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INVENTIONS PATENTED.

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

No. 20,833. File Box or Paper-Holder.

(Boîte à Dossiers ou Porte Papier.)

William H. Tucker and Miletus J. Wine, Washington, D.C., U.S., 7th January, 1885; 5 years.

Claim.—1st. In combination with the follower-board of a file-box secured against vertical displacement, and having fixed to its outer face an upright bracket formed with flanges, a vertical arm or post having lugs or flanges engaging the flanges of the upright bracket, and an actuating lever arranged on the follower, substantially as described. 2nd. The combination of the follower-board of a file-box, and a bracket secured thereto, formed with an upright board-piece having side flanges and side extensions formed with downward extending arms, and lugs operating in slots, and grooves in the bottom of the box, with a vertical clamping arm having an open sleeve or lugs engaging the flanges of the upright board-piece, and an actuating lever journaled to the follower, substantially as and for the purposes set forth. 3rd. In combination with the follower-board and bottom of a file-box, the organized clamping means, herein described, consisting of a bracket *a*, the clamping arm *d* and actuating-lever *c*, the whole arranged and combined substantially as set forth.

No. 20,834. Car-Coupling.

(Accouplage de Wagons.)

Munro Hunter and Stanislaus Barahart, Attica, Ind., U.S., 7th January, 1885; 5 years.

Claim.—The combination, in a car coupling, of a draw-head having a longitudinal recess opening in the end of the head, with a bevelled mouth, and having a longitudinal slot in its upper side, and a perforation in its under side, a flat hook bearing with its ends against the ends of the slot having an inclined front edge forming a shoulder to the rear of the hooked part, and having a right-angled slot in its rear end, and a cross piece at the outer end of its upper edge provided with an eye, a bar passing transversely through the sides of the head and through the upper end of the slot in the rear end of the hook and a link, as and for the purpose shown and set forth.

No. 20,835. Fifth Wheel for Waggon.

(Rond d'Avant-train pour Wagons.)

Thomas Evans, Gravesend, William H. Roberts, New York, and Caleb H. Roberts, Brooklyn, N. Y., U. S., 7th January, 1885; 5 years.

Claim.—A fifth wheel formed of two circular channel plates *C*, *D*, provided with interlapping flanges *c*, *d* and the corresponding central depression, and wearing surface *δ*, *δ*, in combination with the circular skeleton frame *F*, and the conical rollers *E* journaled in the rims *f* of said frame, as shown and described.

No. 20,836. Chair. (Chaise.)

James H. Shields, John W. Lavery and Timothy F. Shea, Boston, Mass., U.S., 7th January, 1885; 5 years.

Claim.—1st. In a swinging chair, substantially such as described, the combination of the following instrumentalities, to wit: two chairs arranged to face each other and mounted on a common foot-board, a seat-back, arms and guard for each chair, tubes on which the seats and arms rest, suspensory cords passing respectively through the

tubes, arms, seats and foot-board and side-guards for connecting the chairs, substantially such as described, the foot-board *C* bifurcated at either end, in combination with the seats *H*, tubes *i*, *l* and cords *D*, *M*, substantially as described. 3rd. The improved swinging chair, herein described, the same consisting of the foot-board *C*, seats *H*, backs *J*, guards *L*, *x*, *m*, arms *K*, tubes *i*, *l*, *z*, *r* and cords *D*, *E*, constructed, combined and arranged to operate substantially as set forth. 4th. In combination with a swinging chair, consisting of the chairs *A*, *B*, constructed as described, the rocker-shaft *N* and arms *Q* for supporting said chairs, substantially as and for the purpose set forth.

No. 20,837. Machine for Making Lozenges.

(Machine à Pastilles.)

Chase and Company, (Assignees of Oliver R. Chase,) Boston, Mass., U.S., 7th January, 1885; 5 years.

Claim.—1st. The process of manufacturing confectionery lozenges, which consists in first forming the sugar paste into sticks or bars of any desired cross section, and then cutting each of said bars or sticks transversely into a series of thin disks, as set forth. 2nd. That improvement in the manufacture of confectionery lozenges, which consists in first forming the plastic or semi-plastic sugar paste into sticks or bars of any desired cross section, cutting each of said sticks or bars transversely into a series of thin disks, and then embossing one or both sides of each of said disks by impressing thereon or there-in any desired designs or figures, as set forth. 3rd. In a machine for making confectionery lozenges, the endless apron *M*, provided with the series of rods or bars *k*, arranged and adapted to operate, substantially as and for the purposes specified. 4th. The combination of the endless apron *M*, the knife cylinder *D* and the roll *G*, all arranged and adapted to operate substantially as described. 5th. The combination of the knife cylinder *D*, the embossing roll *G* and one or more series of discharging fingers, arranged and adapted to remove the lozenges from between the knives, substantially as described. 6th. In combination with the knife cylinder *D* and the roll *G*, one or more knife-wiping or cleaning cylinders *F* or *F*, arranged and adapted to operate, substantially as described for the purposes specified. 7th. The combination of the knife cylinder *D*, the embossing roll *G*, the discharging fingers *r* or *r* and the endless feeding apron *M*, all arranged and adapted to operate substantially as and for the purposes described. 8th. In a machine for making confectionery lozenges, the combination of mechanism for cutting a stick or bar of sugar paste into a series of disks, and mechanism for embossing one or both sides of each of said disks, substantially as described. 9th. In a lozenge-making machine, a series of inclined channels formed of a series of movable plates having formed thereon designs or characters to be impressed into one or both sides of the lozenges, and a series of cams for moving said plates to impress said designs upon the lozenges, substantially as described. 10th. The combination of the knife cylinder *D*, the roll *G*, the two series of fingers *i* and *i*, the two inclined tables *B* and *B*, the two series of movable plates *m*, *m* having formed thereon suitable designs or characters, the two series of cams *r*, *r* and cam shafts *q*, *q*, the two series of levers *s*, *s*, the two bars *P*, *P* and the two cams *Q*, *Q* all arranged and adapted to operate; substantially as described. 11th. The combination of a series of movable plates *m*, *m*, provided with suitable designs or characters formed thereon, a series of cams *r* for operating said plates to emboss the lozenges, and the revolving shaft *n* provided with a series of fingers *n*, all arranged and adapted to operate, substantially as and for the purposes described.

No. 20,838. Pneumatic Signal.

(Signal Pneumatique.)

Celia B. Booth, (executrix of the last will of Jonathan L. Booth,) Rochester, N. Y., U.S., 7th January, 1885; 5 years.

Claim.—1st. In a pneumatic signal, the combination, with the hollow vertical post *A*, of the air cylinder *C*, the piston *D* moving freely therein, the air-escape attachment *L* on top of the piston, the wire connection *G* attached to the piston and extending upward through the post, the strap *F* provided with a loop *g* attached to the wire, the pulley *E* over which the strap passes and the curved spring-arm *H* attached to the pulley, as shown and described, and for the purpose specified. 2nd. In a pneumatic signal, the combination, with the wire

connection G extending up through the hollow post of the cylinder C provided with an oil receptacle in its bottom, and a piston D to which the wire connection is attached, said piston resting in the cylinder and provided with a hoop or band *f* for dipping into the oil, and a packing *e* for preventing escape of the confined air, as herein shown and described. 3rd. In a pneumatic signal, the combination, with the wire connection G extending up through the hollow post of a cylinder C provided with an air inlet valve in its bottom, a piston D to which the connection is attached resting in the cylinder, an air escape attachment on top of the piston provided with a series of perforations of graduated sizes, and a segmental plate for changing the escape of the air from one perforation to another, as set forth. 4th. In a pneumatic signal, the combination, with wire connection extending up through the hollow post, of a cylinder C provided with an air inlet valve in its bottom, a piston D to which the connection is attached resting in the cylinder, and an air-escape attachment consisting of a cup provided with a fibrous packing through which the air is filtered, the cup having a series of graduated perforations, and a segment plate *g* resting over the perforations and changeable to different positions, as and for the purpose specified. 5th. In a pneumatic signal, the combination, with the wire connection G extending up through the hollow post, of a cylinder C provided with an inlet valve, a piston D to which the connection is attached resting in the cylinder, an air escape L attached to the piston and provided with a series of perforations of graduated sizes, and a segment plate *g* resting over said perforations and provided with a channel *h*, which by being shifted from one perforation to another, changes the amount of escape of air from the cylinder, as herein set forth. 6th. In a pneumatic signal, the combination, with the wire connection G, of the cylinder C provided with an inlet valve, a piston D resting in the cylinder, an air escape L attached to the piston and provided with a series of perforations of graduated sizes, a segment plate *g*, provided with a channel *h* resting over the perforations, and a spring clam *k* and set screw *l* for securing the segment plate at any adjustment, as herein set forth. 7th. In a pneumatic signal, the combination, with the hollow post A and with the cylinder C, piston D and wire connection G located in the hollow post, of the air filter M, resting in the post below the cylinder and covering the passage to the cylinder, and serving to filter the air before it reaches the cylinder, as herein shown and described. 8th. In a pneumatic signal, the combination, with the hollow post A, and with the cylinder C, and piston D, of a wire connection G attached to the piston and extending up through the post, said connection consisting of side wires *i* running at the sides of the post, which allow the insertion and removal of the lamp between them and a cage *k* of rectangular form, which projects forward to the front of the post and carries the shield *v*, as shown and described and for the purpose specified. 9th. In a pneumatic signal, the combination, with the pulley E, strap F and wire connection G connected with the piston in the cylinder, of the spring arm H attached to the pulley and the reacting spring *o* attached to the lower end of the arms, as shown and described and for the purpose specified.

No. 20,839. Combined Bill-Head Printing and Automatic Registering Device. (*Appareil pour Imprimer les Têtes de Comptes et Régistre Mécanique Combinés.*)

Edward W. Blackhall, Toronto, Ont., and John H. Smith, Buffalo, N.Y., U.S., 7th January, 1885; 5 years.

Claim.—1st. In an autographic registering apparatus, the combination of a printing stamp, with a paper-dispensing reel or reels, and a storing reel, all operated in any suitable manner, for simultaneously printing a heading on the paper, and unwinding and winding up the paper strip or strips, substantially as specified. 2nd. In a combined bill-head, printing and automatic registering apparatus, the combination of a paper-dispensing spool, a fac-simile storing reel, a friction operating roller and a printing stamp, the unwinding of one reel and winding of the other being accomplished by the said printing device in connection with the said friction roller, all arranged and operating substantially as specified. 3rd. In an autographic or manifold device, the dispensing reel having two or more strips of paper wound together thereon, so that two or more lengths may be given off exactly together, substantially as and for the purpose hereinbefore specified. 4th. In an autographic registering apparatus, in combination with the unwinding and winding reels the pressure roller *C* having a loose shaft with a single toothed eccentric attached thereto, and a spring ratchet attached to the side of the roller, a cog wheel fast on said shaft and the rack-segment *D* meshing into said cog wheel, which by up-and-down movement of said rack actuates the pressure roller *C* only one way and consequently only moves the paper forward, all substantially as specified. 5th. In a combined bill-head printing and automatic registering apparatus, the combination of a paper-unwinding reel, a winding reel, a printing stamp and a perforator *r* attached to the printing device, all operated together by a single up-and-down movement of said printing device, segment *D*, cog *i*, eccentric ratchet, loose shaft *h* and pressure roller *C*, all substantially as and for the purpose specified.

No. 20,840. Thermo-Electric Generator. (*Appareil Thermo-Electrique.*)

Henry Woodward, Toronto, Ont., 7th January, 1885; 5 years.

Claim.—1st. In combination with the elements *e*, an inserted composition of slag-wood and cement, as a non-conductor of heat. 2nd. In a thermo-electric generator, the chamber or casing having concentric passages or spaces *f*, *g*, *h*, *k*, divided by partitions *m* into channels, the innermost or central space *N* forming the flue, as set forth.

No. 20,841. Bosom Board.

(*Panache à Repasser les Devants des Chemises.*)

John A. Cupler, Dallas, Penn., U.S., 7th January, 1885; 5 years.

Claim.—1st. In a bosom board, the combination, with a padded body having the transverse kerfs or cuts, of the side clamp consisting of the bent wires secured to the under face of the board by staples,

and having angular end bends forming rigid bearings, and the wool len portions made nearly diamond shape in cross section rigidly secured to said end bends, substantially as specified. 2nd. In a bosom board, the combination, with the padded body having the short transverse kerfs or cuts and the clamp rests at the end and sides on its lower face, of the side clamps and end clamps consisting of the bent wires turning in staples on the under face of the board, and having angular bearings on their end bends, and the wooden portions of said clamps rigidly secured on said angular bearings, as set forth.

No. 20,842. Folder for Sewing Machines.

(*Pleur pour Machines à Coudre.*)

John E. Lyon, Salem, Mass., U.S., 7th January, 1885; 5 years.

Claim.—1st. In a folder for sewing machines, two scrolls mounted one above the other, said scrolls being bent or turned in opposite directions, whereby the lower scroll is adapted to turn the edge of the lower fabric upwardly, and the upper scroll to turn the edge of the upper fabric downwardly, substantially as described. 2nd. In a folder for sewing machines, the folder proper B, in combination with the plate or arm A, constructed and arranged to operate, substantially as set forth.

No. 20,843. Apparatus for Combustion of Liquid Fuel. (*Appareil Consommant le Combustible Liquide.*)

Edward C. Burgess, Islington, Eng., 7th January, 1885; 5 years.

Claim.—Apparatus for combustion of liquid fuel consisting of a retort and pipes for water, steam and oil, or other liquid hydrocarbon, in combination with an injector nozzle and a shield so arranged that a spray of the hydrocarbon mixed with steam and air and ignited plays against the retort, heating it and producing a body of flame available for other heating purposes, substantially as described.

No. 20,844. Boiler Furnace.

(*Fourneau de Chaudière.*)

Absalom Backus, jr., Detroit, Mass., U.S., 7th January, 1885; 5 years.

Claim.—1st. A boiler furnace consisting of the combination, with the boiler, of a combustion chamber, a depending wall above the combustion chamber, a feeding throat F and grate, substantially as described. 2nd. The combination, with a boiler, of a combustion chamber, a depending wall above the combustion chamber, a feeding throat F and intermediate air passage *E*, substantially as and for the purposes described. 3rd. The combination, with a boiler, of a combustion chamber, a grate consisting of sections E and upright section *E*, feeding throat F and intermediate air passage *E*, substantially as described. 4th. In a furnace, the combination of the inclined grate section *E* with a section E made of pivoted bars, and a rod connection connecting the same, whereby they may be shaken, substantially as described. 5th. The combination, with a furnace, of the feeding throat at or near the level of the boiler, a feeding throat F on the level of the feeding floor and depending arch D in the combustion chamber, substantially as described. 6th. The combination, with a boiler and feeding throat F, substantially as described, of a feeding floor located on the level with the feeding throat, a chamber beneath for access to the ash pit and a fuel chute for delivering fuel into the feeding floor, substantially as and for the purposes described. 7th. The combination, with a boiler, of a combustion chamber, a depending wall above the combustion chamber and a feeding throat F, substantially as described. 8th. The combination, with the boiler, of a combustion chamber, a grate consisting of section E and *E* and a feeding throat F, substantially as described. 9th. The combination, with a boiler furnace, of a combustion chamber, a depending wall above the combustion chamber, a feeding throat F, a grate consisting of sections *b* and *E* and an air duct to feed air to the products of combustion, substantially as described. 10th. The combination, with the feeding throat F and the air passage *E*, of an intermediate partition made adjustable up and down to enlarge or contract the discharge end of the feeding throat, substantially as and for the purposes described.

No. 20,845. Book-Keeper's Stool.

(*Banc de Teneur de Livres*)

George B. Edwards, Charleston, S.C., U.S., 7th January, 1885; 5 years.

Claim.—The combination of the supporting frame provided with rails, rabbeted substantially as shown, with the chair-frame having bifurcated supporting standards, constructed standards constructed with ends bent to engage the rails, and the wheels pivoted in said standards, whereby the chair is adapted to ride freely on the rails and is held from displacement, as set forth.

No. 20,846. Pump. (*Pompe.*)

Wilbur L. Shephard, Hartford, Ct., U.S., 7th January, 1885; 5 years.

Claim.—The combination of the piston P, the cylinder Q, the tubular journals L and *L*, the water-ways *y* and *y*, the valves W and *W*, the water-ways Z and *Z*, and the air chamber X, all constructed and combined substantially as described, and operating together in an oscillating pump, substantially as explained in this specification.

No. 20,847. Sheet Metal Roofing Plate.

(*Toile à Toiture.*)

Patrick H. Regan, Nashville, Tenn., U.S., 7th January, 1885; 5 years.

Claim.—1st. The combination of two sheet metal roofing plates, adapted to be arranged with other similar pieces in overlapping courses or layers, and formed at their one edge with a flange B, a bead C and a lip D, formed so as to overhang toward said bead and

nearly inclose a narrow space *e*, and said plates being formed at the opposite edge with the bead J and flange E, adapted respectively to overlap the bead C and enter the space *e* of the adjoining plate, substantially as shown and described. 2nd. A sheet metal roofing plate, having one of its edges formed with a nailing flange B, a bead C and a lip D overhanging toward said bead and nearly inclosing a space *e* below the lip, and having its opposite edge formed with a bead J and lock-flange E, substantially as shown and described. 3rd. A sheet metal roofing plate formed with a central bead G, having an enlargement at H near the bottom of the plate, and formed also with segmental raised surfaces K, K at each side of the bead G, and arranged with their curved edges *k, k* facing the bead, substantially as shown and described. 4th. A sheet metal roofing plate formed with a nailing flange B, bead C, lip D, space *e* and incline F along one edge and a bead J, flange E and incline J along the opposite edge, and also formed also with a bead G having an enlargement H, and with segmental raised surfaces K, K, arranged with their rounded edges *k, k*, facing each other, substantially as shown and described. 5th. A sheet metal roofing plate formed with a nailing flange B, bead C, lip D, space *e* and incline F along one edge, and a bead J, locking flange E and incline I along the opposite edge, also with a central bead G having an enlargement H, segmental raised surfaces K, K arranged with their curved edges *k, k* facing the bead G, a raised surface L along the top of the plate, and a depression M at the lower edge of the plate, substantially as shown and described.

No. 20,848. Electric Lamp. (*Lampe Electrique.*)

Addison G. Waterhouse and Barton B. Ward, Kingston, Ont., 8th January, 1885; 5 years.

Claim.—1st. In an electric arc lamp, an electro-magnet composed of an iron core provided with a coiled conductor M, placed at or near its centre for carrying the main current in a given direction, also coiled conductors S, S₁ at each end of the core for carrying a shunt current in the same direction as that in coil M, and poles or pole pieces P, P₁ at points on the core located between the main current conductors and the shunt current conductors, and armature or armatures connected to the movable carbon and arranged to be actuated by the varying magnetism of the magnet substantially as and for the purposes as above set forth. 2nd. In an electric lamp, an electro-magnet composed of a coil carrying a current from the main circuit, and a coil or coils carrying a current from the shunt circuit, both currents passing around the magnet in the same direction, the main current coil being located at or near the centre of the magnet core, the poles or pole pieces at each end of the main circuit coil, and the shunt coil or coils located at or near the ends of the magnet and beyond the poles or pole pieces, so that the action of the main current will cause the poles or pole pieces to attract an armature or armatures, and the action of the shunt current will be to move the magnetism of the main beyond the reach of the said armature or armatures, substantially as and for the purposes set forth. 3rd. In an electric lamp, an electro-magnet composed of an iron core C, provided with coils of conductors located as follows: a central coil M for carrying the main current in a certain direction, and the coils S, S₁ located so as to leave pole pieces between the three coils, and at each end of the core C, the coils S, S₁ to carry a shunt current in the same direction as the current in M, so that the main current in M will polarize the adjacent parts of the magnet, and the shunt current will tend to polarize the parts of the magnet beyond the shunt coils, substantially as and for the purposes set forth. 4th. In an electric lamp, an electro-magnet composed of a main magnet M, having its poles beyond the main coil, and armature or armatures A and shunt coils arranged beyond the armature, substantially as and for the purposes set forth. 5th. In an electric lamp, an electro-magnet consisting of a tubular core C, through which the carbon rod extends, said core C being provided with projecting poles P, P₁ between which the armature swings, in combination with a coil for the main current placed around the core between the poles P and P₁, and one or two coils for the shunt current placed around said core between its ends and the poles P, P₁, substantially as and for the purposes set forth. 6th. In an electric lamp, an electro-magnet consisting of a core C, with poles P, P₁ for acting upon an armature or armatures, said core C being provided with a coil M for the main current, placed between the poles P and P₁, and coils S, S₁ for the shunt current, placed upon said core between the ends of the core and the poles P, P₁, substantially as and for the purposes set forth. 7th. In an electric lamp, an electro-magnet composed of a core C provided with conductors for the main current, and pole pieces or pole pieces P, P₁, between which armatures A swing, fixed upon the yoke I, pivoted at the centres B, substantially as and for the purposes set forth. 8th. In an electric lamp, an electro-magnet, in combination with the swinging armatures A and pivoted yoke I and rod r, provided with a retarding dash pot or air piston, and actuated by the armatures A through the yoke I, whereby movement is imparted either directly or indirectly to the carbon rod R, through the clutch N, substantially as and for the purposes set forth. 9th. In an electric lamp, the lever J, spring *e* and clutch N actuated by an electro-magnet, substantially as and for the purposes set forth. 10th. In an electric lamp, a lever J provided with a liberating point or floor J₁, by the coming in contact of which the tail of the clutch N is liberated, substantially as and for the purposes set forth. 11th. In an electric lamp, the spring *e* forming an elastic connection between the clutch N, and the mechanism by which the clutch is actuated, substantially as and for the purposes set forth. 12th. In an electric lamp, an electro-magnet formed with a tubular passage through the core of the magnet, through which the carbon rod R passes, and an extension tube K electrically connected to the conductor leading to the lamp through which electrical contact can be made to the carbon rod R, by means of the contact brushes *m*, substantially as and for the purposes set forth. 13th. In an electric lamp, an electro-magnet provided at the lower end, and connected therewith, a frame F which provides bearings or guides for the carbon rods, and the regulating mechanism of the lamps, substantially as and for the purposes set forth. 14th. In an electric lamp, the method in which the lower carbon holder L₁ is secured to the part of the frame forming the globe holder G by means of non-conducting cement Y, and electrically connected to the negative binding post W₁ by means of an insulated wire W₁ passing through one of the side rods *d* of the frame, substantially as and for the purposes set forth.

No. 20,849. Sash-Holder. (*Arrête-Crois'e.*)

Thomas A. Bereman, Mount Pleasant, Iowa, U.S., 8th January, 1885; 5 years.

Claim.—1st. In a window, the combination, with the side strip or stop, head A secured at its top and bottom only, of a cam or eccentric disk pivoted to the jamb and adapted to act upon the said strip, substantially as hereinbefore shown and described. 2nd. In a window, the combination, with a side strip or stop, head A secured at its top and bottom to the jamb of the eccentric disk D, pivoted to the jamb, and provided with the flange F and the lever E, substantially as herein shown and described.

No. 20,850. Hame Fastener. (*Attache-Attelle.*)

William W. S'y, Cleveland, Ohio, U.S., 8th January, 1885; 5 years.

Claim.—The combination of the latch D, pivotally attached to case A, and the lever A having hook *b*, substantially as and for the purpose specified.

No. 20,851. Car-Coupling. (*Accouplage de Wagons.*)

Isaac J. Merriek, Conotton, Ohio, U.S., 8th January, 1885; 5 years.

Claim.—1st. The combination, in a car-coupling, of a draw-head having S hooked shoulder and a horizontal slot or recess behind the shoulder, a block or lever pivoted horizontally in the said slot, a chain attached to the outer end of the said lever or block, and means for drawing the said chain to one side, tilting the inner end of the lever into the space behind the shoulder of the draw-head and drawing the draw-head to the side, as and for the purpose shown and set forth. 2nd. The combination, in a car-coupling, of a platform A having the vertical plate A₂ and the top horizontal plate A₁, the supporting-rods *a* having their forward ends swivelled to the platform near the opposite sides of the latter, the tubular sheaths or sleeves surrounding the supporting-rods *a* and the coil-springs, substantially as and for the purposes set forth. 3rd. In a car-coupling, the combination, substantially as hereinbefore set forth, of the boxing D having offsets, the plate secured within the boxing D between the said offsets, the plate *d*₂ placed over and sliding across the face or front of the boxing D, the casing C having upper and lower openings *c*₁, the carrier sliding within the casing and having guides or lugs projected through the openings *c*₁ thereof, interposed springs *c*₂, the coupling bar and means for operating the same, as specified. 4th. In a car-coupling, the combination of the casing C, the carrier *c*₂ placed and operating within the said casing, rods *c*₃, *c*₄ swivelled to the opposite sides of the carrier, and extended laterally through the casing C, interposed springs *c*₂, the coupling-bar B passed through the carrier and having its rear end secured to the car by a pivotal connection, and means for operating the coupling-bar, substantially as and for the purposes set forth.

No. 20,852. Lantern Holder. (*Accroche-L. Intern.*)

Charles J. Higgins, Hallowell, Me., U.S., 8th January, 1885; 5 years.

Claim.—1st. The combination, with a reflector A, of the guard B secured with its ends to the reflector, and provided with springs whereby the guard is made yielding, substantially as set forth. 2nd. The combination, with a reflector A, of a guard B secured to the reflector and adapted to surround the lantern, substantially as set forth. 3rd. The combination, with a reflector A, of a guard B provided with tube-clasping portions, and a hook C and stop D adapted to clasp the lower part of the lantern, substantially as set forth.

No. 20,853. Paper Bag. (*Sac en Papier.*)

Walter E. Laughton, Toronto, Ont., 8th January, 1885; 5 years.

Claim.—As an article of manufacture, a bag of paper or other suitable material made by the aid of a hinged former, as shown, and glued (or parted) folded and furnished in the manner shown, and for the purpose specified.

No. 20,854. Sewing Machine Folder.

(*Plieuse de Machine à Coudre.*)

John E. Lyon, Salem, Mass., U.S., 8th January, 1885; 5 years.

Claim.—1st. In a folder for sewing machines, the folder proper B, constructed and arranged to operate substantially as described. 2nd. In a folder for sewing machines, the presser foot A provided with the arm C, in combination with the folder proper B, constructed and arranged to operate substantially as set forth.

No. 20,855. Car-Coupling.

(*Accouplage de Wagons.*)

William R. Power, Windsor, Ont., June R. Campbell, June Wilson, and Matilda Wilson, Detroit, Mich., U.S., 9th January, 1885; 5 years.

