vessels, having

branches to connect with the outer walls of the transmitting and charging vessels, and returning to the generating vessels, a branch V on the conduit containing a manometer, a branch O for connecting the conduit with the outer walls of the charging vessel, with the outer wall of the shipping vessel and connected with a manometer W, a feed-pipe K connecting the inner walls of the charging and generating vessels, and a pump N in said feed-pipe for forcing the liquid from the charging vessel into the generating vessel, and upward into the transmitting vessel, substantially as described.

### No. 30,913. Railway Crossing.

(*Passage de chemin de fer.*)

James Cumming and Margaret Cumming, Buffalo, N. Y., U. S., 8th March, 1889; 5 years.

*Claim.*—1st. In railway crossings, the series of removable frog-sections, each having base plates crossing one another in depressions, as described, with the rail of one section overlapping the joints of the base plates of the adjoining sections, substantially as and for the object specified. 2nd. In railway-crossings, a series of frogs, consisting each of a base plate A, having centrally a depression *a*, a base-plate A<sub>1</sub> intersecting said base-plate at said depression, the running and guard rails riveted to said base-plates, the bridge-pieces located at the intersection of said rails, the cushion underneath and the stops for said bridge-pieces constructed and combined in the manner as and for the object stated. 3rd. In combination, with the intersecting rails of a crossing or switch frog, a bridge piece, substantially as described, having the rubber cushion and the end stops, as and for the purpose indicated. 4th. In railway crossings, a series of removable frogs, each having the rails of one overlapping the adjoining edges of the opposite base-plate, said rails being riveted to their respective base-plates, and secured to the rails of the adjoining frogs, by fish-plates and bolts, as described.

### No. 30,914. Electric Stop Valve.

(*Soupape de retenue électrique.*)

Robert Wellens, Joseph Wellens and Hugh Ferguson, Pittsburg Penn., U.S., 8th March, 1889; 5 years.

*Claim.*—1st. The combination, with an oscillating valve and its case, having arms D<sub>2</sub> and plate D, of a valve stem extending from the valve to the plate D, and having a weighted arm attached, a notched disk connected to and operated by the valve stem, an armature provided with a tooth for engaging the notch of the disk and an electro-magnet for operating the armature, the said armature and electro-magnet being supported upon plate D, substantially as and for the purpose described. 2nd. The combination, with the steam valve and its weighted arm, of the diminishing gear E, E<sub>1</sub>, the notched disk E<sub>2</sub>, the toothed armature and its electro-magnet, substantially as and for the purpose described. 3rd. The combination of the valve chamber, having ports *a* and *a*<sub>2</sub>, the valve C, with stem C<sub>1</sub>, the detachable head D, with arms D<sub>2</sub> and plate D, the toothed segment E, pinion E<sub>1</sub> and notched disk E<sub>2</sub>, the toothed armature G and the electro-magnet, substantially as and for the purpose described.

### No. 30,915. Feed Water Purifier.

(*Epurateur de l'eau d'alimentation.*)

The Smith Feed Water Heater and Purifier Company, St. Louis, Mo., (assignee of William J. Smith, Chicago, Ill.) U. S., 8th March, 1889; 5 years.

*Claim.*—1st. A feed water purifier for boilers, consisting of tubes 8, 8 horizontally arranged within said boiler at each side thereof, brackets 9 having curved parts 10 and bolts 11 for supporting said tubes from the shell of the boiler and holding them in place, pipes for connecting said tubes with pump or injector connections, the connections between said pipes and tubes being wholly within the boiler. 2nd. The combination, with a feed water purifier, of a suction pipe connecting the bottom of the boiler with said feed water purifier, whereby when the purifier is blown off, the sediment deposited in said boiler will be drawn out by said pipe. 3rd. The combination, with a feed water purifier, of a suction pipe connecting the bottom of the boiler with said feed water purifier, and a valve in said pipe, whereby the feed water is prevented from passing through said pipe, and the sediment is drawn off by said pipe when blowing off the purifier. 4th. The combination, with a feed water purifier, located wholly within the boiler, having a diaphragm intermediate of it provided with holes 13, of a pipe 25 projecting in said purifier below said diaphragm, beyond the holes 13, its other end being open, or provided with holes arranged at or near the bottom of the boiler, and a valve in said pipe for preventing the feed-water from entering the boiler by way of said pipe.

### No. 30,916. Inside Guard for Electric Light Globes. (*Garde intérieur pour globes de lumière électrique.*)

Robert M. Gardiner, Hamilton, and William Hibborn, Ayr, Ont., 8th March, 1889; 5 years.

*Claim.*—1st. In combination with an electric lamp and globe, a guard of any desired form and material placed near the bottom of the globe, for catching melted copper from the carbons that would otherwise fall on the globe, and keeping the bottom of the globe cool. 2nd. In combination with an electric lamp and globe, of a guard F placed inside the globe and provided with openings to fit the lamp, and a rim *e* on the outer edge and around the openings *a*, *d*, *c*, as shown or otherwise substantially as and for the purpose specified.

### No. 30,917. Grain Binding Harvester.

(*Moissonneuse-lieuse.*)

Nichols Harvester Company, (assignee of Marion L. Nichols), New York, N. Y., U.S., 8th March, 1889; 5 years.

*Claim.*—1st. A harvester frame, in combination with two or more

supporting wheels having pivotal connections with the frame, and means for connecting them together intermediate of their pivotal connections, substantially as described, whereby the main frame is caused to have a lateral motion relative to the ground actuated by wheels in turning the machine. 2nd. The combination of the main frame with the divided supporting frame carrying the wheels at its outer ends, and having pivotal connections with the main frame at points between the wheels and its point of division, and means for causing the parts of the frame to be actuated one by the other in the movement of the wheels in turning the machine, substantially as described. 3rd. The combination of the binder-frame, a main supporting-wheel arranged in rear thereof and having a pivotal connection therewith, a front supporting wheel also having a pivotal connection with the frame, a tongue connected to the wheel-frame, and means for connecting the wheel-frames intermediate of their pivotal connections so as to move in unison substantially as described, whereby the swinging of the tongue will cause the rear wheel to be turned at an opposite inclination to the front wheel, and the frame to have a lateral motion relative to the ground, as set forth. 4th. The combination, with the front and rear supporting wheels having the carrier and binding devices located between the same, of an end wheel located at the grain side of the machine and having its frame supported at front and rear substantially as described, whereby the main frame may move endwise in relation to said end wheel in turning the machine. 5th. The combination of the front and rear supporting wheels connected by means of the pivoted arms, the end or grain wheel connected to one of the arms of said supporting wheels, and the main frame supported by the wheels, substantially as described, whereby the main frame is caused to move endwise in turning the machine, as and for the purpose set forth. 6th. The combination of the harvester frame, an outer or grain wheel supported in guide-ways, and the arms or levers connecting the grain-wheel with the turning mechanism, substantially as and for the purpose set forth. 7th. The combination of the harvester-frame, an outer or grain wheel having its frame supported at front and rear in guide-ways in the harvester frame, and means substantially as described for connecting the grain wheel with the turning mechanism. 8th. The combination of the harvester-frame, an outer or grain wheel supported in guide-ways, the rock-shaft in the harvester-frame, the arms or levers for connecting the rock-shaft with the grain wheel frame, and means substantially as described for connecting the rock-shaft with the turning mechanisms, as and for the purpose set forth. 9th. The combination of the slotted supporting frame for the grain wheel mounted on the tracks or guide-ways, and connected through mechanism with the pivoted supporting-wheels, the bell crank lever pivoted to the supporting-frame and carrying at one end the grain wheel, and means substantially as described connected to the other end of said lever for raising and lowering the grain wheel, all substantially as set forth. 10th. The combination of the cutting and grain delivering and binding devices described, and means for operating the same with the automatic clutch mechanism acting to throw the same into and out of action in turning the machine, and a lever or shifting device for throwing the mechanism into and out of action by hand, substantially as set forth. 11th. The combination of the main frame with the divided supporting-frame carrying the wheels at its outer ends, and having pivotal connections with the main frame at points between the wheels and its points of division, a driving and driven mechanism, and an automatic and hand-operating clutch substantially as described, whereby in turning the machine the driven mechanism may be thrown automatically out of action or may be thrown out by hand, as set forth. 12th. The swiveling reel-post, combined with means substantially as described for automatically acting upon the reel to turn it in turning the machine, as and for the purpose set forth. 13th. The combination of the harvester-frame, a pivoted wheel-supporting frame, a swiveling reel-post, and means substantially as described for connecting the reel-post with the wheel-supporting frame, as and for the purpose set forth. 14th. The combination, with the front and rear supporting-wheels connected by the pivoted arms of the swiveling reel-post connected with the arm of one of the supporting-wheels substantially as described, whereby the reel is caused to be moved automatically out of the way of the team in turning the machine, as set forth. 15th. A swiveling reel-post carrying the reel, combined with the machine to move said reel to and from the cutters automatically in turning the same, and means substantially as described, whereby the reel can be raised and lowered in its various angles of relation to the machine, as and for the purpose set forth. 16th. The combination of the carrier extending in beyond the cutters, the binding devices located at the inner end thereof, a vertically arranged butt-rake pivoted near the inner end of the carrier and extending to the cutters, and means substantially as described arranged adjacent to the cutters for imparting both an endwise and reciprocating motion to the rake, as set forth. 17th. The combination of a separator-arm for dividing the grain, mounted so as to oscillate a trip-arm, and mechanism substantially as described for connecting said arm, as set forth, whereby the trip is caused to automatically and positively control the movements of the separator by the grain accumulated to form the bundle and cause it to hold the incoming grain during the binding operation. 18th. The combination of the carrier, a binding mechanism, packers, and a separating-arm operating in a reverse direction to the packers, and a trip mechanism for controlling the separating-arm, substantially as described, whereby the separating-arm is caused to act upon the incoming grain upon the carrier and force it back and out of the way of the packers, as and for the purpose set forth. 19th. An automatic trip for grain binders acted upon and controlled by the driver in his seat on the machine for operating the trip at will, substantially as described. 20th. The combination of an automatically operated separator and an automatically operated trip with means to be controlled by the driver for throwing the same into action at will, substantially as described. 21st. An automatic trip for grain-binders, acted upon and controlled positively by the separating-arm substantially as described, whereby the grain to form the bundle is separated from the incoming grain before the binding devices are brought into action, as and for the purpose set forth. 22nd. The combination of the horizontally arranged carrier, a trip-arm located in the path of the grain, a separating-arm actuated by the trip-arm, and a binder

mechanism trip actuated by the separating arm, substantially as and for the purpose set forth. 23rd. The combination, with the intermittently rotating pinion for imparting motion to the separator, of the bifurcated pivoted rocking arm operated by the trip arm to rock said arm, and cause it to alternately disengage and engage the clutch of the pinion to throw the same into and out of action, substantially as and for the purpose set forth. 24th. The combination of the fixed jaw, the pivoted jaw, the rod or shaft provided with the disk or head, and a revolving drive-wheel provided with cams to engage the head to reciprocate the shaft and positively open and close the jaw, substantially as described. 25th. The combination of the swinging-frame carrying the gripper, the reciprocating combined cord guide and stripper, a knife, the arm or lever for reciprocating the cord guide stripper and knife, an arm connected with the knife-arm and forming a guide for and connection between the gripper-frame, cord-guide, stripper and knife, and a revolving drive-wheel with cams for reciprocating the cord-guide, stripper and knife, intermittently operating the gripper and swinging the gripper-frame from the knotted, substantially as and for the purpose set forth. 26th. The combination of the revoluble knotted-shaft, the combined cord-guide and stripper, a knife having a fixed relation to the cord-guide and stripper, the cam and rack-wheel for revolving the knotted and moving the knife and guide it in one direction, and the revolving ejector-arm for reciprocating the cord-guide and knife in the opposite direction to sever the cord and strip the knot from the knotted, substantially as and for the purpose set forth. 27th. The combination of the reciprocating knife, the gripper, and means, substantially as described, for connecting said gripper and knife as set forth, whereby the knife is reciprocated and the gripper-frame swung bodily from the knotted and intermittently rotated by the knife-reciprocating mechanism. 28th. The combination of the cord guide and stripper, a knife, a cord-gripper and an arm or lever for connecting the same, substantially as described, whereby the cord-guide and stripper is reciprocated, and the gripper swung to and from the knotted and intermittently revolved, for the purposes set forth. 29th. The reciprocating cord-guide and stripper, in combination with an ejector-arm acting on the stripper to cause the same to strip the knot simultaneously with its action in ejecting the bundle, as and for the purpose set forth. 30th. The combination of the cord guide and stripper, a knife and an arm or lever for operating said parts having a swinging movement imparted thereto by the revolving gear and cam wheel and the revolving ejector arm, substantially as described. 31th. The slotted frame for carrying the tying devices provided with bearings for the driving-shaft upon each side of the cam and gear wheel, in combination with the driving-shaft provided with the key seat or slot to engage the feather in the gear-wheel, substantially as and for the purpose set forth. 32nd. The combination of the guiding and depressing arm with the separating arm operating and timed in their movements, substantially as and for the purpose set forth. 33rd. The combination of the tension and take-up arm, the rocking arm pivoted to the end of the take-up arm and connected to the frame by a link operating, substantially as described, and the needle-shaft provided with the cam or projection to engage the arm of the take-up and operate the same and through it the rocking-arm, as and for the purpose set forth.

## No. 30,918. Cigar Rolling Machine.

(Machine à enrouler les cigares.)

The Universal Cigar Rolling Company, Jersey, N.J. (assignee of Oscar Hammerstein, New York, N.Y.) U.S., 8th March, 1889; 5 years.

**Claim.**—1st. In a cigar rolling machine, the combination, with a point-receiving thimble, of a chamber or receptacle for containing paste or the like that is connected with said thimble for supplying paste to a cigar tip, substantially as described. 2nd. In a cigar rolling machine, the combination, with a point-receiving thimble, of a chamber for containing paste or the like, connected with said thimble, and means substantially as described for forcing paste from said chamber to the thimble in the desired quantity, as specified. 3rd. In a cigar rolling machine, the combination, with a point-receiving thimble, of a chamber for containing paste or the like, connected with said thimble, and a piston within said chamber for gradually forcing the paste from said chamber to the thimble, substantially as described. 4th. In a cigar rolling machine, the combination, with a point-receiving thimble, of a paste chamber connected with said thimble, a piston within said chamber for gradually forcing paste from said chamber to the thimble, and with means, substantially as described for moving said piston as specified. 5th. In a cigar rolling machine, the combination of a point-receiving thimble and a paste chamber connected with said thimble, of a piston within said chamber, a screw rod carried by said piston, a sleeve engaging said rod, and a rock-shaft connected with said sleeve for gradually advancing the piston within the chamber, substantially as described. 6th. In a cigar rolling machine, the combination, of a point-receiving thimble, with a paste chamber connected with said thimble, a piston within said paste chamber, a screw rod connected to said piston, a sleeve for turning said rod, a rock-shaft connected with said sleeve for turning said sleeve, the crank N on said rock-shaft, the pin f and the shaft e carrying said pin, all arranged and operating substantially as described. 7th. In a cigar rolling machine, the point-receiving thimble having a passage way communicating with its inner wall, combined with a paste chamber connected with said passage way, and a piston within said paste chamber for forcing paste through the passage way, substantially as described. 8th. In a cigar rolling machine, the combination, with rollers for rolling a cigar, of a shaft O, finger R and spring S connecting said finger to said shaft, substantially as described. 9th. In a cigar rolling machine, the combination, with rollers for rolling a cigar, of the shaft O having the pinion  $b_2$ , finger R carried by said shaft, and the pinion  $d_2$  and means for turning the same, substantially as described. 10th. In a cigar rolling machine, the rollers for rolling a cigar, combined with the shaft O having pinion  $b_2$ , finger R and spring S connecting the finger R to the shaft O, and with the pinion  $d_2$  meshing with the pinion  $b_2$ , shaft F<sub>2</sub> and the independent frame P supporting the shaft O, whereby said shaft may have longitudinal movement, all arranged for operation

substantially as described. 11th. In a cigar rolling machine, a paste chamber, combined with means substantially as described for passing paste from said chamber to and upon the tip of a cigar, substantially as described. 12th. In a cigar rolling machine, the combination, with rollers for rolling a cigar, of the shaft O and a flexible finger connected to and carried by said shaft, substantially as described.

### No. 30,919. Advertising Cabinet.

(*Buffet de publicité.*)

Isaac B. Stone, Tottenham, Ont., 9th March, 1889; 5 years.

*Claim.*—1st. The advertising cabinet, herein described, the same comprising an ordinary top, bottom, back and sides, and a front composed of vertical longitudinal strips slotted in their adjacent faces, and removable advertising panels passed into the upper ends of, and built up within, said slots from the bottom, all of said panels in each longitudinal row being in one vertical plane. 2nd. The advertising cabinet herein described, the same comprising an ordinary top, bottom, back and sides, and a front composed of vertical longitudinal strips, slotted in their adjacent faces, removable advertising panels passed into the upper ends of and built up within said slots from the bottom, all of said panels in each longitudinal row being in one vertical plane, and transverse strips having reduced ends fitting said slots, said strips being interposed transversely between the adjacent upper and lower ends of each vertical pair of panels, and forming a horizontal raised bead between them, as and for the purpose set forth. 3rd. The advertising cabinet herein described, the same comprising a plain top, bottom, back and sides, and a front composed of vertical longitudinal corner strips a, interior vertical longitudinal strips b in a transverse line therewith, inner vertical longitudinal strips c, back of the plane of said strips a and b, all of said strips being longitudinally slotted on their adjacent faces, the panels e fitted between said strips a and b and c, the panels f fitted between said strips c and the glass h also fitted and inserted between said strips e, said panels and glass being removably inserted in said slots from the top and built up from the bottom, as and for the purpose described.

### No. 30,920. Automatic Switch.

(*Aiguille automatique.*)

Michael Leary and James F. Mann, Utica, N.Y., U.S., 9th March, 1889; 5 years.

*Claim.*—1st. The combination of two stationary diverging rails, two split rails between the stationary diverging rails, each split rail converging with a stationary rail, one of the split rails being held stationary, and the other movably held to the diverging stationary rail by spring tension, and a stationary plate at the end of the stationary split rail, substantially as set forth. 2nd. The combination of two stationary diverging rails, two split rails between the stationary diverging rails, each split rail converging with a stationary rail, one of said split rails being stationary and the other movably held to the stationary rail, the bolt and spring and a stationary plate at the end of the stationary split rail, substantially as set forth. 3rd. The combination of the stationary diverging rails, two split rails between the stationary diverging rails, each split rail connecting with a stationary rail, one of the split rails being held stationary and the other movable held to the diverging stationary rail by spring tension, substantially as set forth.

### No. 30,921. Washing and Scrubbing Gas and Apparatus therefor.

(*Lavage et frottage du gaz et appareil pour cet objet.*)

Kirkham, Hulett and Chandler (assignees of Samuel Chandler, Sr., Samuel Chandler, Jr., and Josiah Chandler), London, Eng., 9th March, 1889; 5 years.

*Claim.*—1st. In apparatus of the kind hereinbefore described for washing and scrubbing gas, the combination of one or more buckets e or its or their equivalent or equivalents, with a trough f into which the said bucket or buckets is, or are, adapted to discharge, the said trough being suitably connected by a pipe or channel g, with one or more of the bags or chambers of the apparatus, substantially as and for the purpose hereinbefore described. 2nd. In apparatus for washing and scrubbing gas, comprising a number of bags or chambers, as set forth, a series of scrubbing devices d, each of which is essentially constructed of a number of sections built up of bars or laths i, carried between suitable side plates and discs or discs alone, whereby, as the scrubbing devices rotate a large area of wetted surface is provided, and whereby a very zig-zag course is given to the gas in passing through the apparatus, the gas being thereby thoroughly broken or split up and brought into very intimate contact with the said wetted surfaces, substantially as described.

### No. 30,922. Plough Point Sharpener.

(*Rémouleur des socs de charrues.*)

Fred. Munger and John S. Carman, Alliance, Neb., U.S., 9th March, 1889; 5 years.

*Claim.*—A plough point sharpener, consisting of anvil A, block F, spring E and screw N, all formed and combined substantially as and for the purpose hereinbefore set forth.

### No. 30,923. Filtering Faucet.

(*Robinet-filtre.*)

William H. Sargent, South Weymouth, Mass., U.S., 9th March, 1889; 5 years.

*Claim.*—1st. A filter, comprising the metallic case f, having a corrugated body and a perforated crown-top, a thimble-shaped felt screen disposed within said case and provided with an outwardly-projecting flange at its lower end, a thimble-shaped wire-cloth screen disposed within said felt screen, and also provided with an outward flange at its lower end, and a perforated plate disposed beneath said case and screen, substantially as described. 2nd. In a faucet of the character described, the metallic case f having its body corrugated

and its upper portion perforated, in combination with a felt screen disposed within said case, a wire-cloth screen disposed within said felt screen, a perforated plate disposed beneath said case and screen, the body A, valve D, chamber B and cap E, having the duct m, all combined and arranged to operate substantially as specified. 3rd. The improved faucet herein described, the same consisting of the body A provided with the valve D, the chamber B connected with said body and provided with the flange s and screw-cap E having the duct m, the metallic case f, having its body corrugated and its upper portion perforated, the thimble-shaped felt screens m, provided with the water-proofed flanges Z, the thimble-shaped wire-cloth screen t, provided with the flange v, the filtering material b disposed within the screen t, and the perforated plate k having the upwardly-curved projection y, all being constructed, combined and arranged to operate substantially as set forth.

### No. 30,924. Winker Fork Attachment.

(*Branches d'oeillère de bride.*)

Edmund B. Knapp, San Jacinto, Cal., U.S., 9th March, 1889; 5 years.

*Claim.*—1st. The combination of the winker, the winker-fork having an enlargement at its end inserted in the winker, and the fastening plate having a series of pins projecting therefrom and inserted through the winker and the enlargement of the winker-fork, substantially as specified. 2nd. In combination with the winker, the winker-fork inserted within the winker at one end, and the fastening pins passed through the winker-fork and winker to secure the parts together.

### No. 30,925. Boot and Shoe.

(*Chaussures.*)

Jeremiah M. Hanson, St. Andrews, N.B., 9th March, 1889; 5 years.

*Claim.*—As an improved article of manufacture, a boot or shoe made of one piece of leather so cut as to form the whole upper and insole, and to allow of the outside sole being sewn on before the shoe is closed up, all substantially as set forth.

### No. 30,926. Railway Time Signal.

(*Signal horaire de chemin de fer.*)

Charles Barry, Corning, N.Y., U.S., 9th March, 1889; 5 years.

*Claim.*—1st. In an improvement in railroad signals, the combination of the pivoted lever frame B, minute wheel b<sub>2</sub>, a curved or hooked arm C, the index shaft f, the wheel D, F, the spring f<sub>2</sub> encompassing said shaft f, and the vertical rod G engaging said curved or hooked arm C, substantially as shown and described. 2nd. The combination of the pivoted lever frame B, the curved arm d provided with a projecting pin d<sub>1</sub>, the index shaft f and the index wheel F having a pin or stud f<sub>2</sub> and the spring-actuated arm E, substantially as shown and described. 3rd. The combination of the clock mechanism A, the lever frame B, the outer minute wheel D carried thereby, the index shaft f carrying the index hands f<sub>2</sub>, the wheel F having a segment of its teeth removed, and the curved arm d connected to said lever frame B, substantially as shown and described. 4th. The combination of the lever frame B, a minute wheel b<sub>2</sub>, the curved or hooked arm C secured to said frame B, the index shaft f, the wheel F, the vertical rod G having a circular groove G<sub>1</sub>, and the track lever I having connection with said rod G, substantially as shown and described. 5th. The combination of the clock mechanism A, the lever frame B, the hooked arm C, the index hand f<sub>2</sub>, the shaft f, the wheel F, the vertical rod G having a grooved portion G<sub>1</sub>, in contact with said lever frame B, the rod I<sub>1</sub>, lever H connected to said rods G, I<sub>1</sub>, the spring I<sub>2</sub> connected to said rod I<sub>1</sub>, the lever I and the track rail s, said lever I extending under the track rail s, substantially as shown and described. 6th. In an improvement in railroad signals, the combination of the signals having a front and rear dial J, the shaft f carrying the dials J, the index hands f<sub>2</sub> secured on the ends of said shaft f and travelling over said dials J in the same direction, and operated substantially as described. 7th. In an improvement in railroad signals, the combination of the signal having two faces or dials J, J, the index hands f<sub>2</sub> travelling over the dials J in the same direction thereof, and operated substantially as described. 8th. The combination of the signal having two faces J, J, the shafts f, f, the index hands f<sub>2</sub> secured upon the outer ends of said shafts f, f, the cog wheels i, i<sub>2</sub> arranged on said shafts f, f and gearing with each other, and the wheel F secured on one of said shafts f and the clock mechanism A, said wheel F gearing with said clock mechanism, whereby said index hands will move in opposite directions, substantially as set forth.

### No. 30,927. Lumber Trimmer.

(*Scierie de recépage.*)

Michael Garland, Bay, Mich., U.S., 9th March, 1889; 5 years.

*Claim.*—In a lumber-trimmer, the combination, with the usual carrier device or mechanism for conveying the board sideways to the trimming-saws, and with the usual stop or stops for giving or predetermined the length of the trimmed board, of suitable feed-rolls D, operating as specified to feed the board edwise toward and against the stop device, all substantially in the manner hereinbefore set forth.

### No. 30,928. Process for Aerating and Purifying Beer Worts and Beer, and Apparatus therefor.

(*Procédé d'aération et de purification du mout de bière et de la bière et appareil pour cet objet.*)

Axel Bergh, Copenhagen, Denmark, 9th March, 1889; 5 years.

*Claim.*—1st. The herein described method of separating the suspended particles from worts or beer by means of centrifugal action. 2nd. The herein described method of simultaneous freeing worts from suspended particles and supplying the same with sterilized air. 3rd. The herein described method of conducting the worts

from the boiling vat or hop strainer through the centrifugal apparatus and the cooling apparatus to the fermenting vat, without bringing the worts during its transit in contact with other than sterilized air, the supply of such air being at the same time regulated at will. 4th. The construction of centrifugal apparatus herein described with reference to the accompanying drawings, which may be combined with a cooling apparatus of any suitable construction, and which consists mainly of an air tight casing containing a centrifugal drum, a supply pipe *a*, a discharge pipe *b* with orifice *d*, and an air supply pipe with filtering chamber *c*, and regulating cock.

**No. 30,929. Car-Coupling.**

(*Attelage de chars.*)

Richard F. Osborn, Radford, Ill., U.S., 9th March, 1889; 5 years.

*Claim.*—A car-coupling, comprising the bumper *a*, the platforms *l* and *m*, the ledge *g* having the slot *h*, the pin *q* traversing the ledge vertically and passing through the slot, the swinging link *k* having bearings for its pivot pin *i* in the bumper and in the slot, the catch *n*, the saddle *c* adapted to raise links and the lever *e* connected with the saddle, as and for the purpose set forth.

**No. 30,930. Milk Purifier.** (*Garde-lait.*)

David M. Macpherson, Lancaster, Ont., 9th March, 1889; 5 years.

*Claim.*—1st. The combination of the cone-shaped cooler *F*, provided with a rim *f* and overflow pipe *H*, the tripod stand *A* carrying a milk receiver *B*, provided with a strainer *D* and perforated outlet *C*, the wire sieve *E* supported adjustably by the legs of stand *A*, and the receptacle *G*, having pipes *g*, *g*<sup>1</sup> for inlet and outlet of water to the cooler, as set forth. 2nd. The combination, with the frame or stand *A* having flexible legs supporting milk receiver *B*, of the wire sieve *E*, having projections *e* adjustably engaging the legs of said stand, substantially as set forth. 3rd. The combination, with the cone-shaped cooler *F*, having an internal overflow pipe *H* and exterior rim *f*, of the receptacle *G* having pipes *g*, *g*<sup>1</sup>, as set forth. 4th. The combination, with the stand *A*, supporting a milk receiver *B*, having a perforated outlet *C*, of the wire sieve *E* and the cone *F*, provided with a rim *f*, whereby the milk is divided into fine streams, and cooled and collected, as set forth. 5th. The combination, with the stand *A*, of the milk receiver *B* having a strainer *D* and perforated outlet *C*, the wire sieve *E* and the cone *F* provided with an exterior rim *f* and an internal overflow pipe *H*, as set forth.

**No. 30,931. Motor.** (*Moteur.*)

Franz J. Lawn, Willengen, Germany, 9th March, 1889; 5 years.

*Claim.*—1st. In a motive power engine, the arrangement and combination of the distributing slide valve *E*, within and at right angles to the axis of the steam piston *D*, the ingress and egress ports 1, 2, 8, 9 and 12, and the grooves or channels 5, 10 and 14, substantially as and for the purposes described. 2nd. The combination and arrangement of the motive power engine for working or operating a chisel or drill, substantially as set forth, so that as the piston *D* reciprocates it will rotate the drill shaft or impart blows or vibrations to the chisel holder, which latter is provided with a spring, and is thus always raised when the pressure of the piston is released. 3rd. In combination with the apparatus set forth in claim 2, the side channel or exhaust pipe *K* leading from the exhaust port *P* to the lower end of the apparatus, for conveying the exhaust air and directing it on to the object operated upon, so as to keep the point of the tool clear of dust, substantially as described. 4th. In combination with the apparatus set forth in claim 2, the winged wheel *F* on the chisel holder *C*, upon the wings or blades of which the exhaust is caused to alternately impinge, with the object of causing the chisel to rotate while at work, substantially as described.

**No. 30,932. Low Pressure Injector.**

(*Injecteur à basse pression.*)

Joseph H. Killey, Hamilton, Ont., 9th March, 1889; 5 years.

*Claim.*—An injector, consisting of a case *A*, having an enlargement *A*<sup>1</sup>, the stem cone *I* having bowed ribs *I*<sup>1</sup> and radial fins *I*<sup>2</sup>, the stem *i*, the cap *H*, the nuts *R* and *P*, the collar *S*, the steam pipe *V*, pin *v*, slot *sr*, the passage *X*, valve *x*, the openings *x*<sup>1</sup> and *x*<sup>2</sup>, the movable side plate *W*, the removable side wall *F*, the lugs *v*, *v*<sup>1</sup>, the lugs *f*, *f*<sup>1</sup>, the plate *C*, the plug *i*, having a flange *iz*, the discharge nozzle *M*, having flange *mi*, the bottom plate *N*, with its outlets *n* and *n*<sup>1</sup>, all formed, arranged and combined substantially as and for the purpose hereinbefore set forth.

**No. 30,933. Rubber Matting for Covering Floors.** (*Natte de caoutchouc.*)

James D. Humphreys, Toronto, Ont., 14th March, 1889; 5 years.

*Claim.*—As a new article of manufacture, a rubber matting for covering floors made in continuous lengths, and in which one or more stripes or portions of the face of the matting are formed to a pattern or design of different character and appearance from the other portions of the matting, substantially as shown and described.

**No. 30,934. Belt Fastener.**

(*Agrafe de courroie.*)

James H. Connor, Ottawa, Ont. (assignee of Jean B. Parrie, Hull, Que.), 16th March, 1889; 5 years.

*Claim.*—1st. A belt fastener, consisting of a stout wire *A*, bent into such shape as to resemble the thread inserted by the needle of a lock stitch sewing machine, forming a straight base, interrupted by a series of loops *a* with eyes for the reception of a lock-wire, and a straight lock-wire *B*, adapted for insertion in the eyes *ax*, of the

loops *a* of the wire *A*, substantially as set forth. 2nd. In a belt fastening, the combination of the ends of a belt punched to receive the loops *a* of a wire *A*, a wire *A* bent to have a straight base, and a series of loops *a* adapted to be inserted in the perforations of the belt ends, and extending through the collective thickness of the ends to be connected, and a lock wire *B* passing through the projecting eyes *ax* of the loops *a*, substantially as set forth.

**No. 30,935. Combined Bed and Cabinet.**

(*Lit-armoire.*)

Walter Seldon, Peterborough, Ont., 19th March, 1889; 5 years.

*Claim.*—The combination, with the bed and cabinet, of the connecting arm *F*, pulley *E*, cord or chain *X* and spring *Z* at opposite sides of the bed, as set forth.

**No. 30,936. Anatomical Apparatus.**

(*Appareil anatomique.*)

Elias Smith, Peoria, Ill., U.S., 19th March, 1889; 5 years.

*Claim.*—1st. An anatomical apparatus, consisting of a flat non-flexible base or frame, having the outline of the human body, and a plurality of thin plates having the form of the various organs, muscles and parts of the human body, said plates being movably attached upon said base. 2nd. An anatomical apparatus, consisting of a flat, non-flexible base or frame, a plurality of thin plates having the form of muscles, organs or parts of the body, and pins or hooks inserted in the base or frame for removably securing said plates in position upon said base or frame. 3rd. An anatomical apparatus, consisting of a base or backing having the outline of the human body, and provided with a plurality of plates and with a pivot at its lower end, in combination with a tripod or equivalent support, having a socket or hole to receive said pivot, whereby said apparatus is sustained in an upright position, and is made capable of rotation on said tripod. 4th. A base or backing for anatomical apparatus, consisting of a flat non-flexible base, having the outline of the human body and divided into parts, and means, substantially as described, for removably uniting said parts so that the same may be separated for convenience in packing.

**No. 30,937. Dynamo Electrical Machine.**

(*Machine d'ynamo-electric.*)

Addison G. Waterhouse, Hartford, Conn., U. S., 19th March, 1889; 5 years.

*Claim.*—1st. In a dynamo electric machine, and in combination with an auxiliary collecting brush, a shunt conductor connecting said brush to the main circuit, a device located in said main circuit and responding to changes therein, and mechanism consisting of a variable resistance controlled by said responsive device, and located in said main circuit, between the main positive brush and the point of connection of the shunt conductor thereto, substantially as and for the purpose set forth. 2nd. In a dynamo electric machine, and in combination with an auxiliary collecting brush, a shunt conductor connecting said brush to the main circuit, and a variable resistance adapted to be operated by hand located in said main circuit, between the main positive brush and the point of connection of the shunt conductor thereto, substantially as and for the purpose set forth. 3rd. In a dynamo electric machine, and in combination with an auxiliary collecting brush, a shunt conductor connecting said brush to the main circuit, a device located in said main circuit and responding to changes therein, mechanism consisting of a variable resistance controlled by said responsive device, and a variable resistance adapted to be operated by hand located in said main circuit, between the main positive brush and the point of connection of the shunt conductor thereto, substantially as and for the purpose set forth. 4th. In a dynamo electric machine, and in combination with an auxiliary collecting brush, a shunt conductor connecting said brush to the main circuit, a device located in the main circuit and responding to changes therein, and a circuit-breaking device located in the shunt circuit and controlled by said responsive device, substantially as and for the purpose set forth. 5th. In a dynamo electric machine, and in combination with an auxiliary collecting brush, a shunt conductor connecting said brush to the main circuit, a device located in the main circuit and responding to changes therein, mechanism consisting of a variable resistance interposed in the main circuit, between the main positive brush and point of connection of the shunt conductor and controlled by such responsive device, a device located in the main circuit and responding to changes therein, and a circuit-breaking device interposed in the shunt circuit and controlled by such responsive device, substantially as and for the purpose set forth. 6th. In a dynamo electric machine, and in combination with an auxiliary collecting brush, connected as described, of a device responding to changes in the main current, and mechanism consisting of a variable resistance controlled by said responsive device, whereby the resistance of the field and shunt circuits of said machine may be automatically varied relatively to each other, substantially as and for the purpose set forth. 7th. The herein described method of regulating the current from a dynamo electric machine, which consists in collecting the current in two portions, shunting one portion of said current around one or more of the field magnet coils, and in varying the resistance of the circuit in which said shunted coils are included, substantially as described. 8th. The herein described method of regulating the current from a dynamo electric machine, which consists in collecting the current in two portions, shunting one portion of said current around one or more of the field magnet coils, and in varying the resistance of the circuit in which said shunted coils are included, and that of the shunt circuit simultaneously or separately, substantially as described.