Claim.—1st. In a car-coupling, the weight pivoted hook C formed on one side, with the true arc of a circle, and with a projection *f* to engage with and be held by a pawl B projecting through the top of a draw-head, substantially as and for the purpose specified. 2nd. In a car-coupling, the front walls of the recess *b* formed, with the corresponding circle of the front part of the hook C, as a bearing for the latter to release the strain from the pivot pin *d*, substantially as specified. 3rd. In a car-coupling, the pawl B formed with an incline or a part of the lower side to correspond with the draw-head, and made to pass down through a slot D in the draw-head to engage with the projection *f* of the hook to lock the same, when the link is coupled, substantially as described. 4th. In combination with the pawl B of a car-coupling, of the cap or cover E, substantially as and for the purpose specified. 5th. The combination of the hook C and pin *g*, substantially as and for the purpose described. 6th. The combination of the pawl B, hook C and draw-head A, substantially as and for the purpose specified. 7th. In a car-coupling, the slots *i* for

the pin *g* to move in, as specified. 8th. The combination of the pawl *B*, levers *J*, *l*, *l* and hook *C*, substantially as specified.

No. 20,856. Sugar Making Apparatus.

(Appareil pour faire le Sucre.)

John B. Noyes, Barnston, Que., 9th January, 1885; 5 years.

Claim.—1st. The combination of the portable fire arch *A*, and the boiling pan *B*, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the portable fire arch *A*, of the evaporator *C*, substantially as and for the purpose hereinbefore set forth. 3rd. The combination, with the portable fire arch *A*, and the evaporator *C*, of the damper *a*, substantially as and for the purpose hereinbefore set forth.

No. 20,857. Disintegrating Machine.

(Machine à Moudre.)

Silas Dodson, New York, N.Y., U.S., 9th January, 1885; 5 years.

Claim.—1st. A pair of burrs severally having a dress comprising groups of grooves *d*, one of each groups being radial and the others of each group being parallel therewith, and rows of cavities *e* of semi-cylindrical shape, arranged in the same plane with and beyond the outer ends of the groups of grooves, and having their flat sides or walls in radial lines, the dress of the two burrs being reversed, substantially as specified. 2nd. A pair of chilled cast iron burrs severally having a dress comprising groups of grooves *d*, one of each groups being radial and the others of each group being parallel therewith, and rows of cavities *e* of semi-cylindrical or analogous shape arranged in the same plane with and beyond the outer ends of the grooves, and having their flat sides or walls in radial lines, the dress of the two burrs being reversed, substantially as specified. 3rd. The combination, in a disintegrating machine, of a case, a stationary burr having an opening through it and affixed to the case, a rotary burr, a longitudinally adjustable shaft, a hopper at the side of the case, a conveyor arranged on the shaft between the rotary burr and the said hopper, and a spring abutting against the hopper and extending into a cavity in the conveyor, and a screw at the end of the shaft opposing the force of the spring, substantially as specified. 4th. The combination, in a disintegrating machine, of a case *C*, a stationary burr *A* affixed thereto, a rotary burr *B*, a shaft *D* on which the latter is affixed, a hopper *E* at the side of the case *B*, a conveyor *F*, a spring *G*, a screw *J*, and a washer *b* between a block actuated by the screw and the adjacent end of the said shaft *D*, substantially as specified. 5th. The combination of the case *C*, the burr *A* affixed thereto, the rotary burr *B*, the shaft *D* which carries the latter, the pulley *D*₂ on the shaft *D*, the shaft *L*, the pulley *L*₂ on the shaft *L*, the belt *H*, the chute *N*, the lever *K* vibrated from the shaft *L* and the rod *O*, substantially as specified. 6th. The combination of a rotary burr in a disintegrating machine, a shaft *D* carrying this burr, a hopper for the disintegrating machine, a chute for conducting material to the hopper, a pulley *D*₂ on the shaft *D*, a swivel or lever *K* for imparting motion to the sieve, a shaft *L* transmitting motion to the lever, a pulley *L*₂ on the shaft *L*, the belt *H* transmitting motion from the pulley *D*₂ to the pulley *L*₂, substantially as specified. 7th. The herein described machine, comprising a shaft *D*, a stationary and a rotary burr, a hopper, a chute for conducting material to the hopper, a pulley *D*₂ on the shaft *D*, a sieve *J*, a lever *K* for imparting motion to the sieve, a shaft *L* transmitting motion to the lever, a pulley *L*₂ on the shaft *L* and the belt *H* transmitting motion from the pulley *D*₂ to the pulley *L*₂, substantially as specified.

No. 20,858. Stove, &c. (Poêle, &c.)

George R. Prowse, Montreal, Que., 9th January, 1885; 5 years.

Claim.—1st. The combination of the fire-box *A*, oven *H*, up-take and down-take flues *K* and *R*, tubes *M* and *Q*, constructed, arranged and operating substantially as shown and described for the purposes set forth. 2nd. The combination of the fire-box *A*, oven *H* having perforations at *D*₁, up-take and down-take flues *K* and *R*, tubes *M* and *Q*, space *U* having a controlling regulator by which a current of air is admitted to the oven, the whole constructed and arranged substantially as described, for the purposes set forth. 3rd. The combination of the fire-box *A*, situated as described at one side of the oven, flues *K* and *R* situated at the back of the stove, plate *F*₃ and baffle plate *E*₁, the whole constructed and arranged substantially as and for the purposes set forth.

No. 20,859. Meat Tenderer. (Balle de Cuisine.)

Jane A. Clother, Cumberland, Wis., U.C., 9th January, 1885; 5 years.

Claim.—A meat tenderer consisting of the top *C* having the cutting plate *E*, and the bottom *B* having the cutting plate *D*, rim *b*, spout *b*₁ and channel *b*₂ between the cutting plate and the rim, as set forth.

No. 20,860. Rumble for Scouring Castings, Ores, &c. (Tambour pour Nettoyer les Fontes, Minerais, &c.)

Ezra W. Vanduzen, Newport, Ky., U.S., 9th January, 1885; 5 years.

Claim.—1st. The combination of the tank having a single water compartment, the shaft journalled on the tank, and the rotating cylinder constructed with an imperforate periphery and contracted open ends, and provided at one end with water supply buckets for lifting the water from the tank into the cylinder through one end thereof, and discharging such water at the opposite end of the cylinder directly into the tank, substantially as herein described. 2nd. In a machine for cleaning and treating castings, ores and other articles, the combination of a tank, a rotating cylinder journalled above the tank and extending down into the same, and a water displacer or level regulator moving in ways within the tank, and means for sustaining the regulator at any desired point, substantially as described. 3rd. In an ore washer or pulverizer, the combination of a tank *A*, a cylinder *B* mounted above the tank and extending down into the same and having an imperforate periphery and contracted open ends,

the water supply buckets at one end of the cylinder and inclined amalgam plates *P* beneath the cylinder and extending beyond the end thereof to gather such particles of metal as may escape in the overflow of water from the end of the cylinder, substantially as described. 4th. In an ore washer and pulverizer, the combination of the tank *A*, the rotating cylinder journalled above the same and extending down into it the water supply buckets, communicating with the interior of the cylinder through one end, and a feed spout *E*, and apron *c* for feeding the cylinder while in motion, substantially as described. 5th. The combination of the tank, the revolving cylinder supported on a shaft above the tank, and provided with bucket supply openings at one end, and a discharge opening at the other end, and a water displacer or level regulator within the tank, as set forth.

No. 20,861. Bottom for Boots or Shoes.

(Fond de Chaussure.)

Conrad F. Glanville, San Francisco, Cal., U.S., 9th January, 1885; 5 years.

Claim.—1st. In a boot and in combination with an outer and an inner sole, a rim or flange of rubber interposed between their edges, so as to form an inclosed central air-space between the soles, substantially as herein described. 2nd. In a boot or shoe, an outer and an inner sole with an edge interposed rim or flange of rubber forming an inclosed air space between the soles, in combination with a spring or springs acting between the soles within this space, substantially as herein described. 3rd. In a boot and in combination with an outer and an inner sole, a rim or flange of rubber interposed between their edges, so as to form an inclosed central air-space between the soles, said rim having its front or sides extended up to protect the upper, substantially as herein described.

No. 20,862. Steam Engine Reversing and Governing Device. (Appareil de Renversment et de Gouvernement des Machines à Vapeur.)

Albert Henry, Brookville, Ont., 9th January, 1885; 5 years.

Claim.—1st. In a steam engine, two-way rocking valve *K* in a shell *J* having ports 4, 5, and ports 2, 3 connecting with opposite ends of the steam cylinder operated by an eccentric rod, as set forth for the purpose described. 2nd. In a steam engine, the steam pipe *L* having cock 7, and exhaust branch *M* having cock 8, steam pipe *N* connecting with pipe *L* and provided with cock 9, and exhaust branch *o* having cock 10, said pipes 4, 5, 7, 8, 9, 10 operated simultaneously by a lever *P*, whereby steam can be admitted to either end of the cylinder through either the inlet and exhaust ports to reverse the stroke or otherwise, as set forth.

No. 20,863. Insulator for Electrical Conductors. (Isoloir pour Conducteurs Electriques)

Franklin L. Pope, Elmora, N.J., U.S., 9th January, 1885; 5 years.

Claim.—1st. A supporting insulator for telegraphic line-wires or other electrical conductors having upon its exterior a conical or expanding screw-winding, and provided with a socket having an interior spiral groove winding in the reverse direction to that of the exterior screw, substantially as and for the purpose set forth. 2nd. The combination, substantially as hereinbefore set forth, with a shackle or horseshoe formed with hooked ends, as described, for grasping a telegraphic line-wire or other conductors and thereby forming a stirrup or ring of a supporting insulator having a conical expanding screw-thread or spiral groove formed upon its exterior surface, and a reverse hollow screw formed upon its interior surface, whereby it may be secured to a supporting pin. 3rd. The combination, substantially as hereinbefore set forth, with a supporting pin having a screw-thread formed upon one end thereof, of an insulator constructed with a corresponding screw-groove formed within a socket for receiving said pin, and a conical expanding screw-thread or spiral groove formed upon its exterior.

No. 20,864. Water Cooler. (Fontaine.)

James O. Brookbank, Driftwood, Penn., U.S., 12th January, 1885; 5 years.

Claim.—1st. In a water-cooler, the receptacle *A* provided with faucets *B*, *B*₁ upon different planes, and an inclined bottom having a V-shaped tapering recess, substantially as shown and for the purpose set forth. 2nd. A water-cooler having a base or bottom, with an inclined tapering recess, the lower portion of said recess being adjacent to a faucet *B*₁ and above the base with a faucet *B*, substantially as shown and for the purpose set forth. 3rd. In a water-cooler having an inclined bottom *C* and faucets *B*, *B*₁ for the purposes set forth, the base *A* supporting the cooler so that the same may be rotated thereon, for the purposes set forth.

No. 20,865. Electric Cable. (Câble Electrique.)

James Greenalgh and Philip Chase, Boston, Mass., U.S., 12th January, 1885; 5 years.

Claim.—1st. As a new article of manufacture, an electric cable having its body covered with a ribbon or strip of sheet metal applied spirally around the same, the edges of said strip being soldered or brazed together, substantially as described. 2nd. As a new article of manufacture, an electric cable having its body covered with a ribbon or strip of sheet metal applied spirally around the same, the edges of said strip being overlapped and soldered or brazed together, substantially as set forth. 3rd. As a new article of manufacture, an electric cable having its body covered with a ribbon or strip of sheet metal applied spirally around the same, said strip being corrugated longitudinally and having its edges soldered or brazed together, substantially as described. 4th. In an electric cable, the combination of the body *A* and covering *B*, constructed and arranged substantially as set forth.

No. 20,866. Process for Treating Birch Bark for the Manufacture of Mattresses, Pillows, &c. (*Procédé de Traitement de l'Écorce de Bouleau pour la Fabrication des Matelas, Oreillers, &c.*)

Lorenzo Chase, Portland, and William H. Scott, Deering, Me., U.S., 12th January, 1885; 5 years.

Claim.—1st. The process of producing a white birch bark stuffing for mattresses, etc. which consists in first stripping the bark into long narrow ribbons or bands, then subjecting the bands or ribbons in quantities to the action of heat in a curling pan to curl up the strips and interlock the same so as to form them into a coherent mass, as herein set forth. 2nd. The article of manufacture herein described, herein set forth: a mattress, pillow, etc., the stuffing or filling of which is made of stripped, curled and interlocked ribbons of birch, as herein set forth.

No. 20,867. Brush. (*Pinceau.*)

Oren Fish, George H. Kingsley and Charles W. Kingsley, Cleveland, Ohio, U.S., 12th January, 1885; 5 years.

Claim.—1st. In a brush, the combination, with the wooden top piece having a central mortise, and a central screw-hole leading from the button thereof to the top piece, which latter is surrounded by a metal band, the lower edge of which extends below the lower face of the top piece, of a handle having a tenon on its lower end to fit the mortise in the top piece, and a screw to pass through the screw-hole in the bottom of the mortise, and a metal center piece adapted to be drawn up within the cap by the screw to hold the bristles securely therein, substantially as set forth. 2nd. In a brush, the combination, with the wooden top piece having the central mortise and screw-hole for the tenoned brush handle provided with the tightening screw, and the metal band encircling the top piece and projecting below the same, of the metal center-piece having the threaded hole for the tightening screw, the wooden spool on the screw below the center-piece and the adjustable metallic bridle over the metal band, substantially as set forth.

No. 20,868. Pump. (*Pompe.*)

Alexander Kerr and Lyon Silverman, Montreal, Que., 12th January, 1885; 5 years.

Claim.—1st. In a pump, the combination of a larger plunger K, with a plunger V situated within plunger K and arranged to connect and disconnect the two, as described, with a means for holding the plunger K stationary when disconnected from the plunger V, as described, the whole substantially as shown and described for the purpose set forth. 2nd. In combination of the plunger V having projections G, and said plunger being operated, as described, plunger K, head L having groove O and openings Q and projections M, standards G₁, pump barrel A and inlet and discharge valves, the whole constructed, arranged and operated substantially as shown and described, for the purposes set forth.

No. 20,869. Railway Fish Plate.

(*Éclisse de Chemin de Fer.*)

Frank J. Thoma, Ottawa, Ont., 12th January, 1885; 5 years.

Claim.—1st. A railway fish-plate having the outside face made L-shaped, the laterally extending portion forming horizontal seats for the nuts *a* and having holes made to receive the upturned ends of the staple bolts C, substantially as shown. 2nd. The combination of the rails A, with the L-shaped fish-plates B, and the staple bolts C having the nuts *a*, substantially as shown and described. 3rd. The combination of rails A, with the L-shaped fish-plates B, staple bolts *c* and the chairs D, substantially as herein shown and described.

No. 20,870. Process for Preparing Grain for Fermentation used in Grain Distilleries. (*Procédé de Préparation du Grain employé dans les Distilleries du Grain pour la Fermentation.*)

Charles S. Corning, Peoria, Ill., U.S., 12th January, 1885; 5 years.

Claim.—The utilization of distillery slop from the beer still after being rapidly cooled either strained or unstrained, and with or without mixture, with water, for making a mash in the process of preparing grain for fermentation, as set forth.

No. 20,871. Bilge Pump.

(*Pompe des Fleurs de Bâtiment.*)

Joseph R. Jobin, St. Louis, Mo., U.S., 13th January, 1885; 5 years.

Claim.—1st. The combination, with a water-craft, of the inclined projection or bustle on the outside of the side or bottom of the hull, and an aperture at the rear of the salient rear end of the bustle extending from outside to inside of the hull and provided with an inwardly-closing valve. 2nd. The combination of metal bustle D, secured to the bottom of a water-craft, with recesses at the rear end of the bustle and orifice in the bottom of the craft, in combination with said recess and valve H, closing inwardly against its seat to close the orifice against entering water. 3rd. The combination, with the bottom of a water-craft, of bustle D, orifice through the bottom in connection therewith, inwardly-closing valve H and screw-cap K, for the purpose set forth. 4th. A bilge-pump consisting of a lower plate E having an orifice E₁, a cylindrical outer shell F and radial wings G, an upper plate I having an orifice J, a cylindrical inner shell beneath said upper plate having suitable orifices L₁ and concentric with the outer shell, and a float-valve within the inner shell and adapted to be supported by the wings, as set forth. 5th. In combination, with a bilge-pump having lower plate E and orifice E₁, the bustle D gently inclined downwardly from its forward end to its rear end D₁, having cup D₂ open at rear and at top beneath the orifice of the plate and

corners D₃ to bear against the front edge of the plate, as set forth. 6th. The combination of a suitable bustle to cause a vacuum, a lower plate E formed with orifice E₁, a cylindrical shell F surrounding the orifice, radial wings G between the orifice and shell, upper plate I, formed with orifice J, of a cylindrical shell L within the outer shell having openings L₁, wings M between the shells, and a float H to rest on the radial wings when in operation, as set forth.

No. 20,872. Carburetter. (*Carbureteur.*)

John H. Sanderson, Trenton, N. J., U. S., 13th January, 1885; 5 years.

Claim.—1st. A gas enriching or generating chamber provided with a packing of absorbent material, and means for automatically regulating a supply of oil thereto, the pipe D₁ connected to the regulating means and perforated pipe *dt*, said pipe extending over suitable troughs, constructed as described, and perforated vessel held centrally within said receptacle, and inlet and outlet pipes, substantially as described and for the purpose set forth. 2nd. In a carbureting apparatus, the combination of the following elements, to wit: an oil receptacle located above a chamber filled with absorbent material and connected thereto by an automatic supply, the pipe D₁ *dt* located in the upper part of the chamber containing the packing, the series of troughs increasing in size toward the base of the receptacle, and suspended with perforated bottom supported centrally within said chamber, and an inlet pipe encircling said chamber under the trough and exit at the upper part of said vessel, the parts being organized and combined substantially as shown and for the purpose set forth.

No. 20,873. Tube Expander.

(*Machine à Elarger les Tubes.*)

John H. McGraw, Oswego, N. Y., U. S., 13th January, 1885; 5 years.

Claim.—1st. A tube expander, comprising a tapering spindle, conversely tapered rollers, and an expandible collar or body holding the rollers around the spindle, as specified. 2nd. A tube expander, consisting of a tapering spindle, an expandible body surrounding the spindle, and rollers interposed between said spindle and body and projecting with their ends at the face of the body, substantially as set forth. 3rd. A tube expander, consisting of a longitudinally divided collar or body, rollers partly imbedded in the inner surface of the collar sections, and projecting at the end thereof, a yielding clamp applied to the collar and a tapering spindle passing through the collar between the enclosed rollers, substantially as described and shown. 4th. In combination with the tapering spindle, the longitudinally-divided collar, provided internally with longitudinal channels, tapering rollers arranged in said channels and projecting at the end of the collar, and provided at one end with a circumferential groove, plates removably secured to the end of the collar sections and engaging the groove of the rollers, and a yielding clamp applied to the exterior of the collar, all as described and shown. 5th. In combination, with the tapering spindle and tube-expanding rollers, the roller-carrying body divided longitudinally, a yielding clamp applied to the exterior of the body and gibs or compensating blocks inserted between the body sections, substantially as and for the purpose specified. 6th. In combination with the tapering spindle and expandible body, the interposed rollers projecting at the end of said body, and provided between the same and the tube-rolling portion of the roller with a circumferential rabbet, substantially in the manner described and shown for the purpose set forth. 7th. In combination with the expandible body A, plate *b* and tapering spindle S, the rollers *r* formed at one end with a series of grooves *a*, *a*, and at the opposite end with rolling portions *s* and intermediate circumferential rabbets *c*, *e*, substantially as described and shown for the purpose set forth.

No. 20,874. Saw. (*Scie.*)

Joseph Ledward, Westerly, R. I., U. S., 13th January, 1885; 5 years.

Claim.—1st. In a saw, the blade having recesses or slots formed therein, but not entirely through the blade, so that one side of the recess is closed at *a*, in combination with the teeth having the shanks received within the recess against the closed wall, caps having substantially the same form as the shanks fitted within the remaining space of the slots against the shanks, so as to be flush with the face of the blade, and suitable fastening screws passing through the caps and shanks into the wall *a*, as set forth. 2nd. In a saw, the combination, with the blade having recesses or slots formed therein, one side or wall of the recess being inclined and the other side or wall curved downward along the bottom and meeting the inclined wall of the teeth having their shanks correspondingly formed to fit the recesses or slots, and caps secured against the shanks by screws, as set forth. 3rd. In a saw, the blade having recesses or slots formed therein, and provided with a rib or projection extending from the periphery, in combination with the teeth having their shanks fitted within the recesses or slots, and flanges projecting from the rear edge of the shanks and fitting over the peripheral edge of the blade against the rib or projection, as and for the purpose set forth. 4th. In a saw, the blade having throats or openings formed therein, in combination with the planing crow-arms adjustably attached to one of the walls of said throats or openings, the portion of the said throats or openings forward of the planing irons providing a downward and inward passage for shavings and the like, for the purpose set forth. 5th. In a saw, the blade having throats or openings formed therein, the upper and lower walls of which are recessed or grooved, as described, in combination with the planing irons having their upper and lower edges sliding within the groove, and arranged against one of the walls of the throats or openings, elongated slots provided in the planing irons and headed binding screws projecting from the said walls and fitting within the slots, as and for the purposes set forth. 6th. In a saw, the blade having throats or openings formed therein, one side wall of which is straight, the top wall inclined upward and the other side wall and bottom partaking of the form of a spiral curve, in combination with the planing irons sliding in the top and bottom walls of the throats, and means, substantially as described, for adjusting the cutting edge forward as well as outward, as set forth. 7th. In a saw, the blade having throats or openings formed therein, one of the walls being straight and the others forming a

spiral or compound curve, in combination with the planing irons adjustably secured to the straight walls, so that the cutting edge may be adjusted forward as well as outward, as set forth. 8th. In a saw, the blade having throats or openings formed therein, in combination with the planing irons adjustably attached to one of the walls of the throats or openings, so that their cutting edge may be set further out as desired, as set forth.

No. 20,875. Mariner's Compass. (*Boussole Marinee.*)

James Scotland and Francois Cordon, Island of St. Pierre, 13th January, 1885; 5 years.

Claim.—1st. The combination of a mariner's compass bowl and its needle or card, with a stud extending up from such needle or card, and with a revolvable furcated arm pivoted to the glass cover of the bowl of the compass, and having such studs between its prongs, the said revolvable arm and the pivot of the needle or card having or being to have, connected with them an electric circuit provided with a galvanic battery or generator of electricity, and an apparatus for sounding or giving an alarm when the circuit may be closed by the stud being carried into contact with the revolvable arm of one of the prongs or springs thereof, all being to operate substantially and for the purpose as set forth. 2nd. The combination of a mariner's compass bowl and its needle or card, with a revolvable furcated arm arranged within the bowl, and pivoted to its glass cover, a stud extending up from the compass card or needle, and between the prongs of the arms a cup of mercury and a wire or wires extending into the latter from the magnetic needle or cards, all being substantially and to operate for the purpose described, with an electrical circuit, its galvanic battery and an alarm applied to such circuit. 3rd. The combination of a mariner's compass, having a revolvable furcated and metallic arm pivoted to its bowl, and also having a metallic stud extending up from the needle or magnet of the card, and between the prongs of such arm, with an electric circuit and its battery or generator of electricity, and with an alarm apparatus connected with such circuit, to operate, to sound or give an alarm on the circuit being closed by contact of the stud with the arm, all being substantially and for the purpose as set forth.

No. 20,876. Skate. (*Pain.*)

Henry A. Wilbur, West Somerville, and Frank W. Lowe, Boston, Mass., U.S., 13th January, 1885; 5 years.

Claim.—1st. The combination of the sole-clamp plates B, B, provided with the beaded fangs *b, b*, the sliding plate C having the radial slots *c, c*, and turned down edges *c, c*, and the slotted plate D having the recesses *d, d*, the plates C and D being arranged underneath the clamp-plates B, B, as and for the purpose set forth. 2nd. The sliding plate C having the ratcheted slot E, in combination with the adjusting plate F provided with ears *f* and pin *f* and the lever G, as and for the purpose specified. 3rd. The combination of the sliding plate C having the radial slots *c, c*, the ratcheted slot E and the turned edges *c, c*, the slotted plate D provided with the recesses *d, d*, the sole-clamp-plates B, B, the adjusting plate F and lever G, all arranged for joint action substantially as specified.

No. 20,877. Apparatus for the Extraction of Gold, &c., from Ores, &c. (*Appareil pour l'Extraction de l'Or, &c., des Minerais, &c.*)

Henry R. Cassel, New York, N.Y., U.S., 14th January, 1885; 5 years.

Claim.—1st. The apparatus for electrolyzing a solution capable of generating chlorine for the purpose of treating metals, ores and especially auriferous compounds, which consists in a revolving drum containing carbon rods forming the positive pole, and its periphery being composed of asbestos, cloth or other filtering material, such drum being entirely submerged in the solution contained in the vat in which the negative pole is also placed, and supported either upon brackets or suspended in such vat from above, suitable means being provided to keep the drum in motion, all substantially as set forth. 2nd. The use in the apparatus for the treatment of refractory auriferous compounds, described in the preceding claim, of lime or other suitable alkaline, earth or other chemical compound or element, for the purpose of neutralizing acids generated by secondary action, but which will not precipitate gold, or the use of a solution which will itself under electrolytical decomposition yield such a base, substantially for the purpose specified. 3rd. In the apparatus described, the means for rotating the drum and also for conveying the current from any suitable source of electricity to the anode contained in such drum while the latter is rotating, such means consisting in a shaft provided with suitable means of rotation and passing through a stuffing box in the side of the vat, the end within such vat being capable of being connected to and disconnected from the shaft of the drum, and both shafts being provided with terminals and leads so arranged as to complete the circuit, substantially in the manner described.

No. 20,878. Improvements in Boots and Shoes. (*Perfectionnements aux Chaussures.*)

Alexander J. Renaud, Montreal, Que., 15th January, 1885; 5 years.

Reclame.—La combinaison, avec une chaussure lacée, de la patte B et des boutons F, tel que décrit et pour les fins indiquées.

No. 20,879. Composition of Matter to be used in the Making of Mortar, for Building Purposes, Laying Pavements, &c. (*Composition de Matières pour être employée dans la Fabrication du Mortier pour des fins de Construction, Pavage, &c.*)

Duncan McLean, Wallacectown, Ont., 15th January, 1885; 5 years.

Claim.—A compound composed of the ordinary plasters or cements used for building purposes, or for laying pavements and common salt, substantially in the proportions and for the purposes set forth.

No. 20,880. Electrical Conductor. (*Conducteur Electrique.*)

Henry F. Campbell, Concord, N. H., U. S., 15th January, 1885; 5 years.

Claim.—1st. An electric conductor provided with a covering of insulating material, and having an enclosing anti-inductive envelope composed of paramagnetic and diamagnetic substances upon the said covering, the said shield having terminals connected with the ground, substantially as described. 2nd. The combination, with an electrical conductor having an anti-inductive shield or envelope composed of paramagnetic and diamagnetic elements, as described, of terminals reflexed or bent backward along the trend of the wire, the shield thus being interposed between the operative wire and the terminals, substantially as described. 3rd. The combination, with an electrical conductor having a shield or envelope, of a grounded terminal to the said envelope, and a similar shield or envelope enclosing the said terminal, substantially as described. 4th. An electrical conductor having a covering of insulating material and an anti-inductive shield thereon, composed of paramagnetic and diamagnetic substances, the said conductor with its insulating covering and shield being flexible, substantially as described. 5th. An electrical conductor and insulating covering therefor, combined with an anti-inductive shield composed of paramagnetic and diamagnetic substances in themselves, good conductors of electricity, substantially as described. 6th. An insulated electrical conductor, provided with an enclosing anti-inductive shield composed of paramagnetic and diamagnetic substances, the amount of the former being in excess of the amount of the latter, substantially as described. 7th. The combination, with an electrical conductor having an anti-induction shield, of terminals reflexed or bent back, substantially as described. 8th. An electrical conductor having a flexible insulating covering, combined with an anti-inductive shield composed of a strip or band of paramagnetic and diamagnetic substances wrapped spirally around the said insulating covering, substantially as described. 9th. An electrical conductor having a flexible covering of insulating material, combined with an anti-induction shield composed of iron coated with zinc, tin, or other diamagnetic metal, substantially as described. 10th. The combination, with an insulated electrical conductor, of an anti-inductive shield composed of two or more paramagnetic substances compounded together, substantially as described. 11th. An electrical conductor composed of an insulated wire covered with a flattened soft or annealed strip of paramagnetic material wrapped about it with the edges of the strip in intimate contact to form a practically continuous shield, or a shield without gaps or spaces, substantially as described. 12th. An electrical conductor composed of an insulated wire covered with a flattened strip, of paramagnetic material suitably annealed and wound spirally about the insulated wire, the edges of the strip, coming intimately in contact or overlapping to avoid spaces between adjacent edges of the said strip, substantially as described. 13th. An electric conductor having a covering of insulating material, combined with an anti-inductive shield composed of paramagnetic material and forming a portion of a complete electric circuit, substantially as described. 14th. The combination, with an insulated electrical conductor, of an anti-inductive shield composed of two or more paramagnetic substances compounded together, as set forth, the said shield forming a portion of a complete electric circuit, substantially as described. 15th. In a cable, a series of independent insulated conductors, each provided with an anti-inductive shield, as described, the said shields forming a portion of a metallic circuit, substantially as described. 16th. A cable composed of a series of independent insulated conductors, each provided with an anti-inductive shield, as described, a portion of the said shields being insulated from the remainder in the body of the cable, but electrically connected at the ends thereof, each shield thereby forming a portion of a complete electric system within the cable and independent of the insulated conductors inclosed in the shields, substantially as described.

No. 20,881. Coal Handling Machine.

(*Appareil pour Transporter le Charbon.*)

John R. Bailey and Thomas T. Hyde, Toronto, Ont., 15th January, 1885; 5 years.

Claim.—1st. In a coal elevating and dumping machine, constructed with a single or double tramway, provided with a car or cars to run thereon, for conveying the coal from the dumping bucket to the bins, the combination of a screen constructed in the form of an inverted V, with one upper hopper and two under hoppers connected therewith, the upper hopper placed directly below the elevated bucket and above the screw into which upper hopper the coal is dumped, and passes down each side of the sloping screen into the lower under hopper, constructed with sliding doors and operated by the mechanism described for this purpose, substantially as specifically and shown. 2nd. In a coal elevating and dumping machine, constructed as described, the combination of a screen S located below the upper screw (1) to receive the small coal and dust which pass through the upper screw, as also the coal that may be scattered in dumping from the bucket, this grinding screen is constructed with two separate sieves, one sieve S₁ through which the dust passes, the other sieve S₂ admits pea-coal to pass through, the larger pieces pass over the screen as nut coal, substantially as described. 3rd. A spout N, connecting the screw S with the upper I and hopper H, for the purposes set forth. 4th. The mechanism for operating the doors *k, k* of the hopper J comprising the handle *a*, elbow *b*, links *d, d*, as shown and described.

No. 20,882. Apparatus for Carburetting Air.

(*Appareil pour Carburer l'Air.*)

William F. Burrows, Boston, Mass., U. S., 15th January, 1885; 5 years.

Claim.—1st. The combination, with the water and air induction

pipe its stop cock, the air trap and demometer, as explained, of mechanism, substantially as described, for opening and closing the said cock through the action of the demometer bell essentially, as set forth. 2d. The combination, with the water and air indicating pipe its stop cock, the air trap and demometer of the knee lever, the connection and pivot thereto, the pivoted weighted lever connected, as described, to the connection rod, and the arms *a* on the valve stem of said cock having studs arranged at opposite sides of the weighted lever, as set forth. 3d. The combination of the shallow chamber *I* and vertical space *pi*, with the carbureted air receiver and the carburetor arranged therein, as set forth.

No. 20,883. Wall Paper Exhibiter.

(*Montre à Papier de Tenture.*)

Frank T. Forsaith, North Troy, N. Y., U. S., 10th January, 1885; 5 years.

Claim.—A device for exhibiting wall-papers comprising a vertical standard and a rotary polygonal frame mounted thereon, said frame consisting of two end or top, and bottom wheels or rings with vertical bars attached thereto in pairs, and having horizontally-disposed sloping shelves attached externally, substantially as shown and described for the purpose set forth.

No. 20,884. File. (*Lin.*)

Otto W. Loeffler, New York, N. Y., U. S. (Assignee of Ludwig Müller, Dresden, Germany,) 15th January, 1885; 5 years.

Claim.—1st. A file consisting of a supporting frame or stock of a series of steel plates or teeth, and means for clamping the same to the supporting frame or stock, substantially as set forth. 2nd. The combination of the supporting frame *C* having inwardly-projecting flanges, a series of steel-plates or teeth having side-recesses, and means for clamping the teeth in the supporting frame, substantially as set forth. 3d. The combination of the supporting frame *C* having inwardly-projecting flanges, a series of steel plates or teeth having side recesses, a detachable cheek *d* secured to the outer end, and clamping screw *f* having a cross-head *g* arranged at the opposite end of the frame, substantially as set forth.

No. 20,885. Device for Adjustably Connecting the Bail of a Pail or Pot.

(*Appareil pour Poser l'Anse d'un Seau ou Paine Armée à volonté.*)

Patrick J. McNally, (Assignee of John F. Ross,) Toronto, Ont., 15th January, 1885; 5 years.

Claim.—1st. A bail *B* having a loop formed at one or both ends, in combination with the pins *C* arranged to hold the bail *B* to the pail or pot *A*, substantially as and for the purpose specified. 2nd. A pail or pot *A* provided with an adjustable bail *B*, as specified, in combination with an indentation *b* made in the body of the pot or bail *A*, substantially as and for the purpose specified.

No. 20,886. Lumber Drier. (*Sécherie à Bois.*)

David F. Noyes, Lewiston, Me., and Alfred H. Andrews, Chicago, Ill., U. S., 15th January, 1885; 5 years.

Claim.—1st. The herein-described process of treating and seasoning wood which consists in subjecting the wood to a heat sufficient to vaporize the saps, then shutting off the heat supply and suddenly subjecting the external surfaces of the wood to a cooling influence to avoid on such surfaces the formation of a shell which would otherwise prevent the evaporation of the saps, as set forth. 2nd. The herein-described process of treating and seasoning wood consisting in subjecting the wood to a heat sufficient to cause quick vaporization of the saps, then shutting off the heat-supply, suddenly reducing the temperature of the wood at the surface sufficiently to avoid drying at that point and after the internal heat has abated repeating the operations in consecutive order until the saps have been entirely vaporized and passed off at the surface, all substantially as and for the purposes set forth. 3d. The herein-described process of seasoning wood, which consists in raising the temperature of the wood sufficiently to effect vaporization of the sap by subjecting it to the action of heat by passing steam through pipes in close proximity thereto, then reducing its temperature at the surface by passing cold water through the same series of pipes, substantially as and for the purposes set forth. 4th. As a means for seasoning wood artificially, substantially as described, a series of pipes, a steam generator and a cold water supply, combined with suitable connections, whereby steam or cold water may be projected through said pipes at will or as occasion requires, as set forth. 5th. A lumber-seasoning apparatus provided with a series of courses of pipes supported, one beneath the other in horizontal planes, and connected together in alternate order, substantially as and for the purposes set forth. 6th. A lumber-seasoning apparatus provided with a series of courses of pipes adjustably supported in horizontal planes one beneath the other, and flexibly connected together in alternate order, substantially as and for the purposes set forth. 7th. A lumber-seasoning apparatus provided with a series of courses of rods adjustably connected together in horizontal planes one beneath the other, and having a series of courses of pipes supported by the said series of rods and flexibly connected together in alternate order, substantially as and for the purposes set forth. 8th. A lumber-seasoning apparatus provided with an alternately-connected series of courses of pipes supported one beneath the other in horizontal planes and having perforated pipes arranged underneath the said series of pipes and connecting therewith and with the steam generator, as and for the purposes set forth. 9th. A lumber-seasoning apparatus provided with a group of hydraulic lifting devices of variable sizes, and so arranged with relation to one another that the ones at the centre shall have a lifting capacity equal to about double that of those at the sides of the apparatus, as and for the purposes set forth. 10th. A lumber-seasoning apparatus provided with a group of hydraulic lifting devices of variable sizes, arranged substantially as shown, and so connected with the main supply by

means of suitable branch pipes as to have the entire group operated simultaneously and the motor power therefore controlled at one point, as set forth. 11th. A lumber-seasoning apparatus provided with the following elements: a main supply-pipe connecting respectively with the steam and cold water sources and provided with stop cocks, as shown, and a series of courses of pipes, as *b*, suspended one beneath the other in horizontal planes, as set forth, the said courses being connected alternately and the series of courses being connected with the main-supply-pipe at points distant from each other, whereby the steam or water may be rapidly distributed through the entire series of pipes, as specified. 12th. In a lumber-seasoning apparatus, substantially as described, and in combination with a series of pipes arranged in horizontal courses flexibly connected together in alternate order, and supported one beneath the other, as set forth, a stationary frame, a movable frame, and means, substantially as described, for elevating the latter, whereby the said courses of pipes are enabled to be brought in close proximity with the lumber to be seasoned, as set forth. 13th. A lumber-seasoning apparatus provided with the following elements: a main supply-pipe connecting respectively with the steam and cold water sources, the connecting-pipes having suitable stop-cocks, an alternately connected series of courses of pipes suspended in horizontal planes one beneath the other, the first and second courses respectively of the series connecting with said main supply-pipe, perforated pipes arranged beneath the entire series of suspended pipes, and connecting therewith and with the steam generator, the connections having suitable stop-cocks, a group of hydraulic lifting devices of variable sizes connecting with one another and with a single main supply-pipe, a stationary and a movable frame, and all arranged to serve as and for the purposes set forth. 14th. In combination with the perforated pipes *M*, *M1* and the waste pipes *L2*, *L3*, the connecting-pipe *M2* leading to the steam generator, and the stop-cocks *4* and *5* for controlling the steam employed in said perforated pipes, as set forth. 15th. In combination with the rods *a*, supported as described, and the pipes *b* supported on said rods and running transversely thereto, a series of stickings, as *c*, supported also by the same rods and arranged parallel with and between each adjacent pair of pipes and adapted to support the lumber to be treated, as and for the purposes set forth.

No. 20,887. Still for Refining Petroleum Oil. (*Alembic pour Repurer le Pétrole.*)

Gilbert R. Merritt, (Assignee of James D. Meigher,) Sarnia, Ont., 15th January, 1885; 5 years.

Claim.—1st. The combination of the shaft or main steam pipe *B*, with the discharge steam-pipes *c*, *c*, *c*, and chain *D*, with the still, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the steam and air pipes *E*, with the shaft *B* and outside boilers, substantially as and for the purpose hereinbefore set forth.

No. 20,888. Support for Rock Drills.

(*Support pour Forets de Mine.*)

Charles S. Westbrook, Spragueville, N. Y., U. S., 16th January, 1885; 5 years.

Claim.—1st. In a support for rock drills, the combination of the cradle or carriage having a fixed guide-groove on one side, a parallel guide-plate fastened adjustably on the opposite side of the cradle, and means, substantially as described, for adjusting the movable guide plate, substantially as and for the purpose set forth. 2nd. The combination, in a support for rock-drills, of a cradle having a fixed guide-groove on one side, and a parallel flanged projection on the opposite side, a guide plate fastened movably upon the flanged projection and a key or wedge inserted between the movable plate and the flange of the fixed projection, substantially as and for the purpose set forth. 3d. The combination of the saddle, the trunnion bolts, the keys for fixing the same in the sides of the saddle, the collared yoke or fork of the back-leg, the hips of the side legs having projections fitting into said collars, the plates or washers working upon the trunnion bolts and having inclined planes, arranged as described, and the keys against which said inclined planes bear, substantially as and for the purpose herein shown and set forth. 4th. The combination, with the saddle and tripod, of the plates or washers having inclined planes, arranged as described, and the keys with their appropriate gib and set-screws, whereby said keys may be locked against the inclines of the washers, substantially as and for the purpose shown and set forth. 5th. The combination of the tubular leg-section having a recess in one side adapted to fit a nut, the solid leg-section sliding in the tubular section, the set-screw or bolt and the removable nut inserted into the recess in the tubular section, substantially as and for the purpose herein shown and described.

No. 20,889. Rock Drill. (*Foret de Mine.*)

Charles S. Westbrook, Spragueville, N. Y., U. S., 19th January, 1885; 5 years.

Claim.—1st. The combination of a cylinder provided with an inlet port, suitable channels or ducts opening near the inlet port and at the ends of the cylinder, and with suitable exhaust ports, with a piston having a recess at its middle adapted to alternately connect the channels or ducts with the inlet port, as and for the purpose shown and set forth. 2nd. The combination of a piston having a recess at its middle, with a cylinder provided with an inlet port, provided with channels or ducts adapted to be alternately connected with the inlet port, and opening at the ends of the cylinder, and provided with exhaust ports adapted to be alternately uncovered by the ends of the piston at the end of each stroke, as and for the purpose shown and set forth. 3rd. The combination of a cylinder having an inlet port at or near its middle, and having grooves or channels extending from a distance from the inlet port to the ends of the cylinder, and provided with exhaust ports in the side opposite to the inlet port and the channels, with a piston having a recess at its middle adapted to alternately connect the inner ends of the channels with the inlet port and to alternately uncover the exhaust ports, as and for the purpose shown and set forth. 4th. The combination of a cylinder having an

inlet port, suitable channels or ducts openings near the inlet port and at the ends of the cylinder, and provided with suitable exhaust ports, with a piston having an annular recess at or near its middle, as and for the purpose shown and set forth. 5th. The combination of a cylinder having an inlet port at or near its middle formed into a recess at the inner side of the cylinder, having channels or grooves separated from the inlet recess by shoulders or bridges, and said channels or grooves extending to the ends of the cylinder and having suitable exhaust ports in its sides, with a piston having an annular recess at or near its middle, as and for the purpose shown and set forth. 6th. The combination of a cylinder having an inlet port at or near its middle, formed into a recess at the inner side of the cylinder having channels or grooves separated from the inlet recess by shoulders or bridges, said channels or grooves extending to the ends of the cylinder and increasing in dimensions towards the ends and having suitable exhaust ports in its side, with a piston having an annular recess at or near its middle, as and for the purposes shown and set forth. 7th. The combination of a cylinder having an inlet port at or near its middle formed into a recess at the inner side of the cylinder, having a channel or groove separated from the inlet recess by a shoulder or bridge, said channel or groove increasing in dimensions towards the forward end of the cylinder, extending towards the said end and being of smaller dimensions and capacity than the rearwardly extending groove and having suitable exhaust ports, with a piston having an annular recess at or near its middle, as and for the purpose shown and set forth. 8th. The combination, in a rock drill, of the cylinder having the open wedge-shaped recesses arranged longitudinally diametrically opposite to one another, and the recessed piston balanced in the cylinder between said recesses and having expansible packing rings, whereby a steam-tight joint is formed between the heads and the piston and the solid inside part of the cylinder, substantially as set forth. 9th. The combination, in a rock-drill, of the cylinder having on two of its sides the open recesses arranged longitudinally and facing one another, and on its other two sides the exhaust port and the narrow longitudinal channels arranged opposite to the same, and the recessed piston having expansible packing rings at each end of its solid heads on opposite sides of the recess, substantially as and for the purpose shown and set forth. 10th. In a rock-drill, a cylinder constructed with an interiorly recessed inlet part on one side, two flaring recesses arranged longitudinally on opposite sides of the central recess, two corresponding flaring recesses on the diametrically opposite side of the cylinder, the longitudinal steam grooves or channels cut in the inside of the cylinder, in a plane at right angles to a plane laid longitudinally through the middle of the diametrically opposite flaring recesses, and the exhaust ports located diametrically opposite to said narrow steam grooves or channels, substantially as and for the purpose shown and set forth. 11th. The combination of the recessed drill-head, the divided bushing inserted into the recess and having means, substantially as described, for holding it therein, the locking pieces inserted through slots in the recessed head and bearing with their inner sides against the sides of the divided bushing, the collar having the slot *s* and screw-threaded boss *U*, the wedge-shaped key inserted through the slot in the collar and the two binding screws, the whole constructed and combined to operate substantially as and for the purpose herein shown and set forth.

No. 20,890. Roller Skate. (*Patin à Roulettes.*)

Henry A. Wilbur, West Somerville, and Frank W. Lowe, Boston, Mass., U.S., 16th January, 1885; 5 years.

Claim.—1st. The frame *A A* composed of two metal plates having a space between, in combination with a hanger capable of being adjusted lengthwise of the frame, as and for the purpose set forth. 2nd. The adjustable springs *G, G*, arranged one on either side of the hangers *E*, in combination with the bearings *F*, substantially as and for the purpose specified.

No. 20,891. Device for Securing in any Desired Position Piano Stools, &c. (*Pied de Banc de Piano, &c.*)

William A. C. Matthie, Montreal, Que., 16th January, 1885; 5 years.

Claim.—A sleeve *C* formed to receive the spindle *B*, having annular grooves *a* cut in it, in combination with a dog *o* pivoted in a recess cut in the said sleeve, and having a projection *d*, and spring *E* acting against the tail *b* formed in the said dog, and which tail is provided with a handle *F*, substantially as and for the purpose specified.

No. 20,892. Producing Textile Fabrics. (*Production des Tissus Textiles.*)

Emile Maertens, Oswego Falls, N. Y., U. S., 16th January, 1885; 5 years.

Claim.—1st. The mode, herein described, of making open-work gauze, pile, looped, matelassé, repoussé, sunken, or other fabrics, consisting in weaving the fabric with animal and vegetable fibres, and then eliminating the vegetable fibres from the woven fabric by destroying them, substantially as set forth. 2nd. The mode herein described of making open work, gauze, pile, looped, matelassé, repoussé, sunken, or other fabrics, consisting in, first weaving a fabric of animal and vegetable fibre threads, then setting the threads and then subjecting the fabric to an agent that destroys the vegetable fibres without affecting the animal fibres, substantially as set forth. 3rd. The mode, herein described, of making fabric, consisting in twisting threads of animal fibre together, using the double threads thus produced as warps in weaving the fabric, and then subjecting the fabric to an agent that destroys the vegetable fibre threads without affecting the animal fibre threads, substantially as set forth. 4th. The mode, herein described, of making fabrics, consisting in weaving it of animal fibre threads and vegetable fibre threads, part of the latter being treated with sulphuric acid, hydrochloric acid, or an analogous chemical agent before being woven, and then subjecting the woven fabric to heat after the fabric has been steamed or moistened, whereby the chemically treated vegetable fibre threads are destroyed and eliminated from the fabric, the vegetable threads not treated remaining in the fabric, substantially as set forth. 5th. The mode,

herein described, of making pile fabrics, consisting in weaving loops of animal fibre threads over vegetable fibre threads, which latter are then carbonized or otherwise destroyed and eliminated from the fabrics, whereby loops or bridges are formed of animal thread, which may, if desired, be sheared off or cut, substantially as set forth. 6th. The herein-described method of producing fancy fabrics, consisting in weaving the fabric of animal and vegetable fibre threads, then applying a destructive agent that will destroy the vegetable fibre threads upon the fabric, according to some design in the different ways set forth in the specification, and then subjecting the fabric to heat, substantially as set forth. 7th. The herein-described method of producing fancy fabrics, consisting in weaving fabrics of mixed animal and vegetable fibre threads, then treating certain parts of the fabric according to the design to be produced with chemicals, whereby some of the vegetable fibre threads are eliminated, and then washing and finishing and drying the fabric in the usual manner, substantially as herein shown and described. 8th. The herein-described method of producing fancy fabrics, consisting in weaving fabrics of mixed animal and vegetable fibre threads, then treating certain parts of the fabric according to the design to be produced with chemicals, whereby some of the vegetable fibre threads are eliminated, and then finishing and drying the animal and vegetable components of the fabric in different colors, substantially as herein set forth and described.

No. 20,893. Butter Tub. (*Tinette.*)

James McAdam, Postville, Iowa, U.S., 16th January, 1885; 5 years.

Claim.—1st. In a butter tub, the combination, with a pail or tub provided with the metal tongues *L*, of the cover *H* having its free edges bent inwardly and downwardly and provided with the slots *K*, substantially as herein shown and described. 2nd. In a butter tub, the combination, with the sheet metal pail *A* provided with the paper covering *C* and the tongues *L*, of the cover *H* provided with the paper covering *I* and the upwardly projecting flange *J*, having its free edge bent outwardly and downwardly, and provided with the slots *K* in the said edge, substantially as herein shown and described. 3rd. The combination, with the metal tub or pail *A*, of the paper covering *C*, the strips *B*, the ears *F* and the bail *G*, substantially as herein shown and described. 4th. The combination, with the tub or pail, of a wooden cover *M* provided with a flange *N* on its rim, and of the tongues *L* secured to the pail and adapted to be bent over and secured on the wooden cover, substantially as herein shown and described.

No. 20,894. Odometer. (*Odomètre.*)

James Gillespie, West Point, Ohio, U.S., 16th January, 1885; 5 years.

Claim.—1st. In an odometer, the combination of the saddle base *b* adapted to be clipped to the axle, having the screw shaft *g*, and provided with the pronged wheel *t*, with the cylindrical case *a* having the counting mechanism, pointers and dials arranged in it, said counting mechanism being geared with the screw shaft, as shown and described. 2nd. The combination, with a vehicle axle, of a wheel having stud *j* on its hub *k*, a shaft *g* carrying a worm *h* and six pronged wheel *l*, the unit wheel carrying a cam stud *i*, the shaft *m* carrying the pointer *n*, the ratchet and pawl *p, q*, the hammer *u*, the bell *r* and the spring *w*, whereby the desired distance will be simultaneously registered and announced, as described. 3rd. The combination, in a counting mechanism for odometers, of the unit wheel *l* tripping and driving stud *g* and an adding wheel *x*, said wheel having notches *v* and a holding pawl *h*, having an arm *k* for being lifted by the stud *g*, and a spring *l* to return the pawl into the notches of said wheel, substantially as described. 4th. The combination, with the pointer shaft *m*, carrying disk *g*², the sleeves *h*¹, carrying pointers *o*, *z*, the wheels *q* and *g*, of which the latter has stud pin *l* and the coil spring *ci*, as and for the purpose set forth. 5th. The combination with the wheels *q*, *x*, having the side cavities *ji* and the spring pawls *h*¹, of the disk *g*² having stud pin *g*¹, the wheel *x* being also provided with a stud pin *fi*, as and for the purposes specified.

No. 20,895. Process and Apparatus for Treating Metalliferous Ores. (*Procédé et Appareil de Traitement des Minerais Metallifères.*)

Cummings Cherry, Sr., Chicago, Ill., U. S., 19th January, 1885; 5 years.

Claim.—1st. The process, herein described, of treating metal bearing ores, said process consisting in comminuting said ore, mingling the same with calcium or sodium chloride, roasting the mixture in a retort in the absence of atmospheric air, then introducing super-heated steam, to the retort, muffle, or oven, and finally, after shutting off the steam, forcing super-heated air into the retort, both the steam and the air being forced in under pressure, and the temperature in the retort being maintained, substantially in the manner and for the purpose set forth. 2nd. In the treatment of metal bearing ores, the process, herein set forth, consisting in comminuting or pulverizing the ore, mingling it with calcium or sodium chloride, and roasting the mixture in the absence of atmospheric air, substantially as and for the purpose set forth. 3rd. In the treatment of metal bearing ores, the process, herein set forth, consisting in comminuting said ores, mingling the same with calcium or sodium chloride, roasting the mixture in the absence of atmospheric air, and subsequently introducing super-heated steam into the retort, substantially as and for the purpose set forth. 4th. In the treatment of metal bearing ores, the process, hereinbefore described, consisting in comminuting or pulverizing said ores, and roasting in a retort, muffle, or oven, in the absence of atmospheric air, and subsequently introducing super-heated steam into the retort, substantially as and for the purpose set forth. 5th. In the treatment of metalliferous ores, the process, herein described, consisting in comminuting said ores, roasting the same in a suitable retort, muffle, or oven, subsequently introducing super-heated steam into the retort, and finally forcing super-heated air therein, both the steam and the air being driven in under pressure, substantially in the manner and for the purposes set forth. 6th. The combination of the vertical air-tight retorts with their escape-

pipes, the closed hot air chamber surrounding said retorts, the combustion chamber provided with a fire grate and connected with said hot air chamber by flues, the hot-air pipe adapted to connect the combustion chamber with an outside furnace, and the gas chamber below the retort, substantially as described. 7th. The combination of the air-tight retorts or ovens, with their escape pipes, the closed hot air chambers surrounding said retorts, the grate *b* upon the bottom of said chamber, the chamber *L*, pipe *N*, and means for injecting steam into the retorts, substantially as described. 8th. The combination of the closed hot-air chambers, their inclosed air-tight retorts, and the escape pipes *Y*, *Y*, with the perforated valve plate *G*, and means for injecting steam and air into said retorts, substantially as described. 9th. The combination of the closed hot air chambers, their inclosed air-tight retorts having escape pipes, and the pipes *T* for admitting steam into said retorts, substantially as described. 10th. The combination of the closed hot-air chambers, their inclosed air-tight retorts having escape pipes, pipes *T* for admitting steam into said retorts, and the steam super-heating pipes *R* having partitions *J* connected with said pipes *T* and inclosed within the super-heating chamber *M*, substantially as described. 11th. The combination of the closed hot air chambers, their inclosed air-tight retorts having escape pipes, pipes *T*, for admitting steam into said retorts, super-heating chamber *M*, the steam pipes therein, flues *W* and heating chamber *L*, substantially as described. 12th. The combination, of the closed hot-air chambers, their inclosed air-tight retorts having escape pipes and the air pipe *U*, substantially as described. 13th. The combination of the closed hot air chambers, their inclosed air-tight retorts, the air-tight chambers *E*, the valve-plate *G* and outlet doors *u* and *v*, substantially as described. 14th. The combination of the closed hot air chambers, their inclosed air-tight retorts, the air-tight chambers *E* and sliding grates *G*, and the pipes *T* and *U*, substantially as described. 15th. The combination, with the chambers *C* having perforated plate *a* and grates *b*, of the partitions *c* forming the chambers *E* and *F*, and the retorts *F* embracing the perforated plate *a* and the valve plate *G*, substantially as described. 16th. The combination, with the steam connection *S*, pipes *R* having partitions *J* and the coils *Q*, as shown, the pipes *T*, retort *F*, plate *a*, valve-plate *G*, substantially as described. 17th. In combination with the external structure *A*, *B*, and internal structure *A*₁, *B*₁ forming the chambers *C*, the masonry *K* forming the chambers *L* and *M*, the flues *V*, *W* and *X*, the dampers *a*, *p* and *q* and the grates *b*, substantially as described. 18th. The retort *C* having the covered extensions *P*₁ and *H* and sliding grate or bottom *G*, in combination with the hot-air chamber surrounding the retort, substantially as described.