**No. 30,938. Electro-Thermostatic Anti-Freezing Apparatus for Water Pipes.** (*Appareil électro-thermostatique pour empêcher de geler les tuyaux d'eau.*)

Edwin A. Newman, Washington, D. C., U. S., 19th March, 1889; 5 years.

*Claim.*—1st. The combination of the water supply pipe system, its inlet valve and air valve connected to the upper part of the pipe system, the thermostat, the cut-off circuit controlled by the thermostat and electro-magnetic devices for controlling the water inlet and air valves. 2nd. The combination of the water supply system, its inlet valve, the thermostat, a local circuit in which the thermostat is included, the cut-off circuit in which electro-magnetic devices for controlling the inlet valve are included, and a magnet in the local circuit for opening and closing the circuit. 3rd. The combination of one or more independent pipe systems, their inlet valves, the cut-off circuit, electro-magnetic devices in the cut-off circuit for controlling said inlet valves, a thermostat for controlling said circuit, and a shunt circuit around each inlet valve, whereby said valve may be short-circuited, and water admitted to the particular pipe system. 4th. The combination of a water supply pipe system, its inlet valve, the cut-off circuit, electro-magnetic devices in said circuit for controlling the inlet valve, a thermostat for controlling said circuit, and a shunt or short circuit around the magnetic controlling devices of the inlet valve. 5th. The combination of a pipe system, its inlet valve, electro-magnetic devices for controlling said valve, an electric circuit in which said magnetic devices are included, a thermostat for controlling said circuit, a shunt or short circuit around the magnetic devices of the inlet valve and a faucet, of the pipe system, having switch devices included in said shunt circuit, which are automatically operated on the turning of the faucet. 6th. The combination, with a pipe or conduit having an outlet faucet or cock, of an automatically-controlled cut-off valve or cock for shutting off the flow of liquid to the pipe, one or more thermostats placed, as described, so as to be affected by changes of temperature affecting the contents of the pipe, and a controlling device placed at or near the outlet faucet or cock and within the control of the operator for permitting the control of the cut-off valve independently of the condition of the thermostat or thermostats. 7th. The combination, with a section of pipe, of an electrically-controlled drain cock or faucet placed between said section of pipe and the main, one or more thermostats placed in proximity to the section of pipe, as described, and adjusted to be called into action on a determinate change of temperature, and an automatic valve for admitting air to the pipe when the drain-cock or faucet is opened. 8th. The combination, substantially as hereinbefore set forth, of an electrically operated valve, and a contact finger rigidly connected to the valve and moved co-incidentally therewith for opening and closing the electric circuit. 9th. The combination, substantially as hereinbefore set forth, of an electrically operated valve, a thermostat, and means operated coincidentally with the movement of the valve for automatically opening and closing the circuit. 10th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, electrically operated valve apparatus for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, and an electric contact finger rigidly connected to the valve and rod, and moved coincidentally with the valve or valves. 11th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, electrically operated valve apparatus for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, and an electric contact for making and breaking the circuit in the electric valve apparatus, moved coincidentally with the valve or valves. 12th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a valve or valves for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, an electro-magnet, its armature connections between the armature and the valve or valves, and an electric circuit including said electro-magnet and a thermostat. 13th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a rotating valve arranged to open and close communication between the main and the service pipe, and between the service pipe and the drain pipe, and electro-magnetic devices for operating the valve. 14th. The combination, substantially as hereinbefore set forth, of the valve, the valve stem, the armature secured to the valve stem, the switch block, the electro-magnets, the contact fingers and the electric circuits that are opened and closed by the rotation of the armature. 15th. The combination, substantially as hereinbefore set forth, of the valve, the valve stem, the armature having wings with inclined surfaces secured to the valve stem, the switch block, the electro-magnets and two electric circuits, each including a magnet so arranged that one is broken at the switch block when the other is closed. 16th. The combination, substantially as hereinbefore set forth, of the water trap, a discharge opening in the trap, and a valve for opening and closing said opening. 17th. The combination, substantially as hereinbefore set forth, of the water trap, a discharge opening in the trap, a valve for opening and closing said opening, and electro-magnetic devices for operating the valve. 18th. The combination, substantially as hereinbefore set forth, of a water trap, a discharge opening in the trap, a valve for opening and closing said opening, an electro-magnet and circuit connections for opening the valve, and a separate magnet and separate circuit connectors for closing the valve. 19th. The combination, substantially as hereinbefore set forth, of the water main, the service pipe, the drain pipe, the water traps, electro-magnetic valve apparatus for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, and electro-magnetic valve apparatus for opening and closing communication between the water traps and their drain pipes. 20th. The combination of the main, the service pipe, a valve for opening and closing communication between the main and the service pipe, the electro-magnet, the armature of the electro-magnet connected to the valve, the electric circuit, including the coils of the electro-magnet, the faucets in the service pipes, and the circuit making and break-

ing devices operated by the faucets, substantially as set forth. 21st. The combination of the main, the service pipe, a valve for opening and closing communication between the main and the service pipe, the electro-magnet, the valve spindle, the armature of the electro-magnet connected to the valve spindle, the electric circuit, including the coils of the electro-magnet, the thermostat for automatically making and breaking the circuit, the faucets in the service pipe and the circuit making and breaking devices operated by the faucets, substantially as set forth. 22nd. The combination of the main, the service pipe, the drain pipe, a pipe coupling connecting the main, the service pipe and the drain pipe, a valve within the coupling for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, the valve spindle, the electro-magnet, the armature of the electro-magnet connected to the valve spindle, and the electric circuit, including the coils of the magnet, substantially as set forth. 23rd. The combination of the main, the service pipe, the valve for opening and closing communication between the main and the service pipe, the electro-magnet, the valve spindle passing through the core of the magnet, the armature carried by the valve spindle, the electric circuit, the contact finger carried by the armature and moving coincidentally therewith for making and breaking the circuit, and the thermostat included in the circuit, substantially as set forth. 24th. The combination of the main, the service pipe, the drain pipe, a valve for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, the electro-magnet, the valve spindle passing through the core of the magnet, the armature of the electro-magnet secured to the valve spindle, the electric circuit, including the pipes and the magnet, the contact ring for making and breaking the circuit at the faucet, the electro-magnet, its armature, the catch operated thereby, the electric circuit, including the pipes and the magnet, and the contact ring for making and breaking the circuit at the faucet, substantially as set forth. 25th. The combination of the main, the service pipe, the valve for opening and closing communication between the main and the service pipe, the electro-magnet, the valve spindle passing through the core of the magnet, the armature of the electro-magnet secured to the valve spindle, the sewer trap, the valve in the bend of the trap, the electro-magnet for operating the valve, the electric circuit, including the coils of the electro-magnets, the thermostat for automatically making and breaking the circuit, the faucet and the circuit making and breaking devices operated by the faucet, substantially as set forth. 26th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a valve for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, the valve spindle, an electro-magnet, the armature of the electro-magnet secured to the valve spindle, and an electric circuit including the electro-magnet and contact finger, and devices operated by the faucets for opening and closing the circuit. 27th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, the valve casing which couples together the main, the service pipe and the drain pipe, a valve or valves for opening and closing communication between the main and the service pipe, and between the service pipe and the drain pipe, an electro-magnet, its armature, the valve spindle connecting the armature to the valve or valves, a thermostat and an electric circuit, including said electro-magnet and the thermostat. 28th. The combination, substantially as hereinbefore set forth, of the main, the service pipe, the drain pipe, a rotating valve arranged to open and close communication between the main and the service pipe, and between the service pipe and the drain pipe, the valve spindle, an electro-magnet and a rotating armature secured to the valve spindle and operated by the electro-magnet. 29th. The combination, substantially as hereinbefore set forth, of a house pipe water supply system, the cocks and faucets, an electrically operated valve and a contact finger rigidly connected with the valve and moved coincidentally with the valve for opening and closing the electric circuit. 30th. The combination, substantially as hereinbefore set forth, of a valve normally held open by water pressure, electrically controlled apparatus for closing the valve, and a contact finger rigidly connected with the valve and moved coincidentally therewith for opening and closing the electric circuit of the valve operating apparatus.

**No. 30,939. Insulating Device for Supporting Telegraph and other Wires or Electrical Conductors.** (*Isoloir pour fils télégraphiques et autres ou conducteurs électriques.*)

George Fowler, Peckham, Eng., 19th March, 1889; 5 years.

*Claim.*—1st. An automatically adjustable insulator, having a constant tendency to move in one direction and maintain a conductor supported thereby in a state of practically uniform tension, but capable of yielding in the opposite direction, for the purposes specified. 2nd. In an insulating device for supporting an electrical conductor, the combination of an insulator proper and a spring arranged to cause said insulator to move or tend to move in one direction, and to allow it to yield in the opposite direction, substantially as herein described for the purposes specified. 3rd. In an insulating device for supporting an electrical conductor, the combination of an insulator proper, a support for carrying said insulator, and a spring connected at one end to said support, and arranged to cause said insulator to move or tend to move in one direction and to yield in the opposite direction, substantially as herein described for the purposes specified. 4th. In an insulating device for supporting an electrical conductor, the combination of an insulator proper, a support for carrying said insulator, and a spring arranged between said insulator and support, substantially as herein described for the purposes set forth. 5th. In an insulating device for supporting an electrical conductor, the combination of an insulator proper, a support for carrying the same, and a spring arranged between and in rigid connection with said insulator and with said support, substantially as herein described for the purposes set forth. 6th. In an insulating device for supporting an electrical conductor, the combination of an insulator

proper, a spring arranged to cause said insulator to move or tend to move in one direction, and to permit said insulator to yield in the opposite direction, and circumferential flanges on the exterior of said insulator, substantially as herein described for the purposes set forth. 7th. In an insulating device for supporting an electrical conductor, the combination of an insulator, a support for carrying said insulator, and a spring, the ends of which are arranged to be engaged with said insulator and said support by endwise movement of said spring, substantially as herein described for the purposes set forth. 8th. In an insulating device, the combination of an insulator proper 1, having circumferential flanges 2, with notches 3 between their adjacent ends, and an internal recess 18, a bolt 6 for supporting said insulator, a coiled spring 8, having its outer end formed to engage with the interior of said insulator, and its inner end to engage with said bolt, and upper and lower plates 11a and 11 arranged to fit within said insulator and to be carried by said bolt, substantially as herein described for the purposes set forth.

### No. 30,940. Convertible Ice Creeper and Skate. (*Crampon à glace et patin convertibles.*)

Richard C. Abbott, East Blue Hill, Me., U. S., 19th March, 1889; 5 years.

*Claim*.—1st. The combined ice-creeper and skate, consisting of a sole and heel bearing plate and a skate runner, which are convertible to form either a skate or ice-creeper, substantially as set forth. 2nd. The herein described interchangeable ice-creeper and skate, comprising the sole bearing plate, having spurs on its under side, and provided with means for securing it to the foot, and a skate blade provided with means for its attachment to said sole-bearing plate substantially as described. 3rd. An interchangeable ice-creeper and skate, comprising the sole and heel-bearing plate B, provided with an aperture *a* and spurs on its under side, and with means for its attachment to the foot, and a skate-blade provided with upwardly and inwardly extending ear-pieces, and a spring *b* having a stud or suitably located and adapted to engage with and be disengaged from said aperture *a* and heel-bearing plate, substantially as and for the purpose described. 4th. An interchangeable ice-creeper and skate, comprising the sole bearing plate, having spurs on its under side, and the downwardly offset heel-bearing portion *g*, narrowed, as at *p*, and provided with means for its attachment to the shoe, and a skate blade provided with upwardly and inwardly extending ear-pieces, suitably located and adapted to engage said sole and heel-bearing plate, substantially as and for the purpose described. 5th. An interchangeable ice-creeper and skate, comprising the sole-bearing plate B, having spurs on its under side and provided with the aperture *a*, and having the downwardly offset heel-bearing portion *g*, narrowed, as at *p*, the side projections *b* and heel-embracing rest *h*, and provided with means for attachment to the foot, and a skate blade provided with upwardly and inwardly-projecting ear-pieces *l*, *m*, and a spring bar with stud *r*, suitably located and adapted to engage with and disengage from said aperture *a*, and heel bearing plate B, substantially as and for the purpose described.

### No. 30,941. Check Punch.

(*Emporte-pièce à papier.*)

Friend W. Smith, Jr., and Samuel S. Williamson, Bridgeport, Conn., U. S., 19th March, 1889; 5 years.

*Claim*.—1st. In a check punch, the combination, with the rotary spindle, of the check carrying and feeding mechanisms supported on a plate rigidly secured to the lower end of said spindle, and a single operating lever also secured to said spindle, substantially as set forth. 2nd. In a check punch, the combination of the bed having a standard projecting therefrom and terminating in a head, a series of dies supported on said bed, a series of spring-actuated punches mounted in said head, a spindle journaled within said bed and standard, and an operating lever and plate secured to the top and bottom respectively of said spindle, substantially as set forth. 3rd. In a check punch, the combination, with a series of stationary punches and dies, of the punch-operating lever and the check supporting and feeding mechanisms secured to the same rotary spindle, whereby the check is bodily carried to and fro beneath the various punches, substantially as shown and for the purposes set forth. 4th. In a check punch, the combination, with a series of stationary punches and dies, of a rotary spindle journaled within the body of the check punch, a single operating lever pivoted within said spindle and adapted to rotate therewith, a plate rigid with said spindle, a tray pivoted to said plate, feed rolls journaled one above the other in the plate and tray respectively, a spring adapted to keep the tray in elevation, whereby said rolls are normally held in contact, and means controlled and operated by the heel of said lever for actuating said rolls, substantially as and for the purposes set forth. 5th. The combination, with the rotary spindle and the operating lever and check supporting mechanism revolving therewith, of the check-feeding mechanism controlled and operated by said lever, substantially as set forth. 6th. The combination of the rotary spindle, the plate D rigid therewith, the tray E pivoted beneath and to said plate, feed rolls H, H' journaled in said tray and plate respectively, one above the other, springs adapted to keep said tray and plate together, and render the downward movement of the tray resilient, ratchet wheels rigid with the inner sides of the rolls H, pawl carrier J resting on the plate D and having terminal pawls J' projecting into operative engagement with said wheels, lever K pivoted to the plate D and having its extremities pivoted respectively to the carrier J and link L, the operating lever pivoted within said spindle, and having its heel end engaging with the link L, the dies secured upon the bed of the punch, the resiliently acting punches mounted within the head, and the guide plate provided with slots, which identify the punches, substantially as set forth. 7th. The combination of the feed rolls, journaled in pairs, one above the other, the ratchet wheels rigid on the inner sides of the lower rolls, the carrier having terminal pawls engaging said ratchet wheels, the reciprocating link, the bell-crank lever pivoted at its ends to said carrier and link respectively, and the operating lever connected at its heel end to said

link, substantially as and for the purposes set forth. 8th. The combination, with the operating lever having a hook depending therefrom, of the heads of the punch carrying pins, arranged immediately above said hook, and in the arc of the circle described by the latter, substantially as set forth. 9th. In a check punch, such as described, the heads of the punch carrying pins, in combination with the hook depending from the operating lever, and extended in normal position immediately beneath said heads, whereby, when said lever is elevated, said hook will abut against the heads and lift the latter to elevated position, substantially as and for the purposes set forth.

### No. 30,942. Mechanism for Feeding Nails or Nail Blanks, one by one, from a Mass thereof, to Machines adapted to Receive and Operate thereon. (*Appareil d'alimentation des machines à fabriquer le clou.*)

John A. Coleman, Providence, R. I., U. S., 19th March, 1889; 15 years.

*Claim*.—1st. The combination, substantially as hereinbefore described, of a raceway for supporting pendant blanks in line and in precise axial adjustment, a receptacle for said blanks wherein said axial adjustment is maintained or controlled, and diving fingers which are interposed between said raceway and receptacle, and detach blanks singly from said raceway, turn them end for end, and cause them to dive into said receptacle. 2nd. The combination, substantially as hereinbefore described, of a raceway for supporting pendant blanks in line, and in a precise axial adjustment, a feed tube which controls or maintains said axial adjustment, and diving fingers which are interposed between said raceway and feed tube, and detach blanks singly from said raceway, reverse them endwise and cause them to dive into said feed tube. 3rd. The combination, substantially as hereinbefore described, of a raceway slotted to support pendant nail blanks in a precise axial adjustment, and an inclined V-shaped adjusting chute merging at its foot with the slot in said raceway, whereby blanks, with rectangular heads, on being dropped into said chute are axially adjusted, and their shanks aligned with and accurately delivered to the raceway in a precise axial adjustment. 4th. The combined adjusting chute and raceway, substantially as hereinbefore described, consisting of a raceway slotted to support flat sided and substantially rectangular headed nail blanks in a pendant position, and with a precise axial adjustment and an inclined V-shaped chute merging with said raceway, and having at their junction a longitudinal central groove, which is in line with the slot of the raceway and with the centre of the chute, and has a width less than the width of the head of a blank, and slightly greater than its thickness, whereby a blank, while sliding down said chute, is partially adjusted axially therein, then fully adjusted by being turned on its edge in said groove, and then delivered to and held by said raceway in a pendant position and in a precise axial adjustment. 5th. In horse nail feeding mechanism, the combination, substantially as hereinbefore described, of a combined adjusting chute and raceway essentially embodying an inclined V-shaped supporting surface, and a slot or space for receiving blanks and supporting them in a pendant position, a receptacle for nail blanks in mass, and carriers for detaching single blanks from said mass and delivering them to said chute, whereby a row or line of blanks is deposited on and supported by said raceway, each in a pendant position and in a precise axial adjustment. 6th. In horse nail feeding mechanism, the combination, substantially as hereinbefore described, of the combined adjusting chute and raceway, a receptacle for blanks, carriers for detaching and conveying blanks from the mass to said chute, and diving fingers at the foot of the raceway, which pick blanks from said raceway, turn them end for end and cause them to dive into a receptacle, which maintains or controls the axial adjustment of the blanks. 7th. In horse nail feeding mechanism, the combination, with the raceway, of a revolving disk provided with fingers which pick blanks from said raceway, reverse them end for end, and cause them to dive into a suitable receptacle, substantially as described. 8th. In horse nail feeding mechanism, the combination of the diving fingers, a blank supporting raceway, and a spider wheel provided with yielding arms, which sweep along a portion of the path occupied by the blanks, while supported on said raceway, substantially as described, and thereby to place the foremost blank within the path of the diving fingers to enable the latter to pick the blanks in regular order from the raceway. 9th. In horse nail feeding mechanism, the combination, substantially as hereinbefore described, of a blank supporting raceway provided at its foot with thin, slender projections for supporting a headed blank by contact with the sides thereof adjacent to its neck, and diving fingers separated by a space slightly greater than that occupied by said projections, whereby said fingers may readily move freely by the projections, and nevertheless engage with the head of a blank for picking it from the raceway. 10th. In horse nail feeding mechanism, the combination, with the raceway, of diving fingers and the revolving disk carrying said fingers, and provided at its periphery with a recess for the reception of the shank of a blank carried by said fingers. 11th. In horse nail feeding mechanism, the combination, substantially as hereinbefore described, of a pan or receptacle for receiving blanks in mass, a feed tube for delivering said blanks to the metal-working mechanism, and interposed between said pan and tube, a series of blank carriers on an endless belt, a combined adjusting chute and raceway, and diving fingers which detach blanks singly from said chute and cause them to dive into said feed tube. 12th. In a horse nail feeding mechanism, the combination, substantially as hereinbefore described, of a pan for receiving blanks in mass, an endless belt travelling within the pan and along its back, and provided with carriers for engaging with the heads of the blanks, and thereby detaching blanks from the mass and discharging them singly from the pan. 13th. The combination, substantially as hereinbefore described, of the blank pan, the endless belt and the belt-tightening frame. 14th. The combination, substantially as hereinbefore described, of the blank pan, the endless belt travelling within said pan and an adjustable support for said pan whereby the bottom of the latter is adjusted vertically with relation to the lower portion of the belt. 15th. The endless belt provided with

a series of carrying studs in pairs, and adapted to engage with the heads of blanks, substantially as described. 16th. The endless belt, provided with the series of carrying studs, arranged in diagonal lines on the face of the belt, substantially as described. 17th. The raceway, provided with surfaces for supporting headed nail blanks in a pendant position, and with interior coincident ribs for restricting the shank space without undue frictional contact with the shanks of the blanks. 18th. The combination, with the feed-tube and the diving fingers, of the clearer within said tube, and in the centre of the path in which said fingers are moved, substantially as described.

### No. 30,943. Polychromatic Printing.

(*Impression polychrome.*)

William G. White, Amerly, and Robert A. A. White, Crayford, Eng., 19th March, 1889; 5 years.

*Claim.*—1st. A mixture for blocks to be used in polychromatic printing, consisting of petroleum jelly, a solution of resin in turpentine, gallipoli oil, fat and a dye, substantially in the proportions described. 2nd. A mixture for blocks to be used in polychromatic printing, consisting of petroleum jelly, a solution of resin in turpentine, gallipoli oil, fat, a dye, substantially in the proportions described and with a mordant.

### No. 30,944. Suture Needle Case and Wire Carrier. (*Manche d'aiguille à suture et porte-fil.*)

James La F. King, Springfield, Ill., U. S., 19th March, 1889; 5 years.

*Claim.*—1st. The combination, with the cylindrical casing made in two detachably-connected sections, the front section having a neck, a tension-channel through the base of the neck and a head provided with a tension-channel or opening, and a needle perforation, of the needle, the set-screw to retain the needle and the bobbin in the interior of the casing, substantially as specified. 2nd. The combination, with the cylindrical two-part casing, provided with a neck, a tension passage or channel through the base of the neck, and a head provided with a tension-opening and needle perforation, of the needle, the set screw to retain the same, the spool-shaped bobbin and the spring attached to said bobbin and pressing on the ligature, which passes thence out of the tension-opening in the base of the neck, substantially as specified. 3rd. The combination, with the cylindrical casing made in two parts, screwing together and provided with a perforated neck and head, of a needle fitting in the perforation of the head, and a set-screw engaging a tapped opening in the head, so as to hold the needle entirely within the neck and casing or any distance out from the head, substantially as specified. 4th. The combination, with the cylindrical casing, provided with a neck, and a hollow head thereon having a series of diametrically opposite openings in it, the members of which series are all situated in the same axial plane, of the head and neck of a needle, having its heel of proper size to fit into any two opposite members of said series, and a set-screw engaging in a threaded opening in the head, which opening is equally distant from and at right angles to the members of the series of openings, so as to bind upon the needle in any position the latter may be, substantially as specified. 5th. The combined needle-casing and handle, made in two detachable parts, and having a stopper or detachable partition between the two parts, so as to form a compartment to hold needles, and a compartment for the reception of the bobbin, and having no openings except those for the needle and for the ligature, substantially as specified. 6th. The herein described combined handle and case for suture needles, consisting of the cylindrical body A, consisting of the parts B and C, screwing together and having the stopper or detachable partition between them, the perforated neck D standing from the end of the part C, the tension opening *d* at the beginning of the neck, the head E provided with the opening *e* opposite the perforation of the neck, the tension canal H and the diametrically opposite opening F and the set-screw G, substantially as specified. 7th. The combination of the cylindrical casing, made in two sections, the front section having a neck provided with a needle perforation and the journal *h*, the needle and the bobbin, substantially as specified.

### No. 30,945. Lamp, Lantern and other Similar Articles. (*Lampe, lanterne et autres objets semblables.*)

Francis Barker, London, Eng., 19th March, 1889; 5 years.

*Claim.*—1st. In a safety illuminating lamp, or lantern, or other similar article as herein described, the parts A A, B B and C constructed of any non-inflammable material, as and for the purpose herein set forth and shown by the drawings. 2nd. In a safety illuminating lamp or other similar article constructed of the parts A A, B B, C, K K and P, detachable from one another for purposes of storage or removal as herein set forth and shown. 3rd. The construction of a safety illuminating lamp, or lantern, or other similar article with openings out or stamped therein in form of any device or design, and over which is fixed either inside or outside a portion of linen, cotton, calico or any other fabric which may be rendered non-inflammable, or any other material such as the "Glacier decoration" or similar substances used for imitation stained windows, as and for the purpose herein set forth.

### No. 30,946. Centrifugal Apparatus for Drying Sugar or other Granular Matters. (*Appareil centrifuge pour sécher le sucre et autres matières granuleuses.*)

Duncan Stewart, Glasgow, Scotland, 19th March, 1889; 10 years.

*Claim.*—In centrifugal apparatus for drying sugar or other granular matters, the combination of the frame, a central driving shaft, tubular bosses with pulleys carried on said central shaft and in frame, a perforated drum having helical blades and an outer perforated shell carried by said bosses, and an inclined feeding hopper spout, substantially as shown and described.

### No. 30,947. Device for Stopping Leakage in Hose and other Pipes. (*Appareil pour arrêter le coulage des tuyaux élastiques et autres.*)

John Lawrence, Uckfield, Eng., 19th March, 1889; 5 years.

*Claim.*—1st. In improved device or apparatus for stopping leakage in hose or other pipes, the combination of an india-rubber split cylinder with a metallic cylindrical casing or envelope formed of a continuous sheet of flexible steel, and provided with flanges secured by bolts with vertical bars overlapping straps and handles, substantially as and for the purposes described. 2nd. In devices for stopping leakage in hose or other pipes, the combination, with a split cylinder of india-rubber or other resilient material, of vertical bars B, B secured to said india-rubber and having tapped perforations for the attachment of handles. 3rd. In devices for stopping leakage in hose or other pipes, the combination, with the vertical bars B, B, one of which has a toothed slot, of a toothed rack pivoted in one of said bars and adapted to engage with teeth in slot, as and for the purpose set forth.

### No. 30,948. Hand Stamp. (*Timbre à main.*)

Henry H. Norrington, West Bay, Mich., U.S., 19th March, 1889; 5 years.

*Claim.*—1st. In an organized hand-stamp, the combination of the case, the printing-base attached thereto having central opening, the yoke passing over said case, the handle and spring for operating said yoke, and the spool located in said case on the revolving shaft, said shaft journaled in the vertical end portions of said yoke, and having a thumb-wheel at one end, the spool having mounted on its periphery a series of printing characters and an interposed series of reading characters, the spool adapted to be plunged into and withdrawn from the opening in the printing-base, as and for the purposes specified. 2nd. In combination with the case having the opening D, the detachable base having the opening D, the yoke encircling the case, the spool located in said case on the shaft *f*, said shaft journaled in the depending ends of said yoke, the printing and reading characters mounted alternately on the periphery of the spool, the handle and coiled spring for lowering and raising the spool within the case, substantially as specified.

### No. 30,949. Extinguisher for Lamps. (*Eteignoir de lampe.*)

George E. Dehany, Liverpool, Eng., 19th March, 1889; 5 years.

*Claim.*—1st. In a lamp having a circular or tubular wick and a glass chimney in conformity therewith, an extinguisher comprising an outer ferrule encircling the wick tube and adapted to slide on same by gravity, in combination with a tube situated within the wick tube and adapted to slide in same by gravity also, the whole arranged and operating as described. 2nd. An extinguishing device for lamps having a circular wick consisting of a tube with a portion adapted for compression and expansion, as and for the purpose described. 3rd. An extinguishing device for lamps having a circular wick and a glass chimney in conformity therewith, consisting of ferrule *a* adapted to rest in the dome of the burner, and be caught when dislodged therefrom by the contracted neck of said chimney, as shown and described. 4th. In a lamp having a circular or tubular wick and a glass chimney in conformity therewith, the combination, with wick tube, burner dome and guard plate, of the extinguishing tube D and ferrule A, constructed and operating substantially as shown and described.

### No. 30,950. Medicine Dial. (*Cadran de garde-malade.*)

Miley B. Wesson, Fort Worth, Texas, U. S., 19th March, 1889; 5 years.

*Claim.*—The combination of a pin or wire which is bent so as to form a journal or bearing for the disk, and a hand or indicator which extends partially across the face of the disk, with the disk which is journaled upon the wire and adapted to be revolved thereon, so that the figures upon the disk can be alternately brought under the hand or indicator, substantially as shown and described.

### No. 30,951. Running Gear for Vehicles. (*Train de voiture.*)

Targe G. Mandt, Stoughton, Wis., U.S., 19th March, 1889; 5 years.

*Claim.*—A vehicle gear consisting of the front springs 1, the front axle 2 secured thereto, a sleeve 13 secured to the axle having two rearward-extending lips 15, the reach 17 pivoted upon a bolt 18 extending through the said lips, a Y-coupling 22 secured to the forward portion and to the rear portions 23 of said reach, the blocks 28 secured to the rear axle having screw-threaded sockets engaging the lower portions of the reach, and the rear springs secured to the blocks 28, all of the material formed and combined as hereinbefore set forth.

### No. 30,952. Saw Swaging Device. (*Machine à affûter les scies.*)

William T. Morrill and John Laughton, Milton, Flo., U.S., 19th March, 1889; 5 years.

*Claim.*—1st. In a saw-swage, the combination, with a suitable block or frame having an adjustable die, of a removable tubular die-rest recessed as shown, and a revolving die located in said rest and supported throughout its entire length, substantially as and for the purpose set forth. 2nd. The combination, with the block A, of the removable tubular rest D extended transversely through said block, and having bearings in the sides thereof and formed with recess *f*, the revolving die E within said rest and formed with flat face *g*, and a lever secured to the extended squared end of said die, substantially as and for the purpose specified.

**No. 30,953. Sweat Pad Hook.**

(*Crochet de collier de cheval.*)

Fuller S. Derr, Turbotville, Penn., U.S., 20th March, 1889; 5 years.

*Claim.*—As a new article of manufacture, a sweat pad attaching hook, consisting of the base plate C, constructed substantially as shown in figure 2, and having a loop *a* and an elastic spring D moving in said loop, and having one end provided with a flaring lip and the other end provided with a rivet, whereby the spring is retained in said loop, substantially as described.

**No. 30,954. Appliance for Facilitating the Movement of Furniture and other Bodies.** (*Appareil pour faciliter le transport des meubles et autres objets.*)

Edwin Barron, London, Eng., 20th March, 1889; 5 years.

*Claim.*—1st. An appliance for facilitating the movement of furniture and other bodies, consisting of three rollers arranged in a pivoted frame and at equal distances apart, as and for the purposes herein set forth. 2nd. The combination of the rollers *a*, *b* and *c*, the spindles *ax*, *bx* and *cx* and the frame *d*. 3rd. The combination of the rollers *a*, *b* and *c*, the spindles *ax*, *bx* and *cx*, the frame *d*, the pivot *e* and the socket *f*, as and for the purposes herein set forth.

**No. 30,955. Bottle Stopper.**

(*Bouchon de bouteille.*)

William P. Crary, Brooklyn, N.Y., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. As an improved article of manufacture, a stopper, comprising a cork A and a covering B of fabric, animal or rubber tissue secured by a cord C above the cork, and extended to form the handle or grasp D for withdrawing the cork, substantially as described. 2nd. The cork, having a covering of fabric, animal, or rubber tissue secured to it, and adapted to be turned down over the neck of a bottle, and secured to the neck for protecting the cork and neck, substantially as described.

**No. 30,956. Manufacture of Pipe Hooks.**

(*Fabrication des gâches de tuyaux.*)

Henry Lilley, Philadelphia, Penn., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. The manufacture or mode of making pipe hook-blanks from sheet metal plates, consisting of simultaneously cutting a hook-blank and a waste or scrap portion to form the heel for the succeeding hook-blank to be cut, substantially as set forth. 2nd. The manufacture or mode of making pipe hook-blanks from sheet metal plates, consisting of simultaneously cutting a hook-blank, and a waste or scrap portion to form the heel for the succeeding hook-blank to be cut from the plate, and then subjecting the blank to compressing and shaping dies or surfaces, substantially as set forth. 3rd. The manufacture or mode of making pipe hook-blanks from sheet metal plates, consisting of simultaneously cutting a hook-blank and a waste or scrap portion to form the heel for the succeeding hook-blank to be cut from the plate, and each succeeding scrap or waste and blank being alternately cut from opposite sides of the plate, substantially as set forth. 4th. The manufacture or mode of making pipe hook-blanks from sheet metal plates, consisting of successively cutting a hook-blank B and a scrap or waste C from the plate at one and the same cut or chop, and turning the plate over from side to side after each cut, substantially as set forth. 5th. A pipe hook, the blank for which is cut from a sheet metal plate, and subjected to pressing or shaping dies or surfaces, substantially as set forth. 6th. A pipe hook cut from a sheet metal plate, having a tongue, a heel and a curved part, provided on its exterior side or surface with a longitudinal rib extending from near its point to said heel, substantially as set forth. 7th. A pipe hook, cut from a sheet metal plate, having a tongue, a heel, a curved part configured by subjecting it to compressing and shaping dies or surfaces, substantially as set forth. 8th. The manufacture of a pipe hook, by first cutting from a flat metal plate a portion D to form the heel *b*, turning the plate and cutting the blank B, which is afterwards turned at *b* to form a pipe hook, as shown and described.

**No. 30,957. Letter Copying Press.**

(*Presse à copier.*)

William J. Barnes, Oshkosh, Wis., U.S., 20th March, 1889; 5 years.

*Claim.*—The combination of the fixed pressure board B, the pressure-lever *m* mounted so as to rock on a fixed bearing at one end, a tilting pressure-table carried by the lever, a hand lever and a link connecting the same with the pressure-lever.

**No. 30,958. Ironing Board.**

(*Planche à repasser.*)

Harding Rideout, Rat Portage, Ont., 20th March, 1889; 5 years.

*Claim.*—1st. An ironing board, constructed substantially as hereinbefore shown and described, and consisting of a leg which acts as a lever in fixing the board in position, a board upon which the linen is ironed, and a fulcrum and a support by which the board is held when in position, as set forth. 2nd. The combination in an ironing board, of the board A, the fulcrum M and the support S with the leg L, substantially as and for the purpose hereinbefore set forth.

**No. 30,959. Collar and Cuff.**

(*Faux-col et manchette.*)

Joseph H. Lovley and Edward Lovley, Sarnia, Ont., 20th March, 1889; 5 years.

*Claim.*—1st. Collars and cuffs formed with a portion F flaring or outwardly inclined, substantially as shown and described and for the

purpose specified. 2nd. Collars and cuffs, formed with the indentation or corrugation I, substantially as shown and described and for the purpose specified.

**No. 30,960. Cylinder for Hydraulic Motors.**

(*Cylindre de moteur hydraulique.*)

William Ross, Troy, N.Y., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. The combination, with a straight unflanged tube or cylinder, of tube-supporting end covers or heads linked together, each being provided with a valve-case, seat and duct leading from said seat to a cylinder port, said seats being arranged in alignment and forming together a seat for a common valve case, substantially as described. 2nd. The combination with a straight unflanged tube or cylinder, of detachably-connected end-supporting covers or heads each provided with a cylinder port leading to a valve-case seat and fixed guide flange, substantially as described. 3rd. The combination, with a straight unflanged tube or cylinder, of detachably-connected end-supporting covers or heads, each provided with a cylinder port leading to a valve-case seat, and a fixed guide-flange and a detachable guide ring, substantially as described. 4th. The combination, with a cylinder tube, of tube-supporting end covers or heads linked together, each head being a single piece of metal cast with a valve-case seat, and an air chamber opening into a duct leading from one end of said tube to said valve-case seat, substantially as described.

**No. 30,961. Prepared Filler for the Manufacture of Cigars and Method for Preparing the Same.** (*Tabac préparé pour la fabrication des cigares et mode de le préparer.*)

Richard A. Bright, Providence, R.I., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. A prepared mass of cigar fillers, having a portion of the tobacco cut out or removed at the edge of the mass, so that a quantity taken from any portion of said mass will contain the proper proportion of tobacco in its different parts to form a cigar of the required shape or taper. 2nd. The method of preparing the mass of cigar fillers, which consists in, first, arranging a quantity of fillers in a substantially parallel position, and then cutting out or removing a portion of the tobacco, so that the prepared mass will have the tobacco cut out or removed at its edge, and thus contain the proper proportion of tobacco in its different parts to form cigars of the required shape or taper.

**No. 30,962. Attachment to Ploughs.**

(*Disposition aux charrues.*)

Auguste Maitre, Sandwich East, Ont., 20th March, 1889; 5 years.

*Claim.*—The combination of the scraper *l*, with the crank wheel *d* by means of the rock bar *k*, the bell crank levers *i*, *t*, and the pitman *h*.

**No. 30,963. Cable for Suspension Bridges.**

(*Câble de pont suspendu.*)

Gustav Lindenthal, Pittsburg, Penn., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. The combination of a bridge cable and a sheet metal mantle, forming a continuous cover around the cable, substantially as set forth. 2nd. The combination of a bridge cable, and a mantle or covering surrounding the same, but separated therefrom for the purpose of forming an air space, substantially as set forth. 3rd. The combination of a bridge cable, sleeves for suspender rings provided with flanges, and a mantle surrounding the cable, and provided with flanges engaging the flanges of the sleeve, substantially as set forth. 4th. The combination of a bridge cable formed in sections, and a mantle formed of metal sheets surrounding said cable, substantially as set forth. 5th. The combination of a bridge cable, a flanged sleeve for the suspender ring, a mantle having flanged ends engaging the sleeve, and a ring or collar for supporting the mantle intermediate between the sleeves, substantially as set forth.

**No. 30,964. Fire Extinguisher.**

(*Extincteur d'incendie.*)

Joseph M. Miller, Chicago, Ill., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. The combination, with a portable fire extinguisher, consisting essentially of an air-tight receptacle or can containing a fire extinguishing liquid, and air or gas maintained under pressure and provided with a discharge valve adapted to be operated by hand, of a supplemental discharge valve applied at or near the base of the can, and adapted to be released by an increase in temperature, whereby said receptacle is adapted for use as a portable extinguisher, or as a stationary extinguisher by suspending it over or near the place to be protected, the hand operated valve serving a double purpose to discharge the content and tests the pressure, substantially as described. 2nd. In a fire extinguisher, such as described, the combination, with the tube *b* containing the discharge orifice, the block *b*<sub>1</sub> carrying the packing or valve and link to which the fastening for engaging the tube is attached, said block *b*<sub>1</sub> being pivotally attached to the tube, and swinging down to clear the discharge orifice when the link is disengaged from the tube, substantially as described. 3rd. In a fire extinguisher, the combination of the shouldered tube *a* with a sliding internal tube *a*<sub>1</sub>, provided with a spraying device at its outer end, and with a soft elastic block or disc *a*<sub>2</sub> which closes the tube *a*, and against which said spraying device normally rests, substantially as described. 4th. In a fire extinguisher, the combination of the discharge tube *b*<sub>1</sub>, with the rubber valve *b*<sub>2</sub>, the pivoted block

*b* for forcing the valve to its seat, the freely swinging link *b*<sup>8</sup> and the set screw *b*<sup>7</sup> for tightening the pressure upon the valve while permitting of its rapid opening, substantially as described. 5th. The combination to form a portable fire extinguisher, such as described, of an air-tight can or receptacle, provided with inlet and two outlet orifices, the one closed by a hand operated valve and the other by an automatic valve, released by an increase in temperature, all of said orifices being located at or near the base of the can or receptacle, which latter is charged with a fire extinguishing liquid and a volume of air or gas under pressure, whereby all the orifices being below the liquid, the escape of air or gas is prevented, and should the orifices be imperfectly closed, the liquid, in escaping, will indicate the fact that the apparatus is not in perfect order and requires attention. 6th. In a portable fire extinguisher, the combination, with a can containing a fire extinguishing liquid and a charge of compressed air, of a horizontally disposed discharge tube, provided with a series of perforations through its walls within the can, substantially as and for the purpose set forth.

### No. 30,965. Hinge and Pin-Tongue for Brooches and other Goods.

(*Charnière et épingle pour les broches et autres objets.*)

William DeLany, Cobourg, Ont., 20th March, 1889; 5 years.

*Claim.*—1st. The pin-tongue and head being made in one piece, substantially as and for the purpose hereinbefore set forth. 2nd. The hinge being made all of one piece and of the shape indicated in the drawing, and with a slot therein as indicated in the drawing, and with the flange as indicated in the drawing, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the above pin and hinge, substantially as and for the purposes hereinbefore set forth.

### No. 30,966. Fuse and Taper Lighter.

(*Allumoir de fusée et de cerie.*)

John R. Collins and James Wad-El-Ward, Toronto, Ont., 20th March, 1889; 5 years.

*Claim.*—1st. A case A, a piece of slowly-burning material B contained within the said case, a flinty stone D held against a disc E in proximity to the end of the material B, in combination with mechanism for imparting motion to the disc E, substantially as and for the purpose specified. 2nd. A case A designed to contain slowly-burning material B, and a taper H, in combination with a revolving disc E acting against a flinty stone D, arranged substantially as and for the purpose specified.

### No. 30,967. Composition for Pavement.

(*Composition à pavage.*)

Thomas A. Owens, Toronto, Ont., 20th March, 1889; 5 years.

*Claim.*—The within described composition consisting of Portland cement, pulverized glass, and any suitable coloring pigment compounded, substantially in the proportions specified.

### No. 30,968. Lumber Piler. (*Empileur de bois.*)

Charles D. Clarke, Merrill, Wis., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. A device for use in piling lumber consisting of a base-board A, suspending-hooks C, and a roller G, as set forth. 2nd. A device for use in piling lumber consisting of a base-board A, suspension-hooks C, spurs B, and a roller C, as set forth. 3rd. The combination of the base-board A, the brackets E, the supporting arm F, and the roller G, as specified. 4th. The combination of the standard A having the spurs *b* and hooks *d*, the base-board A and the roller G, as set forth.

### No. 30,969. Protective Shield for Garments. (*Plastron protecteur de vêtements.*)

Alfred Taylor, Bridgeport, Conn., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. A dress shield consisting of a layer of fibrous or textile fabric forming that face of the shield which rests against the person, and a layer of gutta percha secured to the under side of said textile fabric, whereby the shield is rendered water proof and whereby it may be attached to the garment, substantially as set forth. 2nd. A dress shield consisting of a double thickness of material, the top thickness of an absorbent textile, the under thickness of gutta percha tissue secured to the fabric layer and adapted to be secured to the goods of the dress, substantially as specified.

### No. 30,970. Method and Machine for making Garment Stays. (*Mode et machine de fabrication des buscs de vêtements.*)

Alfred Taylor, Bridgeport, Conn., U.S., 20th March, 1889; 5 years.

*Claim.*—1st. In a machine of the character described, the trough or frame pockets arranged in opposite sides thereof for the reception of the ends of the steel, the platform within the trough beneath the piles, and means for raising said platform, substantially as set forth. 2nd. In a machine of the character described, the combination, with the trough, of the pockets arranged in opposed pairs in the side walls thereof, the platform arranged within the trough, means as for instance wedges for the elevation of the platform, and a stop for the retention of said platform at the required height, as specified. 3rd. The combination, with the trough and the pockets arranged in the side walls thereof, of the platform arranged within and substantially identical in size with said trough, a series of bars arranged upon said platform, one between each pair of pockets, and means for the elevation and retention of said platform, substantially as speci-

fed. 4th. The combination, with the trough and the pockets arranged in the walls thereof, of the platform, the slide bar upon which the platform rests, and the wedges for the elevating of said bar and platform, substantially as set forth. 5th. The combination, with the trough, the same having pockets in the sides thereof and arranged in opposite pairs, of the platform, the slide bar beneath the latter, the wedges and a stop for the detention of the slide bar, substantially as specified. 6th. In a machine of the character described, the trough or frame provided with pockets in the side walls thereof for the piling of the blades, the movable platform arranged in said trough, the longitudinal slide bar, the wedges, and the stop pin whereby the slide bar is retained, substantially as specified. 7th. The combination, with the trough and the pockets arranged in the side walls thereof, as described, of the platform, the stationary wedges secured in said trough near the bottom thereof, the slide bar and its wedges engaging the stationary wedges, and the stop for the detention of the slide bar, all arranged as described and for the purpose specified. 8th. In a machine of the character described, the combination, with the trough or frame of the pockets opening inward and upward from the inner walls thereof, the platform arranged in said trough, and means as described for varying the horizontal plane of the platform, as set forth. 9th. The method herein described of covering the blades of garment stays, the same consisting in piling the blades in a plurality of piles properly spaced, then laying the gutta percha and a sheet of textile fabric upon the piles, then securing the fabric, gutta percha and top row of steels together by means of heat, and subsequently adding the remaining layers, and calendering the whole construction firmly together, substantially as described. 10th. The trough or box, the same being provided in its inner walls with a series of pockets in either side, said pockets being arranged in pairs, and each pair adapted to contain a pile of blades, as set forth.

### No. 30,971. Manufacture of Horse Shoe Nails. (*Fabrication du clou à cheval.*)

John A. Coleman, Providence, R.I., U.S., 20th March, 1889; 5 years.

*Claim.*—As a new article of manufacture, a horse-shoe nail formed of drawn wire by the process of striking up and enlarging the head of the nail therefrom, and drawing down the shank and hardened point portion therefrom without substantially impairing the hardened shell of the wire which surrounds the ductile central core portion of the nail, substantially as described.

### No. 30,972. Apparatus for use in Levelling.

(*Appareil pour servir au nivellement.*)

Auguste E. D. Floran de Villepique, Paris, France, 20th March, 1889; 5 years.

*Claim.*—A travelling instrument for levelling or dilimeating the profile of the ground, and consisting of a paper-carrying drum driven by a travelling wheel running on the ground, in combination with a fixed pencil and with a movable pencil which is raised or lowered by the relative inclination of a pendulous weight, acting through differential mechanism such as described and illustrated in the drawings.

### No. 30,973. Art or Process for the Manufacture of Steel. (*Art ou procédé de fabrication de l'acier.*)

Robert J. Tilford and Henry M. Redemann, Louisville, Ky., U.S., 22nd March, 1889; 5 years.

*Claim.*—The process herein described for converting lower grade steel into refined or higher grade steel, and then combining in heating the metal to be treated to a white heat, and then submerging the heated metal in a liquid bath of glycerine and water, in the proportion of three (3) ounces of the former to one half (½) gallon of the latter, substantially as hereinbefore set forth.

### No. 30,974. Art or Process for the Manufacture of Steel. (*Art ou procédé de fabrication de l'acier.*)

Robert J. Tilford and Henry M. Redemann, Louisville, Ky., U.S., 22nd March, 1889; 5 years.

*Claim.*—The process herein described for converting steel, which consists in, first, heating the metal to be treated to a white heat, and then while so heated submerging the same in a liquid bath consisting of glycerine and water, in the proportion of three ounces of the former and one half gallon of the latter, combined with spirits of nitre one and a half ounces, aqua ammonia one and a half ounces, chloride of ammonium, two ounces, sulphate of zinc one and a half ounces, sulphate of alumina and ammonia one and a half ounces, substantially as hereinbefore set forth.

### No. 30,975. Apparatus for Healing Persons Suffering from Throat or Lung Complaints. (*Appareil pour guérir les personnes souffrant de maladies de la gorge ou des poumons.*)

Louis Weigert, Berlin, Germany, 22nd March, 1889; 5 years.

*Claim.*—An apparatus for persons suffering from throat or lung complaints, comprising a chamber *f* heated by a burner *e* or equivalent heating device, fitted with outlets *i*, *i* for the escape of the products of combustion, and surrounded by a casing *n*, the space *u* intervening between the chamber and the casing serving as a passage for air which enters through openings below, becomes heated through contact with the central chamber *f*, and ultimately escapes from the upper part of the space *u* by way of a conduit furnished with valves *x*, *z* for inhalation and exhalation respectively, substantially as described.

**No. 30,976. Joint for Boats. (*Joint pour canots.*)**

Herbert M. Sprague, Parishville, N. Y., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. The combination, with the strakes of a clincher-built boat, of the rubber strips permanently secured to the inner sides of the strakes at their lower edges, and adapted to bear against the outer sides of the strakes below, substantially as specified. 2nd. The herein described strake for clincher-built boat, having its upper edge beveled on the outer side, and provided with the thin rubber packing strip B secured to its inner side at the lower edge, substantially as specified.

**No. 30,977. Ladder Spike. (*Goujon d'échelle.*)**

Elias S. Bacon, Gaines, N. Y., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. An attachment to ladders consisting of the socket adapted to embrace the lower end of a ladder side bar, the said socket having formed therewith two or more radial spikes C which project at an obtuse angle to the side of the socket, as and for the purpose set forth. 2nd. An attachment to ladders consisting of the socket A, adapted to embrace and be secured to the ends of the side bars of the ladder, and having projecting from its lower corners the radial spikes C, C, as and for the purpose set forth. 3rd. An attachment to ladders consisting of the socket A, the radial spikes C, C projecting from the corners thereof, and the central spike B about midway between the said radial spikes, the whole being cast integral, substantially as described.

**No. 30,978. Art or Process for the Manufacture of Steel. (*Art ou procédé de fabrication de l'acier.*)**

Robert J. Tilford and Henry M. Redemann, Louisville, Ky., U. S., 22nd March, 1889; 5 years.

*Claim.*—The process of converting low grade steel into refined or high grade steel, which consists in first heating the metal to be treated to a degree of heat represented by white heat, and then subjecting the metal so heated to a previously prepared liquid bath which by contact with the heated metal gives out hydrocarbon gases, which are taken up by the heated metal, and allowing the metal to remain in such bath till practically cooled, substantially as hereinbefore set forth.

**No. 30,979. Water Conductor and Support. (*Conducteur d'eau et gâche.*)**

John Davis (assignee of John W. Abrahams), Allegheny, Penn., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. A water conductor having an expansible projection, in combination with a seam adjacent to and folded against one side of said projection, whereby the seam is protected, substantially as described. 2nd. A support for water conductors provided with a fixed jaw and a pivoted movable jaw, the adjacent surfaces of said jaws being inclined in opposite directions, substantially as described. 3rd. A support for water conductors provided with a fixed jaw, a pivoted movable jaw, and a body portion or shank, in combination with a water conductor having a projection thereon with which the support engages, substantially as described.

**No. 30,980. Sliding Gate. (*Barrière roulante.*)**

David E. Meek, Hudson, Ind., and Henry Harper, Grand Rapids, Mich., (assignees of Adam W. Meek, Hudson, Ind.), U. S., 22nd March, 1889; 5 years.

*Claim.*—The combination of the posts A, the strip A' having a hooked arm  $a$ , the guide standard B pivoted between a base block B1 and a top connecting cap B2, the roller  $b$  in said standard, the cross-head F having end fulcrum blocks  $f$ , the gate having the extended uprights C, C1 and C2, the forward inclined arm E, the rear inclined arm E1, the inclined rails D1, the elongated slotted levers G pivoted to the fulcrum blocks  $f$ , and the headed pin  $g$  secured to the arm E1 and passing through slots in the said levers and having washers thereon separating the said levers, substantially as described.

**No. 30,981. Process for Producing Lustre Bronze of Different Colors. (*Procédé de production du bronze à éclat de différentes couleurs.*)**

Leslie Johnston, William T. Edge and George S. Ward, London, Ont., 22nd March, 1889; 5 years.

*Claim.*—1st. The process of manufacturing a greenish or steel gray lustre bronze from lustre bronze mineral, by first crushing and then washing this mineral, as set forth. 2nd. The process of manufacturing a yellowish steel gray lustre bronze from lustre bronze mineral, by first crushing the mineral, then washing, and then heating said mineral to a low red heat, as set forth. 3rd. The process of producing a copperish yellow lustre bronze from a lustre bronze mineral, by first crushing and then washing said mineral, and then heating said mineral to a red heat, as set forth. 4th. The process of manufacturing a golden yellowish lustre bronze from lustre bronze mineral, by first crushing the mineral, then washing, and then heating said mineral to a full red heat but not up to a white heat, as set forth. 5th. The process of producing different colors of lustre bronze from lustre bronze mineral by different degrees of heat, as set forth.

**No. 30,982. Cooking Stove or Range. (*Poêle ou landier de cuisine.*)**

The National Heating Company, New York, N. Y. (assignee of William E. Prall, Washington, D. C.), U. S., 22nd March, 1889; 5 years.

*Claim.*—An oven for cooking stoves or ranges composed of a coil of

pipe adapted to the circulation of steam or hot water, the spaces between the coils being filled in with a heat-conducting material, substantially as described and shown.

**No. 30,983. Chemical Engine. (*Machine chimique.*)**

The Muskegon Fire Engine Company (assignee of Randell T. Van Valkenburg), Muskegon, Mich., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. In a chemical engine, the combination, with the main reservoir of tank, or two receptacles connected therewith on the top, one receptacle containing a series of pockets for the reception of acid-containing vessels and a mechanical crusher, and the other receptacle being provided with an exit pipe on top, a valve at the bottom, a lower projection into the main tank to near the bottom thereof, and an annular chamber formed between the walls of said receptacle, and an inner perforated pipe enclosed in said receptacle and an outlet from said pipe, all substantially as described. 2nd. In a chemical engine, the combination, with the main reservoir or tank, of a dry-compound-retaining receptacle connected therewith on top, and having a lower extension projecting into said main tank to near the bottom thereof and terminating in a strainer, a perforated tube within said receptacle, a valve between said lower extension and the receptacle, an exit-pipe communicating with the top of said perforated tube, a transverse drum communicating with said exit-pipe and one or more exits from said drum, substantially as described. 3rd. In a chemical engine, the combination, with the main reservoir or tank, of a dry-compound-retaining receptacle connecting therewith on top, and having a lower extension projecting into said main reservoir or tank to near the bottom thereof, and terminating in a strainer, a valve between said lower extension and the receptacle, and an exit-pipe communicating with the top of said perforated tube, all arranged substantially as described.

**No. 30,984. Method for Healing Persons Suffering from Throat or Lung Complaints. (*Mode de guérir les personnes souffrant des maladies de la gorge ou des poumons.*)**

Louis Weigert, Berlin, Germany, 22nd March, 1889; 5 years.

*Claim.*—A method for curing from suffering from throat and lung complaints, consisting in heating air to an equal degree and inhaling the heated air in such a manner that the exhaled air will be separated from the air to be inhaled, substantially as described.

**No. 30,985. Tapping Attachment. (*Appareil à tarauder.*)**

James T. Halsey, Paterson, N. J., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. A tapping attachment comprising a slotted stock as A, a driver for the tap mounted in the slots in the stock, a tap-holder mounted in the stock and provided with beveled teeth engaging similar teeth on the driver, and the spring which clamps the driver and tap-holder together and keeps the teeth in contact elastically, substantially as set forth. 2nd. A tapping attachment comprising a slotted stock as A, a driver for the tap-holder mounted in and projecting out through the slots in the stock, a tap-holder mounted in the hollow of the stock and provided with teeth engaging teeth on the driver, the spring which clamps the driver and tap-holder together and keeps the teeth in mesh, and the yoke secured adjustably to the driver, substantially as set forth. 3rd. The combination to form a tapping attachment, of the stock A provided with slots  $a$ , a cross-head or driver B provided with teeth  $b$  and mounted in the slots in the stock, a tap-holder C mounted in the hollow of the stock and provided with teeth  $c$ , and a stem D which extends through the driver, the spring E on said stem, and the nut  $d$  on the stem against which said spring abuts, substantially as set forth.

**No. 30,986. Artificial Fuel. (*Combustible artificiel.*)**

Gustave Frank, New York, N. Y., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. A fuel compound consisting of powdered carbonaceous substances saturated with a solution of acetate of lead with lime and gypsum, substantially as set forth. 2nd. The composition matter for heating purposes, consisting of powdered charcoal saturated with a solution of acetate of lead, with lime and gypsum compressed into blocks in practically the following proportions, viz.: one hundred pounds powdered charcoal, twenty-four ounces of acetate of lead, ninety-five pounds of gypsum, substantially as set forth and described.

**No. 30,987. Treadle. (*Marche.*)**

James H. Whitney, Brooklyn, N. Y., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. A balanced treadle suspended from vertically-yielding spring-bearings only. 2nd. The balanced treadle T suspended from and in combination with the springs E, E. 3rd. The treadle T suspended from the springs E, E, and the slotted chambers C, C, all in combination. 4th. In combination a balance-wheel, a pitman for operating the same, and a balanced treadle connected therewith and suspended from vertically-yielding spring-bearings. 5th. A balanced treadle provided with trunnions G, G arranged to vibrate vertically in the slots K, K, in combination with the springs E, E.

**No. 30,988. Metal Band for Uniting Hose and Couplings. (*Manchon pour les joints des boyaux.*)**

Charles E. Hudson, Leominster, Mass., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. A metal band for uniting hose and couplings, bent into the form of a ring, and having its ends lapping past each other bent outward and backward in the form of open hooks, substantially

as described. 2nd. A metal band for uniting hose and coupling, bent into the form of a ring with the ends lapping past each other, and bent outward and backward in the form of open hooks with the free ends of the said hooks pointing towards each other, and separated by sufficient space to allow the shorter arms of the tool levers *c, c'* to be inserted between them, and the said ends to be entered into the transverse holes of said levers, substantially as described. 3rd. The combination, with a hose and coupling, of a wire band having its ends lapping past and bent around each other, and provided with outwardly recurved open hooks with their free ends pointing towards each other, substantially as described. 4th. The combination, with a hose and coupling, of a wire band having its ends lapping past and bent around each other, and provided with outwardly recurved open hooks with their free ends pointing towards each other, and separated by sufficient space to allow the closing up and withdrawal of the same whereby, the hose is secured to its coupling by the band, substantially as described.

**No. 30,989. Automatic Fire Alarm Telegraph System.** (*Système télégraphique avertisseur d'incendie automatique.*)

Etna H. Davis and Reuben Westervelt, Elmira, N. Y., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. In an automatic fire alarm telegraph system, local or building circuits extending through different stories or apartments and ending in spring terminals as described, a movable circuit controller carrying corresponding terminals, and an indicator in the return circuit, in combination with an electro-magnet retaining the said circuit controller, and a clock-work controlling the circuit of the said magnet, whereby on the operation of the magnet circuit through the clock the circuit controller will be released and the building circuits tested, as set forth. 2nd. In an automatic fire alarm telegraph system, local or building circuits extending through different stories or apartments and ending in spring terminals as described, a movable circuit controller carrying co-operating circuit terminals, a relay in the return circuit and releasing devices for the said circuit controller, all in combination with a separate circuit controlled by the relay and including signaling mechanism at an engine house, as set forth. 3rd. In an automatic fire alarm telegraph system, local or building circuits extending through different stories or apartments and ending in spring terminals as described, a movable circuit controller carrying co-operating circuit terminals, a relay in the return circuit and releasing devices for the said circuit controller, all in combination with a separate circuit controlled by the relay and including recording apparatus at the local station or building, as set forth. 4th. In an automatic fire alarm telegraph system, the combination, with testing apparatus for the several stories of a building and a relay in circuit therewith, of a separate circuit controlled by the relay and including an electro-magnet whose armature carries a punch adapted to perforate or indent a rotating disk, as and for the purpose set forth. 5th. The combination, with a disk marked off into segments corresponding to the different stories of a building, of an electro-magnet punch for perforating or indenting the same, the disk being adapted to be operated by clock-work, as and for the purpose set forth. 6th. In an automatic fire alarm telegraph system, an engine-house circuit including the ordinary make and break devices, in combination with local or building circuits thermostats therein, and an electro-magnet clutch, whereby on the operation of a thermostat the clutch is actuated, and the circuit made, and break devices put into condition for being operated, as and for the purpose set forth. 7th. In an automatic fire alarm telegraph system, the spring *N* and wheel *N*, of shaft *n* pinions *R* and *S*, lever *O*, armature *p* and magnet *P*, all in combination with the sleeve *M* and spring *Q*, and the local or building circuits and the thermostats, as and for the purpose set forth. 8th. The combination, with the local or building circuits, thermostats therein and the magnet *P* and armature *p*, of the spring *p* and releasing magnet *B*, as and for the purpose set forth. 9th. In an automatic fire alarm telegraph system, the local or building circuits and thermostats therein, a commutator sleeve and spring for moving the same longitudinally, and a releasing magnet for the said sleeve, whereby on the operation of a thermostat the commutator sleeve is released, as and for the purpose set forth. 10th. The shaft *L*, spring *Q* and commutator sleeve *M* carrying the ring *t*, *t*, *t*, *t*, *t*, *t* co-operating with the springs *T*, *T*, *T*, *T* and *T* respectively, all in combination with the local or building circuits, the thermostats therein, and the electro-magnet releasing device for the said sleeve. 11th. The shaft *L*, spring *Q* and commutator sleeve *M* carrying rings *t*, *t*, *t*, *t*, *t*, *t* co-operating with the springs *T*, *T*, *T*, *T* and *T* respectively, all in combination with the local or building circuits, the thermostats therein and the pinions *R* and *S*, and the wheel *N* and spring *N*, as and for the purpose set forth.

**No. 30,990. Device for preventing Horses Interfering.** (*Appareil pour empêcher les chevaux de se tailler.*)

Michael Haughey, St. Louis, Mo., U. S., 22nd March, 1889; 5 years

*Claim.*—The interfering device consisting of the pendant made of rubber, wood, or other suitable material, loosely jointed to the strap passing around the leg of a horse, substantially in the manner shown and for the purposes set forth.

**No. 30,991. Process or Mode of Binding Grain and Construction of Grain Binding Harvesters.** (*Procédé ou mode de liage du grain et fabrication des moissonneuses-lieuses.*)

James G. Martin, Parkville, Victoria, 22nd March, 1889; 5 years.

*Claim.*—1st. In binding bundles of cut crops, spinning the band from the material of the bundle itself. 2nd. In binding bundles of

cut crops, spinning the band from the material of the bundle itself while the act of lapping the band around the bundle is being performed. 3rd. In binding bundles of cut crops, spinning the band from the butt ends of the outer stalks of the bundle to be bound. 4th. My improved method of binding bundles of cut crops, whereby the butt ends of some of the outer stalks of the bundle itself are at one and the same time spun into a band and lapped around such bundle, and the ends tucked under that part of the band which was first formed, substantially as herein described and explained. 5th. In apparatus for binding bundles of cut crops, the combination, of a gathering hook, a conical spinning worm and a travelling rake or comb, all arranged and assembled on an arm to which an intermittent motion is given, and which is caused to travel around the bundle while it is being held stationary, substantially as herein described and explained and as illustrated in my drawings. 6th. In apparatus for binding bundles of cut crops, the combination of a gathering hook, a conical spinning worm, and a travelling rake or comb, with a tucker device, all arranged and combined substantially as herein described and explained. 7th. In apparatus for binding bundles of cut crops, a gathering hook constructed precisely, as herein described and explained, in combination with a contrivance for spinning the band and a travelling rake or comb. 8th. In apparatus for binding bundles of cut crops, a conical spinning worm and a travelling rake or comb, constructed precisely as herein described and explained, in combination with a gathering hook for gathering the stalks and feeding them to the band spinning contrivance. 9th. In apparatus for binding bundles of cut crops, a tucker device consisting of a bundle holder, a spindle having a socket fork at one end, and a sleeve at the other having spiral teeth on it, a toothed quadrant, a cam disc on a shaft and means for revolving such shaft, substantially as herein described and explained. 10th. In apparatus for binding bundles of cut crops, a device for locking the end of the band that has been tucked in by the tucker consisting of a frame having a dovetail slot in which the hooked needle works, connecting levers, and a band depressor, the whole being worked by a revolving crank disc from any convenient shaft on a harvesting machine, substantially as herein described and explained.

**No. 30,992. Burglar Alarm.** (*Avertisseur d'effraction.*)

George Schreiber, Berlin, Ont., 22nd March, 1889; 5 years.

*Claim.*—In a burglar alarm, the combination of an alarm having a rocking axle *F*, the arm *F* fast upon said rocking axle, the link *C* connecting said arm, the plug *G* adapted to be inserted into the keyhole, and projecting into the lock and connected to said arm *F* by the link *G*, substantially as set forth.

**No. 30,993. Vacuum Brake Apparatus.** (*Appareil à vide de frein.*)

The Vacuum Brake Company, London (assignees of James Gresham, Manchester,) Eng., 22nd March, 1889; 5 years.

*Claim.*—1st. For use with vacuum automatic brake apparatus, the improved construction of supplementary valve apparatus, arranged substantially as herein described, and operating to admit the external air directly to the train-pipe, and to one side of the brake-piston upon the vacuum in the train-pipe being suddenly destroyed. 2nd. For use with vacuum automatic brake apparatus, a supplementary valve apparatus arranged and operating substantially as herein described, and comprising a valve *c* seating against and working in conjunction with a differential valve *c*, which upon a sudden and considerable increase of pressure in the train-pipe occurring rises and permits the external air to pass directly to the train-pipe, and to one side of the brake-piston. 3rd. The combination, with ordinary ball-valve mechanism for operating vacuum automatic brakes, of supplementary valve apparatus, substantially as herein described, the former being adapted for use with ordinary applications of the brakes, and the latter when circumstances require an exceptionally rapid application of the brakes throughout the train. 4th. The improved means for packing the piston or diaphragm-rod of vacuum brake apparatus, substantially as herein described, and comprising an elastic packing ring held in position by means of outwardly projecting flanges, the atmosphere having access to its outer surface and serving to press its inner face which is by preference rounded against the surface of the said rod.

**No. 30,994. Pipe Wrench.** (*Clé à tuyaux.*)

Reed, Willard & Company, Boston (assignees of Daniel R. Porter, Chelsea), Mass., U. S., 22nd March, 1889; 5 years.

*Claim.*—A pipe wrench consisting of shank *A*, fixed jaw *B*, handle *C*, jointed movable jaw *D*, saddles *E*, *G* and springs *F*, *H*, all formed and combined as hereinbefore set forth.

**No. 30,995. Swivel Flag Halyard.** (*Anneau de drisse de pavillon.*)

Issac Townsend (assignees of Henry B. Thompson), Philadelphia, Penn., U. S., 22nd March, 1889; 5 years.

*Claim.*—1st. A swivel for flag halyards consisting of a spindle or axis provided with an eye or opening for the rope, and inserted to rotate within a barrel or tube attached to the material of the flag, substantially as and for the purpose specified. 2nd. The combination of the spindle *A*, eye or ring *B*, shoulder *e*, stem or rivet *f* and washer *F*, with the barrel *C*, flanges *d*, *dt*, clamp *G* and rivets *g*, *g*, substantially as shown and described. 3rd. The barrel or tube *C* provided with the lug *h*, in combination with the clamp *G* and rivets *g*, *g*, adapted to prevent the clamp turning on and abraiding the barrel, substantially as specified.

**No. 30,996. Fare Checking, Indicating and Advertising Apparatus for use in Omnibuses.** (*Appareil pour percevoir, indiquer et annoncer les billets à l'usage des omnibuses.*)

John Hope, Liverpool, Eng., 23rd March, 1889; 5 years.

*Claim.*—1st. The use, in combination in a fare checking apparatus for vehicles, of a device for exhibiting serially the names of streets or stages passed through, and a mechanism for recording the passengers using the vehicle in each of said stages. 2nd. In a fare checking apparatus for vehicles, the use, in combination, of a device for exhibiting serially the names of streets or stages passed through, a mechanism for recording the passengers, and a device for exhibiting serially a series of advertisements simultaneously with the exhibition of the name of the street or stage. 3rd. In a fare checking apparatus for vehicles, the use, in combination, of a mechanism for recording separately the passengers in each of said stages, and a device for exhibiting serially a series of advertisements simultaneously with the change of the stage with the route. 4th. A fare checking apparatus for vehicles comprising a case provided with a series of numeral wheels by which the number of passengers are recorded and exhibited in each of the stages passed through separately, a device by which the names of the streets or stages passed through are exhibited serially, a plurality of rollers *d* and *f* having thereon a series of advertisements, a counter and a gong, and a mechanism by which the above devices are operated by the guard or attendant of the vehicle having a plurality of handles or levers, said levers being connected with the said parts contained in the frame *A*, as or substantially as described and operated as set forth. 5th. The use, in combination in a device for operating a fare checking apparatus, of a mechanism operated by the conductor or attendant of the vehicle, provided with wheels such as *s*, *t*, *u*, and a device by which the said wheels are prevented from being brought back to their normal position when being operated prior to the extreme end of their stroke having been reached, substantially as set forth. 6th. The use, in combination with a fare checking apparatus, of a device by which the number of vacant seats either inside or outside the vehicle are exhibited, said device being operated simultaneously with the mechanism employed to actuate the recording device substantially as set forth. 7th. The combination of a plurality of series of numeral wheels such as *b*, *b*<sub>1</sub>, *b*<sub>2</sub>, *b*<sub>3</sub> having toothed wheels *b*<sub>5</sub>, and toothed wheels *l*, operating as or substantially as set forth. 8th. The rollers such as *d*, *d*<sub>1</sub>, operating substantially as and for the purposes set forth. 9th. Effecting the operation of the screw *m* by ratchet wheels *o*, pawl *o* and pawl lever *m*<sub>1</sub>, substantially as set forth. 10th. The combination, with the shaft *m*<sub>2</sub>, of the cam *p* and bar *pt*, said bar being kept upon the periphery of the said cam by springs *p*<sub>3</sub>, substantially as and for the purposes set forth. 11th. The combination, with each of the shafts *z*, of a cam *j*, a lever *j* and spring *z*<sub>1</sub>, substantially as and for the purposes set forth. 12th. The combination of the wheels *s*, *t*, *u*, of the locking bar *z*<sub>1</sub>, substantially as and for the purposes set forth.

**No. 30,997. Combined Lamp Shade, or Reflector and Guard.** (*Abajour ou réflecteur et garde-lampe combinés.*)

The Royal Electric Company (assignee of Charles A. Cooley), Montreal, Que., 25th March, 1889; 5 years.

*Claim.*—1st. The combination of a reflector and a guard for the light or lamp, the guard being rigidly secured to the reflector, as described. 2nd. As a new article of manufacture, a reflector or shade rigidly secured to a cage or guard, the whole being provided with attaching devices for securing it to a lamp. 3rd. A lamp, reflector, or shade having an opening large enough to admit a lamp, in combination with a guard for said lamp rigidly secured to the reflector, as set forth. 4th. A lamp, reflector, or shade having an opening large enough to admit a lamp, in combination with a guard for said lamp rigidly secured to the reflector directly in front of the opening in said reflector.