No. 20,896. Combination Letter Sheet and Envelope. (*Papier à Lettre formant Enveloppe.*)

Daniel W. Clegg, Pleasantville, N. Y., U.S., 16th January, 1885: 13 years.

Claim.—1st. The combined letter sheet and envelope, consisting of a sheet of paper folded in legal paper form, and provided on one edge with a sealing flap, and on the edge adjacent thereto with a marginal flap not overlapping the folded section of the sheet, the two sections of the said marginal flap adapted, substantially as described, to be sealed together, so as to close the end of the folded sheet, substantially as described. 2nd. The combined letter-sheet and envelope, consisting of a sheet of paper folded near its centre and having on one edge a sealing flap gummed on its upper side, and on the edge adjacent thereto a marginal fold not overlapping the folded section of the sheet, and gummed on its under side, so that the two parts of said fold may be sealed together, substantially as described.

No. 20,897. Well Boring Machine.

(*Machine à Forer les Puits.*)

William E. Brown, New York, U. S., 17th January, 1885: 5 years.

Claim.—1st. In combination with the supporting frame and the shears or mast hinged to the top of said frame, and extended to the base thereof, as shown, a windlass pivoted on the frame, and a rope connecting the foot of the mast with the windlass for hoisting and lowering the mast, substantially as described and shown. 2nd. The combination of the base *A* provided with the upright frames *B*, *B*₁, braces *C*, *C* and girders *D*, *D*₁, the shears *S* hinged on the frame *B*, the braces *E* hinged on the side of the shears, the shaft *F* provided with pinion *f* and crank *g*, the drum or shaft *F*₁ provided with the gear *f*₁, and the rope *R*₁ wound on said drum and connected with the foot of the shears, substantially as described and shown. 3rd. In combination with the shears *S*, rope-drum *a* and cam *g*, the lever *H* pivoted in proximity to, and nearly in the same horizontal plane with the said rope-drum, substantially as described and for the purpose set forth. 4th. In combination with the rope-drum *a*, the gears *b*₁, counter-shaft *a*, pinions *b*, crank *c*, brake-pulley *h* and brake-lever *h*₁, substantially as shown and set forth. 5th. In combination with the rope-drum *a*₁, the gears *b*₁, counter-shaft *a*, pinions *b*, pulley *i*, ratchet *k*, dog *k*₁, brake-pulley *h* and brake-lever *h*₁, all substantially as described and shown. 6th. In combination with the driving-belt *J*, the slush-pump drum *K* provided with the pulley *L*, the box *M* having the elongated bearing *l* and a lever for shifting the shaft of the drum *K* in said bearing, substantially as described and shown for the purpose set forth. 7th. In combination with the lever *H* composed of two bars carrying between them the sheave *d*, the two cams *G*, *G* bearing on said lever respectively at opposite sides of the sheave, substantially as described and shown. 8th. The combination, with the lever *H*, of the hook *r* and latch *l*, substantially as and for the purpose shown and described. 9th. In combination with the rope-shaft *a* and shaft *a* geared to transmit motion to the shaft *a*₁, the pinion *e* and the worm *e*₁ pivoted to an oscillatory bearing and adapted to be thrown in and out of connection with the said pinion substantially as and for the purpose set forth.

No. 20,898. Steam Engine. (*Machine à Vapeur.*)

Leon B. Carricaburn, New York, N. Y., U. S., 17th January, 1885: 5 years.

Claim.—1st. The combination with the steam cylinder and piston, of the valve *F*, the valve mining-pistons *G*, *G*₁, the cylinders for the same, the ports 4, 5, 6 and 7 leading from the steam chest to the cylinder *A*, and the ports 8 and 10 leading from the cylinder *A* to the cylinder *H*, *H*₁, respectively, and the ports 9 and 11 between the ports 5 and 6 and cylinders *H*, *H*₁, respectively, substantially as set forth. 2nd. The combination, with the steam valve and two separate and independent valve-moving pistons, of two steam ports and two exhaust ports extending from the valve seat to the main cylinder and an exhaust outlet, the parts being arranged substantially as set forth, so that the steam piston is cushioned at the end of each stroke and the steam ports open into the cushioning spaces of the steam-cylinder, and the live steam is admitted by the valve directly into the cushion to move the piston, substantially as specified. 3rd. The combination, with the valve and the valve-moving pistons and rods, of india rubber or other yielding material between the valve and the piston rods, substantially as set forth. 4th. The combination, with the valve, the valve-moving pistons and rods, of the latches, constructed substantially as set forth, to retain the valve when moved and to be unlatched by the piston rod as it commences to move the valve, substantially as set forth. 5th. The combination, with the valve, of the valve-moving pistons, piston rods and cylinders and the respective ports between the steam chest, the engine cylinder and the cylinders for the valve-moving pistons and the ports 20, 21, substantially as and for the purposes set forth. 6th. The steam cylinder *A* having the ports and tubular valve chamber *T* in the lower part of the same, and the removable caps 25, at the ends of such chamber, in combination with the separate valves 26 introduced from opposite ends into such valve chamber, substantially as specified. 7th. The combination, with the steam engine cylinder, of a chamber *v* and the channel around the cylinder connecting with the exhaust port for the discharge of the water of condensation, substantially as and for the purposes set forth. 8th. The combination, with a steam valve having one or more small passages, of a valve seat with one or more openings into the steam cylinder and closed by said valve except when the valve is in a central position, in order to communicate the pressure from the steam chest to the steam enclosed in the cylinder when the valve is on its centre, so the steam will act upon the valve-moving devices and complete the movement of the valve, substantially as set forth. 9th. In a direct acting steam engine, a valve and one or more openings controlled by the valve and acting when the valve is on its dead centre, to admit more steam to the valve-moving device for completing the movement, substantially as specified. 10th. The combination, with the steam cylinder and piston and the valve, of the valve moving pistons, the cylinders for the same and two ports near each end of the steam cylinder, and branch ports to the respective valve moving cylinders at each side of the pistons, substantially as set forth. 11th. The combination, with the valve and its valve moving pistons, of the steam cylinder and two ports at each end with branch ports to the valve moving cylinder, and pistons, substantially as set forth, whereby the steam piston near each end of its stroke closes one of the ports and compresses the exhaust steam, and causes the same to actuate the valve moving pistons, substantially as set forth. 12th. In combination with the steam piston, the valve moving pistons and valve, a valve seat with the main steam ports slightly different in length from the valve, so that steam cannot be entirely excluded from the ports, and branch ports from the main ports to the valve moving cylinders and pistons, substantially as set forth. 13th. The branch ports 39 and valves 25 therein, opening towards and in combination with the valve moving cylinders, and pistons and valve, and the ports 4, 5, 6, 7, and branch ports 8, 9, 10, 11, substantially as set forth. 14th. In a steam engine having valve moving pistons and ports between the steam cylinder and the cylinders, of the valve moving pistons, valves in two of such ports opening towards such valve moving pistons, substantially as set forth. 15th. The combination, with a piston and steam cylinder, of a valve, two steam ports passing from the valve seat to each end of the steam cylinder, and valve moving pistons cylinders for the same and ports, substantially as specified. 16th. The combination, with the piston and steam cylinder, of a valve having the notches 30 or their equivalents, two steam ports passing from the valve seat to each end of the steam cylinder, and valve moving pistons, cylinders for the same, and ports, substantially as specified. 17th. The combination, with a steam valve *F*, of the pistons *G*, *G*₁, piston rods, cylinders *A*, *H*₁, ports 4, 7, 10, 8, 11, 9, substantially as set forth, whereby the pistons are moved in both directions by the action of the steam, and when moving one way give motion to the valve, and when moving the other way allow the valve to remain stationary, as specified. 18th. The combination, with a steam valve, of two small separate and independent steam pistons having their rods projecting inside of the steam chest and acting alternately upon the valve, each piston and rod working independently of the other and moving the valve and then returning to its normal position, substantially as specified.

No. 20,899. Button Hole Stitching Machine.

(*Machine à Faire les Boutonnieres*)

Daniel W. G. Humphrey, Chelsea, Mass., U. S., 17th January, 1885: 5 years.

Claim.—1st. In a button-hole stitching machine, a slotted work-plate, a cloth holding and feeding clamp, and a feed-wheel having a double feeding groove, a pivoted driver and two concentric sets of teeth, the outer set forming a complete circle and the inner set an arc of a circle only, combined with a recessed hub around which said feed wheel may rotate, and mechanism for imparting an intermittent rotary motion to said feed wheel, substantially as described. 2nd. A slotted work-plate, a cloth holding and feeding clamp and a feed-wheel having a feeding groove, and two concentric sets of teeth, as described, combined with two driving pinions of unequal diameters mounted on a common axis, the smaller pinion being connected with the larger pinion but adapted to rotate independently thereof in one direction, and a driving mechanism constructed to operate the larger pinion directly and the smaller pinion indirectly through its connection with the larger pinion, substantially as described. 3rd. A slotted work-plate and a cloth holding and feeding clamp, combined with a feed wheel adapted to operate said clamp, said feed wheel being pro-

vided with two concentric sets of teeth, as described, the inner set forming an arc which is provided with yielding teeth at both ends, substantially as set forth. 4th. Feed-wheel 16 having two sets of teeth, as described, in combination with two pinions of unequal diameters having a common axis rotated at a uniform speed and respectively engaging the teeth of the feed wheel, as specified, and so arranged that the smaller pinion when operative as the driver of the wheel is actuated through a pawl mechanism carried by the larger pinion, substantially as specified. 5th. In combination, feed-wheel 16, pinions 23 and 30 mounted upon a common axis and having a capability of movement transverse to the plain of said wheel, and pinion 31 provided with two sets of teeth and arranged to be driven at times by said wheel as an idler, and at times to serve as an intermediate between pinion 23 and wheel 16 to reverse said wheel, substantially as specified. 6th. Pinions 23 and 30 mounted upon a spindle or arbor 24 journaled in the machine bed, spring 27 arranged to uphold said arbor and pinions, and knob 28 attached to the end of said arbor, whereby said pinions may be depressed by the hand of the operator to disengage them from the feed-wheel and engage them with the intermediate pinion, and be turned to reverse or move said wheel backward, as and for the purposes specified. 7th. In a button-hole stitching-machine, a needle-bar and mechanism for reciprocating the same vertically and horizontally, combined with a travelling cloth clamp, and means for moving the said cloth clamp continuously forward during a period of time greater than that occupied by the needle-bar in making one complete vertical reciprocation, substantially as described. 8th. In a button-hole stitching-machine, a needle-bar and mechanism for reciprocating the same vertically and horizontally, combined with a travelling cloth clamp, and means for moving the said clamp continuously forward during a period of time approximately equal to three-fourths of the time occupied by the needle in making two complete vertical reciprocations, substantially as hereinbefore set forth. 9th. The combination of the hub 25, pinion arbor 24, spring 27 and hand-knob 28, with a gravitating latch adapted to fall into its operative position automatically when said knob is depressed, substantially as set forth. 10th. The combination of the hub 25, pinion-arbor 24, spring 27 and hand-knob 28, with a gravitating latch adapted to fall into its operative position automatically when said knob is depressed, and a stop for limiting the movement of the said latch, substantially as described. 11th. The work-plate 70 formed with a recess 71, and the spreaders 72 and 74 pivoted to said work-plate and having their loop-spreading points arranged within said recess, in combination with an under needle and looper, substantially as described. 12th. The work-plate 70 having the recess 71, the pivoted spreaders 72 and 74 having oil-set spreading-points arranged within said recess close against the under side of said work-plate, combined with an under needle and looper, substantially as described. 13th. The work plate 70 having the recess 71, the pivoted spreaders 72 and 74 having spreading-points arranged in the said recess, and the upholding-plates 78 and 79 for sustaining said spreaders, combined with an under needle and looper, substantially as described.

No. 20,900. Vehicle Spring. (*Ressort de Voiture.*)

George L. Artz, Columbus, Ohio, U.S., 17th January, 1884; 5 years.

Claim.—1st. The combination of the four separate and independent quarter elliptic springs A, B, Ar, Br, connected together in pairs, the upper spring of each pair having its foundation upon the inner end of the lower spring, with a bearing C to which each pair is secured, substantially as described for the purposes specified. 2nd. The combination, with the body and side bars of a vehicle, of a spring composed of four separate and independent quarter-elliptic springs connected together in pairs A, B, Ar, Br, the upper spring of each pair having its foundation upon the inner end of the lower spring, the bearing plate C, the clips I and the bolts G, whereby each pair of superimposed springs is secured to allow for separate and independent adjustment of each spring of each pair, substantially as described. 3rd. As a new manufacture, a vehicle spring composed of four separate and independent quarter-elliptic springs connected together in pairs, the upper spring of each pair having its foundation upon the inner end of the lower spring, a bearing-plate to which each pair of springs is separately secured in superimposed relation side by side, and suitable attachments whereby said separate pairs of springs are connected to the body and to the running-gear, substantially as described.

No. 20,901. Wooden Scoop Shovel.

(*Pelle à Main en Bois.*)

John L. Locke, Grand Rapids, Mich., U.S., 17th January, 1885; 5 years.

Claim.—1st. In a wooden scoop shovel, in combination with the bottom piece and side pieces, the metal tip for binding the front ends of the side pieces and bottom piece, and securing them together, substantially as shown and described. 2nd. In a wooden scoop shovel, the bottom piece, the upright side pieces and the back end piece bound or secured together by the metallic strip G passing from the top of the end piece around its sides and the bottom piece, in combination with the cut, away handle F and the binding strips E, Er, which serve to secure the handle to the back and bottom pieces and the latter together, substantially as described. 3rd. The combination of the bottom piece A composed of three-ply veneer, as shown in Fig. 5, with the side pieces B, B and end piece C for forming the bowl of the shovel, substantially as described. 4th. In a wooden scoop shovel, the combination of the straps E and Er, handle F cut away as shown in Fig. 3, the heel C and bottom piece A, said bottom piece being clasped between said said straps by the bolt R, substantially as shown and described.

No. 20,902. Evaporator. (*Chaudière Evaporatoire.*)

Adolf Kayser, Buffalo, N.Y., U.S., 17th January, 1885; 5 years.

Claim.—1st. The combination, with an evaporating pan or vessel, of a heating apparatus, whereby a portion of said pan, is heated while another portion thereof remains comparatively cool, a cover which extends over the cool as well as the hot portion of the pan, and

whereby the steam or vapor rising from all portions of the pan is collected, and a conduit which conducts the collected steam or vapor through or under the cooler portion of the pan and in which the steam or vapor is condensed and its heat transmitted to the surrounding liquid, substantially as set forth. 2nd. The combination, with the compartments A and B, separated by a partition l having an overflow li, of a heating apparatus whereby the compartment A is heated a cover G and vapor-conduit K, substantially as set forth. 3rd. The combination, with the compartments A and B, of a conduit whereby the hot liquid is conducted from one compartment into the other, a heating apparatus whereby the compartment A is heated, and a conduit whereby the vapor rising from the liquid is conducted through or under the liquid contained in the compartment B, substantially as set forth. 4th. The combination, with the compartment A, furnace c and compartment B, of a cover G and smoke-pipes f, and vapor-pipes K arranged in the compartment B, substantially as set forth. 5th. The combination, with the evaporating-pan, of a cover G, vapor-pipes H, manifold head I, vapor-pipes K, manifold head F and chimney fi, substantially as set forth. 6th. The combination, with an evaporating pan, of heating pipes constructed with flat tops and receding sides and immersed in the liquid in the pan, substantially as set forth.

No. 20,903. Combined Platform Rocker and Inclining Chair. (*Plateforme et Chaise à Buscule Combinées.*)

Peter B. Cupp, Van Wert, Ohio, U.S., 17th January, 1885; 5 years.

Claim.—The combination of the following elements: the seat frame A having side grooves and arms provided with closed slots H, the sliding seat F having rack K, the hinged back E having studs G projecting laterally into said slots, the rotatable pinion shaft M L having a squared end, and the forked sliding plate N arranged, as described, to lock said shaft, all as hereinbefore set forth.

No. 20,904. Apparatus for Automatically Closing the Tap Holes of Casks or Vessels. (*Appareil pour Boucher Automatiquement les Trous de Coulée des Futaillies ou Vaisseaux.*)

John E. Minnitt and John H. Vickers, Nottingham, Eng., 19th January, 1885; 5 years.

Claim.—1st. In apparatus for automatically closing tap holes of casks and other vessels and facilitating tapping, the combination of the conical tap hole, the elastic ring, the valve and the spring, the said conical tap hole receiving a tap having a stem of corresponding form, and the rubber ring serving a double purpose, forming a joint around the stem of the tap when the tap is in place and forming a seating for the valve, when the tap is in place, and forming a seating for the valve when the valve is removed, the valve then being pressed against the elastic ring by a spring. 2nd. The combination and arrangements of parts of apparatus for automatically closing the tap holes of vessels, dispensing with corking and facilitating tapping, substantially as hereinbefore described, with reference to Figs. 1, 2 and 3 on the drawings. 3rd. The combination and arrangement of parts of apparatus, for automatically closing the tap holes of vessels, dispensing with corking and facilitating tapping, substantially as hereinbefore described with reference to Figs. 4 to 7 on the drawings.

No. 20,905. Furnace. (*Fourneau.*)

Virgil W. Blanchard, New York, N.Y., U.S., 19th January, 1885; 5 years.

Claim.—1st. In a furnace for a steam boiler or other purposes, a double wall air-circulating magazine arranged over the fire chamber, the perforated rings above said chamber, and means for forcing the highly heated air through said rings, substantially as described. 2nd. The combination of a double wall furnace, perforated diaphragm, arranged in the space between the walls of the furnace, a convolute base D communicating with an air pipe, a central magazine extending into the combustion chamber N and means for introducing air below the grate, all constructed and adapted to operate, substantially as described. 3rd. A furnace having a double wall above a hollow dome, in combination with a double wall magazine having an interiorly perforated wall arranged in a primary mixing chamber N, the walls A, B, perforated diaphragms applied in a mixing chamber G which communicates at its base with the said primary mixing chamber, and at its top with an outlet, substantially as described. 4th. The combination of an annular mixing chamber in the primary furnace, and air-heaters in a chimney for supply this chamber with air heated air, air-inlets through the top of the dome D, inlets leading into said chamber above the dome, and passages e through the diaphragms in said chamber, substantially as described. 5th. The combination of the mixing chamber, means for supplying this chamber with heated air and carbonic oxide, and a secondary mixing chamber having air inlets and provided with horizontal annular perforated diaphragms for uniting the oxygen of the air and the carbonic oxide, substantially as described. 6th. The combination of an air heater D, a magazine for producing carbonic oxide, an air chamber G, subdivided by horizontal diaphragms and provided with inlets for the products of combustion and inlets for the heated air, substantially as described. 7th. The combination of a mixing chamber N, with a furnace for the production of carbonic oxide from bituminous coal, a perforated air supply magazine, a chamber G and means for introducing air through the bed of incandescent fuel, substantially as described. 8th. The combination of the means for introducing air into the diaphragm above the fire-bed, with means for introducing air below the grate of the furnace, a combustion chamber below the said diaphragm, a mixing chamber N and a chamber G above said diaphragm, all constructed and adapted to operate substantially in the manner and for the purposes described. 9th. The combination of the following instrumentalities in a furnace: an ash-pit, means for forcibly injecting air into the same, a combustion chamber above the grate Er, a diaphragm covering the combustion chamber, a centrally arranged magazine,

a chamber surrounding this magazine, and a double wall forming a chamber into which the products of combustion will pass out through an opening at its base, all constructed and adapted to operate substantially as described. 10th. A furnace which is composed of an ash-pit, a combustion and mixing chamber, means for introducing air into ash-pit under pressure, a dome into which air is introduced under pressure and heated, a magazine in which air is heated and introduced under pressure into the ascending products of combustion, and a re-mixing chamber in which the carbon-monoxide is reduced to heat, all substantially in the manner described. 11th. The combination of a double wall furnace, walls which are perforated to form tortuous channels therethrough, an internal mixing chamber and a double wall magazine communicating with the said chamber, substantially as described. 12th. The combination of an internally perforated magazine, a convolute base therefor, means for supplying air thereto, a double wall mixing chamber G above said base and a mixing chamber N surrounded by said chamber G, substantially in the manner and for the purposes described. 13th. The combination of the fire chamber, the concave convex sectional expansion and contraction dome thereof, and the double internally perforated magazine thereof, all constructed and adapted to operate substantially in the manner and for the purposes described. 14th. The combination of a furnace having double walls and perforated diaphragms between the walls, the internal air heater, the mixing chamber for the heated air and carbonic oxide, and the pipes leading to an air-forcing engine for the free supply of oxygen to the highly heated products of combustion, all substantially in the manner and for the purposes described. 15th. The combination of a fire chamber and air-pipe below the grate therein, a hollow sectional dome, an air-pipe communicating therewith, a centrally arranged magazine having an internally perforated diaphragm surrounded by a chamber communicating with said dome, a mixing chamber above the dome, and a reheating chamber surrounding the mixing chamber and communicating therewith, substantially as and for the purposes described. 16th. In a fire-brick furnace, a primary mixing chamber or regurgitating passage, a blast pipe below the grate having a regulating valve, a secondary mixing chamber provided with an air supply passage, all combined and adapted to operate substantially in the manner and for the purposes described. 17th. The method, substantially as herein described, of producing intense heat in a fire-brick furnace consisting, first, in subjecting the fuel to an upward blast of air while starting a fire, second, partially closing said draft, third, producing a regurgitation of the gas above the fuel by a strong blast of heated air regulated by a valve, and finally, conducting the gases to a surrounding mixing chamber supplied with air, whereby they are converted into carbonic acid gas, substantially as described.

No. 20,906. Steam Boiler. (*Chaudière à Vapeur*)

Virgil W. Blanchard, New York, N. Y., 19th January, 1885, 5 years.

Claim.—1st. A steam boiler, consisting of a series of horizontal pipes closed at their outer ends and opening at their inner ends into a well, which extends transversely across the combustion chamber, which is closed at its lower end and opens at its upper end into a steam dome, in combination with a pipe leading from the water space of the said dome into the said well, a series of vertical pipes open at their lower end and closed at their upper ends, and arranged in the well and communicating with the pipes applied in the said horizontal pipes, and a suitable furnace chamber, all constructed and adapted to operate substantially in the manner and for the purposes described. 2nd. In combination with the inclosing furnace shell, the vertical water-heating well, the vertical pipes F open at their lower ends and closed at their upper ends, the partition C which extends transversely across the combustion chamber, the horizontal pipes, the pipe G and the steam dome communicating with this well, and the vertical partitions A arranged in said furnace shell, all adapted to operate substantially as described. 3rd. The combination of the elongated well C, pipes communicating therewith closed at their outer ends, pipes arranged in this well and having branch pipes radiating from them, a steam dome and a pipe leading from this dome to the bottom of the said well, all adapted to operate substantially in the manner and for the purposes described. 4th. In a steam boiler, a deep well extending transversely across the combustion chamber, closed at its lower end and opening at its upper into a steam dome, pipes E radiating from this well closed at their outer ends, a series of vertical pipes F closed only at their upper ends, and a series of horizontal pipes arranged in pipes E open at their outer ends and opening at their inner ends into pipes F, all constructed and adapted to operate substantially in the manner and for the purposes described. 5th. The combination of the vertical well extending across the combustion chamber and provided with vertical pipes, closed at top and open at bottom, the horizontal branch pipes, the partition C, pipe G, a steam dome and a flue space beneath said well, all constructed and adapted to operate substantially in the manner and for the purposes described. 6th. The boiler furnace, constructed with a narrow flue B leading through its crown at one end, in combination with a deep well having a flue space beneath it, and the alternating partitions A forming a zigzag flue leading to the chimney, all arranged to operate substantially in the manner and for the purposes described. 7th. The combination of the deep well extended transversely across the combustion chamber, the enclosing furnace wall, the steam dome and a pipe leading from said dome through the furnace shell and communicating with the deep well at or near its bottom, substantially in the manner and for the purposes described. 8th. The combination, with a steam generator, constructed substantially as described, and a steam dome communicating with a deep well, of a shell A having a contracted inlet flue and a super-heater applied in this flue and communicating with the said dome, all adapted to operate substantially in the manner and for the purposes described. 9th. The combination, in a steam generator, of a well C which extends transversely across the combustion chamber, and composed of sections in the form of rings, pipes F closed at top and open at bottom, the horizontal pipes E, the pipes F enclosed therein, and the flue channel, substantially in the manner and for the purposes described. 10th. The combination of the well extending across a combustion chamber, with water channels closed at the top and open at the bottom, and a dia-

phragm located near the bottom of this well, and a flue space below, substantially as described. 11th. The combination, with the well extended transversely across the combustion chamber, and provided with radiating outflow and return pipes, vertical pipes F close at top and open at bottom, the steam dome, the pipes G leading from the dome into the said well below a diaphragm C, and a forcing engine, all constructed and adapted to operate substantially in the manner and for the purpose described. 12th. The combination of the partition C, the deep well extended transversely across the combustion chamber, the return pipe G, a propeller or forcing engine G, the vertical pipes F, the horizontal pipes E and the inclosed heating tubes F, all adapted to operate conjointly, substantially in the manner and for the purposes described. 13th. The combination of a combustion chamber A, a vertical well extended across the same, but terminating above the bottom thereof, a steam dome communicating with the top of said well, a pipe G forming a communication between the bottom of the well and the said dome, and a forcing engine, all constructed and adapted to operate substantially in the manner and for the purposes described. 14th. The combination of the combustion chamber, the well and pipes arranged therein, the contracted inlet flue B and a vertical movable steam super-heater therein flexibly connected by a pipe with the steam dome, all constructed and adapted to operate substantially in the manner and for the purposes described.

No. 20,907. Car Axle Lubricator.

(*Boîte à Graisse de Char.*)

William G. Mitchell, Rockaway, N.J., U. S., 19th January, 1885; 5 years.

Claim.—1st. In a journal lubricator, a roller or spool provided with a chain or jointed beater R, attached to rotate with it as a beater. 2nd. In a journal lubricator, a roller or spool provided with a metal chain R attached thereto at one point, as shown. 3rd. In a journal lubricator, a roller or spool provided with a chain or jointed beater R, combined with wipers G, H, and with a spring-supporting frame.

No. 20,908. Machine for Threading Sheet Metal Screws. (*Machine à Filoter les Vis de Tôle.*)

William Werts, Camden, N.J., U.S., 19th January, 1885; 5 years.