**No. 30,998. Feeding Apparatus for use in Burning Clay to make Ballast, etc.** (*Appareil d'alimentation pour servir à cuire la terre pour faire le ballast, etc.*)

The Davy Clay Ballast Company, Chicago, Ill. (assignee of William Davy, Konosha, Wis.), U.S., 25th March, 1889; 5 years.

*Claim.*—1st. In an apparatus, substantially for the purpose set forth, the combination of a boom on a suitable support, a cable *M* passing over the boom and connected with suitable winding mechanism *L*<sub>1</sub>, a scoop or scraper *N* hung upon the cable *M*, and a cable *M*<sub>1</sub> connecting the scoop or scraper with suitable winding mechanism *L*, whereby the scraper may be operated automatically to scoop soil from near the base toward the edge of an inclined plane, carry it to the place of dumping and return to the inclined plane, substantially as described. 2nd. In an apparatus, substantially for the purpose set forth, the combination of a car *C*, a boom *G* supported thereon, a cable *M* passing over the boom and connected with suitable winding mechanism *L*<sub>1</sub> on the car, a scoop or scraper *N* hung upon the cable *M*, and a cable *M*<sub>1</sub> connecting the scoop or scraper with suitable winding mechanism *L* on the car, whereby the scoop or scraper shall move with the car and may be operated automatically to scoop soil from near the base toward an edge of an inclined side of a trench alongside of the car, carry the soil to the place of dumping and return to the trench, substantially as described. 3rd. In an apparatus, substantially for the purpose set forth, the combination of a car *C*, a boom *G*, a scoop or bucket *N* operating to scoop soil and carry it to the place of dumping, and a ploughing device *O*, substantially as described. 4th. In an apparatus, substantially for the purpose set forth, the combination of a car *C*, a boom *G*, a track *r*<sub>1</sub>, upon which the car moves and adapted to be shifted laterally, a scoop or

bucket *N*, operating to scoop soil and carry it to the place of dumping, and a ploughing device *O*, substantially as described. 5th. In an apparatus, substantially for the purpose set forth, the combination of a car *C*, a boom *G*, a track *r*<sub>1</sub>, upon which the car moves and adapted to be shifted laterally, a scoop or bucket *N* operating to scoop soil and carry it to the place of dumping, and an adjustable ploughing device *O*, substantially as described. 6th. In an apparatus, substantially for the purpose set forth, the combination of a car *C*, a boom *G* supported on the car, a track *r*<sub>1</sub> alongside a trench, and upon which the car moves, and adapted to be shifted with reference to the edge of the trench, a scoop or bucket *N* movable with the car lengthwise of the trench, and operating to scoop soil from near the base toward the edge of an inclined side of the trench, and carry it to the place of dumping, and a ploughing device *O* movable with the car and operating to plough the soil along the said inclined side of the trench, substantially as described. 7th. In an apparatus, substantially for the purpose set forth, the combination of a car *C* provided with driving mechanism, a boom *G* supported by the car transversely thereof, a pulley *L*<sub>1</sub> rotated by the said driving mechanism, a cable *M* secured at one end to a rigid object, passed thence over a pulley *l* on the boom and secured at its opposite end to the pulley *L*<sub>1</sub>, a scoop *N* suspended from the cable *M*, a pulley *L* rotated by the said driving mechanism, and a cable *M*<sub>1</sub> secured at one end to the scoop, and at its opposite end to the pulley *L*, substantially as described. 8th. In an apparatus, substantially for the purpose set forth, the combination of a car *C* provided with driving mechanism, a boom *G* supported by the car transversely thereof, a pulley *L*<sub>1</sub> rotated by the said driving mechanism, a cable *M* secured at one end to a rigid object, passed thence over a pulley *l* on the boom, and secured at its opposite end to the pulley *L*<sub>1</sub>, a scoop *N* suspended from the cable *M*, a pulley *L* rotated by the said driving mechanism, a cable *M*<sub>1</sub> secured at one end to the scoop and at its opposite end to the pulley *L*, and a ploughing device *O* connected with and actuated by the said driving mechanism, substantially as described.

**No. 30,999. Knitting Machine.**

(*Machine à tricoter.*)

John Penman, Paris, Ont. (assignee of Charles H. Young, Manchester, N.H., U.S.), 25th March, 1889; 5 years.

*Claim.*—1st. The combination, with the needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, and pivoted or fulcrumed at their other ends, and a slur cock or inclined cam adapted to operate at a short leverage on said jack depressers, whereby a short throw given to the jack depressers by said slur cock, a long throw may be imparted to the needles, substantially as set forth. 2nd. The combination, with the needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, and pivoted or fulcrumed at their other ends, said jack depressers being provided with short heels projecting from their pivotal points, and a slur cock or inclined cam for operating on the heels of the jack depressers, whereby a long throw may be imparted to the ends of the jack depressers connected with the needles by a very short throw given to the heels of the jack depressers, and each needle made to substantially complete its descent, and the formation of a loop in its hook before another or others begin drawing upon the yarn to form loops, substantially as described. 3rd. The combination, with the two rows or ranks of needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, rods upon which the other ends of said jack depressers are pivoted or fulcrumed, thin spacing pieces between said jack depressers, whereby the latter and the needle jacks and needles may be brought closely together, said jack depressers being provided with short heels projecting from their pivotal points, and a slur cock or inclined cam co-operating on the heels of the jack depressers, substantially as described. 4th. The combination, with the needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, rods upon which the other ends of said jack depressers are fulcrumed, spacing pieces between said jack depressers, said jack depressers being provided with heels projecting from their pivotal points, a slur cock or inclined cam for acting upon the heels of said jack depressers to depress the needles, devices for raising the needles, devices for frictionally holding said jack depressers at any point at which they may be left by said slur cock or needle raising devices, and means for adjusting said friction devices, substantially as set forth. 5th. The combination, with the needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, rods upon which the other ends of said jack depressers are pivoted or fulcrumed, spacing pieces between said jack depressers, devices for operating the jack depressers to lower the needles, devices for raising the needles, devices for frictionally holding said jack depressers at any point to which they may be moved by the raising and lowering devices, and means for holding said spacing pieces from being moved as the jack depressers are rocked on their fulcrums or pivotal points, substantially as set forth. 6th. The combination, with the needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, rods upon which the other ends of said jack depressers are pivoted or fulcrumed, thin spacing pieces between said jack depressers on said rod devices for operating the jack depressers to lower the needles, devices for raising the needles, devices for fric-

tionally holding said jack depressers at any point to which they may be moved by the raising and lowering devices, means for holding said spacing pieces from being moved, as said jack depressers are rooked on their fulcrum or pivotal points, and means for adjusting said friction devices, substantially as set forth. 7th. The combination with the needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, rods upon which the other ends of said jack depressers are pivoted or fulcrumed, thin spacing pieces between said jack depressers on said rods, whereby the latter and the needle jacks and needles may be brought closely together, said jack depressers being provided with short heels projecting from their pivotal points, a slur cock or inclined cam for operating on the heels of the jack depressers to depress the needles, means for raising the needles, devices for frictionally holding said jack depressers at any point at which they may be left in their movements, means for adjusting said frictional devices, and means for holding said spacing pieces from being moved as the jack depressers are rooked on their fulcrum or pivotal points, substantially as set forth. 8th. The combination, with two rows or ranks of needles, and an intermediate needle placed between the two ranks or rows at one of the ends thereof, of yarn feeding devices for feeding yarns to said needles, and mechanism for operating the latter, as set forth. 9th. The combination, with two rows or ranks of needles, and an intermediate needle placed between the two ranks or rows at one of the ends thereof, of two yarn feeding devices for simultaneously feeding yarns to the needles, one of the yarn guides feeding yarn to one rank and the other to the other rank, and devices for operating the yarn carriers to cross the yarns from each rank or row to the other at the ends of the ranks, and mechanism for operating the needles, as set forth. 10th. The combination, with two rows or ranks of needles, and an intermediate needle placed between the two ranks or rows at one of the ends thereof, of two yarn feeding devices for simultaneously feeding yarns to the needles in the two ranks, one of the guides feeding yarn to one rank and the other to the other rank, devices for operating the yarn carriers to cross the yarns from each rank or row to the other at the ends of the ranks, an arm for catching the yarns at the end of the ranks at which the intermediate needle is located to insure the proper yarn being laid into the hook of the intermediate needle, and guiding the other yarn so as not to be caught by said intermediate needle, and mechanism for operating the needle, as set forth. 11th. The combination, with two rows or ranks of needles, and an intermediate needle placed between the two rows or ranks at one of the ends thereof, the needles at the other end of the two ranks or rows being constructed to gradually approach each other, substantially forming a junction of the two ranks at the last-mentioned end of yarn feeding devices for feeding yarn to said needles, and mechanism for operating the needles, substantially as set forth. 12th. The combination, with two rows or ranks of needles and an intermediate needle placed between the two ranks or rows at one of the ends thereof, the needles at the other end of the two ranks or rows being constructed to gradually approach each other, substantially forming a junction of the two ranks or rows at the last-mentioned end, of two yarn feeding devices for simultaneously feeding yarn to one rank and the other to the other rank, devices for operating the yarn carriers to cross yarns from each rank or row to the other at the ends of the ranks, an arm for catching the yarns at the ends of the ranks, at which the intermediate needle is located, to insure the proper yarn being laid into the hook of the intermediate needle, and guiding the other yarn so as not to be caught by said intermediate needle, and mechanism for operating the needles, substantially as set forth. 14th. The combination, with two rows or ranks of needles and an intermediate needle placed between the two ranks or rows at one of the ends thereof, the needles at the other end of the two ranks being constructed to gradually approach each other, substantially forming a junction of the two ranks at the last-mentioned end, devices for feeding yarn to the needles, means for supporting and depressing the intermediate needle independent of the needles in the two ranks, means for supporting and operating the needles in the two ranks and for raising the intermediate needle, substantially as set forth. 15th. The combination, with the needles and their jacks, of the jack depressers, one for each needle, loosely connected at one of their ends with said jacks, and pivoted or fulcrumed at their other ends, said jack depressers being provided with short heels projecting from their pivotal points, and a slur, cock, or inclined cam for operating on the heels of the jack depressers to depress the needles, and mechanism for raising the needles, substantially as set forth. 16th. The combination, with two rows or ranks of vertically disposed needles, the needles at each end of the two ranks or rows being constructed to gradually approach each other, substantially forming a junction of the two ranks at these points, of yarn feeding devices for feeding yarn to said needles, and mechanism for operating the needles, substantially as set forth. 17th. The combination, with two rows or ranks of vertically disposed needles, the needles at each end of the two ranks or rows being constructed to gradually approach each other, substantially forming a junction of the two ranks at these points, of two yarn feeding devices for simultaneously feeding yarns to the needles in the two ranks, one of the guides feeding yarn to one rank and the other to the other rank, and devices for operating the yarn carriers to cross the yarns from each rank to the other at the ends of the ranks, and mechanism for operating the needles, substantially as described. 18th. The combination, with the needles, each provided with an offset immediately back of its latch, of the looping bits, each provided with a notch near its upper end, mechanism for reciprocating the needles and for feeding yarn thereto, and devices for moving the upper ends of said bits rearwardly from

the needles, as the latter rise through the loops thereon, and toward the front of the needles before they descend to form new loops, whereby said looping bits are caused to perform the functions of sinkers knocking over bits, and web holders, and with the offset on the needles effect a perfect division of the stitches, substantially as set forth. 19th. The combination, with the needles, each provided with an offset immediately back of its latch, of the looping bits, each having a rounded upper end and provided with a notch near said end, mechanism for successively lowering the needles and for feeding the yarn thereto, and devices for moving the upper ends of said bits rearwardly from the needles, as the latter are raised in unison through the loops, and toward the front of the needles before they are lowered, as aforesaid, substantially as described. 20th. The combination, with a straight row of needles, of a lever having a long and a short arm, the long arm adapted to engage with and operate said needles, and a cam adapted to operate on the short arm of the lever to actuate it, substantially as set forth. 21st. The combination, with the needles and their jacks C<sub>1</sub>, having notches C<sub>2</sub>, of the jack lifters C<sub>3</sub>, provided with toes on their rear portion, rods B, spacing pieces C<sub>5</sub>, slur cocks C<sub>6</sub> and mechanism for lifting the needles, substantially as described. 22nd. The combination, with the jack depressers, of the rods supporting the same, spacing pieces, and means for holding said spacing pieces from being turned on said rod, but leaving the jack depressers free to be turned thereon, substantially as set forth. 23rd. A latch needle, having its stem just below the needle latch, bent at substantially right angles to the portion of the stem to which the latch is secured, in combination with the jack to which the heel portion of the stem is secured, substantially as set forth. 24th. The combination, with the jack C<sub>1</sub> having the right angled portion C<sub>2</sub>, of a needle secured to the right angled portion of the jack, substantially as set forth. 25th. The combination of the needle with the jack to which it is secured, said jack being provided with a slot in its lower end extending through the lower end and up into the body of the jack, substantially as set forth. 26th. The combination, with the intermediate needle E, lever E<sub>2</sub> to which said needle is secured, jack E<sub>1</sub> loosely connected to said lever, and means for depressing and raising said jack, substantially as set forth. 27th. The combination, with the intermediate needle E, the pivoted lever to which it is secured the jack for said needle loosely connected with said lever, and provided with a lip E<sub>7</sub>, of U-shaped loop E<sub>8</sub>, rocking rod E<sub>9</sub>, weighted finger E<sub>10</sub>, the cam slide and plates E<sub>14</sub>, E<sub>15</sub>, substantially as set forth. 28th. The combination, with the intermediate needle, of the looping bits co-operating therewith, standard E<sub>1</sub>, rod I, a slat pivoted in the free end of said rod to which said looping bits are secured, rod L, a spring on which the free end of said rod rests, and means operating at intervals to depress the free end of said last mentioned rod and said spring, substantially as set forth. 29th. The combination, with the two rows or ranks of needles, and their looping bits and means for operating said needles and looping bits, of the intermediate needle E and its looping bits, and means independent of the two rows of needles and their looping bits for depressing said intermediate needle and operating its looping bits, as set forth. 30th. The combination, with two rows or ranks of needles, of an intermediate needle between said rows at one end thereof, mechanism for successively throwing out of operation for the purpose of narrowing needles in said ranks adjacent to said intermediate needle, and mechanism for maintaining said intermediate needle in the same relative position with the needles in operation, substantially as set forth. 31st. The combination, with the two ranks of needles and the movable needle bed thereof, a stationary intermediate needle between one end of said ranks of needles, means for feeding yarn to the needles, and for operating the same, of mechanism for shogging said needle-bed toward said intermediate needle and for throwing out of operation the needles in the two ranks as they are moved beyond said intermediate needle, substantially as set forth. 32nd. The combination, with the two ranks of needles and the movable needle-bed thereof, and intermediate needle supported independently of said bed, means for feeding yarn to the needles and for operating the same, mechanism for shogging said needle-bed toward said intermediate needle, and mechanism for throwing out of operation the needles in the two ranks as they are moved beyond said intermediate needle, and to cause the needles so thrown out of operation to drop their stitches, substantially as described. 33rd. The combination, with a movable needle-bed its needles and means for feeding yarn thereto and for operating the same, of mechanism for automatically shogging the needle-bed step by step in one direction to throw successive needles out of operation for the purpose of narrowing, substantially as set forth. 34th. The combination, with the movable needle-bed its needles and means for feeding the yarn thereto and for operating the same, of mechanism for automatically shogging the needle-bed step by step in one direction to throw successive needles out of operation for the purpose of narrowing, substantially as set forth. 35th. The combination, with the movable needle bed, its needles and means for feeding yarn thereto and for operating the same, of mechanism for automatically shogging the needle-bed step by step in one direction to throw successive needles out of operation for the purpose of narrowing, and a pattern chain and means intermediate thereof and of the shogging mechanism for controlling the operations of the latter, substantially as set forth. 36th. The combination of the movable needle-bed and its needles, with a spirally grooved cylinder, a stud connected with said needle-bed and operated in the groove of said cylinder, a ratchet wheel connected with the cylinder, and a pawl and means for operating it, whereby said needle-bed may be shogged step by step in one direction, substantially as set forth. 37th. The combination of the movable needle-bed and its needles with the spirally grooved cylinder, a stud connected with said needle-bed and operating in the groove of said cylinder, a ratchet wheel connected with said cylinder, a pawl for operating said ratchet wheel for shogging the needle-bed step by step in one direction, a pattern chain and mechanism intermediate thereof and of said pawl for controlling the operations of the latter, substantially as set forth. 38th. The combination of the movable bed and its needles, spirally grooved cylinder connected with the needle-bed, a ratchet wheel connected to said cylinder pawl N, arm N<sub>1</sub>, projection N<sub>2</sub>, the driving shaft, the cam thereon, finger N<sub>3</sub>, latch N<sub>4</sub>, dog N<sub>5</sub>, and pattern chain having lugs at intervals thereon and means for operat-

ing said pattern chain and driving shaft, substantially as described. 39th. The combination, with the movable needle-bed its needles jacks and pivoted jack depressors, of mechanism for shogging the needle-bed step by step in one direction, the pivoted strip M having one end arranged to come successively under the heels of pivoted jack depressors as the needle-bed is shogged, and sliding cam carriage provided with a stud N<sub>2</sub> as set forth. 40th. The combination, with the pivoted strips M having the inclined end M<sub>1</sub> of the reciprocating cam carriage provided with the stud M<sub>2</sub> as set forth. 41st. The combination, with the needles, and means for feeding yarn thereto, and for raising and lowering the same, of a slide mechanism for moving it to throw said needle raising mechanism out of operation, and bringing said slide into operation for raising a portion of the needles it being equipped with means for this purpose. 42nd. The combination, with the needles, means for feeding yarn thereto and for raising and lowering the same, a slide equipped with means for raising the needles, mechanism for moving said slide to throw the first mentioned means for raising the needles out of operation, and bringing the said slide into operation to raise a portion of the needles, and mechanism for shifting the slide to raise a different number of needles after being so shifted, substantially as set forth. 43rd. The combination, with the needles, means for feeding yarn thereto and for lowering the needles, and means operating under the needles to raise the same, of a slide equipped with means for also operating under the needles to raise them, mechanism for moving said slide to throw the first mentioned means for raising the needles out of operation, and bringing said slide into operation to raise a portion of the needles, and mechanism for shifting it to successively operate on a different number of needles, substantially as set forth. 44th. The combination, with the reciprocating needle lifting bars, of a slide also provided with needle lifting bars, and mechanism for moving said slide to throw the first mentioned needle lifting bars out of operation, and bring the latter bars into operation, substantially as set forth. 45th. The combination, with the reciprocating needle lifting bars, of a slide also provided with needle lifting bars, mechanism for moving said slide to throw the first mentioned needle lifting bars out of operation and bringing the latter bars into operation, and mechanism for moving said slide step by step relatively to said first mentioned needle lifting bars, substantially as described. 46th. The combination, with the movable needle bed and its needles, of mechanism for shogging the needle bed step by step in one direction, reciprocating needle lifting bars, a slide also provided with needle lifting bars adapted to remain inoperative during the first operations of the needles, mechanism for moving said slide to throw the first mentioned needle lifting bars out of operation and bringing the latter bars into operation, and mechanism for moving said slide step by step relatively to said first mentioned needle lifting bars, substantially as set forth. 47th. The combination, with the reciprocating needle lifting bars, of a slide also provided with needle lifting bars, mechanism for moving said slide to throw the first mentioned needle lifting bars out of operation and bringing the latter bars into operation, pattern mechanism and means intermediate of the same and the mechanism for moving the slide for controlling the initial movement of the latter, substantially as set forth. 48th. The combination, with the reciprocating needle lifting bars, of the slide also provided with needle lifting bars, mechanism for moving said slide to throw the first mentioned needle lifting bars out of operation, and bringing the latter bars into operation, pattern mechanism and means intermediate of the same, and the mechanism for moving the slide for controlling the initial movement of the latter, and mechanism independent of the pattern mechanism for giving said slide a step by step motion, substantially as set forth. 49th. The combination, with the reciprocating needle lifting bar, of a slide also provided with needle lifting bars, lever T<sub>1</sub>, stud T<sub>2</sub>, U-shaped piece Q<sub>4</sub>, shogging shaft S<sub>6</sub> provided with collars S<sub>10</sub>, and mechanism for shogging said shaft whereby the needle lifting bars on the slide are brought into operation and the first mentioned bars thrown out of operation, substantially as set forth. 50th. The combination, with the slide Q<sub>1</sub>, shogging shaft S<sub>6</sub> and mechanism intermediate of said shaft and slide, whereby by the shogging of the shaft the slide will be moved, of the lever S<sub>1</sub>, pin S<sub>3</sub>, cam piece S<sub>4</sub>, ratchet wheel R provided with pin R<sub>1</sub>, pawl R<sub>2</sub>, pattern mechanism and mechanism intermediate of said pattern mechanism, and pawl mechanism and pawl to control the operations of the latter on the said ratchet wheel, substantially as set forth. 51st. The combination, with the reciprocating and oscillatory needle lifting bars provided with the offset Q<sub>6</sub>, the slide also provided with needle lifting bars, and the forked or U-shaped piece Q<sub>4</sub>, the latter adapted to engage said offset on said first mentioned bars, and mechanism for moving said slide, substantially as set forth. 52nd. The combination, with slide Q<sub>1</sub>, shogging shaft S<sub>6</sub>, and mechanism intermediate of said shaft and slide, of mechanism for shogging said shaft, whereby said slide may be given an initial movement, and mechanism for moving said slide step by step after its initial movement, said last mentioned mechanism being thrown into operation by the shogging of said shaft S<sub>6</sub>, substantially as set forth. 53rd. The combination, with the slide Q<sub>1</sub> ratchet bar W<sub>5</sub> and link W<sub>6</sub>, of a pawl adapted to engage said ratchet bar and impart a step by step movement thereto, rocking rod V<sub>3</sub> to which said pawl is connected by step movement thereto, provided with the incline V<sub>10</sub>, arm V<sub>9</sub> and rock shaft A<sub>11</sub>, substantially as set forth. 54th. The combination, with the slide Q<sub>1</sub>, the ratchet bar W<sub>5</sub> and link W<sub>6</sub>, of a pawl adapted to engage said ratchet bar and impart a step by step movement thereto, lever U<sub>3</sub> adapted to operate as a holding pawl to said ratchet bar, and to throw said pawl out of operation and permit it to be thrown into operation, and the shogging shaft S<sub>6</sub> and devices connected therewith to operate on the free end of said lever to lower the same and permit it to be raised, substantially as set forth. 55th. The combination, with two ranks of vertically disposed needles and means for operating the same, of two yarn guides for feeding yarn thereby simultaneously to each rank, and mechanism for automatically crossing said yarns at one end of the ranks of needles, but permitting said yarn guides to operate without crossing their yarns at the other end of the ranks of needles, substantially as set forth. 56th. The combination, with the movable stop F<sub>11</sub>, of the needle lifting bars, mechanism for throwing said needle lifting bars out of operation, and mechanism intermediate of the latter and said stop, whereby when the bars are thrown out of operation said stop will be moved, substantially as set forth. 57th. The

combination, with the movable stop F<sub>11</sub>, of the needle lifting bars D<sub>12</sub>, elbow lever Y<sub>1</sub>, lever Y<sub>4</sub>, pins Y<sub>3</sub>, Y<sub>5</sub>, Y<sub>10</sub>, and spring Y<sub>8</sub>, substantially as set forth. 58th. The combination, with the yarn guide slide provided with the bar or strip G<sub>4</sub>, of the movable slide block G<sub>1</sub>, pivot G<sub>2</sub>, spring G<sub>3</sub>, pivoted trip plate G<sub>5</sub> and stop strips G<sub>6</sub>, substantially as described. 59th. The combination of the two ranks of needles, of two longitudinally movable yarn guides for feeding yarns simultaneously to both of said ranks of needles, means substantially as described for operating said yarn guides at each end of the ranks of needles to move them longitudinally to cross the yarn from each rank to the other, substantially as described. 60th. The combination, with the two longitudinally movable yarn guides provided with rack teeth at their rear ends, the elongated pinion F<sub>5</sub>, the sliding rack bar P<sub>6</sub> and stop F<sub>10</sub>, substantially as set forth. 61st. The combination of the pivoted stop F<sub>10</sub> having the inclined prongs Z<sub>2</sub>, Z<sub>3</sub>, spring Z<sub>1</sub> and support for said stop, substantially as described. 62nd. The combination, with the two movable yarn guides F<sub>3</sub>, F<sub>4</sub>, elongated pinion F<sub>5</sub>, rack bars F<sub>7</sub>, F<sub>8</sub> provided respectively with the notches Z<sub>5</sub>, Z<sub>6</sub>, and movable stop F<sub>10</sub> provided with the prongs Z<sub>3</sub> and Z<sub>4</sub>, substantially as set forth. 63rd. The combination, with the two movable yarn guides F<sub>3</sub>, F<sub>4</sub>, elongated pinion F<sub>5</sub>, the movable stops F<sub>10</sub>, F<sub>11</sub>, means for automatically moving said last mentioned stop out of engagement with said rack bars, said first mentioned stop being adapted to engage the ends of said rack bars alternately as they are moved toward it, substantially as described. 64th. The combination, with the yarn guide plate provided with the plate J, of the pivoted yarn catching plate F<sub>2</sub>, substantially as described.

**No. 31,000. Cross Head for Steam Engines.**  
(*Emboiture pour machines à vapeur.*)

Thompson Kingsford (assignee of John J. Tonkin), Oswego, N. Y. U.S. 25th March, 1889; 5 years.

*Claim.*—1st. A cross-head formed with a transversely convex bottom bearing A and with longitudinal top bearings a, a, in combination with the concave guide C and gibbs f, f, as set forth. 2nd. A cross-head composed of the bottom plate formed convex in cross section on its underside, and with horizontal longitudinal top bearings a, a and ears D, D, all formed in one piece, in combination with a correspondingly concave guide C, gibbs f, f and the wrist pin P, substantially as described and shown. 3rd. In combination with the wrist pin P, the cross-head formed with the ears D, D split transversely and formed with longitudinal sleeves b, b and bolts c, c passing through the sleeves and provided with nuts, substantially as described and shown. 4th. In combination with the piston-rod I, the cross-head formed with the bridge d and eye d<sub>1</sub> and split longitudinally vertically and the clamping bolt e, substantially as described and shown.

**No. 31,001. Composition of Matters for Making Bricks and Artificial Stone.**  
(*Composition de matières pour faire de la brique et de la pierre artificielle.*)

Offéré Leblanc et Alphonse C. Décarv, Montréal, Qué., 25th March, 1889; 10 years.

*Résumé.*—1o. Une composition formée de chaux, de terre jaune, de liquide de bronze, de ciment et d'eau, dans les proportions et pour les fins décrites. 2o. Une composition formée de chaux, de terre jaune, de liquide de bronze, de ciment et d'eau, à laquelle je puis ajouter des matières colorantes, dans les proportions et pour les fins décrites.

**No. 31,002. Machine for Moistening Envelopes, Postage Stamps, Labels, etc.**  
(*Machine à humecter les enveloppes, les timbres et étiquettes, etc.*)

Napoléon Matte et Charles Montminy, Québec, Qué., 29th March, 1889; 5 years.

*Résumé.*—1o. Un appareil pour humecter et cacheter le bord gommé des enveloppes et autres papiers de malle, consistant en un cadre contenant une platine pour supporter le bord d'une enveloppe ou autre papiers, un coussinet humecteur mobile, un poids mobile, et platine pour cacheter les enveloppes et tel que décrit. 2. Dans un appareil pour humecter et cacheter le bord gommé des enveloppes, la combinaison d'une platine pour supporter le bord gommé d'une enveloppe, d'un cadre mobile contenant un coussinet humecteur, et un réservoir à l'eau, tel que décrit. 3o. La combinaison d'un coussinet humecteur a pentures ou pivots, avec réservoir d'eau et platine pour supporter le bout gommé d'une enveloppe et contre laquelle se presse en s'abaissant le coussinet humecteur, et un ressort qui tient le coussinet humecteur éloigné de la platine, et tel que décrit. 4o. La combinaison d'une platine élastique avec une table, poids à pentures ou pivots, portant sur la platine et tel que décrit.

**No. 31,003. Combined Anti-Rattler and Nut Lock for Thill Couplings.**  
(*Compensateur et arrête-écrou combinés pour les armons des limonnières.*)

Samuel J. Wood, Somerville, Mass., U. S., 29th March, 1889; 5 years.

*Claim.*—In a thill coupling, the combination of the clip B, tie plate C, nuts D, D<sub>1</sub> and thill-iron E, with the spring plate S, so formed and attached that its upper end exerts a spring pressure against the thill-iron H, and its lower portion a locking pressure against the nuts D, D<sub>1</sub>, all operating together substantially as described and for the purpose set forth.

**No. 31,004. Car Mover.**  
(*Pousse-char.*)

Clarence L. Barnhart, Flint, Mich., U.S., 29th March, 1889; 5 years.

*Claim.*—1st. A car mover, composed of a staff a, a crotch b in one

end of such staff to engage a car, a gripper *f* supported upon a shaft, which is borne by the other end of said staff, said gripper being composed of dished halves *e*, provided with hubs to receive the shaft, and with fingers *e*, having biting edges *e* thereon, which halves are independently and detachably fixed to the shaft, and gearing for imparting rotary motion to said gripper, substantially as and for the purpose described. 2nd. A rotary gripper, composed of dished halves *e*, provided with hubs *g*, and having the fingers *e* with knives *e* fastened thereon, combined with a hollow shaft having openings in its sides forming bearings for said hubs, a shaft to which said halves are independently and detachably fixed, and operating gearing for imparting rotary motion to said gripper, substantially as described.

### No. 31,005. Dust Guard for Car Axle Boxes.

(*Garde-poussière pour les boîtes à graisse des chars.*)

Peter Sweeney, New York, N.Y., U.S., 29th March, 1889; 5 years.

*Claim.*—1st. A car-axle dust-guard, having the upper and lower section hung in the same stirrup, the latter being pulled upward by a spring, and thus causing the lower section only to hug the axle-journal, as described and for the purpose specified. 2nd. The stirrup made in two parts, each having a bottom stud *b*, a rabbet *b* and a rounded top with head *b*, whereby it may be used as described. 3rd. The combination, with the two-part stirrup, having heads *b*<sub>1</sub>, *b*<sub>2</sub>, and the spiral springs C, C, of the two-part cap D, D', having the shelf *b*, whereby the springs may be readily inserted and protected, as specified.

### No. 31,006. Portable Cooking Apparatus.

(*Appareil de cuisine portatif.*)

Alfred S. Tomkins, Holmwood Caterham, Eng., 29th March, 1889; 5 years.

*Claim.*—1st. A portable cooking apparatus, consisting of a fire-place F, flues C and C' leading thence to the chimney C<sub>2</sub>, ovens F' and boilers K, in combination with the water casing R, substantially as described. 2nd. In a boiler used for portable cooking apparatus, forming the upper edge of the boiler with a corrugation and trough space, and the cover with two downwardly-projecting lips, substantially as and for the purpose set forth.

### No. 31,007. Machine to be known as a Knife, Fork and Spoon Scourer.

(*Machine à nettoyer la coutellerie.*)

William Robertson, Mount Forrest, Ont., 30th March, 1889; 5 years.

*Claim.*—1st. Consisting of baseward A, thumb screw C, springs D, shafts F, cog wheels H, crank K and rollers T, all arranged and combined substantially as and for the purpose hereinbefore set forth. 2nd. In the scouring machine, of the kind described, rollers I covered with woollen cloth or similar material, and having at one end concave and convex parts, the convex parts being raised with rubber or similar material, substantially as and for the purpose hereinbefore described.

### No. 31,008. Process of Producing Relief Plates.

(*Procédé de production des plaques en relief.*)

James G. Armstrong, Montréal, Qué., 30th March, 1889; 5 years.

*Claim.*—1st. The above described process of making relief plates, consisting in printing upon a sensitized zinc plate from a negative obtained in a positive camera from a ruled plate, and a transparency combined and afterwards treating said zinc plate with acids, substantially as described. 2nd. A relief plate, made by printing upon it by photography from a negative obtained in a camera from a combination of a photographic transparency, and a ruled plate, and afterwards treating said zinc plate with acids, substantially as herein described.

### No. 31,009. Scoop Shovel.

(*Pelle-écope.*)

John B. McMurchy, Gananoque, Ont., 30th March, 1889; 5 years.

*Claim.*—As an article of manufacture, a scoop shovel having the upper part of the blade each side of the socket where the handle enters, corrugated, as and for the purposes herein set forth.

### No. 31,010. Spring Bed.

(*Sommier élastique.*)

Joseph Bélanger, Hull, Qué., 30th March, 1889; 5 years.

*Claim.*—1st. A spring bed, made in two sections, and the two sections connected by hooks and eyes, substantially as set forth. 2nd. The combination, with the slats A, the cross-pieces B, of the hooks D, wires *b*, eyes E, wires *c* and staples *d*, substantially as set forth.

### No. 31,011. Apparatus for Marking Folded Piece Goods with Trade Marks and other Marks, and for Printing and Colouring such Marks and Devices at a single Operation, part of said Apparatus being Applicable to the Rollers used in ordinary Calico Printing.

(*Appareil pour marquer les pièces de marchandises plées de marques de commerce et autres et pour imprimer et colorer telles marques et appareils par une seule opération, partie du dit appareil applicable aux rouleaux employés dans l'impression ordinaire de l'indienne.*)

George B. Dewhurst, Manchester, Eng., 30th March, 1889; 5 years.

*Claim.*—1st. The general arrangement and combination of parts, composing an apparatus for marking folded piece goods with trade marks and other marks and devices, and consisting primarily of the travelling apron A, printing roller B with colour trough and doctor, lower bed roller C, travelling apron F, auxiliary printing roller D, with colour transferring rollers and lower bed roller E, all arranged mounted and acting substantially as described and shown. 2nd. In apparatus for marking folded piece goods with trade marks and other marks and devices, a travelling apron or travelling aprons for advancing the goods towards, or carrying them between and from printing, and led rollers or other suitable marking or stamping apparatus, and for delivering the goods from the machine, substantially as described and shown. 3rd. In apparatus for marking folded piece goods with trade marks and other marks, and devices, the printing roller B, in combination with the colour trough and doctor, and working in unison with the lower presser collar C, substantially as described and shown. 4th. In apparatus of the indicated description, the auxiliary marking roller D for carrying interchangeable plates, blocks, stamps, or other means for printing interchangeable marks, numerals, or devices upon folded piece goods, in combination with the colour transferring rollers and the lower presser or led roller, the said roller D working in unison with the printing roller B, for the purpose and substantially as described and shown. 5th. The sectional printing roller for printing trade marks and other marks, and devices upon piece goods, or for printing on fabrics generally, the said roller being composed of a series of removable and interchangeable rings or segments, strung or placed upon a mandrel and bound in position by means of jamb nuts, substantially as described as shown.

### No. 31,012. Jack Screw.

(*Cric à vis.*)

Charles H. Hopkins, Lyndonville, Verm., U. S., 30th March, 1889; 5 years.