Claim.—1st. The combination of the central revolving shaft B, face plate C and disks C₁, C₂ and C₃, C₄ carrying the hoppers R₁, shafts D, D and pairs of shafts D₁ having chucks J, J₁, J₂, the said shaft B being revolved by means of the driving shaft B₁ having a pinion E₁ geared into the teeth of the face-plate C, or by other suitable mechanism, substantially as described. 2nd. In a screw-threading machine having a central revolving shaft B provided with face-plate C, disks C₁, C₂, C₃ and shafts D having chucks J₁ at one end, and pinions E₁ at the other end, the combination therewith of stationary ring G, having internal gear-teeth for revolving the said shafts D, substantially in the manner and for the purpose set forth. 3rd. The combination of series of shafts D and D₁ having threaded chucks J and J₁, J₂ respectively, the shafts being geared together by means of pinions E₁ and E₂ respectively, whereby the chucks J₁, J₂ are caused to revolve in opposite directions to the chuck J for threading sheet metal blanks, substantially as described. 4th. In a screw-threading machine having pairs of shafts D₁ provided with chucks J₁, J₂, and central shafts D having chucks J, the combination, with said shafts D₁, of universal joints L to admit of the shafts D₁ being moved from and toward the shafts D, to produce a like movement in the chucks J₁ toward and from the chucks J, substantially in the manner and for the purpose set forth. 5th. The combination of eccentrics F, F, having wheels G₁, G₂, with the shafts D₁, D₂, and with the shaft D having a pinion E₄, the wheels G₁, G₂ being pivoted to the face-plate C for moving the chucks J₁, J₂ toward and from the chuck J, substantially as described. 6th. The hopper R₁ having fingers g, in combination with the revolving disk C and endless chain P, having buckets R with slots f in their bottoms, substantially in the manner and for the purpose set forth. 7th. The combination of the stationary cam e₁ and spring d₂ for giving a reciprocating movement to the plunger S, substantially in the manner and for the purpose set forth. 8th. The plunger S₁, in combination with the plunger S for holding the blanks K on the chuck J as the plunger S is withdrawn, substantially as described.

No. 20,909. Lifting Jack. (*Cric.*)

Henry J. England, Falls Church, Va., U. S., 19th January, 1885; 5 years.

Claim.—1st. A lifting jack consisting of a bent body formed of a single piece of wood or metal, a central lifting bar pivoted within said body, and provided with a bracket secured a short distance from the outer end of the same, said bracket and outer end of said lifting bar being provided with corrugated plates, substantially as shown. 2nd. A lifting jack consisting of a body formed of a single piece of wood or metal, the centre cut-out to form a lifting bar, which is pivoted between the cut sides, the free ends of said piece being held in place by a straight hand-piece and bolt, substantially as shown. 3rd. A lifting jack, consisting of a body formed of a single piece of wood or metal, the centre cut-out to form a lifting bar, which is pivoted between the cut sides, the free ends of said piece being held in place by a curved hand-piece secured by screw bolts, substantially as shown. 4th. In a lifting jack, the bent body A, the thickened bearing part B having points C, the tie-bolt E, the pivot-bolt G the holding bolt H and the rounded handle part A₁, in combination with the lifting bar F, having bracket e provided with corrugated plate f and the flexible connecting strap L, all arranged and operated substantially as shown and specified. 5th. In a lifting jack, the body A₃ having end bearing B₂ and straight sides A₄, the pivotal pin G, the binding bolt H and the curved handle L secured by screw bolts g, in combination with the lifting bar F pivoted between sides A₄, and having bracket e, and the flexible strap C connecting bolt H and bar F, all arranged and operated substantially as shown and specified.

No. 20,910. Vehicle Seat. (*Siège de Voiture.*)

Frank J. Newacheck, Green Spring, Ohio, U.S., 19th January, 1885; 5 years.

Claim.—The combination, with a seat rail, of the hinged detachable seat connected to the rail by means of the slotted recessed strap C, the pivot strap G and the pivoted hook I, substantially as set forth.

No. 20,911. Billiard Cue. (*Queue de Billard.*)

James Grantiers, Montreal, Que., 19th January, 1885; 5 years.

Claim.—1st. In a billiard cue, the combination of a ferrule or sleeve placed over the point, and a tip also held in said ferrule or sleeve, substantially as and for the purpose specified. 2nd. In a billiard cue, the combination of the ferrule or sleeve B, and the tip C having the shoulder e, as set forth.

No. 20,912. Cable Railway Apparatus.

(*Appareil de Chemin de fer à Câble.*)

Charles W. Rasmussen, Chicago, Ill., U.S., 19th January, 1885; 5 years.

Claim.—1st. In a cable railway car, the combination, with a series of projecting arms adapted to be brought successively into the slot of a cable-tube, and mechanism for carrying the same, of a supporting frame for sustaining said mechanism, substantially as described. 2nd. The combination, in a cable-railway car, of an endless chain or band provided with projecting arms for connection with the cable, drums or pulleys for carrying said chain or band, and a frame for supporting said drums or pulleys, substantially as described. 3rd. In a cable railway car, the combination of an endless chain or band provided with projecting arms for connection with the cable, drums or pulleys for carrying said chain or band, and a frame for supporting said drums or pulleys sustained upon the axles of the car, substantially as described. 4th. In a cable railway car, the combination of an endless chain or band, provided with projecting arms for connection with the cable, of drums or pulleys for carrying said chain or band, and a frame for supporting said drums or pulleys sustained upon the journals of the car-axes and extending beyond said axes, substantially as described. 5th. In a cable railway car, the combination, with a series of projecting arms for connection with the cable, of mechanism for carrying said arms, a frame for supporting said mechanism and guide mechanism for said projecting arms sustained by said frame, substantially as described. 6th. In a cable-railway car, the combination, with an endless chain having projecting arms, and the drums or pulleys for said chain, of a main supporting frame connected with the journal boxes of the car-axes, and having curved extensions and a series of supporting arms for sustaining the guide mechanism, substantially as described. 7th. In a cable-railway car, the combination, with projecting arms for connection with the cable, of mechanism for arresting the movement of said arms consisting essentially of a friction hub, a strap encircling said hub and having one end fixed, an elbow lever connected to the other end of said strap, and means for operating said lever, substantially as described. 8th. In a cable-railway car, the combination of an endless band or chain provided with projecting arms for connection with the cable, of drums or pulleys for sustaining said band or chain, friction hubs connected with said drums or pulleys, friction straps encircling said hubs, elbow levers for clamping said straps, a main lever for operating said elbow levers, and means for connecting said main lever to the winding-post of the car, substantially as described. 9th. In a cable-railway car, the combination, with the projecting arms for connection with the cable, of the upper and lower guide and the hinged extensions provided with the supplemental guide-lips, substantially as described. 10th. In a cable-railway car, the combination, with the lower fixed guide, of the hinged guides placed at one side of said fixed guide and having their forward ends extending in front of the same, substantially as described. 11th. In a cable-railway car, the combination, with the hinged extensions, of the spring-seated guide-wheels, substantially as described. 12th. In a cable-railway car, the combination, with the endless chain carrying the projecting arms, of the lower fixed guide having expanded mouths to receive said projecting arms, substantially as described. 13th. In a cable-railway car, the combination, with the main frame for sustaining, on the car-axle journals, the mechanism for attaching the car with a movable cable, of brake-beams pivotally connected to said main frame, substantially as described. 14th. In a cable-railway car, the combination of mechanism provided with projecting arms for attaching a car to a moving cable, guide mechanism for said arms, mechanism for arresting the movement of said arms, and a main frame for sustaining said several mechanisms supported upon the journals of the car-axle, substantially as described. 15th. In a cable-railway car, the combination, with the endless chain or band, of projecting arms and friction-rollers extending laterally from said chain at each side of said arms, substantially as described. 16th. In a cable-railway car, the combination, with an endless chain or band having projecting arms and having at the base of said arms rollers extending laterally from said band or chain, of supporting drums or pulleys having flanges provided with grooves or sockets to receive said rollers, substantially as described. 17th. In a cable railway car, the combination, with the endless chain or band, of projecting arms of decreasing thickness toward their points, substantially as described. 18th. In a cable-railway car, the combination, with movable arms for connection with a cable, of mechanism for locating in desired position one of said movable arms beneath the bottom of the car, substantially as described. 19th. In a cable-railway car, the combination, with an endless chain or band carrying projecting arms for connection with a moving cable, of mechanism for arresting the movement of said arms, and mechanism, substantially as described, for locating in desired position one of said arms beneath the centre of the car, substantially as set forth. 20th. In a cable-railway car, the combination, with an endless chain or band carrying projecting arms for connection with a moving cable and having rollers or stops thereon, of pins for engagement with said stops, a lever for moving said pins, and mechanism extending to the end of the car for operating said lever, substantially as described. 21st. In a cable-railway car, the combination, with the

endless chain carrying projecting arms for connection with a moving cable, of two levers with pins for locating a projecting arm beneath the centre of the car, and mechanism at each end of the car for operating one of said levers, substantially as described. 22nd. The combination, with a cable clamp having a tubular body portion, and having flanges adapted to be bolted together, of a stop or truck, the axle of which passes through said flanges, substantially as described. 23rd. A clamp for attaching trucks to a cable having bottom flanges, one of which is provided with a bearing for the axle of the trucks, substantially as described. 24th. A clamp for attaching trucks to a cable having a tubular body with curved upper surface, bottom flanges adapted to receive clamping-bolts, and a sleeve adapted to fit over the truck-axle, substantially as described. 25th. In cable-railway apparatus, the combination, with the cable, of supporting trucks having clamping mechanism above their axles for sustaining the cable, substantially as described. 26th. In cable-railway apparatus, the combination, with the cable, of a truck for sustaining the cable having upon its axle a loose and a fixed wheel, substantially as described. 27th. In cable-railway apparatus, a cable-tube having separate bottom plate with rails formed integral therewith, substantially as described. 28th. In cable-railway apparatus, a cable tube having a bottom plate with rails thereon, and having side plates with rails, substantially as described. 29th. In cable-railway apparatus, a drum for changing the direction of travel of the cable having a grooved central rim, and flanged side plates attached thereto in such manner as to form peripheral grooves, substantially as described. 30th. In cable-railway apparatus, the combination, with the grooved drum, of the twisted tube-rails, one set arranged in proximity to the periphery of said drum and the other set extending beyond the point where the cable engages with said drum, substantially as described. 31st. In cable-railway apparatus, the combination, with the section of the main-cable tube arranged at angles at curves of the roadway, of a supplemental cable having stops or trucks thereon and a curved tube for said supplemental cable, the stops or trucks of said supplemental cable being arranged to travel beneath the slot of the curved tube, substantially as described. 32nd. In cable-railway apparatus, the combination, with sections of the main cable tube arranged at an angle to each other and having portions depressed, of a curved supplemental tube extending between said sections and having at each end, a depressed portion and a supplemental cable having stops or trucks, and having terminal drums driven from the main cable, substantially as described. 33rd. In cable-railway apparatus, the combination, with the traction cable, of sections of the cable-tube having each a depressed end and arranged at an angle to each other at a curve of the roadway, and a drum for the cable placed in the angle, substantially as described. 34th. In cable-railway apparatus, the combination, with the main traction-cable, of sections of the main-cable tube having each a depressed portion and arranged at an angle to each other, a drum located in said angle for changing the direction of travel of the main cable, a curved supplemental cable tube, a supplemental cable, terminal drums for said supplemental cable, and gear mechanism connecting one of said terminal drums with the drum of the main cable, substantially as described. 35th. In cable-railway apparatus, the combination, with the cable, its supporting-trucks and its tube of movable rails, substantially as described. 36th. In cable-railway apparatus, the combination, with the cable stops or trucks thereon and depressed portions of the cable tube, of spring seated movable rails, substantially as described. 37th. In cable-railway apparatus, the combination, with intersecting cable-tubes of movable rails in said tubes at the points of intersection, substantially as described. 38th. In cable-railway apparatus, the combination, with the cable having trucks thereon, and the main and supplemental tubes of the curves of the roadway, of the movable rails placed in said tubes at the beginning and end of the curves, substantially as described. 39th. A curved supplemental cable tube for curves of cable roadway having upon its top and bottom, rails or bearings for the wheels of small trucks, and having an extension or enlargement upon its concave side, substantially as described. 40th. The combination, with a car having an arm adapted to be projected into and withdrawn from the slot of a cable-tube, of a supplemental cable for the curves of cable-railways having stops or trucks provided with projecting arms, substantially as described. 41st. In cable railway apparatus, the cable-driving mechanism comprising two grooved wheels having guides between the same for the cable, substantially as described. 42nd. In cable-railway apparatus, the cable-driving mechanism consisting of two grooved wheels arranged out of alignment with each other, in combination with the twisted guides for the cable-trucks, substantially as described. 43rd. In cable-railway apparatus, the combination, with the driving mechanism, of the grooved adjustable tension drum and guide-rails leading therefrom to the driving mechanism, substantially as described. 44th. In cable-railway apparatus, the combination, with the cable-tube having dirt-discharge openings therein, of dump-blacks on the edge of said openings, substantially as described. 45th. In cable-railway apparatus, the combination, with adjoining cable-tubes having dirt discharge openings therein, of dirt traps or reservoirs located between said tubes, and branch pipes extending from each of said tubes to the reservoir, substantially as described. 46th. In cable-railway apparatus, the combination, with the adjoining cable-tubes having dirt-discharge openings therein, of dirt traps or reservoirs located between said tubes and having man-holes and pipes leading to a sewer, and branch pipes connecting with each of said cable-tubes, said branch pipes having bottoms projecting a short distance within said reservoirs, substantially as described.

No. 20,913. Cable-Railway Apparatus.

(*Appareil de Chemin de Fer à Câble.*)

Charles W. Rasmussen, Chicago, Ill., U.S., 19th January, 1885; 5 years.

Claim.—1st. In a cable-railway car, the combination, with an endless chain or band carrying projecting arms for connection with the cable, of a laterally movable drum for supporting said chain or band, substantially as described. 2nd. The combination, in a cable-railway car, of an endless chain or band carrying projecting arms for connection with the cable drums or pulleys for carrying said chain or band, and a frame for supporting said drums or pulleys and on which they

are mounted in a manner permitting lateral movement, substantially as described. 3rd. In a cable railway car, the combination, with the journal box frames, of the front extensions B₂, the glide-bar and the drum movably supported upon said glide-bar, substantially as described. 4th. In a cable-railway car, the combination, with the forward extensions B₂, of the glide-bar, the hub mounted on said glide-bar, the drum for supporting the chain carrying projecting arms, the castings F and F₁, the drums F₂ and the guide roller, substantially as described. 5th. In a cable-railway car, the combination, with the projecting arms for connection with the cable, of a laterally flexible chain or band for supporting said arms, substantially as described. 6th. In a cable-railway car, the combination, with projecting arms, of the chain or band consisting of flat links connected together by laterally flexible joints, substantially as described. 7th. In a cable-railway car, the combination, with the endless chain or band, of projecting arms having inclined ends, substantially as described. 8th. In a cable-railway car, the combination, with the endless chain or band, of projecting arms having concave faces, substantially as described. 9th. In a cable-railway car, the combination, with the chain or band carrying projecting arms, of laterally flexible guide mechanism for said chain or band, substantially as described. 10th. In a cable-railway car, the combination, with laterally-flexible band or chain and the laterally-movable drum, of the upper guide connected to said drum and formed of sections joined together, substantially as described. 11th. In a cable-railway car, the combination, with the laterally-flexible band or chain carrying projecting arms, of the upper guide therefore, formed of sections having top and bottom plates connected together at one side, and hinged together at their ends, substantially as described. 12th. In a cable-railway car, the combination, with the laterally-flexible band or chain carrying projecting arms, of the lower guide formed of sections hinged together and the laterally movable drum with which said lower guide is connected, substantially as described. 13th. In a cable-railway car, the combination, with the laterally-flexible chain or band carrying projecting arms, of the laterally-flexible guide mechanism and the laterally-movable drums or pulleys, for supporting the chain or band, substantially as described. 14th. In a cable-railway car, the combination, with the laterally-movable drum, of the guide-roller adapted to enter the slot of the cable-tube, and means for connecting the roller to the movable drums, substantially as described. 15th. In a cable-railway car, the combination, with the guide-arms, of the guide-blade adapted to enter the slot of the cable-tube, substantially as described. 16th. The clamping mechanism for attaching stops or trucks to a traction cable having a portion fixed securely upon the cable, and having a portion adapted to carry the stop or truck held in a manner free to turn, substantially as described. 17th. In a cable-railway apparatus, the combination, with a traction-cable, of the sleeve having recessed central portion, the clamp held loosely upon said central portion and the stop or truck for supporting the cable, substantially as described. 18th. In cable-railway apparatus, the combination, with the curved rails, of the slotted cable-tube located between the rails and slightly nearer the inner rail of the curve, substantially as described. 19th. In cable-railway apparatus, the combination, with intersecting tracks, of the intersecting cable-tubes both of which are depressed, substantially as described. 20th. In cable-railway apparatus, the combination, with the intersecting tracks, of the intersecting cable-tubes both of which are depressed and supplemental tubes upon the level of the road-bed, substantially as described. 21st. In cable-railway apparatus, the combination, with the track, of a curved cable-tube having an enlarged portion for the passage of the cable without interference with the tube, substantially as described. 22nd. A tube for traction-cables having a dirt-discharge opening in its side, substantially as described. 23rd. A tube for traction-cables having a depressed bottom, and having a dirt-discharge opening in its side, substantially as described.

No. 20,914. Car-Coupling. (*Accouplage de Wagons.*)

David P. Prescott, Vernon, Vt., U.S., 19th January, 1885; 5 years.

Claim.—1st. A draw-bar head having a fulcrum block in its lower mouth surface in front of the coupling-pin, a vertical coupling pin provided with a shoulder adapted to bear upon the rear end of a link, and a connection, as shown and described, from the top of the pin outside of the draw-bar head to operating rods upon the end of the car body, and to a counterpoise lever hinged upon the end of the car, whereby the link is held from vertical vibration by the suspended pin and whereby the pin is adapted to be manually operated by the rods to tilt the link and to be held in position, substantially as set forth. 2nd. The combination, in a car-coupling, of the rod *b* having a vertical movement on the end of the car, a yielding rest for the lower end of said rod, substantially as described, the pin *c* connected with said rod, the link *d* and the draw-bar having the fulcrum-block *e* therein, substantially as set forth. 3rd. The coupling pin *c* having a body *2* of oval form in cross-section, and the head *3* projecting at right angles from said body, and the draw-bar *B* having the oval pin-hole *v* therein, combined and operating substantially as set forth. 4th. The coupling-pin *c* having a body of oblong form in cross-section, a head *3* projecting at right angles from said body and the web *a* connected to said head and to the adjoining side of the pin, substantially as set forth. 5th. In combination, the rod *b*, pin *c* connected with the latter, the levers *n*, and means, substantially as described, for fastening down the ends of said levers, and for automatically detaching them from said fastening, substantially as set forth. 6th. In combination, the rod *b*, lever *n* and the strap *o* having the latch *o₂* pivoted thereto, substantially as set forth.

No. 20,915. Box for Packing Goods.

(*Boite pour Empaqueter les Marchandises.*)

George A. Duguay, Montreal, Que., 19th January, 1885; 5 years.

Résumé.—1o. La nouvelle combinaison (dans les boîtes de papier ou en carton faites d'un morceau) d'un découpage, tel que composé des côtés longitudinaux B, b, munis des petits cotés latéraux et internes B₁, b₁, B₂, b₂, et aussi muni d'un sous-couvercle C, c, etc., fait en deux parties, ou en une seule, les cotés latéraux et de recouvrement E e munis du couvercle F f également fait en deux parties, et tels que

munis des fermetures à languettes D et D₁ et des incisions d et d₁, le tout tel que décrit ci-dessus et pour les fins indiquées. 2o. La nouvelle combinaison (dans les boîtes faites d'un seul morceau) d'un découpage, tel que composé des tablettes séparées A, B, b, B₁, b₁, B₂, b₂, C, c, E, e, F, f, et faites de métal, bois ou de matière dure quelconque, montées sur charnières h venues ou non d'une seule pièce dans les sus-dites tablettes ou leurs équivalents, sur cuir, toile ou n'importe quelle matière y collée, clouée, vissée, ou n'importe comment y fixée pour tenir lieu des dites charnières, et en tout muni ou non de mon mode de fermeture à petites languettes a, a', boutons i, i', a fermetoir et œillets j, j', et de la poignée K, le tout tel que décrit ci-dessus et pour les fins indiquées.

No. 20,916. Bale Tie. (*Cercle de Ballot.*)

John W. Griswold, Troy, N. Y., U. S., 19th January, 1885; 5 years.

Claim.—1st. In a wire bale-tie, a hook provided on its forward end with a bracing-foot, which will have bearing against the metal of the loop at the rear end of its opening thereof and within the loop at the same time, the pulling force of the loop is being exerted on the holding portion of the hook, substantially as set forth. 2nd. In a wire bale-tie, a hook which is provided with a holding or hooking portion at its twisted neck and bracing foot portion at its forward end, with strut portion connecting said bracing-foot with said holding or hooking portion, for operations with a loop made with the opposite end of the band, substantially as set forth. 3rd. In a wire bale-tie, the loop C having its sides c, c' about parallel, and with a width about equal to the width of the hook, for operations with a hook provided with a bracing-foot *b₂* in the forward end, substantially as and for the purposes set forth. 4th. In a wire bale-tie, the combination, with oblong loop C made with one end, of a wire band of hook B, composed of portions b, b₁ and b₂, substantially as set forth for purposes described. 5th. In a wire bale-tie, a hook and a loop, the hook being provided at its front end with a bracing foot, and the loop being made with an oblong form of opening for receiving both the holding and bracing portions of the hook, with its said portions pinching on the sides of the bracing-foot to sustain it against the pull of the holding portion of the hook, substantially as and for the purposes set forth.

No. 20,917. Roller Mill Feed Mechanism.

(*Trémie pour Moulins à Cylindres.*)

William Hutchison, Ottawa, Ont., 19th January, 1885; 5 years.

Claim.—1st. The combination, with the feed hopper and rotary saucer, of the adjustable shutters N, N₁ hinged to the apex of the divergent feed boards, whereby a portion of the feed material thrown out by the saucer can be directed in equal quantity to the crushing rollers by the adjustment of one or both shutters more or less vertically, as set forth. 2nd. The combination, with the feed hopper and rotary saucer, of the inwardly inclined cant boards arranged to catch the material thrown out by the saucer and distribute it on to the feed boards, to fall intermediately of the rollers in a thin film, as set forth. 3rd. In combination, with the casing A, feed hoppers B and C, rotary saucer F and feed boards L, I, the shutters N, N₁ and cant boards O, O₁ arranged as set forth for the purpose described. 4th. The combination, with the feed hopper and rotary saucer, of the adjustable shutters N, N₁ for throwing the feed more or less to either side, of convergent feed boards for distributing the feed uniformly to the rollers, as set forth.

No. 20,918. Knitting Machine.

(*Machine à Tricoter.*)

William Bremner, Georgetown, Ont., 19th January, 1885; 5 years.

Claim.—1st. In a knitting-machine, a dog E pivoted between the needle cams A and C, substantially as and for the purpose specified. 2nd. In a knitting-machine, a dog E pivoted between the needle cams A and C, in combination with the pawl K and spring L, arranged and operated substantially as and for the purpose specified. 3rd. In a knitting-machine, a dog E pivoted between the needle cams A and C, in combination with the rods *d* and *e* arranged to actuate the dog E, substantially as and for the purposes specified. 4th. In a knitting machine, the pivoted lever I provided with the rods *d* and *e*, in combination with the roller *g* adjustably held to the plate M, substantially as and for the purpose specified. 5th. In a knitting-machine provided with needle cams, the combination of pivoted dogs F, located and operated substantially as and for the purpose specified. 6th. In a knitting-machine provided with needle cams A, B and C, the pivoted gates D, located as specified, in combination with the pivoted dogs F, arranged and operated, substantially as and for the purpose specified. 7th. In a knitting-machine, the pivoted gates D, located as specified, and provided with pins *a* extending through slots *b* to connect with the sliding-plate G, arranged and operated substantially as and for the purpose specified.

No. 20,919. Door Stop and Bumper.

(*Arrête-Porte et Buttoir.*)

William H. Teetzel, Detroit, Mich., U.S., 19th January, 1885; for 5 years.

Claim.—1st. The combination, with two arms jointed together, of a spring latch, substantially as described. 2nd. The combination, with two arms jointed together, of a spring latch, whereby one of said arms may be engaged and disengaged with the other, the outer arm provided with an elastic cushion upon its free end, the inner arm adapted to be engaged upon the door, substantially as described. 3d. The combination, with the arm C, adapted to be engaged upon the door and provided with slots *e* and *e'*, of a movable arm pivotally connected therewith, and a spring-latch, arranged to operate substantially as and for the purpose described. 4th. The combination, with a stationary arm adapted to be secured upon a door, of a movable arm pivotally connected therewith, a spring-latch located within said movable arm and adapted to be engaged with, and disengaged from the outer end and under face of said stationary arm, substantially as described.

No. 20,920. Carriage Spring.*(Ressort de Voiture.)*

Joseph R. Johnson and Charles K. Wright, Gananoque, Ont., 19th January, 1885; 5 years.

Claim.—A carriage spring of one or more leaves of flat steel bent edgewise near one end square or curved, the shorter leg adapted to be fastened to the floor of a vehicle body, and the longer leg to rest on a bearing beyond the vehicle body, as set forth.

No. 20,921. Table and Ball for Playing Billard, etc. *(Table et Bille de Billard. etc.)*

John Honeyman, Glasgow, Scotland, 19th January, 1880; 5 years.

Claim.—1st. In a table for playing billiards, bagatelle and analogous games, a firm or rigid rim covered or uncovered as distinguished from an elastic or cushioned rim, substantially as described with reference to figures 1, 2, 3, 4 and 5 of the drawings. 2nd. In a table for playing billiards, bagatelle and analogous games, a firm or rigid rim covered or uncovered, in combination with a playing surface covered with cloth or fabric, or with a waterproof material, substantially as described with reference to figures 1, 2, 3, 4 and 5 of the drawings. 3rd. For playing billiards and analogous games, a table having the top or playing surface uncovered, the material constituting it being made to the required smoothness, and a firm or rigid rim covered or uncovered as distinguished from an elastic or cushioned rim surrounding the said surface and either formed integral therewith or separate therefrom, substantially as described with reference to figures 1, 2, 3, 4, and 5 of the drawings. 4th. As apparatus for playing billiards and analogous games, a table constructed, as set forth, in conjunction with an elastic ball, substantially as described.

No. 20,922. Air and Water Forcing and Exhausting Machine. *(Machine Fouleuse et Aspirante pour l'Air et l'Eau.)*

Alfred D. Shelmutt, Simpsonville, Ky., U. S., 19 January, 1885 5 years.

Claim.—An air-engine consisting of the cylinder having removable heads, provided with the inwardly and outwardly opening valves surrounded by the chambers *g*, and the pipes B, B terminating in the branch B₁ and connecting the chambers of each like valve, said pipes being curved at their junction, whereby is formed the deflector Q, and said branch provided with the damper *i* and flap *i*, all substantially as and for the purpose set forth.