*Claim.*—In a jack screw, the combination, with the standard cap and base rest A, B, C, of a cylindrical nut E working on a screw F therein, the bevel gear K rigidly attached thereto, the bevel gears H and L on the stub shafts I and M at right angles to said gear K and engaging therewith, a ratchet wheel *e* that may be rigidly attached to said stub shafts I and M, an operating handle *b* that may be loosely mounted on said stub shafts, and a double pawl *g* pivoted between the lugs of said handle and forced into engagement with the ratchet wheel *e* by the action of the bevelled edge on the lower end of the bar *a* in forcing the spring *f* to one side or the other, as and for the purpose set forth.

### No. 31,013. Water Wheel.

(*Roue hydraulique.*)

Léandre M. Morin and Olivier N. Morin, St. Pie., Qué., 30th March, 1889; 5 years.

*Claim.*—The combination in a turbine water wheel, of one series of blades or buckets arranged to receive the water horizontally and inclined over and toward the water supply, with a second series of blades attached to their bottom edges and set a right angle with them, substantially as herein shown and described.

### No. 31,014. Boot and Shoe.

(*Chaussures.*)

William Howard, Ipswich, Eng., 30th March, 1889; 5 years.

*Claim.*—1st. The hereinbefore described process of making uppers by stretching, first, the lining, secondly, the stiffener, and, thirdly, the upper upon a last, substantially as described. 2nd. The combination of two soles and air-cushion, as set forth. 3rd. The combination of air cushion and foot ball boot, as set forth.

### No. 31,015. Card or Ticket Box.

(*Etui à cartes ou billets.*)

Joseph Stovel and John W. Corley, Toronto, Ont., 30th March, 1889; 5 years.

*Claim.*—1st. A box A, designed to contain a given number of tickets or cards, and having slots *a* and *d* made through its ends, a plate B having a flange *b* formed on one end of it, a button or projection C butting against the bottom of the box, and connected with the plate B by a suitable shank passing through the slot *a*, in combination with the top G, false top D and spring or springs E, substantially as and for the purpose specified. 2nd. A box A, designed to contain a given number of tickets or cards, and having slots *a* and *d* made through its ends, a plate B having a flange *b* formed on one end of it, a button or projection C butting against the bottom of the box and connected with the plate B by a suitable shank passing through the slot *a*, in combination with the false top D provided with a pin *g* to project through the slot *h*, the spring or springs E and the top G, substantially as and for the purpose specified.

### No. 31,016. Water Wheel.

(*Roue hydraulique.*)

Jackson F. Evans, Mansfield, Mass., U.S., 30th March, 1889; 5 years.

*Claim.*—1st. The combination of the shaft A, the horizontally revolving water wheel C mounted on said shaft, and having a central drum *p* fitting into said drum *f*, as shown, and connected by the pin *q* passing through said drums *f*, *p*, and each wheel having radially arranged buckets, and a circumferential rim which is equal in width to the thickness of the wheel, and a deflector E located between said water wheels and having a central aperture, a circumferential rim equal in width to the thickness of said deflector, and deflecting plates arranged radially and set at an angle with the buckets of said water wheels, substantially as specified. 2nd. In combination with a horizontally revolving water wheel and its case, a suction chamber located beneath the same, and concentric therewith, said chamber having an opening above to receive the water from the wheel, and its lower end opening into a basin of larger diameter, so as to form a water-trap therewith, substantially as described. 3rd. The combination of the basin G, the suction chamber F resting on blocks

*t* within said basin, and having a concentric flange or tubular position *r*, and the cover *D* having gates *a* and fitting together to form a case, substantially as shown. 4th. The improved water wheel herein described, consisting of the shaft *A*, the wheels *B*, *C*, having radial buckets *k*, rims *h*, drums *f*, *p* and pin *g*, the deflector *E* having radial plates *n*, rings *l*, *m* and bead *o*, the cover *D* having radial gates *a*, the suction chamber *F*, having the cross bar *r* and central tubular flange *r*, and the basin *G*, having blocks *i*, all arranged and operating substantially as and for the purpose specified.

**No. 31,017. Attachment for Grates.**

(Disposition aux grilles.)

John H. Wait, Portsmouth, Ohio, U.S., 30th March, 1889; 5 years.

*Claim.*—1st. An attachment for grates comprising a plate *D* having a series of grooves *E*, and a number of openings *G* and feet or prongs *H*, substantially as specified. 2nd. An attachment for grates consisting of a plate *D* having the lugs *K* and notches *M*, and the depending feet *N* provided with the prongs *O*, *O* at their lower ends, substantially as and for the purpose specified.

**No. 31,018. Fare Collecting Box.**

(Boîte pour les billets.)

Thomas B. Lee, Toronto, Ont., 30th March, 1889; 5 years.

*Claim.*—1st. In a fare register, the combination of the lever *F* and the plate *G*, with the marker *O* and the strip *N* on the rollers *L* and *M*, as hereinbefore described and for the purpose specified. 2nd. In a fare register, the combination of the lever *F* and the plate *G*, with the wheel *H*, and the bottom piece *C* and the rollers *L* and *M*, as hereinbefore described and for the purpose specified. 3rd. A fare collecting box and register having the lever *F*, in combination with the plate *G* and the marker *O* and the bell *R* and the wheel *H*, the bottom piece *C*, the rollers *L* and *M* and the paper strip *N*, as hereinbefore described and for the purpose specified.

**No. 31,019. Flushing Tank.** (Cuvette de latrine.)

John O. Parker, Toronto, Ont., 30th March, 1889; 5 years.

*Claim.*—The bucket *B* of a flushing-tank *A* having a pivot-pin *F* at each end, in combination with spindles *C* journaled in the ends of the tank *A*, and designed to form detachable supports for the pivoting *F* of the bucket *B*, substantially as and for the purpose specified.

**No. 31,020. Art of Manufacturing Brushes.**

(Mode de fabrication des brosses.)

James A. Read, Arlington, N.J., U.S., 30th March, 1889; 5 years.

*Claim.*—1st. A method of manufacturing brushes, consisting essentially in first forming the bristles or other fibres into the desired shape by bands or formers, secondly dipping the ends of the bristles or other fibres into dissolved rubber, and thirdly binding the formed bundle of fibres to a handle having a dovetailed end by a vulcanized rubber head, substantially as set forth. 2nd. A method of manufacturing brushes, consisting in shaping a bunch of fibres, dipping one end of the bunch into a solution of rubber, placing the adjacent ends of the handle and brush in a mould or die, enveloping them within dissolved rubber and subjecting the moulded head thus formed to a pressing and vulcanizing process, substantially as set forth.

**No. 31,021. Mail Bag.** (Valise à lettres.)

Allen B. Quinan, Baltimore, Md., U.S., 30th March, 1889; 5 years.

*Claim.*—The bag having the openings *E* on opposite sides adapted to register when the bag is closed, the flap *B* adapted to fold over the mouth of the bag and provided with the opening *F* to register with openings *E*, and provided further with the stiffening metallic plates *C* at its corners for the purpose set forth, the supplemental flap *G* secured to one side of the bag and adapted to fold over the flap *B*, the stiffening plates *H*, *I* secured to the inner side of said supplemental flap, said plate *H* having the staple *K* adapted to extend through the registering openings *E*, *F*, and said plate *I* having the opening *L* adapted to receive the projecting end of the staple, substantially as described.

**No. 32,022. Method of Constructing Breakwaters, Groins, Moles, Sea Walls, Foundations for Lighthouses, Coast Defences and other like works.** (Mode de construction des brise-lames, arêtes, môles, murs marins, fondations de phares, défenses côtières et autres travaux semblables.)

John Lewthwaite, Holborn, Eng., 30th March, 1889; 5 years.

*Claim.*—The method of constructing a breakwater, a pier, a groin, a mole, a sea wall, a foundation for a lighthouse, a defence wall for coasts, a roadway through and over a river or other necessary work, by combining rods *B*, *E*, plates *A*, *A*, bars *A* and tubes *D* or their equivalent, as described and as substantially as shown.

**No. 31,023. Marine Propulsion.**

(Propulsion marine.)

Walter M. Jackson, New York, N. Y., U. S. 30th March, 1889; 5 years.

*Claim.*—1st. The herein described method of marine propulsion, consisting in storing energy by means of pressure upon water within the vessel, then discharging said water in the form of a submerged jet (one or more) against the water of flotation at a pressure exceeding that of the boiler. 2nd. The combination of a suitable pump or

water forcing device *B* having water inlet pipe *H* and outlet or outlets, the latter being of smaller capacity than the inlet, and water storage tank or reservoir *C* adapted to contain air or other elastic medium, the said tank being located between the pump or water forcing device and the propelling or guiding outlet or outlets. 3rd. In a device for propelling or handling a floating vessel, the combination of a pump or water forcing device *B* having a water inlet *H*, an outlet pipe *D*, the submerged end of which is of smaller capacity than the inlet, a tank or receiver *C* adapted to contain air or other elastic medium, and located between the pump and discharge pipe, and valves for cutting off the water to and from the tank, substantially as set forth. 4th. In a device for propelling and handling a floating vessel, the combination, with a tank or reservoir *C* provided with an air cushion, a pump or other device *B* for forcing water into said tank or reservoir, and an inlet pipe *H* leading to said tank, of a water discharge pipe *D*, connected to said tank or reservoir at or near the bottom thereof, the submerged outlet of said discharge pipe being of smaller capacity than the inlet, substantially as set forth. 5th. In a device for guiding or steering floating vessels, the combination, with a pump *B* having an inlet *H*, of a storage tank *C* into which the water is forced under a column of air or other elastic medium, a pipe *D* leading from said storage tank, and a movable discharge pipe *M* communicating with said pipe and having a submerged discharge orifice of less capacity than the water inlet, substantially as set forth. 6th. In a device for propelling and guiding a floating vessel, the combination, with a pump or water forcing device *B* and inlet pipe *H* leading thereto, of a storage tank *C* into which the water is forced under a column of air, a discharge pipe *D*, a section of which is adapted to rotate and thus change the direction of the issuing jet of water, the submerged outlet of said rotating section being of smaller capacity than the water inlet, and valves for cutting off the water to and from the tank, substantially as set forth. 7th. The herein described apparatus for propelling or maneuvering a vessel consisting first in a suitable boiler, second in any suitable water forcing device *B*, third in the employment of any suitable means for taking the water in which the vessel is wholly or partially submerged through the vessel and into said water forcing device, and fourth in discharging said water by means of suitable conduits connecting with said water forcing device, said conduits having their discharge orifices opening into the water in which the vessel is wholly or partially submerged, at a greater pressure to the square inch than that exerted to the square inch by the boiler for the purpose of creating a rigid fulcrum by inertia in the water in which the vessel is wholly or partially submerged, establishing intense reactionary quality in the stiff and rigid conductor or thrust, and attaching a greater percentage of the energy of the boiler for propelling and maneuvering vessels than has heretofore been secured, substantially as specified. 8th. In an apparatus for propelling and maneuvering vessels, the combination, with a steam pump *B* in which the steam piston is of greater area than the pump piston, of a receiver *C* connected with the pump and adapted to contain air or other elastic material, and the pumped water stored therein under dynamic compression, and submerged outlets (one or more) in communication with said receiver, substantially as set forth. 9th. In an apparatus for propelling or maneuvering vessels, the combination with steam pistons, of different areas and pump pistons connected therewith, of a submerged water discharge orifice for the purpose of propelling or maneuvering a vessel, substantially as set forth. 10th. The combination with the differential pistons, of a compound engine and a pump piston of a less area than the high pressure piston of the engine, of a receiver *C* adapted to contain air or other elastic material in which the pumped water is stored under dynamic compression, and submerged water discharging orifices connected therewith, the latter being of less area than the pump piston to create and maintain a greater pressure to the square inch at the submerged outlets than the initial boiler pressure for the purpose of propelling or maneuvering a vessel, substantially as set forth. 11th. In an apparatus for propelling or maneuvering a vessel, the combination, with a water forcing device *B* and a submerged discharge orifice connected therewith, of a water supply tank *F* having submerged inlet ports *H*, and a pipe connecting the supply tank and water forcing device, substantially as set forth. 12th. In apparatus for propelling or maneuvering a vessel, the combination, with a water forcing device *B* and a submerged discharge, of a water supply tank *F* having submerged inlet ports and an air and water separating chamber, and a suction pipe leading from the tank to the water forcing device, substantially as set forth. 13th. In apparatus for propelling or maneuvering a vessel, the combination, with a water forcing device *B*, a submerged discharge and a pipe connecting the water forcing device, and a submerged discharge of a chambered water supply tank *F* having submerged inlet ports, valves for controlling the ports, elevated air receiving and discharge stand pipe *G*, and a suction pipe leading from one chamber of the tank to the water forcing device, substantially as set forth. 14th. In apparatus for propelling or maneuvering a vessel, the combination, with a water receiver *C* containing air or other elastic medium, and a forcing device *B* for supplying said receiver with water, of a water supply tank *F*, the latter having submerged inlet ports, a pipe connecting the supply tank and water forcing device, and submerged water discharge pipe or pipes leading from the receiver, substantially as set forth. 15th. In apparatus for propelling or maneuvering a vessel, the combination, with a water receiver *C* containing air or other elastic medium, and a forcing device *B* for supplying said receiver, of a water supply tank *F* having submerged inlet ports and an air receiving chamber, a pipe connecting the supply tank and water forcing device, and submerged water discharge orifice or orifices leading from the water receiver, substantially as set forth. 16th. In apparatus for propelling or maneuvering a vessel, the combination, with a water receiver *C* containing air or other elastic medium, and a forcing device *B* for supplying water to said receiver, of a water supply tank *F* having submerged inlet ports, a pipe connecting the supply tank and water forcing device, valves for controlling the ports in said submerged inlet ports, air receiving stand pipes *G* leading upwardly from the water supply tank, covers for said stand and a submerged water discharge orifice or orifices leading from the water receiver, substantially as set forth. 17th. In apparatus for propelling or maneuvering a vessel, the combination, with a water receiver *C* containing air or other elastic medium, and a forcing device *B* for

supplying said receiver, of a water supply tank F having submerged inlet ports, valves for controlling the ports, and a partition extending transversely of the tank, the ends of the pipe within the tank being below the top of the partition on the opposite side from the inlet ports, and submerged water discharge orifice or orifices leading from the receiver, substantially as set forth. 18th. In apparatus for propelling and maneuvering a vessel, the combination, with a water and air receiving tank F having water inlet ports and air chamber, of a water forcing device B having a submerged outlet, and a pipe connecting the water forcing device and tank, substantially as set forth. 19th. In a vessel, a water and air receiving tank F having inlet ports, valves for controlling the ports, air receiving stand pipes G extending above the tank and in communication therewith, and covers for the stand pipes, substantially as set forth. 20th. In apparatus for propelling or maneuvering a vessel, the combination, with a water forcing device B, a tank F having submerged inlet ports, and a pipe connecting the tank and water forcing device, of a discharge pipe leading from the water forcing device, and means for controlling the direction of the water discharge, substantially as set forth. 21st. In apparatus for propelling or maneuvering a vessel, the combination, with a forcing device B, a water receiver C partly filled with air or other elastic medium, and a tank F having submerged inlet ports, of a submerged fixed discharge orifice, and an adjustable plug M<sub>1</sub> adapted to enter the discharge orifice, and open or close or change the direction of the ejected water jet, substantially as set forth. 22nd. A propelling and maneuvering device consisting of a pump B, a discharge pipe D<sub>1</sub> leading therefrom, and a movable discharge plug M<sub>1</sub> located at the end of the

discharge pipe, substantially as set forth. 23. A propelling and maneuvering device consisting essentially of a fixed casing M having a water inlet and outlet located in or approximately the same plane, a plug M<sub>1</sub> having an orifice therein adapted to enter said casing, and a lock for locking the plug securely in the casing, substantially as set forth. 24th. A propelling and maneuvering device consisting essentially of a fixed casing M having water inlet and outlet for the free passage of water therein, a stem O having a perforated plug M<sub>1</sub> on its lower end adapted to enter and turn in the fixed casing, said stem having a collar thereon the movable caps at its uppermost end for locking the collar rigidly in place, substantially as set forth. 25th. In a vessel, the combination, with a water forcing device B, of submerged discharge outlets for elevating the vessel to the surface of the water, and pipes for connecting the outlets with the water forcing device, substantially as set forth. 26th. In a vessel, the combination, with a water forcing device B, of discharge outlets at or near both ends of the boat which direct the discharge water upwardly, and pipes connecting the outlets with the water forcing device, substantially as set forth. 27th. In a vessel, the combination, with a water forcing device and submerged outlets at the stern for propelling the vessel, of the double discharge outlets for directing the discharge water up or down and pipes connecting the water forcing device with the several outlets, substantially as set forth. 28th. In a vessel, the combination, of a water forcing device B with submerged outlets located at the sides and end of the vessel, so that the vessel may be guided, propelled, backed, revolved, submerged, raised up or down, or guided, propelled and maneuvered beneath the water, substantially as set forth.

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

1359. THE AMERICAN PAPER BARREL CO. (assignee) 2nd 5 years of No. 18,800, from the sixth day of March, 1889. Improvements in the Manufacture of Barrel Bodies and the like from Pulp, 2nd March, 1889.
1360. THE AMERICAN PAPER BARREL CO. (assignee), 2nd 5 years of No. 18,813, from the seventh day of March, 1889. Improvements pertaining to the Manufacture of Articles from Paper Pulp, 2nd March, 1889.
1361. W. D. GRAY, 2nd 5 years of No. 18,826, from the eighth day of March, 1889. Improvements in Flour Dressing Machines, 4th March, 1889.
1362. B. HARRASS, 2nd 5 years of No. 18,881, from the fourteenth day of March, 1889. Improved Manufacture of day Ligneous Compound and of Articles Moulded therefrom in Imitation of Wood, 5th of March, 1889.
1363. L. J. HÉRARD, 3rd 5 years of No. 9,729, from the tenth day of March, 1889. Improvements on Machines for Making Stove Pipe Elbows, 5th March, 1889.
1364. THE REND ROCK POWDER CO. (assignee), 2nd 5 years of No. 18,810, from the seventh day of March, 1889. Improvements in Explosive Compounds, 7th March, 1889.
1365. THE REND ROCK POWDER CO. (assignee), 2nd 5 years of No. 18,811, from the seventh day of March, 1889. Improvements on Explosive Compounds, 7th March, 1889.
1366. A. HARRIS, SON & CO. (assignee), 2nd 5 years of No. 18,971, from the twenty-seventh day of March, 1889. Improvements in Harvester Binders, 7th March, 1889.
1367. J. M. PARKER, W. BANCROFT and E. E. RAND, 3rd 5 years of No. 9,772, from the twenty-sixth day of March, 1889. Improvements on Gauge Lathes, 7th March, 1889.
1368. R. DICK, 2nd 5 years of No. 18,838, from the tenth day of March, 1889. Improvements on Mailing Machines, 7th March, 1889.
1369. THE NIXON BROTHERS MANUFACTURING CO. (assignee) 3rd 5 years of No. 9,793, from the twenty-ninth day of March, 1889. Improvements on Seed Drill Teeth for Distributing the Seed more Evenly in a Broader Furrow and Covering it more Perfectly, 7th March, 1889.
1370. L. M. BATTY, 2nd 5 years of No. 18,962, from the twenty-fifth day of March, 1889. Improvements in Fodder Cutters, 8th March, 1889.
1371. R. W. LESLEY, 2nd 5 years of No. 19,324, from the twelfth day of May, 1889. Improvement in the Manufacture of Portland Cement, 9th March, 1889.
1372. R. W. LESLEY, 2nd 5 years of No. 19,325, from the twelfth day of May, 1889. Improvement in the Art of Manufacturing Portland Cement, 9th March, 1889.
1373. W. R. WHITE, 2nd 5 years of No. 18,842, from the tenth day of March, 1889. Improvements on Sliding Gates, 9th March, 1889.
1374. W. D. SMITH, 2nd 5 years of No. 18,862, from the thirteenth day of March, 1889. Improvements on Rotary Ventilating Fans, 12th March, 1889.
1375. F. GODIN, 3rd 5 years of No. 9,761, from the thirteenth day of March, 1889. Improvements in Washing Machines, 12th March, 1889.
1376. THE OFFICE SPECIALTY MANUFACTURING CO., 2nd 5 years of No. 19,006, from the 1st day of April, 1889. Improvement on Temporary Binders for Papers, etc., 14th March, 1889.
1377. J. LOOMIS, 2nd 5 years of No. 18,888, from the fifteenth day of March, 1889. Solution for Seasoning and Preserving Wood, 14th March, 1889.
1378. H. C. GOODELL, 2nd 5 years of No. 18,919, from the twentieth day of March, 1889. Improvements on Non-Conducting Coverings for Boilers and Pipes, 18th March, 1889.
1379. E. R. STILWELL, 3rd 5 years of No. 9,815, from the fourth day of April, 1889. Improvements in Turbine Water Wheels, 19th March, 1889.
1380. R. NEWTON, 2nd 5 years of No. 19,410, from the twenty-third day of May, 1889. Improvements in Valves for Steam Traps, 20th March, 1889.
1381. THE CHILLED CAR WHEEL GRINDING CO. (assignee), 3rd 5 years of No. 10,094, from the thirteenth day of June, 1889. Improvements on Machines for Grinding Car Wheels, 22nd March, 1889.
1382. W. H. STOREY, (re-issue), 3rd 5 years of No. 11,194, from the twenty-sixth day of March, 1889. Improvements in Glove Fasteners, 22nd March, 1889.
1383. M. R. BROOKS, 2nd 5 years of No. 18,948, from the twenty-fourth day of March, 1889. Improvements in Stanchions for Holding Cattle, 23rd March, 1889.
1384. J. BURNS et al. 2nd 5 years of No. 19,011, from the second day of April, 1889. Improvements in Machines for making Cigarettes, 26th March, 1889.
1385. J. C. DOBIE, 2nd 5 years of No. 18,972, from the twenty-seventh day of March, 1889. Improvements in machines for erecting Wire Fences, 26th March, 1889.
1386. A. HARRIS, SON & CO. (assignees), 2nd 5 years of No. 19,090, from the seventh day of April, 1889. Improvements in Harvesters, 27th March, 1889.
1387. J. W. LOVIBOND, 2nd and 3rd 5 years of No. 30,138, from the seventh day of November, 1893. Improvements in Apparatus for Standardising and Measuring Intensity of Color, 27th March, 1889.
1388. SHEARER, PATRICK & WILSON (assignees), 2nd 5 years of No. 19,056, from the fourth day of April, 1889. Improvements in Machines for Pressing Cloth, 27th March, 1889.
1389. A. HOPPINS, 2nd 5 years of No. 21,510, from the twenty-second day of April, 1890. Improvements in Machines for Grooving the Surface of Boards, 29th March, 1889.
1390. J. E. GILL, 2nd 5 years of No. 19,103, from the 10th day of April, 1889. Improvements on Lubricating Oils, 30th March, 1889.

## MARCH LIST OF TRADE MARKS.

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

3378. HENRY L. PIERCE, of Boston, State of Massachusetts, U.S.A., Chocolate,  
3379. Chocolate,  
3380. Cocoa,  
3381. Chocolate,  
3382. Broma,  
3383. Chocolate,  
3384. Chocolate,  
3385. Cocoa,  
3386. Chocolate, Broma and Cocoa,  
3387. Chocolate,  
3388. Chocolate,  
3389. Broma,  
3390. Cocoa,  
3391. Chocolate,  
3392. Cocoa,  
3393. Chocolate, Cocoa and Broma,  
3394. Cocoa,  
3395. Cocoa,  
7th March, 1889.
3396. THE J. A. POZZONI MEDICATED COMPLEXION POWDER COMPANY, of St. Louis, State of Missouri, U.S.A., Complexion Powder, 8th March, 1889.
3397. MILTON HARVEY BRISSETTE, of Montreal, Que. Dyes, 8th March, 1889.
3398. ALONZO ELLISON, ALVA BURBON REMEY and JOHN ZELL LONG, of St. Thomas, Ont. Electric Batteries and Electric Appliances, 9th March, 1889.
3399. EDWARD DUDLEY GOUGH, of Toronto, Ont. Clothing, 9th March, 1889.
3400. CHARLES ALBERT SMITH, of Montreal, Que. A Proprietary Medicine, 12th March, 1889.
3401. GEORGE STEWART and ROBERT MOODIE, both of Ottawa, Ont., as also DAVID MOODIE, of Nepean Township, Ont. Medicinal Compound and Preparations., 13th March, 1889.
3402. G. E. DESBARATS & SON, of Montreal, Que. An Illustrated Paper, 14th March, 1889.
3403. JOHN FAUVEL & COMPANY, of Point St. Peter, Co. of Gaspé, Que. Dry Codfish, 15th March, 1889.
3404. T. LAWRY & SON, of Hamilton, Ont. Hams, Bacon, Lard and Pork, 18th March, 1889.
3405. T. LAWRY & SON, of Hamilton, Ont. Hams, Bacon, Lard and Pork, 18th March, 1889.
3406. JOHN LAWSON JOHNSTON, of 30 Farrington Street, London, England. Extract of Beef or any other Extract of Meat or Concentrated Essence of Meat, 18th March, 1889.
3407. SARAH AGNES PEARSON, of Hamilton, Ont. A farinaceous food for Infants and Invalids, 18th March, 1889.
3408. CHIERA & VIER, of London, Ont. All kinds of Laundry work, 19th March, 1889.
3409. THOMAS DIPPY MILLAR, of Ingersoll, Co. of Oxford, Ont. A new and improved composition of manufactured Cheese, 22nd March, 1889.
3410. D. RITCHIE & CO., of Montreal, Que. Cigarettes, 23rd March, 1889.
3411. DRABEK & CO., of Toronto, Ont. Cigars, 23rd March, 1889.
3412. MOREWOOD & COMPANY'S SUCCESSORS (Limited), of Birmingham, England. Galvanized Iron, 23rd March, 1889.
3413. TAR-OLD COMPANY, of Chicago, State of Illinois, U.S.A. An Ointment of the class Unguents, 26th March, 1889.
3414. BULLOCH, LADE & COMPANY, of Glasgow, County of Lanark, North Britain. Whiskey, 28th March, 1889.
3415. LEVER BROTHERS, of Warrington, County of Lancaster, England. Soaps, detergents, starch, blue, and other laundry goods, also fancy soaps, perfumery and other toilet preparations, 28th March, 1889.
3416. BELDING, PAUL & CO., of Montreal, Que. Thread, 30th March, 1889.

## COPYRIGHTS.

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4731. THE PRACTICAL SPELLER. Connor O'Dea, Toronto, Ont., 4th March, 1889.
- 4731½. THE MERCANTILE TEST & LEGAL RECORD. Vol. XIX. No. 9, February 23, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 4th March, 1889.
4732. McKILLOP'S COMMERCIAL AND LEGAL RECORD, February 23, 1889, (periodical). James Jack, St. John, N.B., 4th March, 1889.
4733. LONG ODDS. By Hawley Smart (book). The National Publishing Co., Toronto, Ont., 7th March, 1889.
4734. THE MATCH OF THE SEASON. By Mrs. Alexander Fraser (book). The National Publishing Co., Toronto, Ont., 7th March, 1889.
4735. NORMAN'S TOWER. Song. Words by F. E. Weatherly. Music by F. N. Loehr. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 8th March, 1889.
4736. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX. No. 10, March 7, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 8th March, 1889.
4737. BROWNLEE'S INDEXED RAILWAY AND GUIDE MAP OF MANITOBA. James Harrison Brownlee, Brandon, Man., 8th March, 1889.
4738. THE SNOW SONG. Words by Mrs. R. N. Turner. Music by "Canadia." The Gebhardt-Berthiaume Lithographing and Printing Company, Montreal, Que., on behalf of the unnamed author "Canadia," 8th March, 1889.
4739. RIS ET CROQUIS (livre). Charles Marie Ducharme, Montréal, Que., 11 mars, 1889.
4740. McKILLOP'S COMMERCIAL AND LEGAL RECORD, March 7, 1889 (periodical). James Jack, St. John, N.B., 11th March, 1889.
4741. COUPE MODERNE DES VETEMENTS. Par Mulcair Bros. (book). Mulcair Bros., Montreal, Que., 11th March, 1889.
4742. SIX O'CLOCK IN THE BAY. Song. Words by F. E. Weatherly. Music by Stephen Adams. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 12th March, 1889.
4743. THE CANADIAN LAW TIMES. Edited by E. Douglas Armour, of Osgoode Hall, Barrister at Law. Vol. VIII., 1888. Carswell & Co., Toronto, Ont., 13th March, 1889.
4744. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX., No. 11, March 14, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 15th March, 1889.
4745. ACTION DES BOISSONS ENIVRANTES SUR L'ORGANISME HUMAIN. Par T. A. Talbot, S. A. Talbot, Hébertville, Comté de Chicoutimi, Que., 1889.
4746. FORGET-ME-NOT. Song. Words by H. L. D'Arcy Jaxone. Music by Theo. Bonheur. I. Suckling & Sons, Toronto, Ont., 15th March, 1889.
4747. ONLY TO SAY GOOD-BYE. Song. Words by Walter Travers. Music by Oscar Verne. I. Suckling & Sons, Toronto, Ont., 15th March, 1889.
4748. THE 'VARSITY VOCAL LANCERS. On Melodies selected from the University of Toronto Song book. By G. H. Fairclough. I. Suckling & Sons, Toronto, Ont., 15th March, 1889.
4749. THE OLD MANOR HALL. Ballad. Words by F. E. Weatherly. Music by Hope Temple. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 16th March, 1889.
4750. TURN, TIME, TURN! Song. Words by Arthur Chapman. Music by L. Denza. The Anglo-Canadian Music Publishers' Association (L'd.), London, Eng., 16th March, 1889.
4751. A GOLDEN ARGOSY. Song. Words by F. E. Weatherly. Music by Hope Temple. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 16th March, 1889.
4752. ROSE WOOD, or THE OCTOROON'S BRIDE. A novel. By Jean Fairweather. J. Theo. Robinson, Montreal, Que., 16th March, 1889.
4753. DOLLY. A Sketch. By Justin Huntly McCarthy, M. P. The National Publishing Co., Toronto, Ont., 16th March, 1889.
4754. ST. CUTHBERT'S TOWER. By Florence Warden (book). The National Publishing Co., Toronto, Ont., 16th March, 1889.
4755. THE ENGLISHMAN OF THE RUE CAIN. By H. F. Wood (book). The National Publishing Co., Toronto, Ont., 16th March, 1889.
4756. IN EXCHANGE FOR A SOUL. A novel. By Mary Linskill. The National Publishing Co., Toronto, Ont., 16th March, 1889.
4757. PLANS ET MOYENS POUR ENRAYER L'INONDATION DE LA VILLE DE MONTREAL ET DES ENDROITS BAS DU FLUVE ST. LAURANT. Stanislas Laporte, Ptre. Curé du Lac Ste Marie, Comté d'Ottawa, Que., 16 mars, 1889.

4758. SALESMAN'S EXPENSE BOOK. Alexander Gardner, London, Ont., 19th March, 1889.
4759. CHARLIE OGILBIE. By Leslie Vaughan (book). Wm. Bryce, Toronto, Ont., 19th March, 1889.
4760. FIRST YEAR AT SCHOOL, or Blending of Kindergarten with Public School Work. A Manual for Primary Teachers. By S. B. Sinclair, Ph. B. Warwick & Sons, Toronto, Ont., 20th March, 1889.
4761. IVY WALTZ. By Fabian Rose. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 21st March, 1889.
4762. THE DYING CHORISTER. By E. P. Crawford. (Musical composition). A. & S. Nordheimer, Toronto, Ont., 21st March, 1889.
4763. JOY TO THE WORLD. Sacred Solo. Composed by Byron C. Tapley, B. C. Tapley, St. John, N.B., 21st March, 1889.
4764. McKILLOP'S COMMERCIAL AND LEGAL RECORD, March 14, 1889 (periodical). James Jack, St. John, N.B., 21st March, 1889.
4765. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX. No. 12, March 21, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 22nd March, 1889.
4766. HE WILL FORGIVE. Sacred Song. Words and Music by Frank L. Moir. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 23rd March, 1889.
- |       |                        |             |         |                            |
|-------|------------------------|-------------|---------|----------------------------|
| 4767. |                        | No.         | 1.      | March.                     |
| 4768. |                        | "           | 2.      | Morning Song.              |
| 4769. |                        | "           | 3.      | Impatience.                |
| 4770. |                        | "           | 4.      | The Butterfly.             |
| 4771. |                        | Nos. 5 & 6. |         | Courage and Country Dance. |
| 4772. |                        | "           | 7 & 8.  | Hymn and Complaint.        |
| 4773. |                        | "           | 9 & 10. | Request and Slumber Song.  |
| 4774. | In the Spring Time,    | No.         | 11.     | Hunting Song.              |
| 4775. | Op. 155.               | "           | 12.     | Valse.                     |
| 4776. | By Cornelius Gurliitt. | "           | 13.     | Scherzo.                   |
| 4777. |                        | "           | 14.     | Serenade.                  |
| 4778. |                        | "           | 15.     | Song of the Fatherland.    |
| 4779. |                        | "           | 16.     | Impromptu.                 |
| 4780. |                        | "           | 17.     | The Wish.                  |
| 4781. |                        | "           | 18.     | Romance.                   |
| 4782. |                        | "           | 19.     | New Life.                  |
| 4783. |                        | "           | 20.     | Tarantelle,                |
- I. Suckling & Sons, Toronto, Ont., 23rd March, 1889.
4784. SAVIOUR EVER DEAR. Sacred Song. Words by Horatius Bonar, D.D. Music by F. d'Auria. I. Suckling & Sons, Toronto, Ont., 23rd March, 1889.
4785. THE MORNING STAR. Sacred Song. Words by Horatius Bonar, D.D. Music by F. d'Auria. I. Suckling & Sons, Toronto, Ont., 23rd March, 1889.
4786. CASTILIAN DAYS. Bolero. Words by Mrs. J. W. F. Harrison. Music by F. d'Auria. I. Suckling & Sons, Toronto, Ont., 23rd March, 1889.
4787. TELL ME, STAR. Reverie. Words by W. C. Music by F. d'Auria. I. Suckling & Sons, Toronto, Ont., 23rd March, 1889.
4788. WHY? English Arrangement by Mrs. J. W. F. Harrison. Music by F. d'Auria. I. Suckling & Sons, Toronto, Ont., 23rd March, 1889.
4789. LA ZINGARA. Spanish Gipsy Song. Words by Pender Brooke. Music by P. Bucalossi. Chappell & Co., London, England, 23rd March, 1889.
4790. BORRETT'S TABLE AND REFERENCE BOOK. Charles William Borrett, Toronto, Ont., 23rd March, 1889.
4791. McKILLOP'S COMMERCIAL AND LEGAL RECORD, March 21, 1889 (periodical). James Jack, St. John, N.B., 26th March, 1889.
4792. APPLIED PSYCHOLOGY. By J. A. McLellan, M.A., LL.D. The Copp, Clark Co. (L'd.), Toronto, Ont., 26th March, 1889.
4793. THE CHRISTIAN'S SECRET OF A HAPPY LIFE. By H. W. Smith, with introductions by John Potts, D.D., and H. M. Parsons, D.D. Archer Green Watson, Manager Toronto Willard Tract Depository (L'd.) Toronto, Ont., 26th March, 1889.
4794. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX. No. 13, March 28th, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 29th March, 1889.
4795. WINTER PLEASURES. Polka de Salon. By Charles Bohner. I. Suckling & Sons, Toronto, Ont., 29th March, 1889.
4796. CHANSON CANADIENNE (Sounds from Home). Air and variations. By E. Malory. I. Suckling & Sons, Toronto, Ont., 29th March, 1889.
4797. THE GRENADIERS. Polka-March. By Theo. Bonheur. I. Suckling & Sons, Toronto, Ont., 29th March, 1889.

4798.		No. 1.	Air Allemand.
4799.		" 2.	The Shepherd Boy.
4800.		" 3.	Cherry Ripe.
4801.		" 4.	Bohemian Melody.
4802.		" 5.	Nearer my God to Thee.
4803.	MIRTH AND MUSIC.	" 6.	Hungarian March.
4804.	Arranged by	" 7.	Old Folks at Home.
4805.	Gustave Roder.	" 8.	Joyful Peasant.
4806.		" 9.	Mozart's Minuet.
4807.		" 10.	The British Grenadiers.
4808.		" 11.	Il Trovatore.
4809.		" 12.	Martha.

I. Suckling & Sons, 29th March, 1889.

- 4810. HALIBURTON: THE MAN AND THE WRITER. By F. Blake Crofton, B.A. F. Blake Crofton, Halifax, N. S., 29th March, 1889.
- 4811. SOWING AND REAPING, or Records of the Ellisson Family. By Mrs. J. C. Yale. Introduction by W. H. Withrow, D.D., F.R.S.C. Pamela Vining Yule, London, Ont., 29th March, 1889.
- 4812. CODE OF PUBLIC INSTRUCTION OF THE PROVINCE OF QUEBEC. Compiled by Paul de Cazes. Paul de Cazes, Quebec, Que., 29 mars, 1889.
- 4813. THE CURFEW BELL. Contralto Song. Words by Longfellow. Music by C. A. E. Harriss. I Suckling & Sons, Toronto, Ont., 30th March, 1889.
- 4814. THE LATE MRS. NULL. By Frank R. Stockton (book). The Rose Publishing Co., Toronto, Ont., 30th March, 1889.





THE

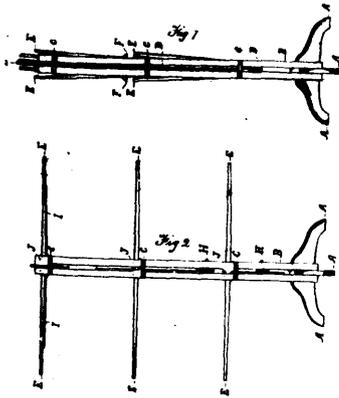
# CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

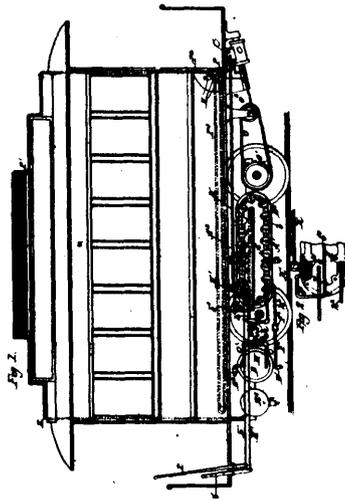
Vol. XVII.

MARCH, 1889.

No. 3.



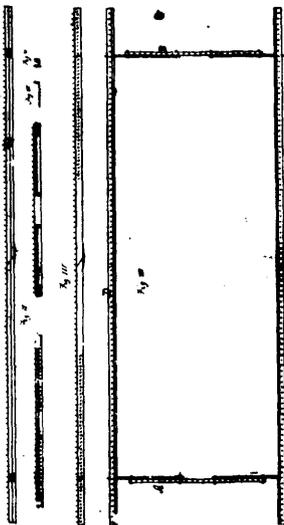
30871 Emery's Clothes Horse.



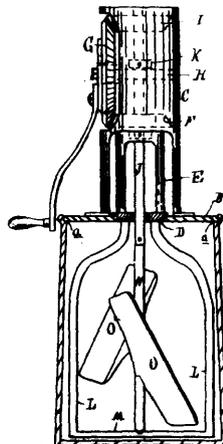
30872 Prall's Motor for Cars, et..



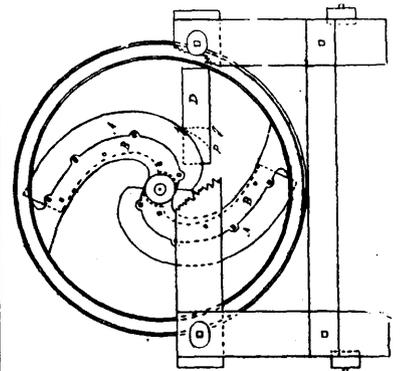
30873 Jacobs' Cork Extractor.



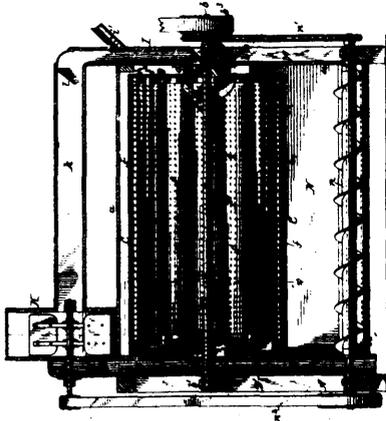
30874 Smith's Curtain Stretcher.



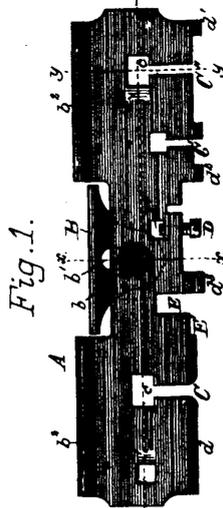
30875 Ingells' Churn.



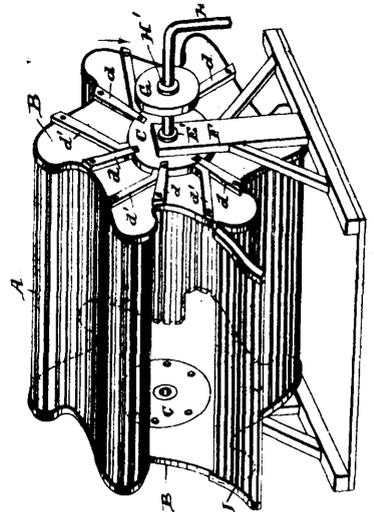
30876 Pettet's Straw Cutter.



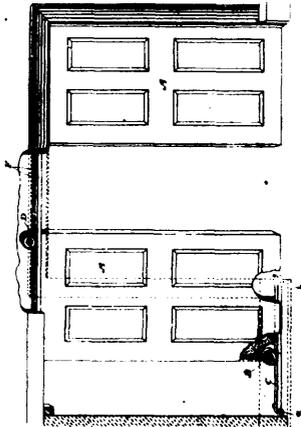
30877 Heine's Grain Scourer.



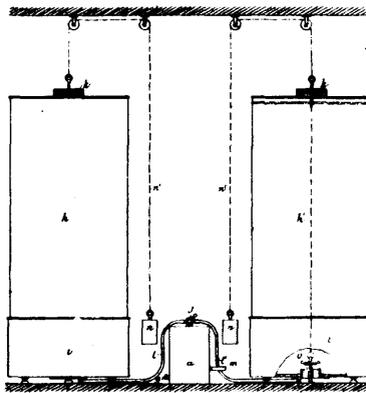
30878 Harsen's Device for setting Saws.



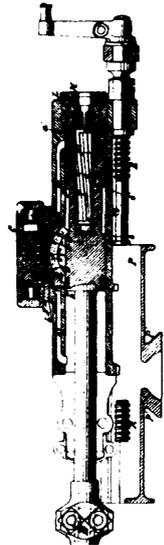
30879 White's Carpet Cleaner.



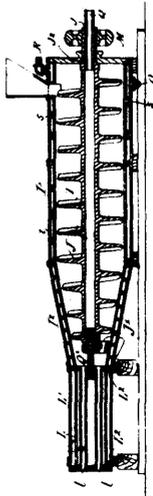
30880 Clarke's Sliding Door Support.



30882 Hersog's Apparatus for Carburett'ng Air, etc.



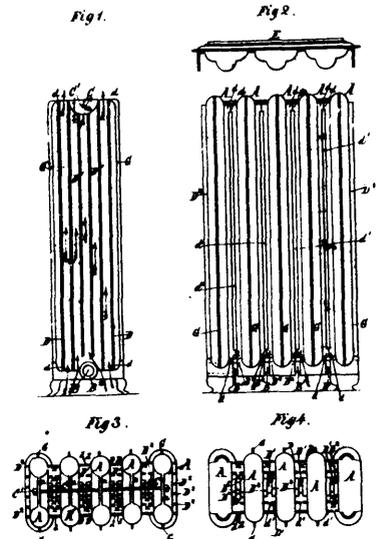
30883 Sergeant's Rock Drill.



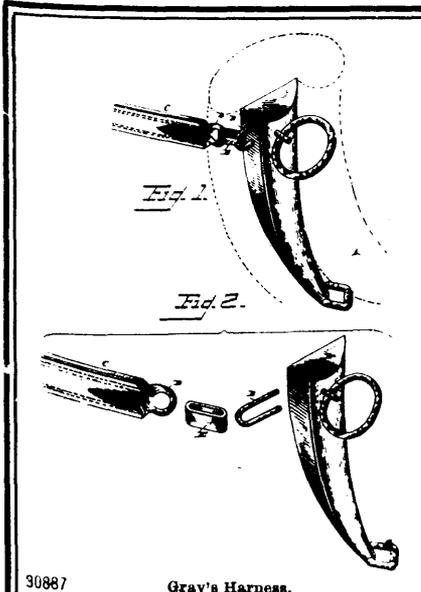
30884 Dickson's Apparatus for the Manufacture of Peat Fuel.



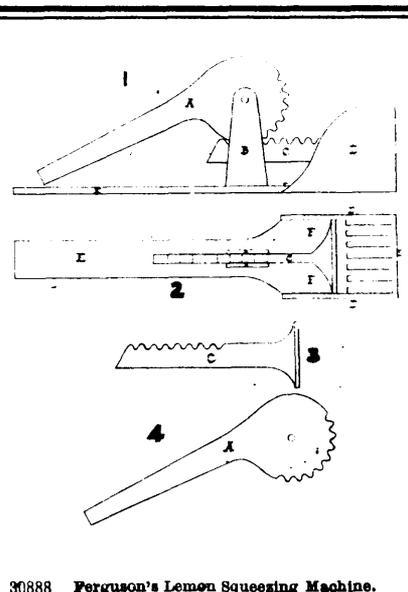
30885 Mandt's Whiffletree Hook.



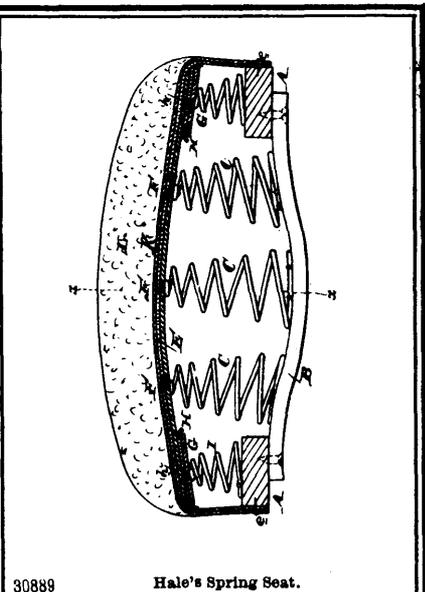
30886 Joy's Steam Radiator.



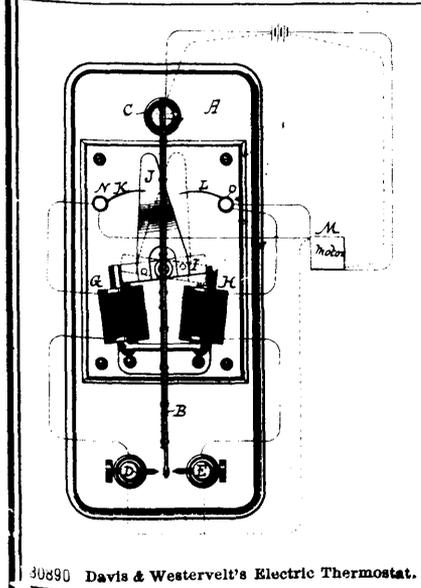
30887 Gray's Harness.



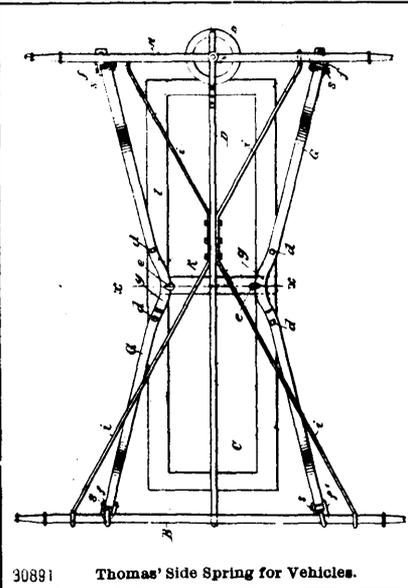
30888 Ferguson's Lemon Squeezing Machine.



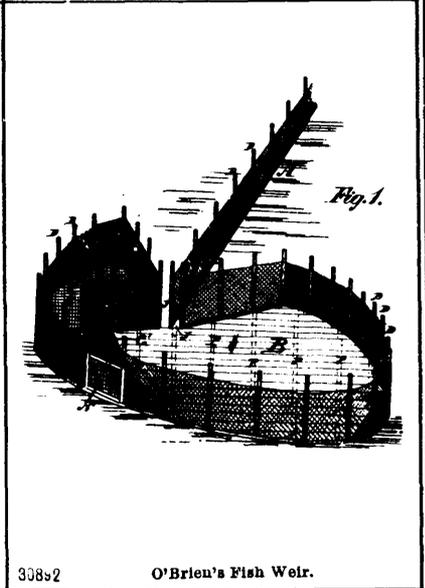
30889 Hale's Spring Seat.



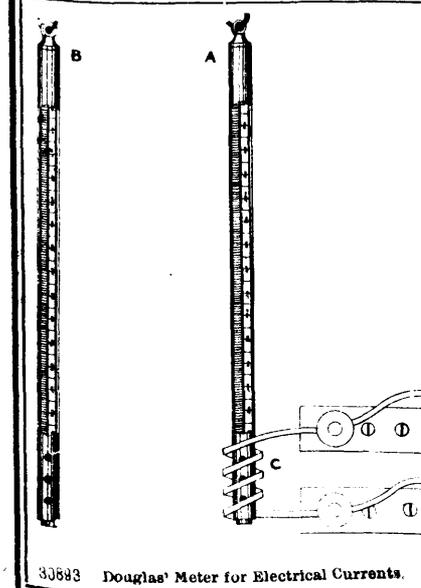
30890 Davis & Westervelt's Electric Thermostat.



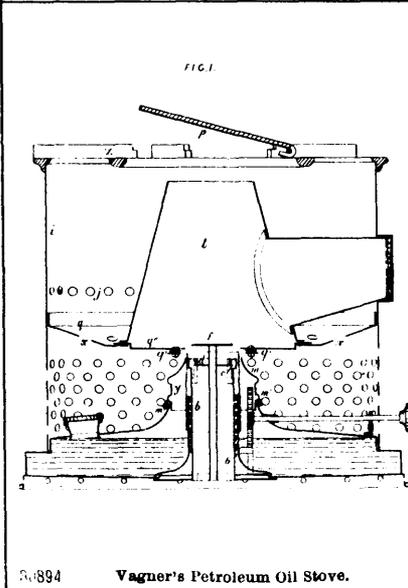
30891 Thomas' Side Spring for Vehicles.



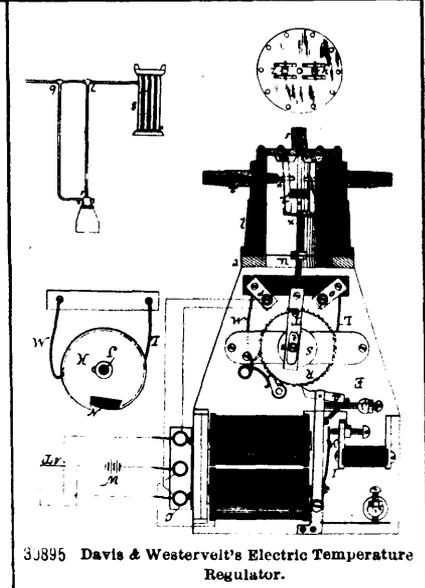
30892 O'Brien's Fish Weir.



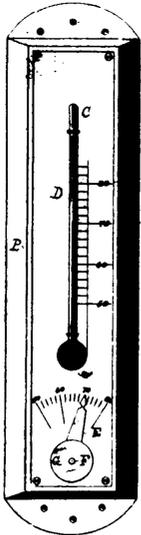
30893 Douglas' Meter for Electrical Currents.



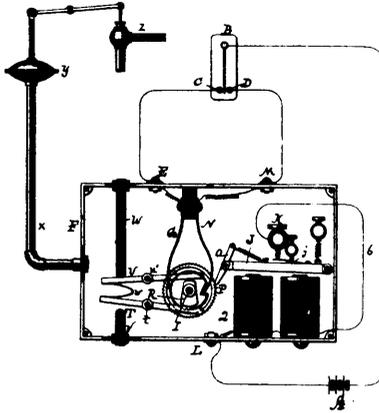
30894 Vagner's Petroleum Oil Stove.



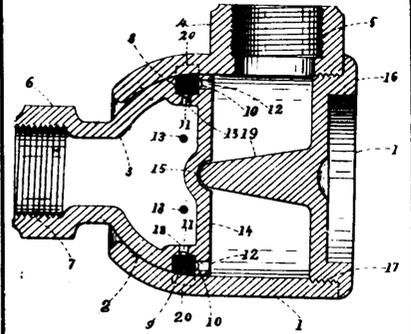
30895 Davis & Westervelt's Electric Temperature Regulator.



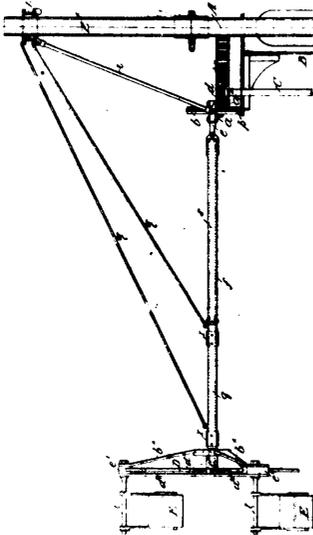
30897 Davis & Westervelt's Adjustable Thermostat.



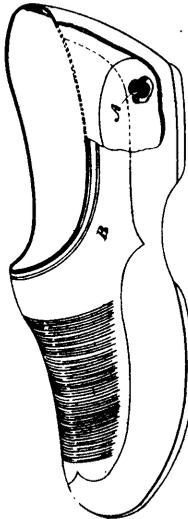
30898 Davis & Westervelt's Electric Valve Controller.



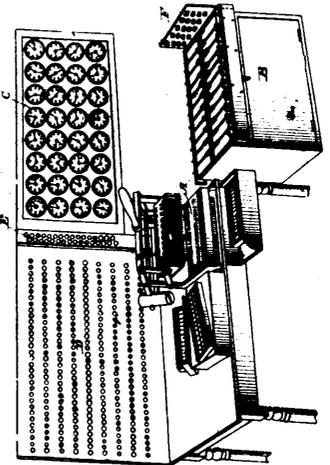
30899 Haggett's Universal Metal Joint.



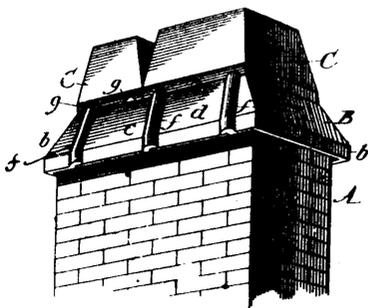
30900 Allechin's Merry-go-round, etc.



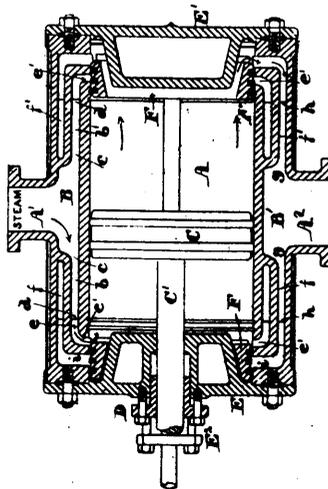
30901 Smith & Henderson's Rubber Shoe.



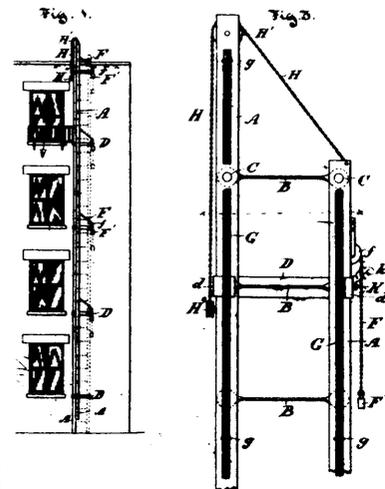
30902 Hollerith's Apparatus for Compiling Statistics.



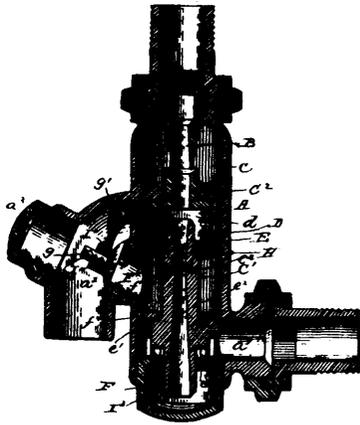
30903 Hansen's Chimney Cap.



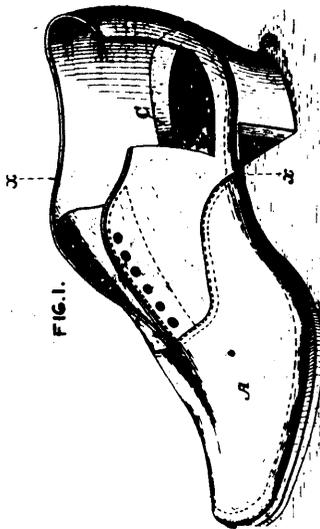
30904 Child's Steam Engine.



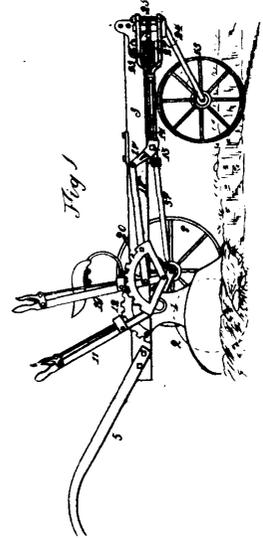
30905 Allen's Fire Escape.



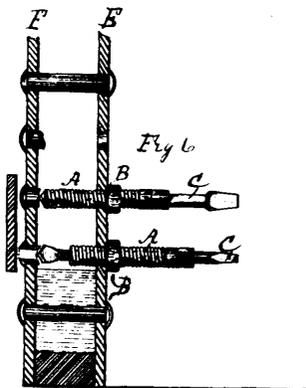
30906 Sweeney's Steam Injector.



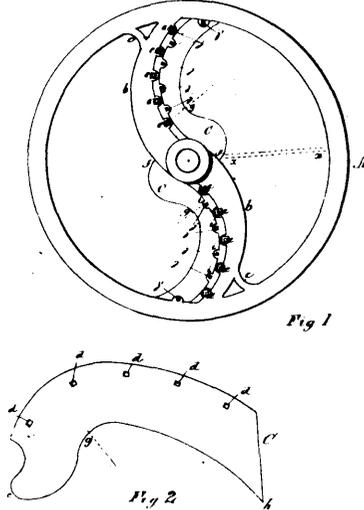
30907 Whitney's Boot.



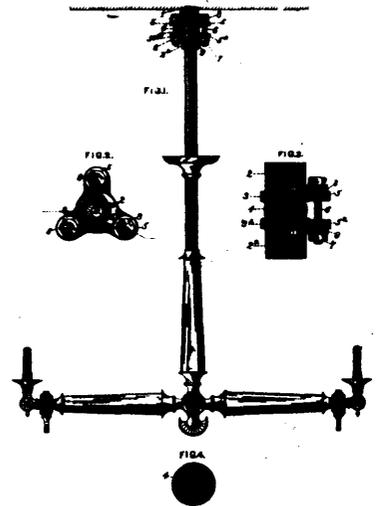
30908 St. John's Plough.



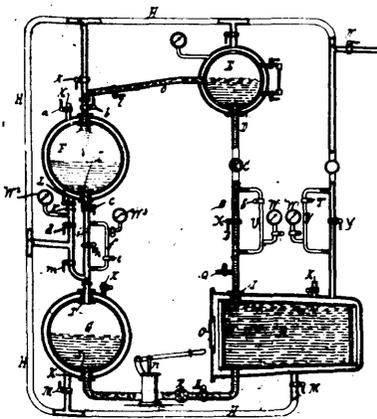
30909 Connelly's Tubular Guide Drill.



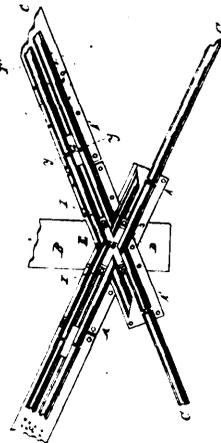
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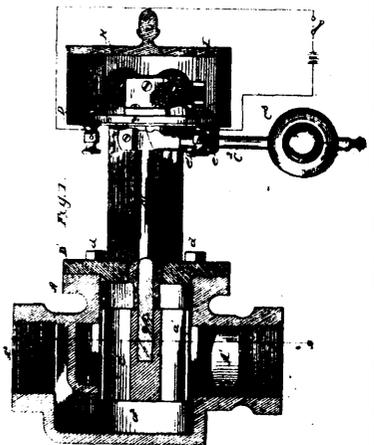
30911 Herman's Coupling for Light Fixtures.



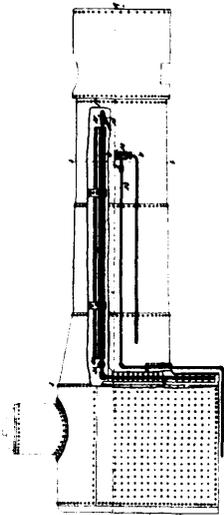
30912 Rehlen's Treating Beverages.



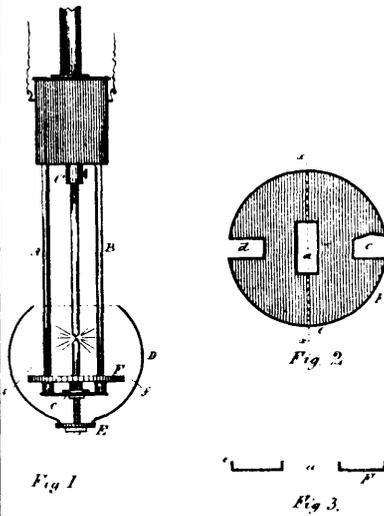
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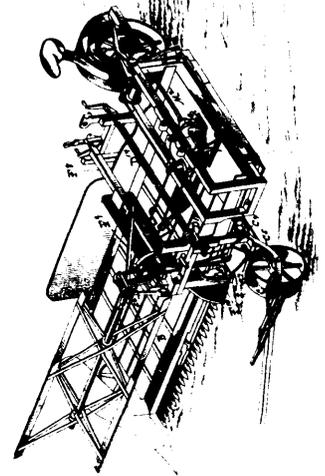
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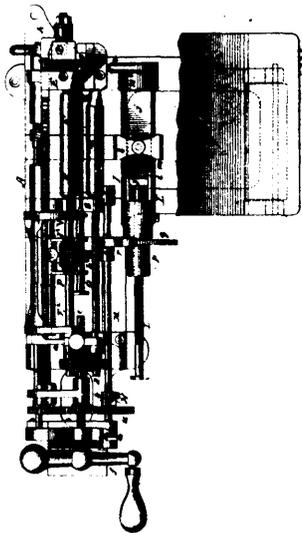
30915 Smith's Feed Water Purifier.



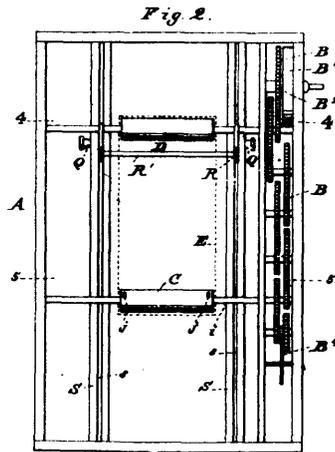
30916 Gardiner's Guard for Electric Light Globes.



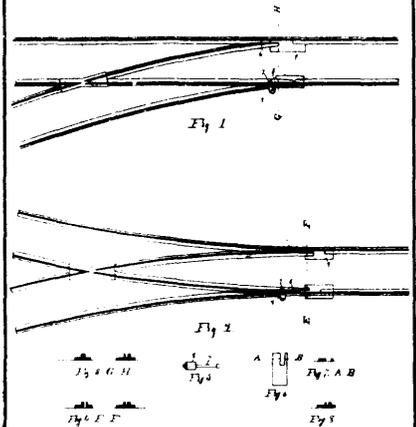
30917 Nichol's Grain Binding Harvester.



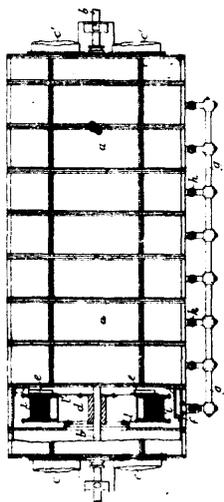
30918 Hammerstein's Cigar Rolling Machine.



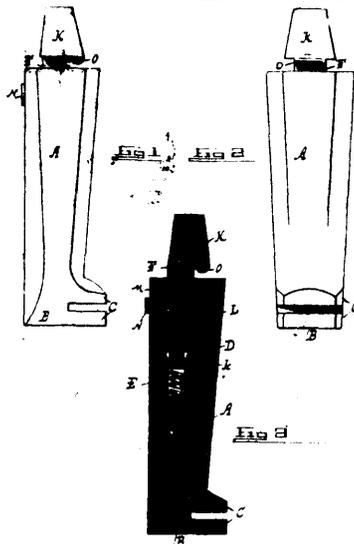
30919 Stone's Advertising Cabinet.



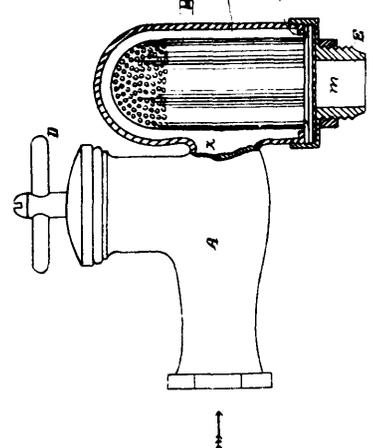
30920 Leary's Automatic Switch.



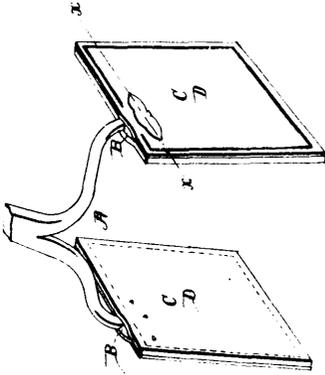
30921 Chandler's Apparatus for Washing and Scrubbing Gas.



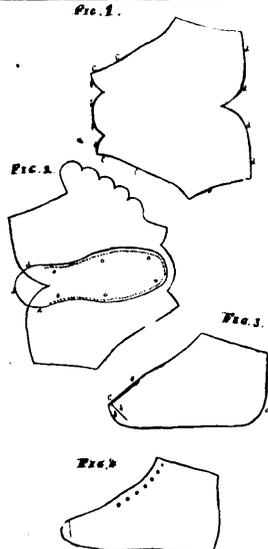
30922 Munger's Plough Point Sharpener.



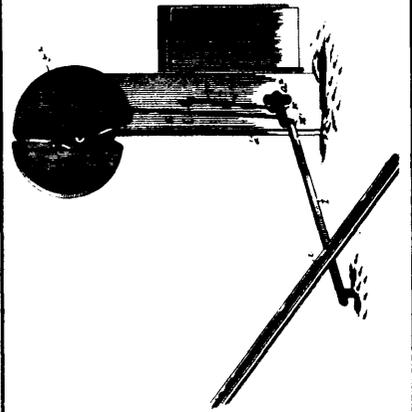
30923 Sargent's Filtering Faucet.



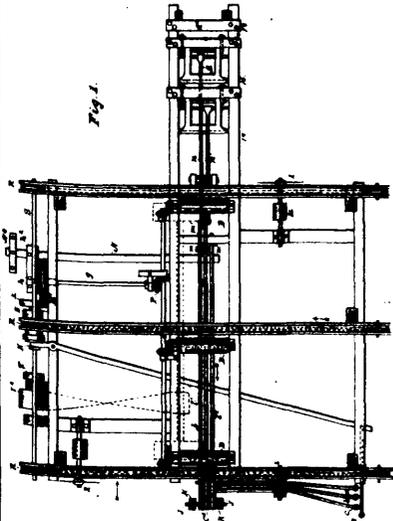
30924 Knapp's Winker Fork.



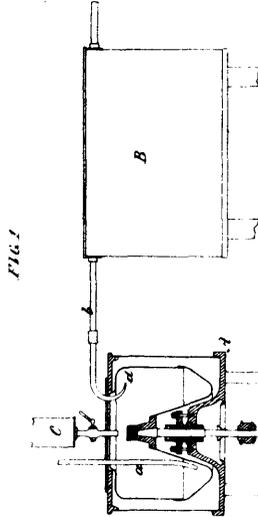
30925 Hanson's Boot and Shoe.



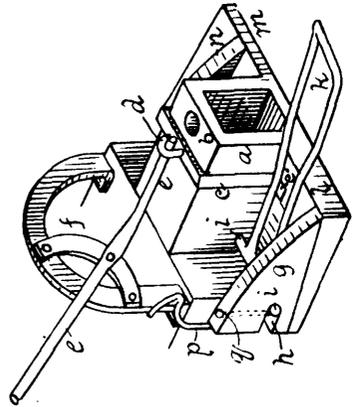
30926 Barry's Railway Time Signal.



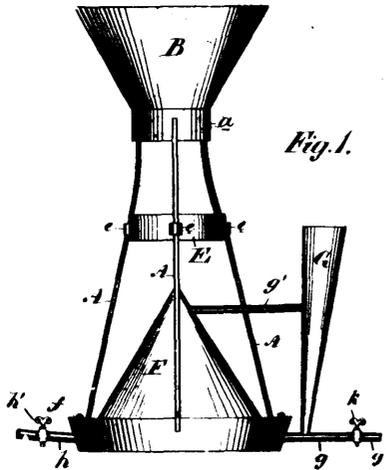
30927 Garland's Lumber Trimmer.



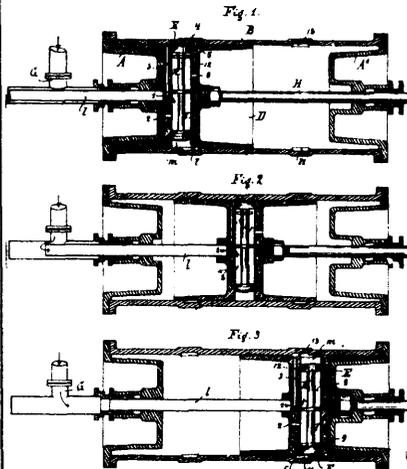
30928 Bergh's Apparatus for Aerating Beef Worts, etc.