No. 20,923. Curtain Fixture.*(Suspension de Rideau.)*

Louis Weber, (Co-inventor with Louis Page,) Brooklyn, N. Y., U. S., 20th January, 1885; 5 years.

Claim.—1st. The combination, with a curtain bar, of curtain-supporting and grasping clamps formed of two clips, hinged together and closing automatically at their lower edges through the action of a spring or springs tending to separate their upper ends, substantially as set forth. 2nd. A curtain-bar formed of two or more sections telescoping into, or sliding upon each other so as to admit a change of length of said bar, in combination with curtain-supporting devices arranged to travel along or within such extension-bar and longitudinally of the same, substantially as set forth. 3rd. A curtain-bar formed of two or more sections telescoping into or sliding upon each other, in combination with curtain-supporting devices arranged to move longitudinally along such bar, such curtain-supporting devices being operated through cords, substantially as set forth. 4th. A tubular slotted telescopic curtain-bar provided with open re-inforce rings to give the slotted bar, the necessary rigidity and to ornament it, substantially as set forth. 5th. As a support for a curtain-bar, a bracket formed of two or more pieces placed edgewise up and down, one or more of the piece having lateral flanges, and one or more of the pieces slotted so as to admit of their sliding upon and stiffening each other, and of being clamped together laterally, substantially as described. 6th. As a support for a curtain-bar, a bracket provided with a cap or socket formed on its end to receive the end of said bar, substantially as set forth. 7th. The combination, with a curtain-bar designed to support a curtain, as described, of sockets to confine and support the ends of the bar, each socket being divided diametrically into two parts and provided with a flange, which retains edgewise the end cap of the bar, substantially as set forth. 8th. A slotted extensible curtain-bar formed of two or more cylindrical telescoping sections, one section being provided with a rib on its surface, and the other provided with a groove in its surface to engage said rib, whereby the said telescoping sections are prevented from turning axially upon each other, substantially as set forth. 9th. As a means for preventing undue extension of the bar, the said bar provided with a spring *i*, bearing a pin *i*, mounted on the outer tubular section with the pin resting in a hole in same and with a hole or recess *i*, in the inner tubular section, all arranged to operate, substantially as described. 10th. The combination, with the curtain-bar and the brackets having end caps for the bar formed on the ends of said brackets, of the cord-guiding sheaves and their frames, the latter mounted on said end caps, substantially as shown and specified. 11th. The combination, with the tubular slotted curtain-bar, of the curtain-supporting carriages E provided with wheels somewhat in the form of hemispheres, as represented, and with a bail *j*, and suspending hook *k*, arranged substantially as described. 12th. The combination, with a tubular slotted curtain-bar, an operating-cord mounted therein, and a master-ball or carriage mounted on said cord and within said bar, of a clamp for attaching said ball to, and detaching it from said cord, which clamp can be operated from outside the bar and through the slot in same, for the purposes specified. 13th. The combination, with the master-ball D, provided with holes for the operating-cord, a recess *k*, a hole for the shank of hook *k*, and another for pin *k*, of the hook *k*, provided with a disk *k* on its shank, and the clamping pin *k*, all arranged to operate substantially as and for the

purposes set forth. 14th. The combination, with the tubular slotted curtain-bar, the operating-cord and the balls or carriages for supporting the curtain, of the hook *k* provided with disk *k*, substantially as and for the purposes set forth. 15th. The curtain-bar provided with hooks *f*, or their equivalents, for supporting a supplementary lambrequin, or other drapery, substantially as shown and described.

No. 20,924. Method and Apparatus for Destroying and Utilizing Night Soil and Offal in Buildings, &c. *(Méthode et Appareil de Traitement et d'Utilization des Vidanges et Déchets dans les Maisons, &c.)*

Andrew Engle, Metz, and Sperry, Watt and Garver, Des Moines, Iowa, U. S., 20th January, 1885; 5 years.

Claim.—1st. The herein-described method of disposing of night soil in buildings, towns and cities, which method consists essentially in conveying human excrements from privy bowls and basins through tubes into a retort in a furnace, then closing the retort and subjecting the matter therein to furnace heat to convert the sewage into vapour and charcoal, and allowing the vapour to pass through tubes from the retort into a superheater in the furnace, to be therein converted into an inflammable gas. 2nd. The herein-described method of disposing of sewage in buildings, towns and cities, which method consists in conveying sewage (night soil, urine and offal) from privy bowls and basins through tubes into one or more reservoirs, and from the reservoirs through valves or cut-offs into one or more retorts in furnaces, then closing the retorts at pleasure and subjecting the matter confined therein to furnace heat, to convert it into vapour and charcoal, and at the same time allow the volatile matter to be conveyed through tubes to one or more superheaters in the furnace or series of furnaces to be therein converted into inflammable gas. 3rd. An apparatus for disposing of night soil, urine and offal in buildings, towns and cities composed of the following elements, to wit: A bowl or basin and tube, combined and adapted to receive and convey sewage, a reservoir adapted to receive and retain sewage, and provided with a valve to discharge the sewage, a retort and furnace, combined and adapted to receive and cremate the sewage and convert it into vapour and charcoal, and a superheater adapted to receive the vapour and convert into inflammable gas. 4th. The combination of one or more privy bowls or basins, one or more tubes having valves or cut-offs at their lower ends, one or more retorts in furnaces and one or more superheaters, for the purposes specified. 5th. The combination of one or more privy bowls or basins having tubes extending downwards therefrom, one or more reservoirs having valves or cut-offs for discharging their contents, one or more retorts in furnaces having openings for removing charcoal therefrom, and one or more superheaters for converting vapour into gas. 6th. The combination of a privy seat, a tube to convey odor from the seat to a chimney, and a lantern to create an artificial light and an artificial draft, in the manner set forth for the purposes specified. 7th. The combination of one or more privy bowls or basins, with a retort in a furnace having a revolving, stirring and scraping device, and one or more superheaters, for the purposes specified. 8th. The combination of one or more furnaces, one or more retorts, one or more reservoirs having discharge valves or gates, one or more privy bowls or basins, one or more gas superheaters and burners, one or more furnace flues, one or more ventilating flues extending from the privies with or without a chimney in a building, to operate in the manner set forth for the purposes stated.

No. 20,925. Apparatus for Setting Buttons. *(Appareil à Poser les Boutons.)*

The Pratt Manufacturing Company, Portland, Me., (Assignee of Samuel L. Pratt, Hingham, Mass.) U. S., 20th January, 1885; 5 years.

Claim.—1st. In a button-setting apparatus, spring-jaws to grasp the edges of the button-shank and hold the button, substantially as described. 2nd. In a button-setting apparatus, spring-jaws to grasp and hold the edges of the shank, and stop to arrest the end of the said button-shank, substantially as described. 3rd. The member *a*, combined with the spring-jaws to grasp the edges of the button-shank, and provided with lips to extend under the flat side of the said shank, substantially as described. 4th. The member *a*, combined with the spring-jaws and yielding connecting device, substantially as described, to permit the said jaws with the button-shank between them to move toward and from the said member, as set forth. 5th. The member *a* and spring-jaws to grasp the edges of the button-shank, combined with the anvil, substantially as described. 6th. The member *a* and anvil, combined with spring-jaws to grasp the edge of the button-shank, and provided with a stop for the end of the button-shank, substantially as described. 7th. The member *a*, the spring *e* and the anvil, in combination with the member *b* provided with the spring-clasp *m*, substantially as described.

No. 20,926. Apparatus for the Emulsion of Milk and Fat by Centrifugal Force. *(Appareil pour l'Emulsion du Lait et des Corps Gras par la Force Centrifuge.)*

The Burmeister and Wains Maskin-og Skipsbyggeri, (Assignee of Carl C. Burmeister,) Copenhagen, Denmark, 20th January, 1885; 5 years.

Claim.—1st. In combination with a centrifugal creamer, a cream or milk outlet tube having a fat-conveying tube opening near the opening of the outlet pipe, and provided with an inwardly-deflecting aperture, as and for the purpose shown and set forth. 2nd. In combination with a centrifugal creamer, a cream or milk outlet tube having its lower end pointing against the direction of the rotation of the milk-receptacle of the creamer, and a fat-conveying tube entering the outlet pipe near its end, and having its end pointing into the outlet pipe, as and for the purpose shown and set forth. 3rd. In combination with a centrifugal creamer, a cream or milk outlet pipe having its lower end pointing against the direction of the rotation of the milk receptacle of the creamer, and a fat-conveying tube entering

the outlet pipe near its lower open end, and having its end bent against the inside of the pipe towards the inner or upper portion of the outlet pipe, away from the lower open end, as and for the purpose shown and set forth.

No. 20,927. Embroidering Machine.

(Machine à Broderie.)

Julius Sobotka, Plauen, Germany, 20th January, 1885; 5 years.

Claim.—1st. The combination of the disk B keyed upon the driving-shaft E, and provided on the inner side with a cam groove b₅, with lever b₄ pivoted at c and provided, at the outer end, with the roller b₆ resting in groove b₅, connecting-rod b₂, block b₇ sliding in a rectangular hole, of lever b₄ and connecting with connecting-rod b₂ by means of pin b₃, lever c₁ keyed upon shaft b, lever a₄, connecting-rod a₃, ring a, the cylindrical rod a carrying the needle-bar A, and the bearings a₁, as described, for moving the needle-bar A toward and away from the cloth, as specified. 2nd. In an embroidering-machine, using needles and shuttles, the arrangement that only the needle-bar is moved towards and away from the cloth, but all the other parts of the embroidering-machine holding and guiding the needle-threads do not participate in the reciprocative motion of the needle-bar, as described. 3rd. The combination of the cam F, keyed upon the driving-shaft E of the embroidering-machine, with the lever i₃ pivoted at i₄, and connected at its outer end with a roller i₂, resting upon the periphery of cam F, connecting-rod i₁, lever i, oscillating shaft h, the arms H keyed upon shaft h and the wire h₁ secured to the outer ends of the arms H, as described, for pulling back intermittently the needle-threads z laid over the wire h₁, as specified. 4th. The combination of the reciprocating bars g₁, sliding between the fast bars g attached to the angle iron G, with the wooden blocks g₂, secured upon the bars g and g₁, one end of the said blocks g₂ being flat and covered with a piece of fabric y, while to the other ends of the blocks g₂ is glued a piece of emery cloth, or of other rough material, as described and for the purpose specified. 5th. The combination of the wooden blocks m₂, with the long holes g₁ and the screws g₃, as described, for affording facility to adjust the blocks g₂, upon the bars g and g₁, as specified. 6th. The combination of the undulated disk F₁ keyed upon the driving-shaft E, with lever f₁ pivoted at f₂ and resting with its roller f₁ upon the side of disk F, and the bars g₁, as described, for imparting to the bar g₁ the reciprocative motion, as specified. 7th. A needle-bar A which may be turned round its longitudinal axis, and is provided on its edges with two, three or four rows of needles l, as described and for the purpose set forth. 8th. The combination of the needle-bar A with a disk o, provided with holes o₁, with the pin m₁, sliding in a hole of lug m, formed at the bearing of needle bar A, and the flat spring m₃, as described and for the purpose specified. 9th. The needle-bar A provided with a row of boring points L, in combination with the bar p provided with holes for the boring points L, and attached to the arms P, hinged to the shuttle-carriage K, which bar p may be placed behind the cloth S and over the edge-bar o, as described and for the purpose set forth.

No. 20,928. Door Hinge. (Penture de Porte.)

Giovanni Crini, Montreal, Que., 21st January, 1885; 5 years.

Claim.—1st. A door connected with its frame or facing by hinges, of which the pivotal centre of the lower hinge is at a greater distance from its connection with the door and frame than that of the upper hinge. 2nd. The combination, with a door and its frame, of the hinges connecting the same, in which the arms c and d of the lower hinge are essentially longer than the corresponding parts of the upper hinge, substantially as and for the purpose specified.

No. 20,929. Oil or Gas Stove.

(Poêle à Huile ou à Gaz.)

Michael C. Armour, Chicago, Ill., U.S., 22nd January, 1885; 5 years.

Claim.—1st. In an oil or gas stove, a frame and a support connected therewith projecting beyond the front of the stove proper, combined with a lamp or lamps constituting an independent heater or heaters, adapted to slide upon said support and be sustained thereby beyond the front of the stove proper, substantially as set forth. 2nd. In an oil or gas stove, a plate or support for the lamp or lamps projecting beyond the front of the stove proper, combined with a lamp or lamps constituting an independent heater or heaters resting upon or within said plate or support, and adapted to be slid under the stove top or plate or entirely out from the stove proper, and supported in front thereof, substantially as set forth. 3rd. In an oil or gas stove, a frame having a portion thereof extended beyond the area of the stove proper, and provided with ways, combined with a lamp or lamps, said lamp or lamps constituting an independent heater, or heaters, and resting upon said ways, whereby the lamp or lamps may be slid under the top of the stove or out beyond the area of the stove proper and supported substantially as set forth. 4th. The combination, in a stove, of a lamp at each end thereof, and a shelf forming the bottom of the spaces for the lamps, and of an intermediate space, said shelf being recessed for the reception of each end lamp, and also recessed centrally to receive a lamp in the intermediate space, substantially as set forth.

No. 20,930. Oil Stove. (Poêle à Huile.)

Michael C. Armour, Chicago, Ill., U.S., 22nd January, 1885; 5 years.

Claim.—1st. In an oil or gas stove, the combination of a frame and lamps supported in sliding ways resting in the frame, substantially as set forth. 2nd. In an oil or gas stove, the combination, with a frame and lamps, of ways in which said lamps are supported, said ways being adapted to slide out with the lamps and support them in a position beyond the front limit of the stove, substantially as set forth. 3rd. In an oil or gas stove, the combination of a frame, lamps, and ways supporti g said lamps, said ways being adapted to slide out from the frame with the lamps to a limited extent, a portion of said ways being supported within the frame when the lamps are withdrawn, substantially as set forth. 4th. The combination, in an oil or gas stove, of sliding lamps having rearwardly extended oil pots, and slid-

ing ways supporting said lamps, substantially as set forth. 5th. In an oil stove, a frame and sliding lamps having rearwardly extended oil pots, combined with a warming chamber in the rear of said lamps, a space being provided below the warming chamber for the reception of the rear portions of the oil pots, substantially as set forth. 6th. The combination, in an oil or gas stove, of lamps, a frame and a warming chamber separate from the oven and removably inserted within the frame in the rear of the lamps, a space being provided below the warming chamber to serve as an air space and also to receive the rear portions of the oil pots, said chamber being entire in itself and capable of being readily detached or slid from the frame bodily upon the removal of the devices connecting it with the frame, substantially as set forth. 7th. In an oil or gas stove, a warming chamber combined with the frame, substantially as described, whereby a space is provided below the chamber serving as an air space, and also to receive the rearwardly extended oil pots of the lamps. 8th. In an oil or gas stove, a frame and sliding lamps, combined with a warming chamber in the rear of said lamps, a space being provided below the warming chamber to serve as an air space, and also to receive the rear portions of the extended oil pots, substantially as set forth. 9th. The combination in an oil or gas stove, of lamps, sliding ways supporting said lamps, and means for uniting the sliding ways, whereby they and the lamps may be slid together, substantially as set forth.

No. 20,931. Ventilating Apparatus.

(Appareil de Ventilation.)

Charles Lawrence and Thomas F. Wintour, Southampton, Eng., 22nd January, 1885; 5 years.

Claim.—The combination in ventilating devices applicable for ventilating houses, buildings, rooms, railway carriages, ships' holds or cabins, and other enclosed apartments generally, of a part or parts 3, or equivalent means for preventing any draught or direct through passage of the entering or escaping air, and causing it to be laterally deflected, with acting ventilating surfaces 2 composed of wire gauze or other finely perforated metal or material arranged in relation to such deflecting parts 3, in such a manner as to be effective in dispersing and distributing the entering or escaping air, and in causing a lateral entry or exit, and a gentle and continuous exchange thereof when such parts are formed, arranged and combined, and co-operate substantially in the manner hereinbefore described.

No. 20,932. Wrench. (Clé à Ecrou.)

Daniel R. Porter, Revere, Mass., U.S., 22nd January, 1885; 5 years.

Claim.—As an improved article of manufacture, the herein-described pipe-wrench composed of the shank A, inclined at one end and toothed to form a fixed jaw A₁, the attached metal strap or block B, the movable concave toothed jaw D provided with the hand-piece D₂, and mounted upon the fulcrum pin c, supported by an ear of the strap B, beyond the edge of the shank A, and the spring H connected with, or supported by, the hand-piece D₂, the spring acting against the strap or block, substantially as shown and described.

No. 20,933. Compound for Restoring Hair.

(Composition)

Robert Scobie, Leadhills, Scotland, 22nd January, 1885; 5 years.

Claim.—The hereinbefore described composition of matter to be used for strengthening, invigorating, and thereby restoring the hair on the human scalp consisting of Tinct. of Cantharidis, Tinct. of Capsici, Oil of Caryophylli, Oil of Lavandula and Spts. Vini Rect., in the proportions specified.

No. 20,934. Game. (Jeu.)

Paul K. Dealy, Brandon, Man., 22nd January, 1885; 5 years.

Claim.—1st. In a game apparatus, the combination, with a base board, of a disk or plate resting on the board and provided in its top with a series of apertures, a standard held on the board and of a lever pivoted on the standard, and having a cup formed on one end, substantially as herein shown and described. 2nd. In a game apparatus, the combination, with the base board F, of the disk A held to slide on the board F, and provided in its upper surface with a series of recesses or apertures, a vertically or laterally adjustable standard on the board and a lever pivoted on the top of the standard, and having a cup formed on one end, substantially as herein shown and described. 3rd. In a game apparatus, the combination, with the base board F, of the recessed plate or disk A, resting on the board F, the guard or chute E on the disk A, a standard on the base board and a lever pivoted on the standard and provided with a cup at one end, substantially as herein shown and described. 4th. In a game apparatus, the combination, with the base board F, of the secured disk A, having a circular groove in its top, the folding guard or visor E on the disk A, a standard on the board F, and a lever pivoted on the standard and having a cup on one end, substantially as herein shown and described. 5th. In a game apparatus, the combination, with the base board F, of the disk A, the hollow standard H held laterally adjustable on the base board, the standard M and the lever Q, pivoted on the top of the same and provided with a cup K at one end, substantially as herein shown and described. 6th. In a game apparatus, the combination, with the plate or disk A, of a standard held on a plate J, pivoted at one end on the base plate, and provided at its opposite end with a screw K, passed through a segmental slot L in a plate L, and the lever Q, pivoted on the standard, substantially as herein shown and described. 7th. In a game apparatus, the combination, with the base board F, of the plate or disk A, the hollow standard H, the vertically adjustable standard M, in the same, the ring S, held vertically adjustable on the standard M, and provided with an arm T, and of the lever Q, pivoted on the standard M, and provided with a cup R, at one end, substantially as herein shown and described. 8th. In a game apparatus, the combination, with a disk or plate having apertures or recesses in its top, of a standard and a lever pivoted in the top of the standard, which lever is provided with a cup on one end,

substantially as herein shown and described. 9th. In a game apparatus, the combination, with the disk of plate A, provided with apertures or recesses in its top, of the guard or chute E held on the said disk, substantially as herein shown and described. 10th. In a game apparatus, the combination, with the disk or plate A, provided with recesses or apertures in its top, of the ring D surrounding the disk A, and having jaws Dr, and of the chute or guard E, pivoted to the jaws Dr, substantially as herein shown and described. 11th. In a game apparatus, the combination, with a base, of a revolving ring on the same, a game board on the said ring, a pivoted lever for throwing balls on one end of the game board, and a board for catching the balls on the opposite end of the game board, substantially as herein shown and described. 12th. In a game apparatus, the combination, with a base C3, of the revolving ring A3, a game apparatus held on the ring A3, and devices for locking the ring A3 on the base, substantially as herein shown and described. 13th. In a game apparatus, the combination, with the base C3, of the ring A3, having the recesses or notches A4, the screws a4, a game board carrying a game apparatus placed in the said recesses and held in place by the screws a4, and of means for locking the revolving ring on the base, substantially as herein shown and described.

No. 20,935. Flour Bolt. (*Blutoir.*)

George T. Smith, Jackson, Mich., U.S., 22nd January, 1885; 5 years.

Claim.—1st. In a reel bolt, the combination, with the longitudinal bars, the cloth-supporting ring and the cloth, of the herein-described carrier for the cloth-supporting ring, having its inner part adapted to rest upon the longitudinal bar, and its outer surface curved to receive a cloth-supporting ring and having its ends projecting beyond the sides of the longitudinal bar, substantially as set forth. 2nd. In a reel bolt, the combination, with the longitudinal bar, the cloth-supporting ring and the cloth, of the herein-described carrier for the cloth-supporting ring having the part adapted to rest upon the longitudinal bar, and having its outer surface expanded laterally at both ends, and adapted to receive the cloth-supporting ring and a pin connecting the carrier with the bar, substantially as set forth. 3rd. In a reel bolt, the combination, of the centrally open annular heads, the longitudinal bars supported in the reel head, the cloth ring and carriers interposed between the cloth rings and the longitudinal bars, substantially as set forth. 4th. In a reel bolt, as a support for the cloth rings, the herein-described carriers having the part g made concave, and adapted to fit the longitudinal bar and the expanded convex part G adapted to receive the cloth ring, substantially as set forth.

No. 20,936. Bridge. (*Pont.*)

William J. Holman, Fort Wayne, Ind., U.S., 22nd January, 1885; 5 years.

Claim.—1st. A wooden truss bridge having its various chords, vertical posts, braces and cross-timbers arranged with inclined water and fire shedding surfaces, the timbers, where they cross each other in contact, being joined together by the lower timbers fitting into a notch in the lower corners of the upper timbers, substantially as described. 2nd. A wooden bridge having its component timbers arranged so as to present angular surfaces, the apices of which approximately coincide with horizontal and vertical lines, substantially as described. 3rd. The combination of double-tiered upper and lower chords, and transverse floor-beams locked to each other and to packing-sticks and to and about the posts by bolts and notches, substantially as described.

No. 20,937. Apparatus for Drying Grain.

(*Appareil pour Sécher les Grains.*)

Claim.—1st. The general arrangement and combination of parts constituting the apparatus for drying grain or seeds, the same operating in the manner hereinbefore described and as shown upon the annexed drawings. 2nd. In apparatus for drying grain or seeds, one or more wire or wire cloth screens or frames a, arranged in a zig-zag manner hereinbefore set forth with reference to the accompanying drawings. 3rd. In apparatus for drying grain or seeds, the screens or frames a arranged within a kiln: in such a manner as to divide the said kiln into two, three, or more compartments, substantially as hereinbefore set forth. 4th. In apparatus for drying grain or seeds, the plate g for dividing the central chamber b into the upper middle and lower middle compartments, thus causing the ascending currents of heated air to pass twice through the screens or frames a, substantially as hereinbefore described. 5th. In the apparatus, hereinbefore described, the fluted discharge rollers t, operated substantially as hereinbefore described with reference to the accompanying drawings.

No. 20,938. Combined Letter Sheet and Envelope. (*Feuille de Papier faisant Enveloppe.*)

Daniel W. Clegg, Pleasantville, N. Y., U.S., 22nd January, 1885; 15 years.

Claim.—1st. The combined letter sheet and envelope, having the reversible letter leaf, the reversible marginal flaps not overlapping the said leaf, and the inclosing flap provided with means, substantially as described, by which the folded sheet is secured in closed condition both before and after it is reversed. 2nd. The combined reversible letter-sheet and envelope, having the reversible letter-leaf and provided with the inclosing tongued flap, the reversible marginal folding flap not overlapping the letter leaf, and the slit formed in the back of the envelope portion for the reception of the tongue, substantially as described.

No. 20,939. Lubricator. (*Graisneur.*)

John C. Nichol, Montreal, Que., 22nd January, 1885; 5 years.

Claim.—The combination, with an axle or shaft having channels formed in it from the end to the periphery, of pipes connected with

such channels, and an oil cup or chamber secured to said axle or shaft. 2nd. The combination, with the shaft A and channels A1, of bent pipes E with mouths or scoops E1, all substantially as and for the purpose set forth.

No. 20,940. Neck Yoke Coupling.

(*Accouplage de Joug.*)

John McKibben, Lima, Ohio, U.S., 22nd January, 1885; 5 years.

Claim.—1st. The couplings for neck yokes, vehicle poles and similar purposes, in combination with required other parts, the ball or body A provided, arms a projecting on its sides and terminations a2 in yoke ferrule or clasp, as and for the purpose set forth. 2nd. In couplings for neck yokes, poles and for other similar purposes, in combination with other usual plates or parts, socket C provided with lips B and p1 projecting on the walls, and the elliptical or U-shaped notches c, c, as set forth. 3rd. In couplings for vehicles, neck yokes, poles and other purposes, in combination with usual or requisite parts, round or oval body A provided with orifice or recess a in its side, in addition to axles or arms a1, constructed and arranged substantially as and for the purpose set forth.

No. 20,941. Bottle Stopper.

(*Bouchon de Bouteille.*)

Henry C. Walter, Bridgeport, Ct., U.S., 22nd January, 1885; 5 years.

Claim.—1st. In a bottle stopper, the locking wire adapted to be forced over and against the bevelled surface of the metal cap, substantially as set forth. 2nd. In a bottle stopper, the elastic plug having attached thereto a metallic cap formed with shoulders, as described, the lower shoulder being bevelled on its upper surface, in combination with the locking wire adapted to be forced against said bevelled surface with an increasing bite, substantially as specified. 3rd. The combination of the wire B, secured around the neck of the bottle and having eyes C, wire D, having its free ends sprung within said eyes, and with its closed ends bent at right angles into the form of a loop, link F loosely connected to the open portion of said loop, and cap H having shoulders J, I, the latter shoulder being bevelled as described, substantially as shown and specified.

No. 20,942. Bellows Attachment for Insect Powder, &c. (*Disposition aux Soufflets pour la Poudre Insectivore, &c.*)

Thomas Woodason, Chicago, Ill., U.S., 22nd January, 1885; 5 years.

Claim.—1st. In a bellows attachment, the combination of the bellows pipe B, an outlet pipe E, the chamber D having an opening through its top and which serves to connect the two pipes B, E together, and a pipe G which is connected to the outlet pipe E and which extends upward from the outlet pipe into the top of the chamber D, substantially as shown. 2nd. In the combination of a bellows pipe B, provided with a series of perforations near its closed end, the powder-receptacle, the outlet pipe E which is supported in position by means of the receptacle, and the small pipe connected with the outlet pipe, substantially as set forth.

No. 20,943. Harrow. (*Herse.*)

Christopher Drew, Andrew W. Leisner and Phillip Nelson, Las Vegas, N. M., U.S., 22nd January, 1885; 5 years.