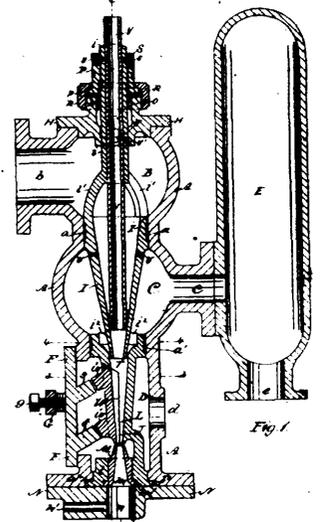
30929 Osborn's Car Coupling.



30930 Macpherson's Milk Purifier.



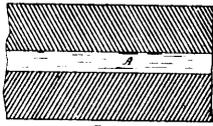
30931 Laun's Motor.



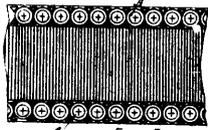
30932 Killey's Injector.



- Fig. 1 -



- Fig. 2 -



A - Fig. 3 -

30933 Humphrey's Rubber Matting.

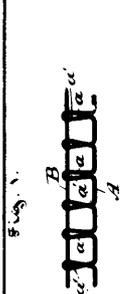


Fig. 1.

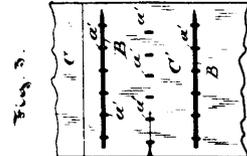


Fig. 2.

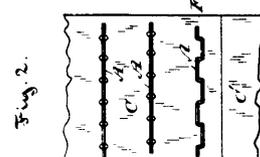


Fig. 2.

30934 Parrie's Belt Fastener.

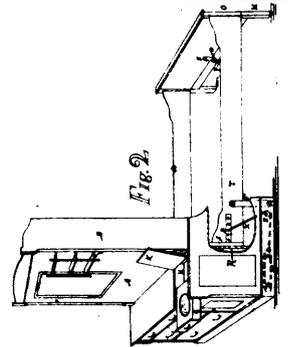


Fig. 2.

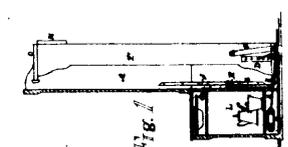


Fig. 1.

30935 Seldon's Bed and Cabinet.

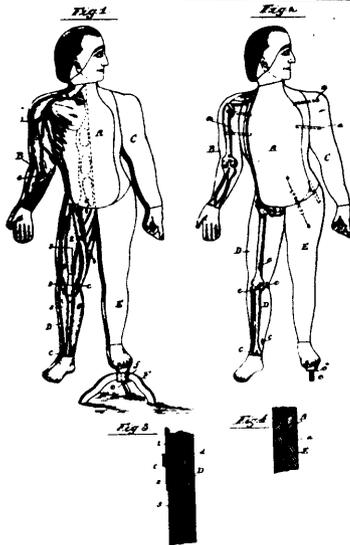
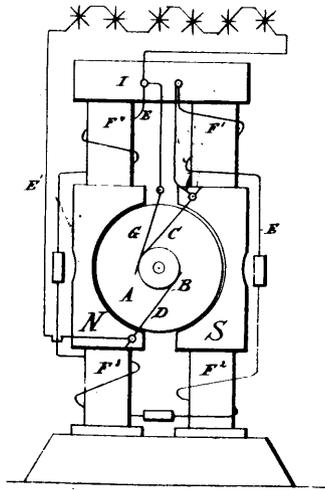


Fig. 1.

Fig. 2.

30936 Smith's Anatomical Apparatus.



30937 Waterhouse's Dynamo Electrical Machine.

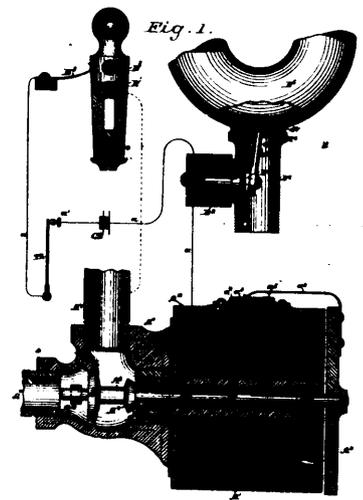


Fig. 1.

30938 Newman's Electro Thermostatic Anti-Freezing Apparatus.

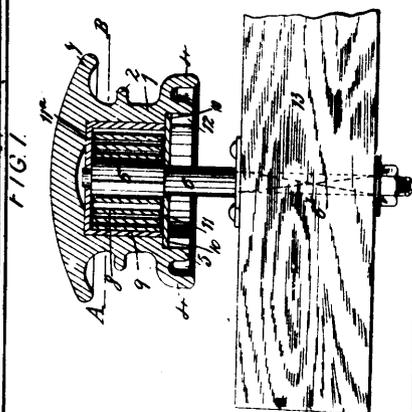
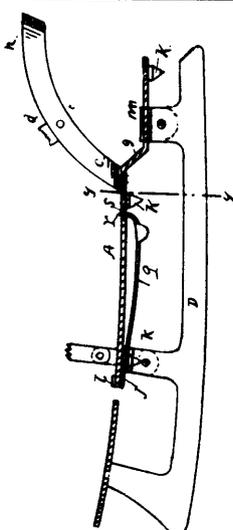
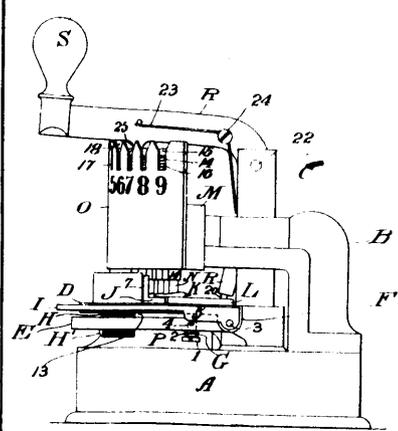


Fig. 1.

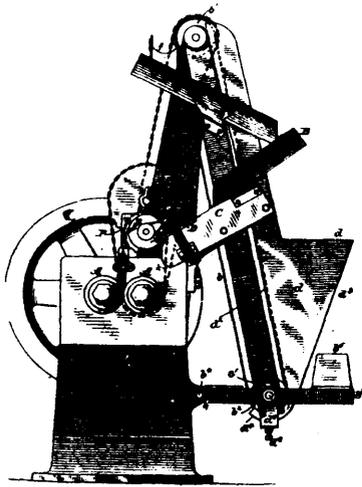
30939 Fowler's Insulating Device.



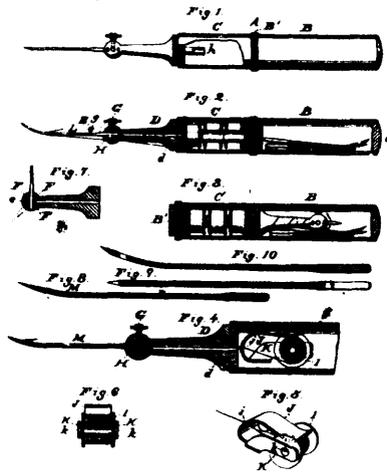
30940 Abbott's Ice Creeper and Skate.



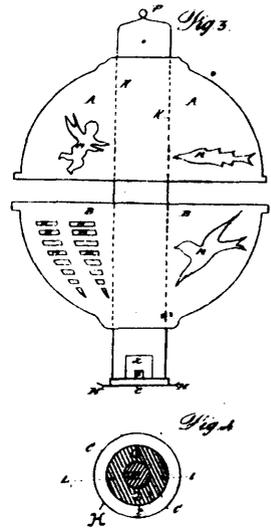
30941 Smith & Williamson's Check Punch.



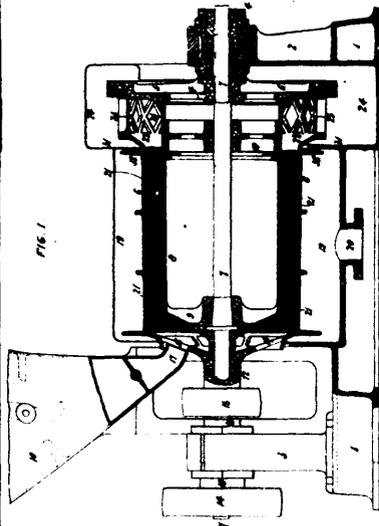
30942 Coleman's Mechanism for Feeding Nails, etc.



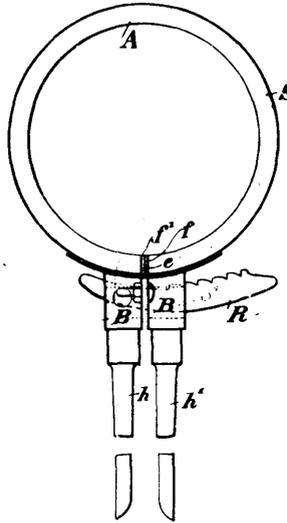
30944 King's Suture Needle Case, etc.



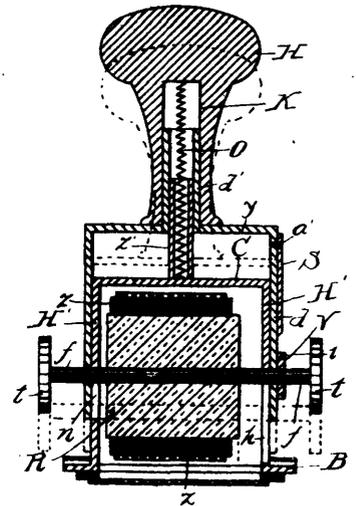
30945 Barker's Lamp, Lantern, etc.



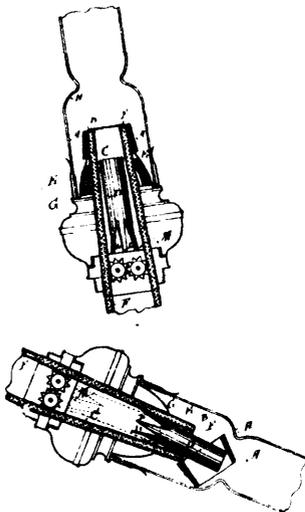
30946 Stewart's Apparatus for Drying Sugar.



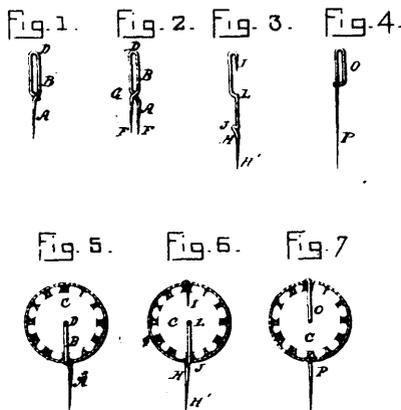
30947 Lawrence's Device for Stopping Leaking in Hose, etc.



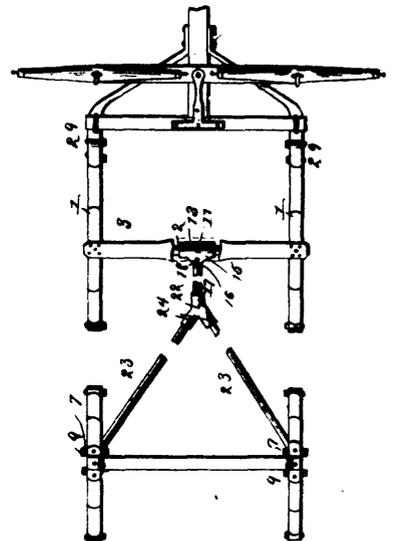
30948 Norrington's Hand Stamp.



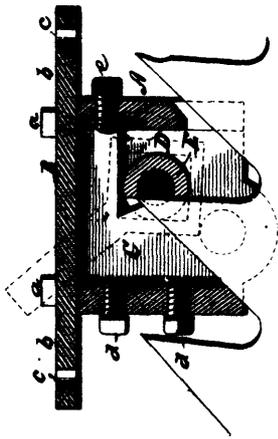
30949 Dehany's Extinguisher for Lamps.



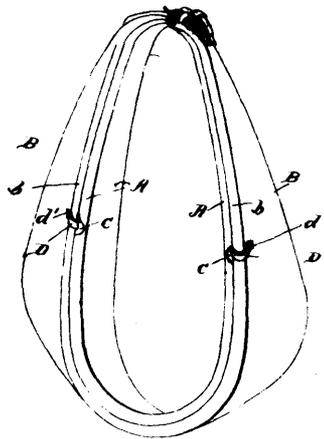
30950 Wesson's Medicine Dial.



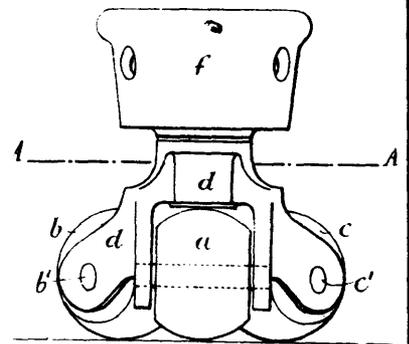
30951 Mandt's Running Gear for Vehicles.



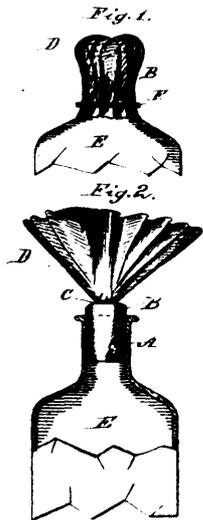
30952 Morrill & Laughton's Saw Swaging Device.



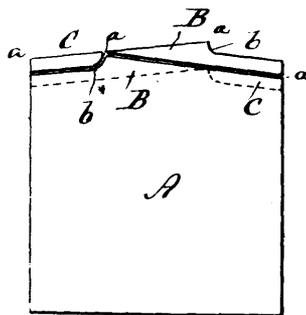
30953 Derr's Sweat-Pad Hook.



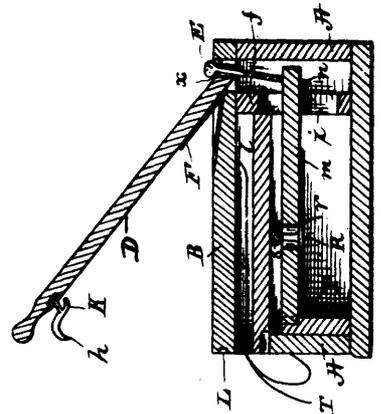
30954 Barron's Appliance for Facilitating the Movement of Furniture.



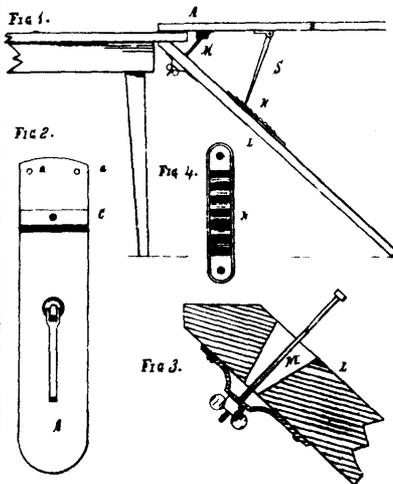
30955 Orary's Bottle Stopper.



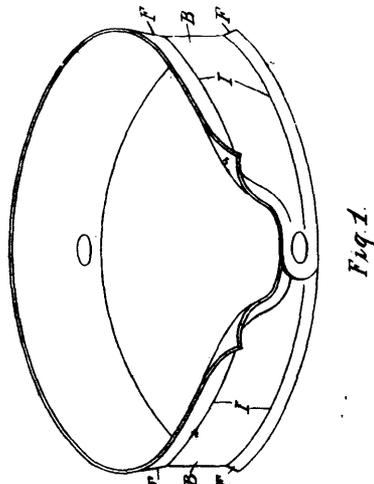
30956 Lilley's Pipe Hook.



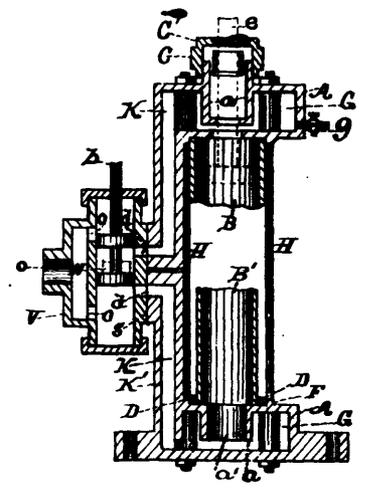
30957 Barnes' Letter Copying Press.



30958 Rideout's Ironing Board.



30959 Lovley's Collar and Cuff.



30960 Ross' Cylinder for Hydraulic Motors.

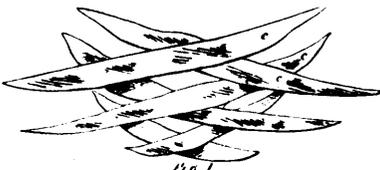


Fig. 1

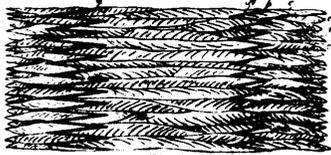


Fig. 2

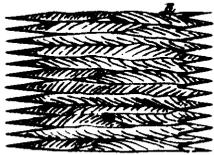
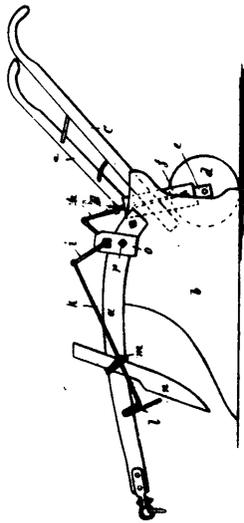
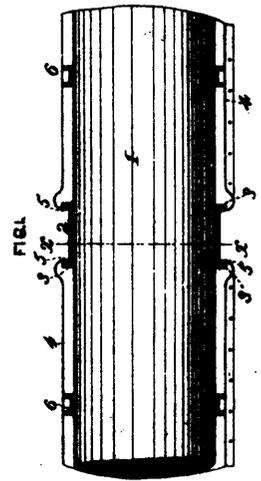


Fig. 3

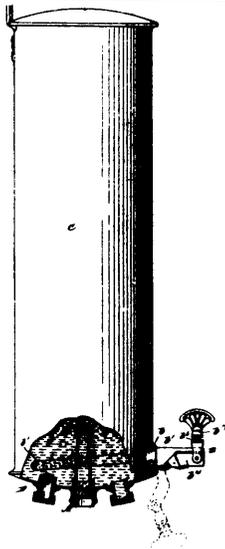
30961 Bright's Filler for Cigars.



30962 Maitre's Plough.



30963 Lindenthal's Cable for Suspension Bridges.



30964 Miller's Fire Extinguisher.

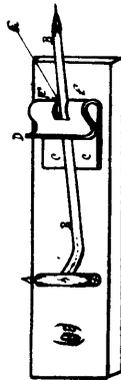


Fig. 1



Fig. 2

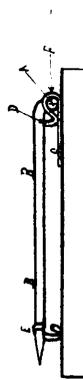
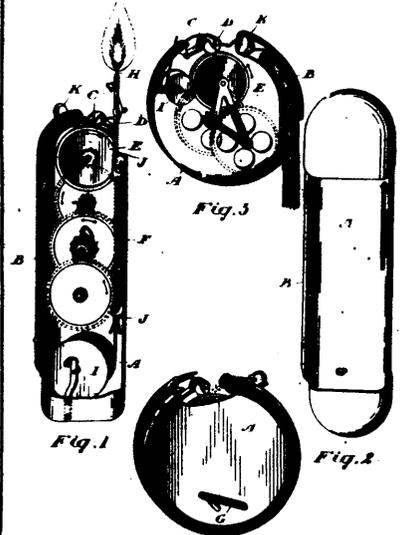
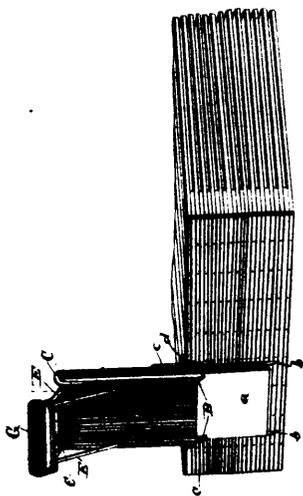


Fig. 3

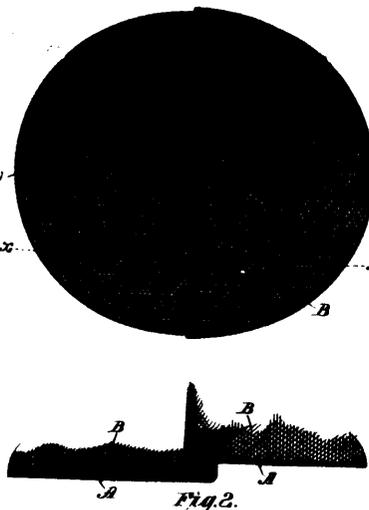
30965 De Lany's Hinge and Pin Tongue for Brooches, etc.



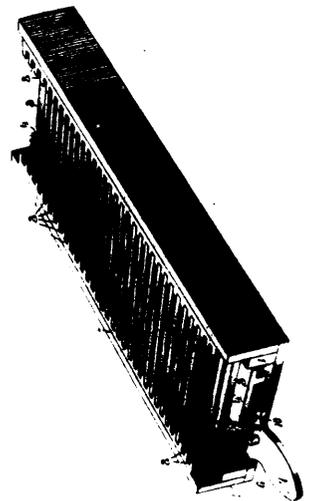
30966 Collins & Wad-El Ward's Fuse and Taper Lighter.



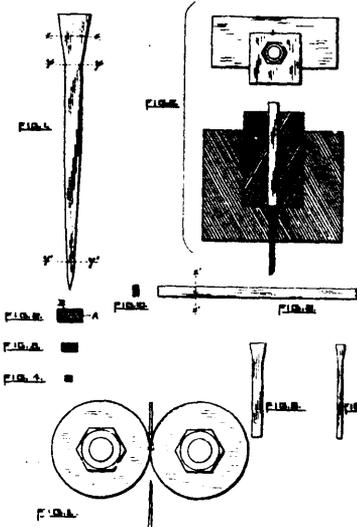
30968 Clarke's Lumber Piler.



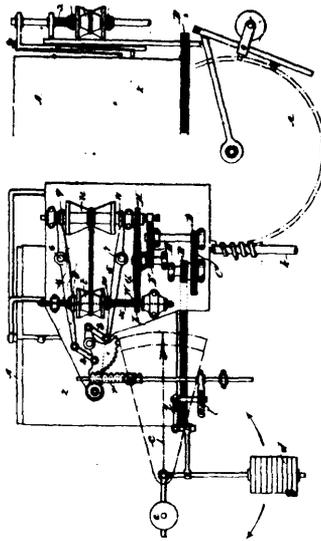
30969 Taylor's Protective Shield for Garments.



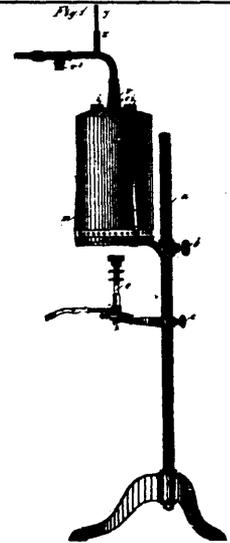
30970 Taylor's Machine for Making Garment Stays.



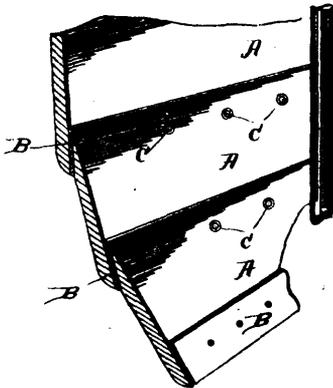
30971 Coleman's Horse Shoe Nail.



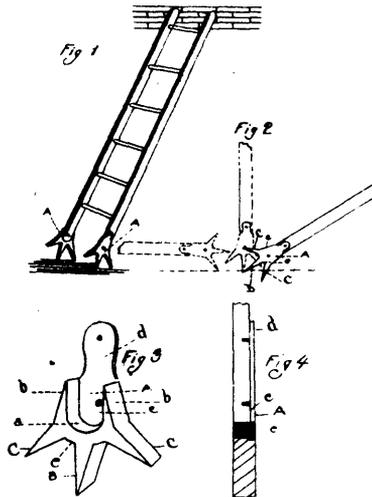
30972 Floran's Apparatus for Levelling.



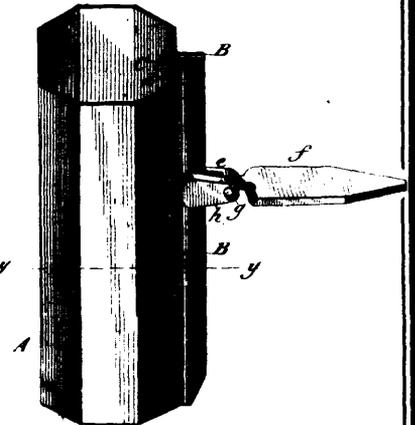
30975 Weigert's Apparatus for Healing Throat or Lung Diseases.



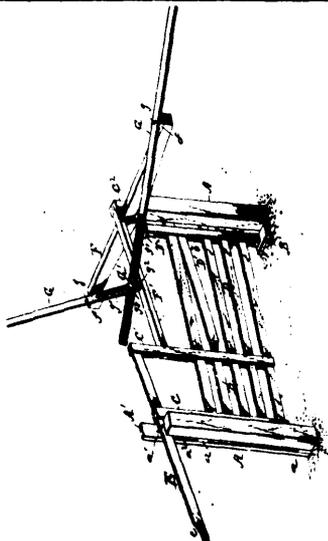
30976 Sprague's Joint for Boats.



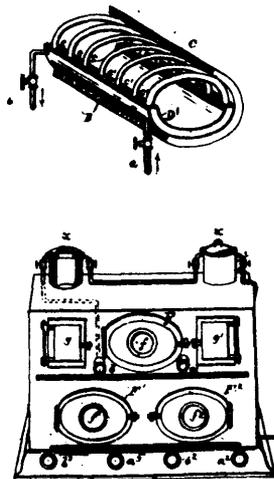
30977 Bacon's Ladder Spike.



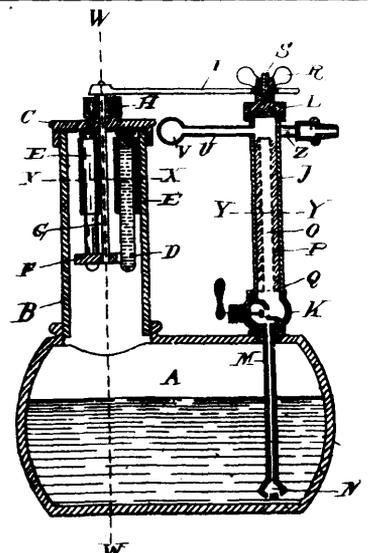
30979 Abrahams' Water Conductor, etc.



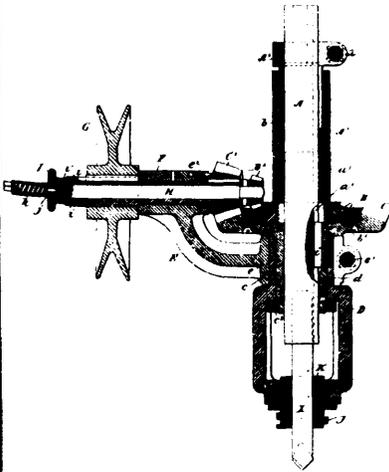
30980 Meek's Sliding Gate.



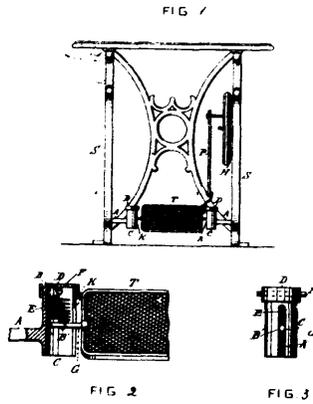
30982 Frall's Cooking Stove.



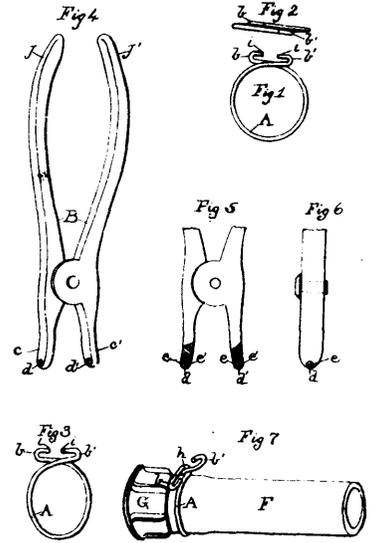
30983 Van Valkenburg's Chemical Engine.



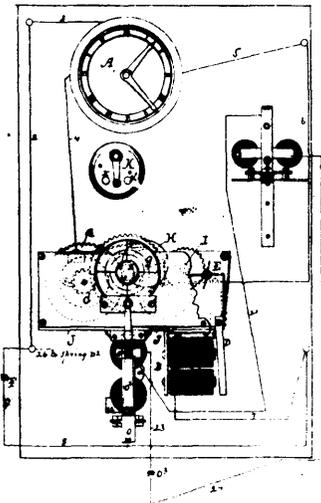
30985 Halsey's Tapping Attachment.



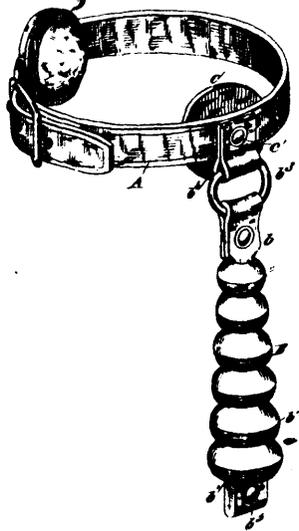
30987 Whitney's Treadle.



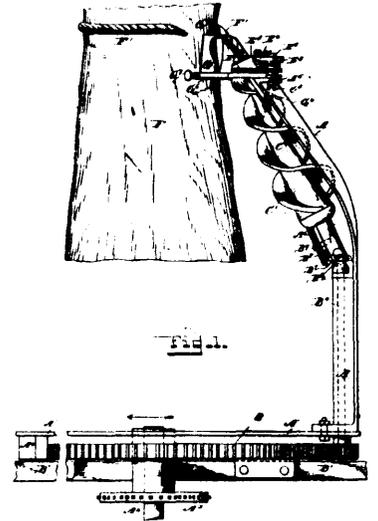
30988 Hudson's Metal Band for Uniting Hose, etc.



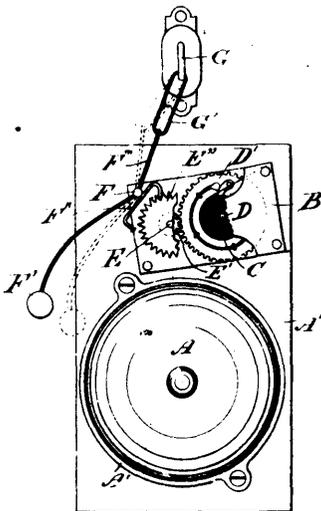
30989 Davis & Westervelt's Fire Alarm Telegraph System.



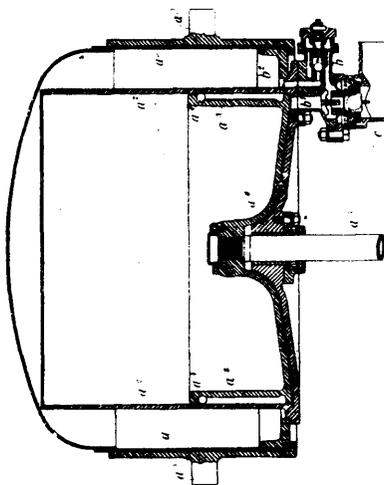
30990 Haughey's Device to Prevent Horses Interfering.



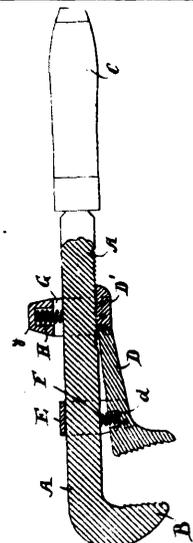
30991 Martin's Mode of Binding Grain, etc



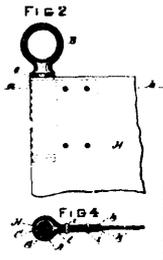
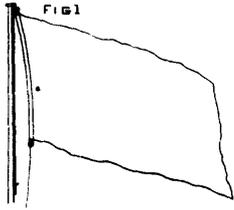
30992 Schreiber's Burglar Alarm.



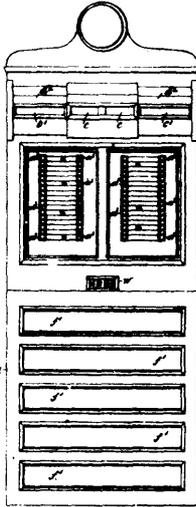
30993 Gresham's Vacuum Brake Apparatus.



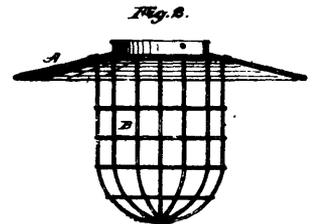
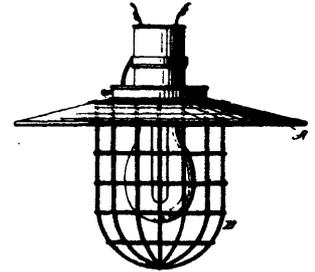
30994 Porter's Pipe Wrench.



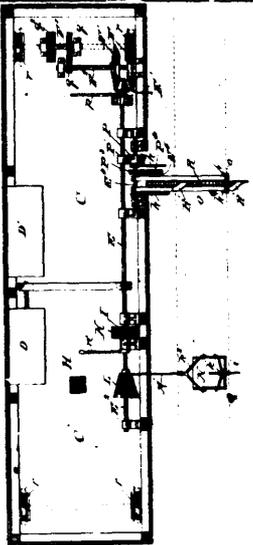
30995 Thompson's Swivel for Flag Halyards.



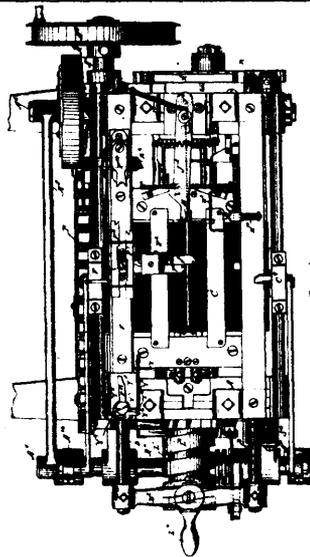
30996 Hope's Fare Checking and Advertising Apparatus.



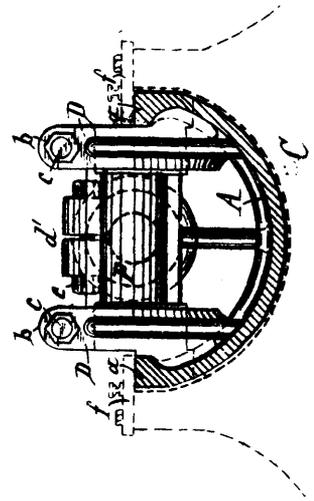
30997 Cooley's Lamp Shade and Guard.