Claim.—1st. The combination, with the harrow frame c and teeth b, of the smoothing plate a provided with vertical flanges z extending up by the forward sides of frame c, and with openings for the teeth b to pass through a rigid spider f, provided with a central aperture and jointed at the ends of its arms to the plate a, a presser connected with the plate a through the aperture in the spider springs for pressing the plate a upward, and a lever fulcrumed to the frame and connected to the presser for operating the plate a, substantially as set forth. 2nd. The combination of the rod d, springs s and u, presser j and tubular standard e, with plate e and lever m, said plate being fitted to shift up and down on the teeth b and having the spider f, substantially as described. 3rd. The combination of the lever setting standard o, lever m, presser j, spider f, tubular standard e, rod d, and springs s and u, with the plate a fitted to shift up and down on the harrow teeth b, substantially as described. 4th. In a harrow, of the character described, the tubular presser j provided with a curved slot n, socket k and rod d, in combination with the lever M provided with a curved notch v within the slot of the presser stops, lugs x on opposite sides of said slot, and the link u connected to the short arm of the lever, substantially as and for the purpose set forth.

No. 20,944. Button and Fastening.

(*Bouton et Queue de Bouton.*)

George W. Prentice, Providence, R. I., U.S., 22nd January, 1885; 5 years.

Claim.—1st. As an improved article of manufacture, a button composed of leather, pulp, or other suitable material, provided with two substantially straight integral prongs partially embedded in the button and projecting from its button, substantially as specified. 2nd. A button, consisting of a head portion provided with prongs, which project down through said head portion, said prongs adapted to be passed through fabric and be clinched on the under surface to secure the button thereto, substantially as herein set forth. 3rd. A button composed of leather, pulp, or other suitable material provided with substantially straight fastening prongs, the sides of which are roughened or serrated, arranged for use, substantially as herein set forth.

No. 20,945. Machine for Cleaning and Brightening Dried Fruit. (*Machine pour Nettoyer et Aviver les Fruits Sécs.*)

Joseph J. Walsh, Stratford, Ont., 22nd January, 1885; 5 years.

Claim.—1st. As an improved fruit cleaner, a cylinder D formed of open wire strands a, braced together by the longitudinal wire strands

b, the said cylinder being journaled on the box of frame A, in combination with the brush F, arranged substantially as and for the purpose specified. 2nd. As an improved fruit cleaner, a cylinder D formed of open wire strands a, braced together by the longitudinal wire strand b, the said cylinder being journaled on the box or frame A, in combination with the bush G, arranged substantially as and for the purpose specified. 3rd. As an improved fruit cleaner, a cylinder D formed of open wire strands a, braced together by the longitudinal wire strands b, the said cylinder being journaled on the box or frame A, in combination with the brushes F and G provided with adjusting set screws, substantially as and for the purpose specified. 4th. The frame H arranged to support the brush G and provided with spindles i and h on which the cylinder D is journaled, in combination with a hand wheel l connected by the spindle j to the cylinder D, substantially as and for the purpose specified. 5th. As an improved fruit cleaner, a sheet metal cylinder having oblong perforations made in it, substantially as described, in combination with a stationary brush arranged to act against the surface of the cylinder as it revolves, substantially as and for the purpose specified.

No. 20,946. Process for Making Paper Pulp and Paper. (*Procédé de Fabrication de la Pâte à Papier et du Papier.*)

John M. Allen, New Bedford, Mass., U. S., 23rd January, 1885; 5 years.

Claim.—1st. The herein-described process of preparing paper-pulp from the bark of the cedars, by subjecting the fragments of said bark to the action of cold or tepid water in heating-engines, and removing the easily putrescible and granular substances, without, to any great extent, removing, or injuring the natural preservative substances, substantially as described. 2nd. Paper-pulp made from the bark of the cedars, by removing therefrom the easily putrescible and granular substances, and retaining the natural preservative qualities, substantially as described. 3rd. Paper made from pulp, from the bark of the cedars, as above specified, mixed with other paper stock or with the inner bark of either of the varieties of the cone bearing class of trees, substantially as described.

No. 20,947. Detachable Bosom.

(*Devant de Chemise Rapporté.*)

George W. Lee, Ridgewood, N.Y., U. S., 23rd January, 1885; 5 years.

Claim.—A detachable bosom, made as herein shown and described, consisting of an ordinary bosom and neck-band D, and a lower encircling cape C secured to the base of the neck-band and extending downward along the margin of the bosom, the outer edge of said cape being constructed on an arc of a circle greater than that described by the outer edge of the bosom, whereby said cape will rest at the back of the neck of the wearer, and also at the sides thereof, at such a distance from the shoulders as to be unaffected by the shoulder motions of the wearer, substantially as set forth.

No. 20,948. Wood Planing and Printing Machine. (*Machine à Raboter et Imprimer le Bois.*)

William A. Compton, Liberty Corner, N.J., U.S., 23rd January, 1885; 5 years.

Claim.—1st. The combination, in an organized machine, of a wood-planing mechanism, a rotary cutter-head D, a cleaning mechanism, as a wiper f, and a printing mechanism, as the roller e, the whole being combined, substantially as described, to plane, clean and print the surface of the wood in a contiguous operation, as and for the purpose set forth. 2nd. The combination, with the planing-machine having the cutter D and feed-roller for propelling the boards, of the impression roller e provided with inking devices and rotated by a connection, as pulleys p, and belt q to the feed roller of the planing machine, as and for the purpose set forth. 3rd. The combination, with the planing-machine having the cutter D, and feed-roller for propelling the boards, of the impression-roller e, provided with inking devices, and the screen G adapted to enclose the same and to protect them from dust, as and for the purpose set forth.

No. 20,949. Arm-Rest for Telephone Use.

(*Appui-Bras à l'usage des Téléphones.*)

John M. Fitch, Detroit, Mich., U. S., 23rd January, 1885; 5 years.

Claim.—1st. The combination, with a transmitter of a telephone, of a base-plate A, and arm B having one end pivoted thereto and adapted to swing from one side of the transmitter to the other, and a support C secured directly to the free end of said arm, substantially as described. 2nd. An arm-rest consisting of a base-plate A, a swinging arm B, having one end pivoted therein, and carrying at its other end a vertical adjustable arm-receiver, substantially as described. 3rd. In combination with a telephone receiver and transmitter, the horizontal-swinging arm B, pivoted within a plane passing vertically through the centre of the transmitter, and the support C, secured to said arm B, as and for the purpose described. 4th. In combination with a telephone receiver and transmitter, the horizontal swinging arm B, pivoted within a plane passing vertically through the centre of the transmitter, and the arm-rest C, secured to said arm B and secured in a plane substantially lower than the transmitter, as and for the purpose specified. 5th. An arm-rest consisting of the base plate A, provided with socket a and projecting ears f, the swinging bracket arm B provided with pintle d, which engages with the socket c of the base plate, and the arm-receiver C supported upon a standard d, which engages with the socket e, and is secured therein by the set-screw e, as described.

No. 20,950. Ore Concentrator.

(*Concentrateur de Minerai.*)

Alexander D. Clark, New York, N.Y., U. S., 23rd January, 1884; 5 years.

Claim.—1st. The combination, in an ore-concentrator, of an inclined chute for conducting the water containing the sand, ore, etc., the screen for receiving the same, an additional chute inclined downward in the inverse or opposite direction of the first-mentioned chute, and settling-tanks or boxes, substantially as herein shown and described and for the purpose set forth. 2nd. In an ore-concentrator, the combination, with an inclined chute, of a screen arranged at the lower end of the same, a chute inclined from the bottom of the screen in the inverse or opposite direction of the chute through which the water is conducted upon the screen, a transverse gutter arranged at the lower end of the latter chute, and a settling-tank into which the water is conducted that flows from the gutter, substantially as herein shown and described and for the purpose set forth. 3rd. In an ore concentrator, the combination, with an inclined chute B, of a screen A, upon which the water, stones and sand are conducted by the said chute B, a chute F inclined from the screen A in the inverse or opposite directions of the chute B, and a transverse gutter G at the lower end of the chute F, the chute C inclined about in the same direction as the said chute B, into which chute C the water is conducted which has passed into the transverse gutter G, substantially as herein shown and described and for the purpose set forth. 4th. In an ore-concentrator, the combination, with an inclined chute B, of the screen A at the lower end of the same, the chute F inclined from the screen in the inverse direction of the chute B, a transverse gutter G at the base of the chute F, a settling tank below the chute F, inclined platforms at the front and rear of the said settling-tank or pocket, and a chute C, inclined in the same direction as the chute B, into which chute C water from the settling-tank or pocket is conducted, substantially as herein shown and described and for the purpose set forth. 5th. In an ore-concentrator, the combination, with a chute B, of a screen A arranged at the lower end of the same, a chute F inclined from the screen in the inverse direction of the chute B, a transverse gutter G at the lower end of the chute F, a settling-tanks or pocket H, and tank D, and the chute C, substantially as herein shown and described and for the purposes set forth. 6th. In an ore-concentrator, the combination, with the chute F, of the transverse gutter G into which water is conducted, the gates G₂ for closing the apertures b in the front of the gutter, and the inclined riffles a on the floor of the gutter, substantially as herein shown and described and for the purpose set forth. 7th. In an ore-concentrator, the combination, with the chute F, of the transverse gutter G provided with apertures b, gates G₂, the pocket or settling-tank H, the partitions i and the gates I, substantially as herein shown and described and for the purpose set forth. 8th. In an ore-concentrator, the combination, with an inclined chute B, of a screen A at the lower end of the same, a chute F inclined from the screen A in the inverse direction of the chute B, a transverse gutter G at the base of the chute F, tanks or pockets H, the chute C inclined about in the same direction as the chute B, and means for conducting the water that flows from the gutter G into settling-tanks or pockets, and into the chute C, substantially as herein shown and described and for the purpose set forth. 9th. The combination, with an inclined chute B, of the screen A, the chute F, the transverse gutter G, the settling-tank or pocket H, the partitions I having gates I₁, and the inclined platform J in front of the settling-tank or pocket H, substantially as herein shown and described and for the purpose set forth. 10th. In an ore-concentrator, the combination, with the chute B, of the screen A, the chute F below the chute B and screen A, the transverse gutter G at the lower end of the chute F, the triangular piece F₁ and the gate F₂, substantially as herein shown and described and for the purpose set forth. 11th. In an ore-concentrator, the combination, with the chute B and screen A, of the chute F below the screen A and chute B, which chute F is contracted below one end of the screen A, the said chute being widened at the opposite end and connected by two side channels with a transverse gutter G, substantially as herein shown and described and for the purpose set forth. 12th. In an ore concentrator, the combination, with the transverse gutter G, of the pockets or tanks H, the platform X, and the pivoted gate X₁, arranged substantially in the manner herein shown and described. 13th. In an ore-concentrator, the combination, with a transverse gutter G, of the inclined platform Y, below it, the partition I, the gates I₁, the pockets or tanks H, the inclined platforms X in the same, and the pivoted gates X₁, substantially as herein shown and described and for the purpose set forth. 14th. In an ore-concentrator, the combination, with the gutters G₁ and the pockets H, of the inclined platforms J in front of the pockets, the platforms L and blanket supporting screens or racks on the platforms L, substantially as herein shown and described and for the purpose set forth. 15th. In an ore-concentrator, the combination, with the gutter G, of the pockets H and tables or platforms L of the transverse tank D, and the blanket-supporting rack on the platforms L and in the tank D, substantially as herein shown and described and for the purpose set forth. 16th. In an ore-concentrator, the combination, with the platforms L over which the water is conducted, of racks placed on the platforms, screens on the racks and blankets on the screens, substantially as herein shown and described.

No. 20,951. Sewing Machines for Stitching Carpets, &c. (*Machine à Coudre les Tapis, &c.*)

George Grisel, North Oakland, Cal., U. S., 23rd January, 1885; 5 years.

Claim.—1st. The combination of the arched bracket M, M, parallel plates A, B having transverse needle apertures b, b, cut away sides and blocks C, D, with feed and stitch forming devices, substantially as described. 2nd. The combination, with the plates A, B, of the needle-arm G, pivoted in top bracket M, and needle secured in the lower end of the needle-arm below the cam, the transverse shaft having needle-actuating cam G and looper-cam I and means for rotating said shaft, constructed as described. 3rd. The combination, with the plates A, B, having transverse needle throats and cut away sides, of the transverse shaft and brackets M, M, united at the top and forming the support for the pivot of the needle-arm at that point, as herein described. 4th. The combination of the frame A, B, oscillating needle-arm G, driving gear F and z, cam G₃, transverse shaft G₄,

cams L, W and the balance-wheel W₁ upon the side of the frame opposite to the driving gear, as herein described. 5th. The horizontal rock-shaft T, levers T₁, T₂, feed pawls T₃, spring T₄ and means for operating the rock shaft, combined with the feed levers, as herein described. 6th. The parallel plates A, B, having cut-away sides, and feed slots connected together only at their outer corners, combined with the arched brackets M, M having lugs m₃, m₁ to receive the feed levers R, the needle-arm stud P, driving-gear stud P and bearings for the shafts G₄ and T, as herein described. 7th. The combination, with the parallel plates A, B having cut away sides and connected together only at their outer ends, of the blocks C, D, one fixed and the other adjustable, as herein described. 8th. The combination, with the parallel plates A, B, having cut-away sides, and connected together only at the outer corners, of the adjustable and removable turning in guide D, substantially as described. 9th. The turning-in guide D having concave under-guiding surface d, the turning-in blades d₂ and the inclined separating edge or blade d₅ projecting at the point, as herein described. 10th. The turning-in guide D formed in two parts, as described. 11th. The combination, in a suitable frame, of the pivoted feed-levers carrying revolving feed-surfaces s, with ratchet portions c₂ formed in the center of the rollers with feed-ports on each side, the vibrating levers and pawls T₁, T₂, and mechanism m for actuating said levers and pawls, substantially as described. 12th. A revolving feed surface or roller having feeding portions S, and the intermediate ratcheted portions s₂ formed in the center of the rollers between the two feed portions, as herein described. 13th. The roller-carrying lever pivoted to the frame having thumb-piece K₁, arms K, K and hub L, as herein described. 14th. The automatic yielding gripper-feed consisting of the pivoted levers R, revolving feeding-surfaces s having ratchet center-portions s₂ spring u, feed pawls T₂ and mechanism for actuating said pawls, simultaneously as herein described.

No. 20,952. Permutation Lock.

(Serrure à Permutation.)

Robert D. Green, Columbus, Miss., U. S., 23rd January, 1885; 5 years.

Claim.—1st. The carrying plate C, and beak plate G, pivoted together and constructed, as described, to support a lock mechanism independently of any outside frame, thereby adapting such mechanism to a frame of any desirable character, substantially as herein shown and described. 2nd. The combination of the back plate G provided with the pins h, h₂, the cup-shaped discs E, each having a notch e in the wall or flange and series of notches e₂ on the periphery, and the spring pawls d₃ engaging the notches, substantially as shown and described. 3rd. The back plates A, provided with the holes surrounded by figures or other characters, in combination with the wheels D having bosses or extensions d arranged in the holes, and thumb-pieces, or indicators, d₂ on the bosses or extensions, substantially as herein described. 4th. The combination, with a lock mechanism, constructed as described, of a front plate B provided with the circular plate J carrying the pins l, l, and the beak plate having holes k, k, to receive the pins, substantially as and for the purposes specified. 5th. The combination, with the front plate B having the recess B, and the circular plate J having the notch j, of the swinging and sliding register covering plate Q, and the plate or frame constructed and operating substantially as herein described. 6th. The combination, with the swinging register plate Q and sliding plate P having pins p₃, of the sliding frame M, having pins m₃, substantially as and for the purposes described. 7th. The combination, with the front plate B, and the lock mechanism herein described, of the circular plate J, arranged to cover the screw holes when locked, and the revolving barrels S, carried by said plate and arranged to admit a screw-driver, substantially as herein described. 8th. The combination, with the disc E and perforated plate F, of the spring f₃ mounted on the disc to engage the plate for connecting and disconnecting the parts, substantially as herein described. 9th. The combination, with the disc E having the notches e, e₂, the toothed wheel D, spring pawls engaging said wheels and the beak plate G, of the removable pins h, whereby provision is made for the destruction of the combination without dispensing with the clicking produced by the action of the pawls d₃ on the toothed wheels D, as herein shown and described. 10th. The combination, with the notched wheels D, and discs E having the notches e₂ on their peripheries, of the beak plate G having the removable pins h and holes h₂, whereby provision is made for setting the combination at points intermediate between the tooth of the wheels, substantially as herein described.

No. 20,953. Rock Drill. (Foret de Mine.)

Charles S. Westbrook, Spragueville, N.Y., U.S., 23rd January, 1885; 5 years.

Claim.—1st. In a rock drill having the piston I, a cylinder provided with covered ports F and F₁, substantially as and for the purpose hereinbefore set forth. 2nd. In a rock drill having the piston I and covered ports F and F₁, the chamber E, recessed in the walls of the cylinder A, substantially as and for the purposes hereinbefore set forth. 3rd. In a rock drill, the cylinder A, having a short covered port F₁, of a smaller area than the rear port F, substantially as and for the purpose hereinbefore set forth. 4th. In a rock drill, the cylinder A, provided with a chamber E, recessed in its walls, the short covered port F₁, and the long covered port F divided from it by the bridges G and G₁, substantially as and for the purposes hereinbefore set forth. 5th. In a rock drill, the cylinder A, provided with the covered ports F and F₁, the chamber E provided with bridges G and G₁, in combination with piston I having a cylindrical recess round its centre, substantially as and for the purpose hereinbefore set forth. 6th. The combination, in a rock drill, of the cylinder A, provided with the recessed chamber E, bridges G and G₁, long port F, short port F₁ and the piston I cylindrically recessed round its centre, substantially as and for the purpose hereinbefore set forth. 7th. The cylinder A having recessed chamber E, bridge G and G₁, short and long ports F and F₁ and the exhaust ports L, substantially as and for the purpose set forth.

No. 20,954. Automatic Boiler Cleaner and Water Purifier. (Nettoyeur de Chaudière et Epurateur d'Eau Automatique.)

Ezra W. Vauduzen, Newport, Ky., U.S., 23rd January, 1885; 5 years.

Claim.—1st. A funnel-shaped skimmer for boilers having a closed bottom and slots extending from the top edge downward along the sides, as set forth. 2nd. A skimmer for boiler cleaners, of the class shown, consisting of a closed bottom shell provided with the slots R, S, in its sides, having respectively the flanges u, T, in combination with the suction pipe F, as set forth. 3rd. A skimmer for boiler cleaners consisting of the funnel-shaped shell having a closed bottom, and having its sides provided with the slots R running from the top edge downwardly, and provided with the side flanges u, and the slots S having tongues T below the slots R, and the bail O adjustably secured to the suction pipe F, as set forth. 4th. A funnel-shaped skimmer having a closed bottom and flanged slots S, T near the bottom, in combination with the suction pipe F, as set forth. 5th. A funnel-shaped skimmer having a closed bottom and flanged slots R, u running from the top edge downward, in combination with the suction pipe, as set forth. 6th. In a boiler feed water circulator and purifier, the combination of a purifier, a boiler, a pipe connecting the delivery end of the purifier with the boiler, a water-supply pipe connecting with the receiving end of the purifier, a pipe connecting the supply pipe and the boiler and valves, the several parts being arranged to maintain a circulation of water from the supply pipe and boiler through the purifier to the boiler, as set forth. 7th. In a boiler feed-water circulator and purifier, the combination of a purifier, provided with a series of diaphragms having openings at alternate ends, a boiler, a pipe connecting the delivery end of the purifier with the boiler, a water-supply pipe connecting with the receiving end of the purifier, a pipe connecting the supply pipe and boiler, an ejector and valves, the several parts being arranged to maintain a circulation of water from the supply and boiler through the purifier to the boiler, as set forth. 8th. In a boiler circulating and purifying attachment for steam boilers, the purifier B having heads B₁, B₂, and provided with a series of diaphragms, tables, or shelves, perforated, or partially open at alternate ends and having dividing ledges, as set forth. 9th. In a boiler feed-water circulator and purifier, the combination of the boiler, a purifier, a pipe connecting the delivery end of the latter with the boiler, a water-supply pipe connecting with the receiving end of the purifier, a pipe connecting the supply pipe and boiler, whereby a circulation is maintained from the boiler through the purifier and back to the boiler, and a device for supplying a purifying material to the purifier, whereby the warm water and purifying material will mingle in the purifier and the resulting sediment deposited in the latter, as set forth. 10th. In a boiler feed-water circulator and purifier, the combination of boiler A, purifier B, pipe E connecting the boiler and purifier, supply pipes D, D₂, pipe C connecting the boiler and pipe D₂, and the vessel d connecting the pipe D, whereby water is circulated from the boiler through the purifier and back to the boiler, and a purifying material is drawn from the vessel d to mingle with the warm water in the purifier, as set forth. 11th. In a water purifier and boiler cleaner, the combination of a purifier, a boiler, a pipe connecting the delivery end of the purifier with the boiler, a water-supply pipe connecting with the receiving end of the purifier, a pipe connecting the supply-pipe and boiler and carrying a skimmer within the latter, and valves, arranged and operating as and for the purpose set forth.

No. 20,955. Furnace. (Fourneau.)

Absalom Backus, Jr., Detroit, Mich., U. S., 23rd January, 1885; 5 years.

Claim.—1st. In a furnace, a wall located in the midst of the combustion chamber and supported above the grate, substantially as and in the manner described. 2nd. In a furnace, a wall depending from the roof of the combustion chamber down toward the grate, said wall interposed between the furnace door and the bridge wall or head sheet and dividing the combustion chamber, substantially as and in the manner described. 3rd. In a furnace provided with an inclined grate, a wall located in the combustion chamber, said wall supported over and projecting downward over the grate, substantially as and in the manner described. 4th. In a furnace, a wall depending from the roof of the combustion chamber down toward the grate, said wall located between the front and rear of the grate, substantially as and in the manner described. 5th. In a furnace, a wall located in the combustion chamber, said wall supported over and projecting downward toward the grate between the front and rear of said grate, the arrangement being such as to leave a throat between said wall and the bridge wall or head sheet, substantially as described. 6th. In a furnace, a wall located in the combustion chamber, said wall supported over and projecting downward toward the grate between the front and rear of said grate, and means for admitting the air into the combustion chamber in front of said wall, substantially as described.

No. 30,956. Furnace. (Fourneau.)

Absalom Backus, Jr., Detroit, Mich., U. S., 23rd January, 1885; 5 years.

Claim.—1st. The combination, in a furnace, of a depending wall supported above the fuel bed and a cooking oven, substantially as described. 2nd. In a furnace, a wall located in the midst of the combustion chamber and supported above the grate, and an arch located below the boiler and in front of said wall, substantially as and in the manner described. 3rd. In a furnace, a wall located in the midst of the combustion chamber and supported above the grate, and an arch located below and separated from the boiler and in front of said wall, said wall and arch so constructed and arranged as to form a cooking oven in the front part of the combustion chamber, substantially as described. 4th. In a furnace, an arch located above the front of the combustion chamber below the front of the boiler and separated therefrom, a depending wall located in the midst of the combustion chamber and supported above the grate, the construction being such that cold air admitted in front of said wall will be pre-

vented from striking the boiler while heated air may pass under the boiler, between it and said arch, substantially as described.

No. 20,957. Implement for Securing Buttons to Fabrics. (*Outil pour Poser les Boutons sur les Tissus.*)

Alexander G. Wilkins, Meadville, Pa., and James B. Miller, Kent, Ohio, U.S., 23rd January, 1885; 5 years.

Claim.—1st. In a button securing implement, the jaw A₁ provided with a barrel D₁, and a concentric sleeve H adapted to project above the point of the fastening pin, when in place, and protect said point from contact with the fabric, substantially as set forth. 2nd. In a button securing implement, the jaw A₁, in combination with a centrally arranged continuous cylindrical receptacle, to receive the fastening pin and adapted to support and centre it throughout its length, for the purpose described. 3rd. In a button securing implement, the spring upsetting bolt B, in combination with and carrying a button holding device, for the purpose set forth. 4th. In a button securing implement, the spring upsetting bolt, provided with a slot f, in combination with a spring button-holding latch provided with recesses *z*, *z*, to receive the wire of the button eye, substantially as described. 5th. In a button securing implement, the spring bolt B having the head E, with a groove *e* and recess *g* to receive the button eye, for the purpose specified. 6th. The jaw A₁ and the barrel D₁, in combination with the central fixed anvil *k*, sleeve H having on its upper end the washer receptacle *n*, and the spring I, all constructed, arranged and operated as set forth. 7th. The spring sleeve H and fixed anvil *k*, combined with such comparative length, as described, that when the sleeve is at its lowest point of depression, its upper end will be in a plane slightly above the upper end of the anvil *k*, as set forth. 8th. In a button securing implement, the spring bolt B, in combination with a button holding latch, having both a vertical and horizontal movement, as described. 9th. In a button securing implement, a button holding latch having a limited independent yielding movement as the jaws are closed, to finish the upsetting of the fastening pin, as described. 10th. In a button securing implement, the spring bolt B and head E, having its lower face cut away at *b*, and a groove or recess *a*, in combination with latch *e*, substantially as and for the purpose set forth. 11th. In a button securing apparatus, the spring bolt B, having the head E, provided with the rear portion of its lower face projecting below the latch *e* in its normal condition, in combination with said button-holding latch *e*, substantially as described. 12th. In a button securing implement, the spring bolt B provided with the head E having a cylindrical opening *d* at one side, in combination with pin *f*, having head *f*₂ at one end, and latch *e* at the other, and spiral spring *o*, all constructed and arranged substantially as set forth.

No. 20,958. Hitching Strap. (*Longe de Cheval.*)

Samuel Birdsall, Susquehanna, Pa., U.S., 23rd January, 1885; 5 years.

Claim.—1st. In a hitching strap, the combination, with tie strap B and brace strap C, of the clasp formed with loops *b* and studs *c*, and the loop *d* hung on the stud of the clasp, substantially as described. 2nd. The coupling device D provided with pivoted loop *d*, combined with the tie strap B and brace strap *b*, substantially as described.

No. 20,959. Shoe. (*Soulier.*)

Jabez Elam and Jeremiah Phelan, Rochester, N. Y., U.S., 23rd January, 1885; 5 years.

Claim.—1st. In a shoe having a single sole, their combination with the sole and upper, of a binder consisting of a strip surrounding the ball of the foot to which the upper is laced, and a shank piece covering the metal shank and provided with a tongue extending past the instep, said tongue being free, the parts being united by stitching, as set forth. 2nd. In a shoe having a single sole, the combination of the binder and the sole, the binder being wedge-shaped in cross-section fitting on the outer edge of the sole, and the sole being notched or hollowed to receive the inner edge of the binder, as set forth.

No. 20,960. Vehicle Coupling and Fifth Wheel. (*Armon et Rond d'Avant-train de Voiture.*)

Samuel Higdon and Isaac Milles, Gentryville, Mo., U.S., 23rd January, 1885; 5 years.