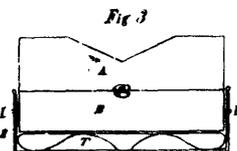
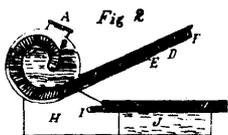
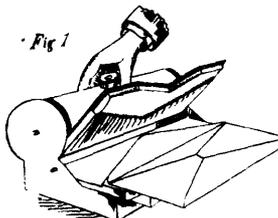
30998 Davy's Feeding Apparatus for Burning Clay for Ballast.



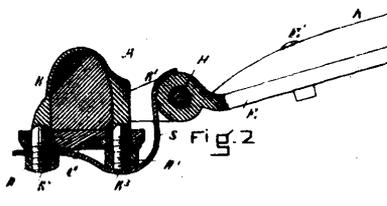
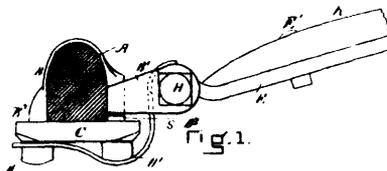
30999 Young's Knitting Machine.



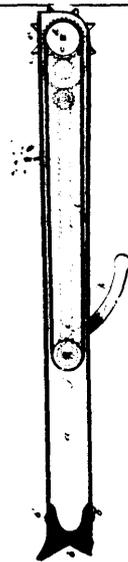
31000 Tonkin's Crosshead for Steam Engines.



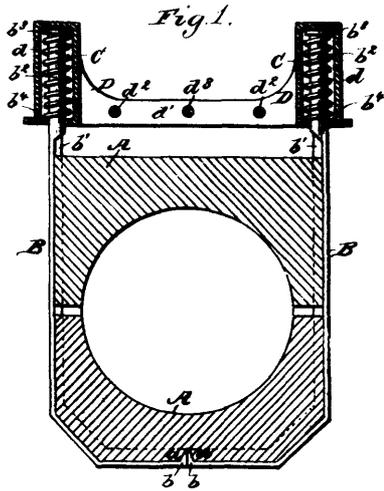
31002 Matte's Machine for Moistening Envelopes, etc.



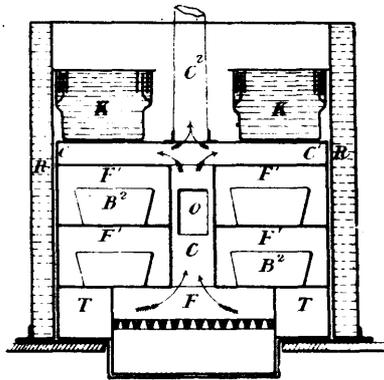
31003 Wood's Anti Rattler and Nut Lock.



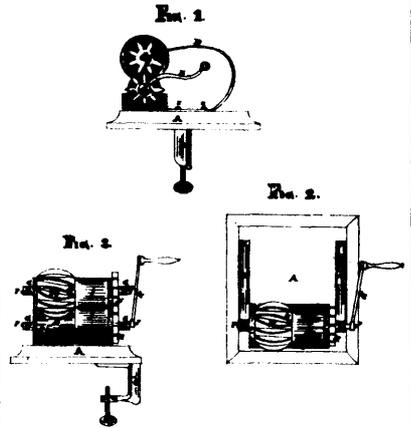
31004 Barnhart's Car Mover.



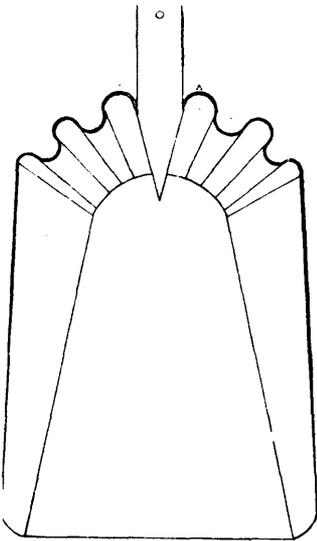
31005 Sweeney's Dust Guard.



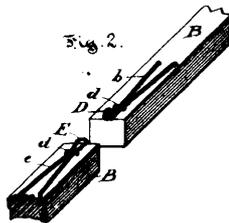
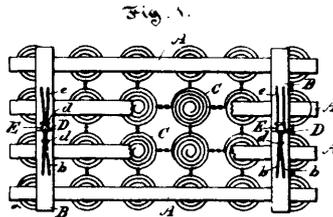
31006 Tomkins' Portable Cooking Apparatus.



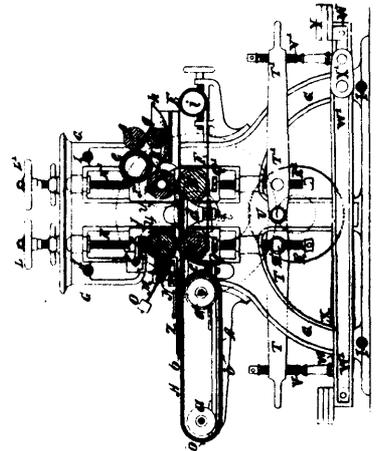
31007 Robertson's Knife, Fork and Spoon Scourer.



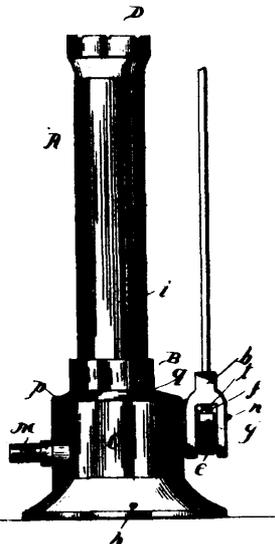
31009 McMurchy's Scoop Shovel.



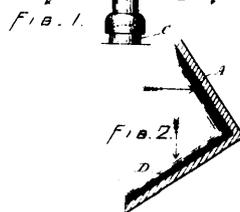
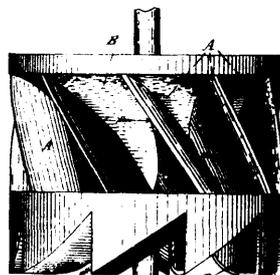
31010 Bélanger's Spring Bed.



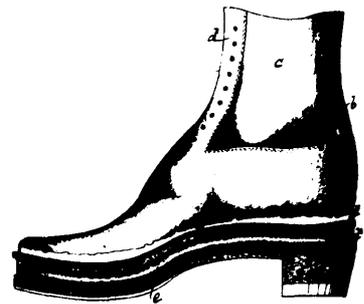
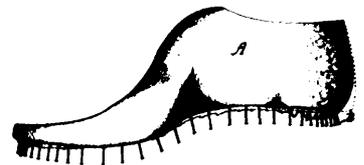
31011 Dewhurst's Machine for Marking Folded Piece Goods.



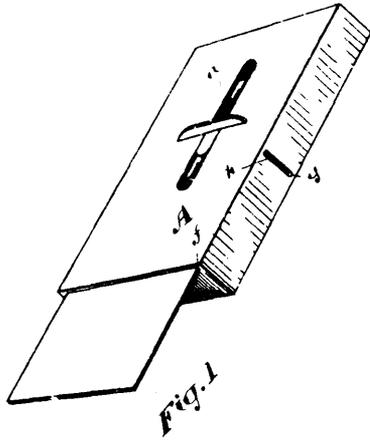
31012 Hopkins' Jack Screw.



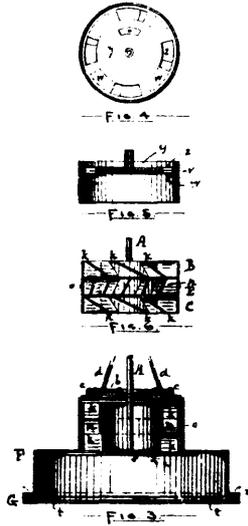
31013 Morin's Water Wheel.



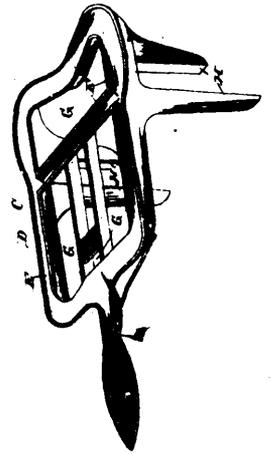
31014 Howard's Boot and Shoe.



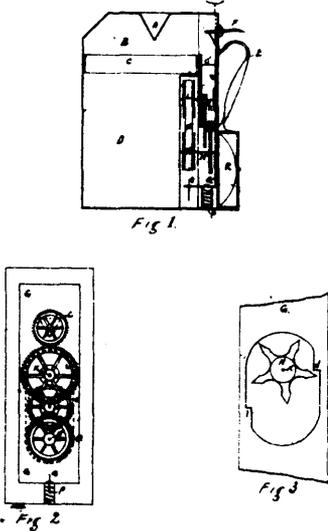
31015 Stovel & Corley's Card or Ticket Box.



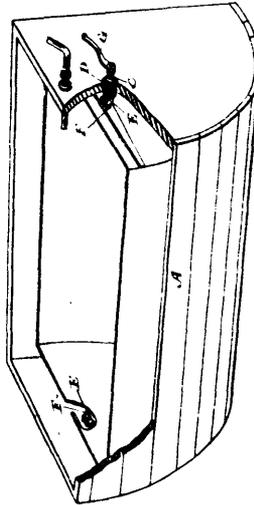
31016 Evans' Water Wheel.



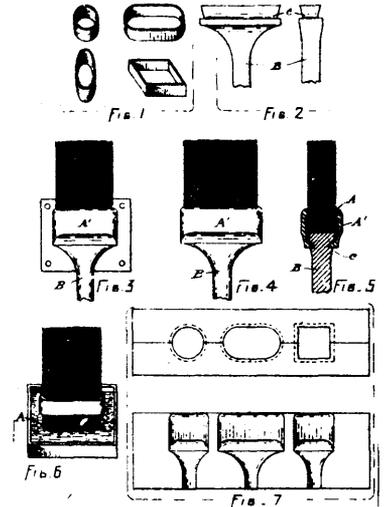
31017 Walt's Grate.



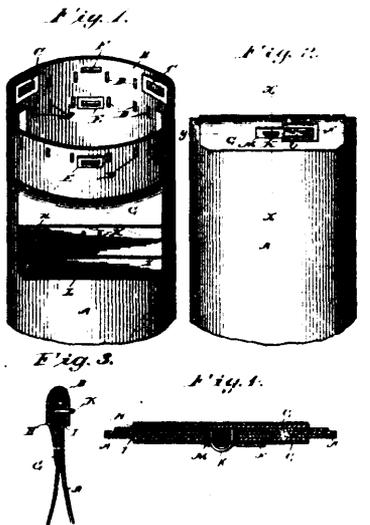
31018 Lee's Fare Collecting Box.



31019 Parker's Flushing Tank.



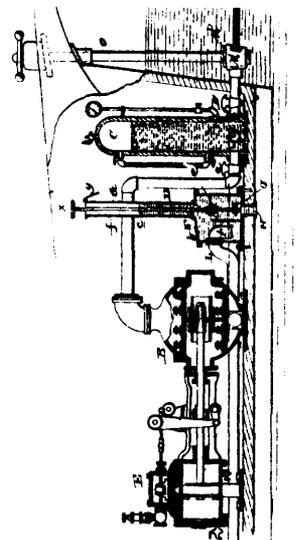
31020 Read's Brush Manufacturing.



31021 Quinan's Mail Bag.



31022 Lewthwait's Method of Constructing Breakwaters, etc.



31023 Jackson's Marine Propulsion.

INDEX OF INVENTIONS.

Advertising: see Cabinet. Fare.  
 Air and gas. Apparatus for carburettng and enrich-  
 ing. C. Herzog..... 30,882  
 Alarm: see Burglar.  
 Anatomical apparatus. E. Smith..... 30,936  
 Anti-rattler and nut lock for thill couplings. S. J.  
 Wood..... 31,003  
 Axle box: see Dust guard.  
 Bag: see Mail.  
 Ballast. Feeding apparatus for burning clay for. W.  
 Davy..... 30,998  
 Battery: see Galvanic.  
 Beer worts and beer. Process and apparatus for aerat-  
 ing and purifying. A. Bergh..... 30,928  
 Bed and cabinet. W. Seldon..... 30,935  
 Bed: see Spring.  
 Belt fastener. J. B. Parrie..... 30,934  
 Beverages. Treating sparkling and effervescent. F.  
 A. Reihlen..... 30,912  
 Binding: see Grain.  
 Board: see Ironing.  
 Boats: see Joint.  
 Boot. B. F. Whitney..... 30,907  
 Boot and shoe. J. M. Hanson..... 30,925  
 Boot and shoe. W. Howard..... 30,014  
 Bottle stopper. W. P. Crary..... 30,955  
 Box: see Card. Fare.  
 Brake: see Vacuum.  
 Break-waters, groins, etc. Mode of constructing. J.  
 Lewthwaite..... 31,022  
 Brick and artificial stone. Composition for. O. Le-  
 blanc et al..... 31,001  
 Bridges: see Cable.  
 Brush. J. A. Read..... 31,020  
 Burglar alarm. G. Schreiber..... 30,992  
 Cabinet for advertising. I. B. Stone..... 30,919  
 Cabinet: see Bed.  
 Cable for suspension bridges. G. Lindenthal..... 30,963  
 Carburettng: see Air.  
 Car coupling. E. F. Osborn..... 30,929  
 Car mover. C. L. Barnhart..... 31,004  
 Card or ticket box. J. Stovel et al..... 31,015  
 Carpet cleaner. W. P. White..... 30,879  
 Check punch. F. W. Smith..... 30,941  
 Chimney cap. H. M. Hansen..... 30,903  
 Churn. J. Ingells..... 30,875  
 Cigar rolling machine. O. Hammerstein..... 30,918  
 Cigars. Filler for. R. A. Bright..... 30,961  
 Clothes horse. J. Emery..... 30,871  
 Cooking apparatus. A. S. Tomkins..... 31,006  
 Cooking stove or range. W. E. Prall..... 30,982  
 Coast defence: see Break-water.  
 Collar and cuff. J. H. and E. Lovley..... 30,959  
 Controller: see Valve.  
 Cork extractor. L. I. Jacobs..... 30,873  
 Coupler: see Anti-rattler.  
 Couplings: see Hose.  
 Coupling for gas and electric light fixtures. R. Her-  
 man..... 30,911  
 Cross-heads: see Steam.  
 Crossing: see Railway.  
 Cuff: see Collar.  
 Curtain stretcher. W. Smith..... 30,874  
 Cutter: see Grain. Straw.  
 Dial: see Medicine.  
 Doors. Support for sliding. R. Clarke..... 30,880  
 Drill: see Rock.  
 Drill. Tubular guide. J. T. Connelly..... 30,909  
 Dust guard for car axle boxes. P. Sweeney..... 31,005  
 Dynamo electric machine. A. G. Waterhouse..... 30,937  
 Electric temperature regulator. R. Westervelt..... 30,895  
 Electrical currents: see Meter.  
 Electro-thermostatic anti-freezing apparatus. E. A.  
 Newman..... 30,934  
 Engine. Chemical. R. T. Van Valkenburg..... 30,983  
 Envelopes and stamps. Machine for moistening. N.  
 Matte et al..... 31,002  
 Extinguisher: see Fire.  
 Extinguisher for lamps. G. E. Dehany..... 30,949  
 Fare checking, indicating and advertising apparatus  
 for omnibuses. J. Hope..... 30,996  
 Fare collecting box. T. B. Lee..... 31,018  
 Fastener: see Belt.  
 Faucet for filtering. W. H. Sargent..... 30,923

Feed water purifier. W. J. Smith et al..... 30,915  
 Filler: see Cigars.  
 Fire alarm telegraph system. E. H. Davis et al..... 30,989  
 Fire escape. C. W. Allen..... 30,905  
 Fire extinguisher. J. M. Miller..... 30,964  
 Fish wrier. J. O'Brien..... 30,892  
 Flag balyard: see Swivel.  
 Flushing tank. J. O. Parker..... 31,019  
 Fork: see Scourer. Winker.  
 Fuel. G. Frank..... 30,986  
 Fuel. Apparatus for manufacturing peat. A. A.  
 Dickson..... 30,884  
 Furniture. Appliances for the removal of. E. Bar-  
 ron..... 30,954  
 Fuse and taper lighter. J. Wad-El-Ward et al..... 30,966  
 Galvanic battery. A. Schanschleff..... 30,881  
 Garment stays. Method and machine for making. A.  
 Taylor..... 30,970  
 Garments: see Shield.  
 Gas: see Air.  
 Gas. Apparatus for washing and scrubbing. Kirk-  
 ham, Hulett and Chandler..... 30,921  
 Gate. D. E. Meek et al..... 30,980  
 Gear for vehicles. Running. T. G. Mandt..... 30,951  
 Globes. Inside guard for electric light. R. M. Gard-  
 iner et al..... 30,916  
 Grain binding harvester. M. L. Nichols..... 30,917  
 Grain binding harvester and mode of binding. J. G.  
 Martin..... 30,991  
 Grain cutter. A. Heine..... 30,877  
 Grate. J. H. Wait..... 31,017  
 Groins: see Break-water.  
 Guard: see Globes.  
 Hand stamp. H. H. Narrington..... 30,948  
 Harness. J. Gray..... 30,887  
 Harvester: see Grain.  
 Horses from interfering. Device to prevent. M.  
 Hangley..... 30,990  
 Hose and couplings. Metal band for uniting. C. E.  
 Hudson..... 30,988  
 Hinge and pin tongue for brooches, etc. W. De  
 Lany..... 30,965  
 Hook: see Pipe. Sweat pad.  
 Hook for whiffletrees. T. G. Mandt..... 30,885  
 Horse shoe nail. J. A. Coleman..... 30,971  
 Hose and pipes. Device for stopping leakage in. J.  
 Lawrence..... 30,947  
 Ice creeper and skate. E. C. Abbott..... 30,940  
 Injector. J. H. Killey..... 30,932  
 Insulator. G. Fowler..... 30,959  
 Ironing board. H. Rideout..... 30,958  
 Jack screw. C. H. Hopkins..... 31,012  
 Joint for boats. H. M. Sprague..... 30,976  
 Joint. Universal metal. J. C. Haggett..... 30,899  
 Knife: see Scourer.  
 Knitting machine. C. H. Young..... 30,999  
 Ladder spike. E. S. Bacon..... 30,977  
 Lamp, lantern, etc. F. Baker..... 30,945  
 Lamp shade. C. A. Cooley..... 30,997  
 Lamps: see Extinguisher.  
 Lemon squeezer. J. Ferguson..... 30,888  
 Letters: see Press.  
 Levelling. Apparatus for. A. E. D. Floran..... 30,972  
 Lighter: see Fuse.  
 Lumber piler. C. D. Clarke..... 30,968  
 Lustre bronze of different colours. Process for pro-  
 ducing. L. Johnston et al..... 30,981  
 Mail bag. A. B. Quinan..... 31,021  
 Matting: see Rubber.  
 Marine propulsion. W. M. Jackson..... 31,023  
 Marking folded piece goods with trade marks, and  
 printing and colouring such marks, etc. Appa-  
 ratus for. G. B. Dewhurst..... 31,011  
 Medicine dial. M. B. Wesson..... 30,950  
 Merry-go-round: see Round-about.  
 Milk purifier. D. M. Macpherson..... 30,930  
 Meter for measuring electrical currents. W. H.  
 Douglas..... 30,893  
 Moles: see Breakwater.  
 Motor. F. J. Lawn..... 30,931  
 Motor for cars, etc. W. E. Porall..... 30,872  
 Motors. Cylinder for hydraulic. W. Ross..... 30,960  
 Nail: see Horse.  
 Nails or nail blanks. Mechanism for feeding. J. A.  
 Coleman..... 30,942  
 Needle case and wire carrier. J. La F. King..... 30,944  
 Nut lock: see anti-rattler.

Omnibuses: see Fare.  
 Pavement. T. A. Ovens..... 30,967  
 Peat: see Fuel.  
 Piler: see Lumber.  
 Pin tongue: see Hinge.  
 Pipe hook. H. Lilley..... 30,956  
 Pipes: see Hose. Wrench.  
 Plates. Process of producing relief. J. G. Armstrong.. 31,008  
 Plough. A. Maitre..... 30,962  
 Plough. G. B. St. John..... 30,908  
 Plough point sharpener. F. Munger et al..... 30,922  
 Press for copying letters. W. J. Barnes..... 30,957  
 Printing. Polychromatic. G. White..... 30,943  
 Punch: see Check.  
 Purifier: see Feed-water. Milk.  
 Radiator: see Steam.  
 Range: see Cooking.  
 Railway crossing. J. and M. Cumming..... 30,913  
 Railway time signal. C. Barry..... 30,926  
 Regulator: see Electric.  
 Rock drill. H. C. Sergeant..... 30,883  
 Round-about. F. W. Allchin..... 30,900  
 Rubber matting. J. D. Humphreys..... 30,933  
 Rubber shoe. W. T., T. H. and J. A. Smith..... 30,901  
 Saw set. W. N. Harsen et al..... 30,878  
 Saw set. W. R. Gillett et al..... 30,878  
 Saw swage. W. T. Morrill..... 30,952  
 Scoop shovel. J. B. McMurchy..... 31,009  
 Scourer, knife, fork and spoon. W. Robertson..... 31,007  
 Screw: see Jack.  
 Sea wall: see Break-water.  
 Seat: see Spring.  
 Shade: see Lamp.  
 Shield for garments. A. Taylor..... 30,969  
 Shoe: see Boot.  
 Shovel: see Scoop.  
 Side spring for vehicles. J. F. Thomas..... 30,891  
 Signal: see Railway.  
 Skate: see Ice-creeper.  
 Spike: see Ladder.  
 Spoon: see Scourer.  
 Spring bed. J. Belanger..... 31,010  
 Spring seat. H. S. Hale..... 30,889  
 Squeezer: see Lemon.  
 Stamp: see Hand.  
 Stamps: see Envelopes.  
 Statistics. Apparatus for compiling. H. Hollerith ... 30,902  
 Steam engine. F. D. Child..... 30,904  
 Steam engines. Cross head for. T. Klingsford..... 31,000  
 Steam injector. T. J. Sweeney..... 30,906  
 Steam radiator. T. C. Joy..... 30,886  
 Steel. R. J. Tilford et al..... 30,973 30,974 30,978  
 Stop valve. R. and J. Wellens..... 30,914  
 Stopper: see Bottle.  
 Stove. Petroleum oil. J. A. Vagner..... 30,894  
 Stone: see Brick.  
 Straw cutter. A. La Marsh..... 30,910  
 Straw cutter. C. A. Pettet..... 30,876  
 Sugar and granulated matters. Apparatus for drying.  
 D. Stewart..... 30,946  
 Support: see Doors. Water.  
 Sweat pad hook. F. S. Derr..... 30,953  
 Switch. M. Leary..... 30,920  
 Swivel for flag halyards. H. B. Thompson..... 30,895  
 Tank: see Flushing.  
 Tapping attachment. J. T. Halsey..... 30,985  
 Telegraph: see Fire alarm.  
 Telegraphic: see Insulator.  
 Temperature: see Electric.  
 Thermostat. E. H. Davis..... 30,890  
 Thermostat. R. Westervelt..... 30,897  
 Throat or lung complaints. Apparatus for healing.  
 L. Weight..... 30,975 30,984  
 Trade mark: see Marking.  
 Treadle. J. H. Whitney..... 30,987  
 Trimmer for lumber. M. Garland..... 30,927  
 Vacuum brake. J. Gresham..... 30,993  
 Valve controller. E. H. Davis..... 30,898  
 Vehicles: see Gear.  
 Water wheel. J. F. Evans..... 31,016  
 Water wheel. L. M. and O. N. Morin..... 31,013  
 Weir: see Fish.  
 Wheel: see Water.  
 Whiffletree: see Hook.  
 Winker fork. E. B. Knapp..... 30,924  
 Wire carrier: see Needle.  
 Wood. Artificial. B. Harrass..... 30,896  
 Wrench for pipes. D. R. Porter..... 30,994

INDEX OF PATENTEES.

Abbott, R. C. Ice creeper and skate..... 30,940  
 Abraham, J. W. Water conductor and support..... 30,979  
 Allchin, F. W. Round-about or merry-go-round..... 30,900  
 Allen, C. W. Fire escape..... 30,905  
 Armstrong, J. G. Process for producing relief plates. 31,008  
 Bacon, E. S. Ladder spike..... 30,977  
 Baker, F. Lamp, lantern, etc..... 30,945  
 Barnes, W. J. Letter copying press..... 30,957  
 Barnhart, C. L. Car mover..... 31,004  
 Barron, E. Appliances for facilitating the removal of  
 furniture, etc..... 30,954  
 Barry, C. Railway time signal..... 30,926  
 Belanger, J. Spring bed..... 31,010  
 Bergh, A. Process and apparatus for aerating and pu-  
 rifying beer worts and beer..... 30,928  
 Bright, R. A. Filler for cigars and method of prepar-  
 ing same..... 30,961  
 Carman, J. S., et al. Plough point sharpener..... 30,922  
 Chandler, S. S., jr. and J. Apparatus for washing and  
 scrubbing gas..... 30,921  
 Child, F. D. Steam engine..... 30,904  
 Clark, C. D. Lumber piler..... 30,968  
 Clark, R. Support for sliding doors..... 30,880  
 Coleman, J. A. Horse shoe nail..... 30,971  
 Coleman, J. A. Mechanism for feeding nails or nail  
 blanks..... 30,942  
 Collins, J. R. Fuse and taper lighter..... 30,966  
 Connelly, J. T. Tubular guide drill..... 30,909  
 Connor, J. H. Belt fastener..... 30,934  
 Cooley, C. A. Lamp shade..... 30,997  
 Corley, J. W. Card or ticket box..... 31,015  
 Cray, W. P. Bottle stopper..... 30,955  
 Cumming, J. and M. Railway crossing..... 30,913  
 Davis, E. H., et al. Electric temperature regulator... 30,895  
 Davis, E. H., et al. Electric thermostat..... 30,890  
 Davis, E. H., et al. Fire alarm telegraph system..... 30,989  
 Davis, E. H., et al. Thermostat..... 30,897  
 Davis, E. H., et al. Valve controller..... 30,898  
 Davis, J. Water conductor and support..... 30,979  
 Davy Clay Ballast Co. Feeding apparatus for burning  
 clay for ballast..... 30,998  
 Davy, W. Feeding apparatus for burning clay for bal-  
 last..... 30,998  
 Decary, A. C., et al. Composition for bricks and arti-  
 ficial stone..... 31,001  
 Dehany, G. E. Extinguisher for lamps..... 30,949  
 DeLany, W. Hinge and pin tongue for brooches, etc.. 30,965  
 Derr, F. S. Sweat pad hook..... 30,953  
 Dewhurst, G. B. Apparatus for marking folded piece  
 goods with trade marks etc..... 31,011  
 Dickson, A. A. Apparatus for manufacture of peat  
 fuel..... 30,884  
 Douglas, W. H. Meter for measuring electrical cur-  
 rents..... 30,893  
 Edge, W. T. Process for producing lustre bronze..... 30,981  
 Emery, J. Clothes horse..... 30,871  
 Evans, J. F. Water wheel..... 31,016  
 Feed Water Heater and Purifier Co. Feed water pu-  
 rifier..... 30,915  
 Ferguson, H., et al. Stop valve..... 30,914  
 Ferguson, J. Lemon squeezer..... 30,888  
 Floran, A. E. D. Apparatus for levelling..... 30,972  
 Fowler, G. Support for telegraphic wires, etc..... 30,939  
 Frank, G. Fuel..... 30,986  
 Gardiner, R. M., et al. Inside guard for electric light  
 globes..... 30,916  
 Garland, M. Lumber trimmer..... 30,927  
 Gillet, W. R., et al. Saw set..... 30,878  
 Gray, J. Harness..... 30,887  
 Gresham, J. Vacuum brake..... 30,993  
 Haggett, J. C. Universal metal joint..... 30,899  
 Hale, H. S. Spring seat..... 30,889  
 Halsey, J. T. Tapping attachment..... 30,985  
 Hammerstein, O. Cigar rolling machine..... 30,918  
 Hansen, H. M. Chimney cap..... 30,903  
 Hanson, J. M. Boot and shoe..... 30,925  
 Harper, H., et al. Sliding gate..... 30,980  
 Harrass, B. Artificial wood..... 30,896  
 Harsen, W. N., et al. Saw set..... 30,878  
 Haughey, M. Device to prevent horses interfering ... 30,990  
 Heine, A. Grain cutter..... 30,877  
 Herman, R. Couplings for gas and electric light fix-  
 tures..... 30,911

Herzog, C. Apparatus for carbureting air and enriching gas.....	30,882	Penman, J. Knitting machine.....	30,999
Hilbarn, W., et al. Inside guard for electric light globes.....	30,916	Petet, C. A. Straw cutter.....	30,876
Hollerith, H. Apparatus for compiling statistics.....	30,902	Porall, W. E. Motor for cars, etc.....	30,872
Hope, J. Fare checking, indicating and advertising apparatus for omnibuses.....	30,996	Porter, D. R. Pipe wrench.....	30,994
Hopkins, C. H. Jack screw.....	31,012	Prall, W. E. Cooking stove or range.....	30,982
Howard, W. Boot and shoe.....	31,014	Quinan, A. B. Mail bag.....	31,021
Hudson, C. E. Metal band for uniting hose and couplings.....	30,988	Read, J. A. Brush.....	31,020
Humphreys, J. D. Rubber matting.....	30,933	Redemann, H. M., et al. Manufacture of steel, 30,973	30,974
Ingells, J. Churn.....	30,875	Reed, Willard & Co. Pipe wrench.....	30,994
Jackson, W. M. Marine propulsion.....	31,023	Reiblen, F. A. Treating sparkling and effervescent beverages.....	30,912
Jacobs, B., et al. Cork extractor.....	30,873	Rideout, H. Ironing board.....	30,958
Jacobs, L. I., et al. Cork extractor.....	30,873	Robertson, W. Knife, fork and spoon scourer.....	31,007
Johnston, D. M. Clothes horse.....	30,871	Ross, W. Cylinder for hydraulic motors.....	30,960
Johnston, L., et al. Process for producing lustre bronzes, etc.....	30,981	Royal Electric Co. Lamp shade.....	30,997
Joy, T. C. Steam radiator.....	30,886	Sargent, W. H. Filtering faucet.....	30,923
Killey, J. H. Injector.....	30,932	Schanschleff, A. Galvanic battery.....	30,881
King, J. La F. Suture needle case and wire carrier.....	30,944	Schreiber, G. Burglar alarm.....	30,992
Kinsford, T. Cross head for steam engines.....	31,000	Seldon, W. Bed and cabinet.....	30,935
Knapp, E. B. Winker fork.....	30,924	Sergeant, H. C. Rock drill.....	30,883
La Marsh, A. Straw cutter.....	30,910	Smith, E. Anatomical apparatus.....	30,936
Lawn F. J. Motor.....	30,931	Smith, F. W., et al. Check punch.....	30,941
Lawrence, J. Device for stopping leakage in hose and pipes.....	30,947	Smith, W. Curtain stretcher.....	30,874
Leary, M., et al. Switch.....	30,920	Smith, W. J., et al. Feed water purifier.....	30,915
Lee, T. B. Fare collecting box.....	31,018	Smith, W. T., et al. Rubber shoe.....	30,901
Leblanc, O., et al. Composition for bricks and artificial stone.....	31,001	Sprague, H. M. Joint for boats.....	30,976
Lewthwaite, J. Constructing break waters, groins, etc.....	31,022	Stewart, D. Apparatus for drying sugar and granulated matters.....	30,946
Linley, H. Pipe hook.....	30,956	St. John, G. B. Plough.....	30,908
Lindenthal, G. Cable for suspension bridges.....	30,963	Stovel, J., et al. Card or ticket box.....	30,015
Lovley, J. H. and E. Collar and cuff.....	30,959	Sweeney, P. Dustguard for car axle boxes.....	31,005
McMurchy, J. B. Scoop shovel.....	31,009	Sweeney, T. J. Steam injector.....	30,906
Macpherson, D. M. Milk purifier.....	30,930	Taylor, A. Method and machine for making garment stays.....	30,970
Maitre, A. Plough.....	30,962	Taylor, A. Protective shield for garments.....	30,969
Mandt, T. G. Running gear for vehicles.....	30,951	Thomas, J. F. Side spring for vehicles.....	30,891
Mandt, T. G. Whiffletree hook.....	30,885	Thompson, H. B. Swivel for flag halyards.....	30,995
Mann, J. T., et al. Switch.....	30,920	Tilford, R. J. Manufacture of steel.....	30,973 36,974
Martin, J. G. Mode of binding grain and construction of grain binding harvesters.....	30,991	Tomkins, A. S. Cooking apparatus.....	31,006
Matte, N., et al. Machine for moistening envelopes and stamps.....	31,002	Townsend, I. Swivel for flag halyards.....	30,995
Meek, D. E., et al. Sliding gate.....	30,980	Universal Cigar Rolling Machine Co. Cigar rolling machine.....	30,918
Miller, J. M. Fire extinguisher.....	30,964	Vacuum Brake Co. Vacuum brake.....	30,993
Montminy, C., et al. Machine for moistening envelopes and stamps.....	31,002	Vagner, J. A. Petroleum oil stove.....	30,894
Morin, L. M., and O. N. Water wheel.....	31,013	Van Valkenburg, R. T. Chemical engine.....	30,983
Morrill, W. T. Saw swage.....	30,952	Wad-El-Ward, J., et al. Fuse and taper lighter.....	30,966
Munger, T., et al. Plough point sharpener.....	30,922	Wait, J. H. Grate.....	31,017
Muskegon Chemical Fire Engine Co. Chemical engine.....	30,983	Ward, G. S., et al. Process for producing lustre bronze	30,981
National Heating Co. Cooking stove or range.....	30,982	Waterhouse, A. G. Dynamo electric machine.....	30,937
National Tramway Motor Co. Motor for cars, etc.....	30,872	Weight, L. Apparatus for healing throat or lung complaints.....	30,975
Newman, E. A. Electro thermostatic anti-freezing apparatus.....	30,934	Wellens, R. & J., et al. Stop valve.....	30,914
Nichols Harvester Co. Grain binding harvester.....	30,917	Wesson, M. B. Medicine dial.....	30,950
Nichols, M. L. Grain binding harvester.....	30,917	Westervelt, R., et al. Electric temperature regulator.....	30,895
Norrington, H. H. Hand stamp.....	30,948	Westervelt, R., et al. Electric thermostat.....	30,890
O'Brien, J. Fishweir.....	30,892	Westervelt, R., et al. Fire alarm telegraph system.....	30,899
Osborn, R. F. Car coupling.....	30,929	Westervelt, R., et al. Thermostat.....	30,897
Ovens, T. A. Pavement.....	30,967	Westervelt, R., et al. Valve controller.....	30,898
Parker, J. O. Flushing tank.....	31,019	White, G. & R. A. A. Polychromatic printing.....	30,943
Parrie, J. B. Belt fastener.....	30,934	White, W. P. Carpet cleaner.....	30,879
		Whitney, B. F. Boot.....	30,907
		Whitney, J. H. Treadle.....	30,987
		Williamson, S. S., et al. Check punch.....	30,941
		Wood, S. J. Anti-rattler and nut lock for thill couplings.....	31,003
		Young, C. H. Knitting machine.....	30,999