Claim.—1st. The combination, in a fifth-wheel, of the ring platforms secured respectively to the reach or head-blocks, as described, and to the axle by means of the pivoted spider frame consisting of a single piece of metal, and having its arms arranged in different planes, as specified, a loop supporting the ring platforms at the rear, and the rear arms of the spider frame connected to one of the platforms to abut against the said loop when the ring moves, substantially as set forth. 2nd. The combination, in a fifth wheel, of the ring platforms secured respectively to the reach or head-block, as described, and to the axle by means of the spider-frame consisting of a single piece of metal, and having its arms arranged in different planes, as specified, a loop supporting the ring platforms at the rear, and the rear arms of the spider-frame connected to one of the platforms to abut against the said loop when the ring moves, a clip secured to the under side of the front portion of one of the platforms to embrace and guide the other platform, substantially as set forth.

No. 20,961. Automatic Grain Binder.

(*Lieux à Grain Automatique.*)

Hector A. Holmes and Watson M. Holmes, Hovsiock Falls, N. Y., U.S., 23rd January, 1885; 15 years.

Claim.—1st. The combination of the knotted hook F having the ledge *f*₁, the depression *f*₁, the abrupt projection *f*₂, with the stripper D, substantially as described. 2nd. The combination of the upper and lower knotted hooks, with stripper D, substantially as and for the purpose specified. 3rd. The combination of the upper and lower

knotted hooks, with the cord rest *e*, substantially as and for the purpose described. 4th. In combination with the upper and lower knotted hooks, the stripper D and cord-rest E, substantially as described. 5th. In combination with the partially rotating knotted hooks F and G, the stripper D and cord-rest E located above the knotted hooks and opposite or nearly so to each other, substantially as described.

No. 20,962. Feeder for Hogs.

(*Appareil pour Nourrir les Porceaux.*)

George A. Nolan, Tottenham, Ont., 26th January, 1885; 5 years.

Claim.—1st. The combination of the trough A, guide *e* and screw D, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the trough A having guides *e*, and screw D, with a rotary feeder B provided with arms C, as shown and described and for the purpose set forth.

No. 20,963. Gas Engine for Pumping Water, &c. (*Machine à Gaz pour Pomper l'Eau, &c.*)

Samuel Lawson, New York, N. Y., U.S., 26th January, 1885; 5 years.

Claim.—1st. A vertical cylinder having an opening at the base, and a plunger within such cylinder, in combination with a valve case attached to the cylinder at such opening, a circular valve within such case, a valve stem and mechanism for giving to such valve an oscillating motion, air and gas supply pipe a valve for the gas pipe and a passage-way in which the air and gas commingle as they pass to the oscillating valve and into the cylinder, substantially as set forth. 2nd. In a gas engine, the combination, with the gas-supply valve, of an air inlet pipe into which the gas is admitted, and an oscillating valve within a case at one side of the cylinder and upon a horizontal stem at the junction of the air and gas pipes, and mechanism, substantially as specified, for opening the oscillating valve slightly before the gas valve is opened, substantially as set forth. 3rd. In a gas engine, the combination, with the air inlet pipe and the gas inlet valve, of a valve case and an oscillating valve within the case at one side of the cylinder, a port for the passage of the commingling air and gas, and an opening for the admission of flame, and mechanism for oscillating said valve, with an accelerated and retarded motion, the passages in the valve being arranged to allow the flame to be drawn into the cylinder after the supply of air and gas has been shut off, substantially as set forth. 4th. The combination, in a gas engine, of the vertical cylinder plunger, connecting rod, crank and shaft, with the gear wheels *p* and *q*, gas supply and valve *o*, valve *k*, valve case at one side of the cylinder, air supply pipe, igniting burner and exhaust valve, and mechanism for communicating to the valve K an accelerated and retarded oscillating motion, substantially as set forth. 5th. The plunger in the vertical cylinder of a gas engine having an oil receptacle cast within the plunger, and a hole opening through the side of the plunger, for the purpose and as set forth. 6th. The cylinder for a gas engine having a water jacket around it and a lateral opening at one side, in combination with a valve case fastened to the cylinder, a circular valve within the case and provided with ports for the mixture of air and gas to pass to the cylinder and for the flame to be drawn in, and a shaft the valve passing through the case, whereby the valve is pressed upon its seat by the pressure of the gases when they explode, but is free to turn with but little friction at other times, as set forth. 7th. The combination, with the water jacket in a gas pumping engine, of connections between the water pipes and the water jacket, substantially as specified, so that the water that is purified is forced to pass through the water jacket. 8th. The combination, with the pump and water jacket in a gas-pumping engine, of the pipes passing to the cylinder and pump and the branch pipe and cock, substantially as specified, for regulating the portion of water passing to the jacket for maintaining the proper temperature of the cylinder, as set forth.

No. 20,964. Gas Engine. (*Machine à Gaz.*)

Samuel Lawson, New York, N. Y., U.S., 26th January, 1885; 5 years.

Claim.—1st. In a gas engine, a cylinder supported on a frame, a piston within the same, a crank shaft in pillar blocks in the lower part of the frame, and a connecting rod from the piston to the crank, in combination with gas and air supply pipes, a circular valve K, within a case at the side of the cylinder B, a circular valve *u*₂, and case *u*₃, and discharge pipe *u*, and mechanism, substantially as specified, for moving the respective valves, substantially as set forth. 2nd. The combination, with the cylinder B, valve K, gas supply valve *o* and air and gas pipes, of the disk valve *u*₂, having an opening through it, a valve case and discharge pipe, a crank arm and an eccentric or cam for giving to the disk valve an oscillating motion, substantially as set forth. 3rd. In a gas engine, the combination, with the cylinder, piston, connecting rod, crank and main shaft, of two circular valves K and *u*₂, and their respective cases, an eccentric and rod to open the discharge valve *u*₂ each revolution of the crank shaft, a crank revolved once for each two revolutions of the main shaft, and rod and arm for moving the valve K, a gas supply valve *o*, and a cam for opening the same, substantially as set forth. 4th. In a gas engine, the combination, with the cylinder, piston, connecting rod, crank and main shaft, of two valve cases opening into the cylinder, two circular valves kept to their seats by the pressure within the cylinder, mechanism, substantially as specified, for moving such valves, a gas supply valve, a cam for operating the same, a governor a jointed lever having a wedge-shaped end intervening between the governor valve rod and the cam for regulating the gas valve, substantially as set forth.

No. 20,965. Refrigerator. (*Glacière.*)

James Castell, Blue Rapids, Ks., U.S., 26th January, 1885; 5 years.

Claim.—1st. In a refrigerator having dead air walls, the combination of the ice-receptacles, drain gutter, drain-pipe and ventilators, substantially as shown and described. 2nd. In a refrigerator, the combination of ice receptacle D having foraminated slide *d*₅, and

section D, secured beneath the lids 1, of cover A, substantially as and for the purposes described. 3rd. In a refrigerator, a ventilator C constructed in sections and provided with a fine sieve or perforated plate C1, and a cap C2, substantially as shown and for the purpose described. 4th. The combination of the ventilator C and cover A, substantially as shown and for the purpose described. 5th. The combination of the ice receptacle frame D supported on cleats or strips D1, and ice-receptacles D, having section D1, substantially as shown and for the purpose described. 6th. The combination of lid 1, cover A1 having recess d1, and ice-receptacle D having section D1, provided with shoulder d1, substantially as shown and for the purpose described.

No. 20,966. Machine for Shearing Sheets of Card-Board, &c. (*Machine pour Ebarber les Feuilles de Carton, &c.*)

Walter Ames, Toronto, Ont., 26th January, 1885; 5 years.

Claim.—1st. A cutting blade supported by and arranged to slide upon a guiding bar, set at such an angle that the blade, when drawn from one end towards the other end of the bar, will move across as well as along the material being cut. 2nd. A cutting-blade J rigidly fastened to the bracket K, journalled on the guiding-bar L, in combination with the brackets M, arranged to support the guiding-bar L at an angle to the edge of the table A. 3rd. The holding-bar B secured to the arms C, which are pivoted at a and connected together by the bar E1, in combination with the rod F, foot-lever G and spring H, arranged to operate, substantially as and for the purpose specified. 4th. The holding-bar B arranged to secure the material when being cut, in combination with the supplemental holding-bar I arranged substantially as and for the purpose specified.

No. 20,967. Method and Means of Preserving Meat, &c. (*Mode et Moyens de conserver la Viande, &c.*)

George Holgate, Philadelphia, Penn., U.S., 26th January, 1885; 5 years.

Claim.—1st. The mode of treating meats to preserve the same, consisting in introducing them, immediately after slaughter and while retaining the animal heat, into a chamber, exhausting the air therefrom, introducing a preservative agent into the chamber and causing it to expand therein and refrigerate the meat, and then removing the latter and exposing it to the atmosphere until desired for use, substantially as set forth. 2nd. In the preservation of meats, subjecting the same immediately after slaughter, in a chamber from which the air has been withdrawn, to the action of sulphurous anhydride expanded in the presence of the meat and to carbonic acid gas, and then removing the meat after it is cool and exposing it to the atmosphere until desired for use, substantially as specified. 3rd. In the treatment of animal matters to preserve the same, first removing the air and then subjecting them to the action of a sulphuric gas, and then to the action of a carbon gas, and then removing and exposing to the atmosphere, as specified. 4th. In an apparatus for the preservation of animal and vegetable substances, the combination of an air-tight chamber having a covered opening for the insertion and removal of the material, with a vacuum pump, chambers constructed to contain and supply sulphurous, and carbonic acid gases and connecting pipes and valves, all substantially as and for the purpose specified. 5th. A new meat product, consisting of preserved meat capable of exposure to the atmosphere without decomposition and having the other characteristics described resulting from removing the air from the meat, and subjecting it, while in a vacuum, to the action of carbon and sulphur gases, substantially as set forth. 6th. Preserved meat having open pores, an uncoated surface free from peculiar odor and taste, and capable of exposure to the atmosphere and of being therein preserved without decomposition or deleterious change, substantially as described. 7th. The preserved meat product, hereinbefore specified, having the characteristics set forth.

No. 20,968. Land Roller. (*Rouleau d'Agriculture.*)

John G. Waldo, Township No. 18, Manitoba, 26th January, 1885; 5 years.

Claim.—1st. The combination of the wheels fitted on the axle, and axle fitted on the triangular frames A, A, forming a heavy pressure corrugated roller, substantially as and for the purposes herein set forth. 2nd. Combination of the scrapers H and rod G, with said roller, substantially as and for the purposes herein set forth.

No. 20,969. Wheel for Grinding or Polishing Surfaces, &c. (*Atguiserie.*)

James E. Compton, Lynn, Mass., U.S., 26th January, 1885; 5 years.

Claim.—1st. The combination of the helically and radially grooved sections of the hub, with the series of arms applied, as described, to such sections, and with the rim consisting of a series of vousoirs, each of which is composed of pieces of leather, as set forth, and connected with the arms, the whole being so that by revolving in one direction the helically-grooved section of the hub, the several vousoirs by means of the arms shall be drawn and held firmly together, essentially as explained. 2nd. The wheel rim consisting of a series of vousoirs, each of which is composed of pieces of leather in pack, in combination with a hub and with arms adapted thereto and to such vousoirs, and provided with mechanism for moving such arms in radial directions toward the hub, so as to draw together the several vousoirs, all being substantially as set forth, the said mechanism for moving such arms consisting of the disc G provided with the helical groove n, having the arms where covering it extended into it, as set forth. 3rd. The wheel provided with the circular groove dovetailed transversely, and with one or more weights made in two sections dovetailed, as described, and arranged with such groove and held in place therein by screws going into and between the two sections, all substantially as set forth. 4th. The wheel hub made in sections helically and radially grooved, and connected, substantially as speci-

fied, in combination with the series of radial arms arranged between and applied, as described, to the said section, and with the rim composed of the loops and vousoirs of leather and of the strengthening metallic plates applied to each loop, the said arms being extended through the loops and such plates and connected therewith by screws and nuts, substantially as represented.

No. 20,970. Steam Ploughing Apparatus.

(*Appareil de Labour à Vapeur.*)

Edward Ingleton, Winnipeg, Man., 26th January, 1885; 5 years.

Claim.—1st. As an improved steam-ploughing apparatus, a light metal frame connected to a traction engine at about right angles to the direction in which it travels, the said frames being arranged to carry an endless chain deriving motion from the motor of the traction engine, in combination with a series of plows connected to the travelling endless chain, and arranged to operate substantially as and for the purpose specified. 2nd. As an improved steam-ploughing apparatus, a light metal frame flexibly connected to a traction engine, and having an endless chain carried round sprocket-wheels at either end of the frame, the said chain being caused to travel by the action of a suitable motor, in combination with a series of plows connected to the chains, and operating, substantially as and for the purposes specified. 3rd. A light metal frame having sprocket-wheels at either end to carry a travelling endless chain having attached to it a series of plows, in combination with beams carried by castor-wheels and pivotally connected to the light iron frame, substantially as and for the purpose specified. 4th. The metal frames A, B, arranged and braced together as shown and described, for the purpose of forming a track to carry the wheels V of the plow-frame U, in combination with a travelling endless chain F, suitably connected to a plow-frame U, substantially as and for the purpose specified. 5th. The beams H, supported by the castor-wheels G, in combination with the brackets I, each one pivoted to its respective beam H, and having one end of each pivoted to the uprights J, while the other end of each is connected to and actuated by the screw-spindle K, substantially as and for the purpose specified. 6th. A light metal frame arranged to support a series of plow-carriages, propelled by an endless chain passing round sprocket-wheels at either end of the frame, in combination with rods M, arranged to flexibly connect the frame to a traction engine. 7th. A light metal frame arranged to support a series of plow-carriages, connected to an endless chain passing round sprocket-wheels at either end of the frame, a bevelled spur-wheel O connected to one of the sprocket-wheels E, and meshing with a bevelled pinion P connected to the shaft Q, in combination with mechanism for connecting the shaft Q to the motor of the traction engine, substantially as and for the purpose specified. 8th. A frame U supported by the wheels V, and having hangers X, Y attached to it, in combination with the plow-beam W connected to the frame U through the hangers X, Y, substantially as and for the purpose specified. 9th. A frame U carried by wheels V and arranged to support the plow-beam W, in combination with the pivoted bars K, arranged to connect the frame U to the endless chain F, substantially as and for the purposes specified.

No. 20,971. Sash Fastener. (*Arrête-Croisée.*)

Robert B. Hugunin, Hartford, Ct., U.S., 26th January, 1885; 5 years.

Claim.—1st. In a sash lock, the plate having a longitudinal slot L a pivot bearing at the upper portion of the slot, and a lateral slot K connecting with the lower portion thereof, in combination with the bar B, having a pivot or journal at its upper end, and an upwardly extending arm B1, and at its lower end provided with the extended arm H, having a lateral locking tongue G, to enter a notch of the sash, said bar being arranged in the longitudinal slot and normally held there by the action of a spring, substantially as described. 2nd. The plate provided with a slot for the passage of the locking lever, and bearing for the journals or pivots of the lever, and having flanges on opposite sides of the said slot, in combination with the locking lever journalled in the bearings in the plate, and having at opposite ends arms extending laterally from the face and back of the plate, and an elastic spring interposed between the arm and back of the plate, substantially as described. 3rd. In a sash lock, the combination with the metallic engaging plate a, of the plate having a longitudinal slot and a pivot bearing at the lower portion of said slot a spring-actuated locking-lever having a lug g and a thumb-arm H, substantially as described. 4th. In a sash lock, the combination, with the locking device, of an engaging plate adapted to be set in either sash, said plate having at one end a square notch which receives the bolt when the sash to which it is applied is closed, substantially as described.

No. 20,972. Side Bar Spring Waggon.

(*Wagon à Ressorts avec Barres de Côté.*)

George D. Selby, Portsmouth, Ohio, U.S., 26th January, 1885; 5 years.

Claim.—In side bar spring wagons or vehicles, the side bars constructed and arranged to extend backwardly over the rear axle of the vehicle, in combination with a spring or springs interposed between such extended portions of the side bars, and the platform or body of the vehicle, and the springs arranged in advance of the rear axle or between it and the front axle, substantially as specified.

No. 20,973. Attachment for Sap Bucket Covers. (*Mode d'Attacher les Couvercles des Seaux de Sucrierie.*)

Clarke Hall, East Farnham, Que., 26th January 1885; 5 years.

Claim.—The combination of the wire C, with its loops D, D, and the wire F, with its pins or guides E, E, as applied to a sap bucket and cover, substantially as and for the purpose hereinbefore set, forth.

No. 20,974. Machine for Grinding and Turning Curved Surfaces. (*Machine à Poir et Tourner les Surfaces Courbes.*)

William P. Barclay, Chicago, Ill., U.S., 26th January, 1885: 5 years.

Claim.—1st. An abrading tube G, with one or more recesses *g* formed at one end for the reception of babbitt metal or other substitute, whereby the abrading tube has a solid and firm driving bearing, that it can be rotated against a great resistance at a high velocity. 2nd. An abrading tube G, in combination, with a spindle L having a face plate I with one or more projecting thimble dogs *v*; also a bolt N passing through spindle, said bolt having a nut *t* and washer *x* for clenching abrading tube, to its face plate, spindle L being supported by double pillows K, substantially as shown and described. 3rd. An abrading tube G, protected by an adjustable non-revolving shield H, with arms I for supporting same, in combination with the double pillows K, substantially as shown and described. 4th. A revolving abrading tube G, equipped with means for suspending and rotating the same, as hereinbefore described, operating at right angles, or nearly so to the curved surface that it is in contact with in the act of forming to a smooth, true and cylindrical surface, substantially as described. 5th. A revolving abrading tube G and turning tool P, acting in combination on the curved surface of a cylinder F, that the same is reduced to a perfectly smooth and circular form.

No. 20,975. Hay Carrier. (*Charriot à Foin.*)

Abner J. Burbank and Henry D. Page, Harvard, Ill., U. S., 26th January, 1885: 5 years.

Claim.—In a hay-carrier, the track or beam A having stops *a, a*, upon opposite sides, in combination with the frame B formed with the lips *B₁* and hook *b₁*, the hooked and weighted lever C, lever C' connected thereto, dog D, guide-pulleys *D₂*, fork pulley E and the rope G having a ring *g* at each end, all constructed and arranged to operate substantially as and for the purpose set forth.

No. 20,976. Combination of Writing Paper and Envelope. (*Papier à Lettre faisant Enveloppe.*)

Albert H. Hovey (assignee of Alfred E. Ames), Toronto, Ont., 26th January, 1885: 5 years.

Claim.—The combined letter sheet and envelope consisting of the letters sheet A, B, C, folds D, E, and the perforated sealing fold F G all in one piece, as shown and described for the purposes set forth.

No. 20,977. Mechanical Musical Instrument.

(*Instrument de Musique Mécanique.*)

David L. Proudft (assignee of Robert W. Pain), New York, N. Y., U.S., 26th January, 1885: 5 years.

Claim.—1st. In a mechanical music instrument, the combination of a music sheet, a take-up roller, a music roller, a shaft from which motion is transmitted to the take-up roller, an auxiliary shaft adapted to be engaged with, and disengaged from, said shaft, from which motion is transmitted to the take-up roller, a pulley loosely mounted on said auxiliary shaft and adapted to be engaged with the auxiliary shaft for imparting a rotary motion to the music-roller to rewind the music sheet, substantially as specified. 2nd. In a mechanical music instrument, the combination of a music roller, a take-up roller, a shaft from which motion is transmitted to said take-up roller, an auxiliary shaft adapted to be engaged with, and disengaged from, the aforesaid shaft, from which motion is transmitted to the take-up roller, a pulley mounted on said shaft, a pulley on the music roller or a music roller shaft, and means, substantially such as described, whereby the auxiliary shaft is rotated in the same direction both to wind and rewind the music sheet. 3rd. In a mechanical musical instrument, the combination of a music roller, a pulley whereby motion is imparted to said music-roller, a clutch connection between said pulley and said music roller and a spring *i*, substantially as specified. 4th. The combination of a roller J, a roller M, a driving shaft for imparting motion to the roller M, a sleeve *p* on the driving shaft having the notch *o*, a shaft O provided with a pin *p*, a pulley P provided with pins *q, q* and endless belt L, and a pulley K, substantially as specified. 5th. In a mechanical musical instrument, the combination of a music roller, a take-up roller, a shaft for imparting motion to said take-up roller and operating the bellows, an auxiliary shaft adapted to be engaged with the driving shaft for the purpose of operating the take-up roller and transmitting motion to the bellows and disengaged from the bellows operating shaft, for the purpose of releasing the latter and operating the music roller, substantially as specified. 6th. In a mechanical musical instrument, the combination, with a range or series of sound-producing devices and a rest for a travelling music sheet having upwardly converging ducts through which air passes for effecting the operation of the sound-producing devices, substantially as specified. 7th. The combination, with the reed-cells, of a musical instrument ending at an oblique line of the mellowing board, substantially as specified. 8th. The combination of the mellowing-board B₁, its rib B₂ and the covers A₁, A₂, of the case, substantially as specified.

No. 20,978. Door Hanger. (*Coulisse de Porte.*)

The Firm of E. C. Stearn and Company (assignee of Obadiah Seely), Syracuse, N. Y., U.S., 26th January, 1885: 5 years.

Claim.—1st. In a door hanger, the combination, with the base plate D and rider bar H, of a pivoted lever I, whereby the base plate and rider bar are connected, and means, substantially as described, whereby the lever I is swung on its pivot and the rider bar adjusted in a horizontal position, substantially as set forth. 2nd. In a door hanger, the combination, with the base plate and rider bar, of a lever fulcrumed on the base plate and attached to one end of the rider bar, and a right and left hand adjusting screw connecting the opposite ends of the rider bar and lever with the base plate, substantially as set forth. 3rd. In a door hanger, the combination, with a rider bar

H and base plate D, of a lever I pivoted to said base plate and provided with a movable screw nut *k*, and a bolt M provided with right and left hand screw threads *m, m* and connecting the rider bar and base plate and engaging with the nut *k*, substantially as set forth. 4th. In a door hanger, the combination, with an adjustable rider bar and supporting rollers, of a base plate D secured to the door, and a friction roller *p* attached to said base plate independently of the rider bar, substantially as set forth.

No. 20,979. Explosive Composition.

(*Mélange Explosible.*)

Harry A. Callahan and Richard A. Dempsey, Bradford, Pa., U. S., 26th January, 1885: 15 years.

Claim.—A compound explosive consisting of a mixture of nitro-glycerine, and nitro-benzol in substantially the proportions above described.

No. 20,980. Set Work for Saw Mills.

(*Mécanisme de Chariot de Scierie.*)

Walter J. F. Liddell and Joseph L. Chambers, Charlotte, N.C., U.S., 26th January, 1885: 5 years.

Claim.—1st. In the set works of a saw mill, the adjustable knee provided with the grooved extension of its flange or base, in combination with the supplemental knee secured to, and adjustable in, said grooved flange, and means for adjusting the same, substantially as described. 2nd. The adjustable knee provided with a receptacle for an indicator rule, in combination with an indicator secured to, and moving with, said knee, and a stationary pointer arranged and operating substantially as described. 3rd. The adjustable knee provided upon each side of its longitudinal rib with a pocket for the reception of indicator rules, in combination with the interchangeable polygonal indicator rules, substantially as described. 4th. The slotted segment plate H, adjustable around the pinion-shaft as a centre, and provided with the fixed stop, in combination with the adjustable stop also pivoted upon, and adjustable around, the pinion shaft as a centre, and the cam-faced block or lever for clamping said adjustable stop to the slotted segment H, substantially as described. 5th. The plate or segment H provided with the fixed stops *h₂*, stop *h₁* and toothed segment rack L, in combination with the adjustable stop J pivoted upon the pinion shaft and having teeth engaging said rack, and means for clamping said stop to said plate or segment, substantially as described. 6th. The combination, with the lever for effecting the adjustment of the head-blocks or knee, of the centrally-pivoted double pawl and the cross-head supporting said pawl in operative position, both pivoted to said lever, the socketed spring arm rigidly secured to said cross-head for adjusting it, and the pin or spur on the lever for gauging the throw of said spring-arm and holding it at the desired adjustment, all substantially as described.

No. 20,981. Meat and Vegetable Slicing Machine. (*Machine à Trancher la Viande et les Légumes.*)

Charles W. Stevens, Newark, N.J., U.S., and Elisha G. Miller, Beebe Plain, Que., 26th January, 1885: 5 years.

Claim.—1st. The combination, with a slide-frame provided with a sliding knife holder having a knife, of the table hinged to the slide-frame and provided with a lateral extension which projects between the uprights of the slide-frame, and a head-board hinged to the top of the table with one end projecting into the slide frame, as specified. 2nd. The combination, in a slicing machine with a table, a connected vertical slide-frame having a knife-holder with knife, and a head-board secured to the table, of a swinging gate provided with a post mounted in the table and having a reduced portion at its upper end, and a stop attached to the top of said gate, whereby the gate may be moved into the side frame in close proximity to the knife, as specified. 3rd. The knife-holder provided with a knife, and the plate having an L-shaped slot, the elongated screw-slots and holding screws, of a gauge-board provided with the wing having a bent portion, and mechanism to move the gauge-board in and out of the knife-holder, substantially as set forth. 4th. The combination, with a knife-holder having the headed screws, and the adjustable plate provided with the L-shaped slot, of a gauge-board having a bevelled end provided with the slotted arms, and the wing attached near the heel of the gauge-board, and mechanism for adjusting the gauge-board in the knife-holder, substantially as set forth. 5th. The combination, with a knife-holder provided with a sector and a swinging screw-rod and retaining means to hold the screw-rod at various points to the sector, of a movable gauge-board and a connecting link, as and for the purpose specified. 6th. The knife-holder provided with a knife and a movable gauge-board combined with a sector mounted on the knife-holder, a pivoted plate provided with a screw-rod having a washer and adjusting knob and a pivoted connecting link, all as set forth. 7th. In a slicing machine, a slide frame having a knife-holder, with a knife, a table hinged to the slide-frame, a head-board hinged to the table and a swinging gate removably mounted on said table, combined and arranged to operate substantially as and for the purpose set forth. 8th. In a slicing machine, the combination, with a slide frame consisting of the uprights and top and bottom pieces, the said top and bottom pieces having guides or ways, one fixed and the other made adjustable, as specified, of a knife-holder provided with grooves in its top and bottom and having a knife, all substantially as described.

No. 20,982. Machine for Making Coiled Wire Ferrules. (*Machine pour faire des Ferrules ou Viroles en Fil de Fer.*)

James Crowfoot and A. H. Davis, Bridgeport, Ct., U.S., 26th January, 1885: 5 years.

Claim.—1st. The mandrel C of a machine for coiling wire ferrules, made tubular, and of elastic strips at the upper end to admit of inward compression and a ready escape of the ferrule tube, as described. 2nd. In a machine for coiling wire ferrules, the combi-

nation, with a rotary mandrel, of a fixed bearing D and a jacket E made fast to said bearing, whereby the jacket will surround the coils of wire while the solder is being applied thereto, as described. 3rd. In a machine for making coiled wire ferrules, the combination, with the rotary mandrel C, and the stationary band I having inclined upper edge, of the jacket E having apertures I to admit solder, and an inclined slot H to receive the wire, substantially as herein shown and described. whereby the coiled wire is kept in place as it is pushed up the mandrel, as set forth. 4th. The rotary mandrel C, made substantially as herein shown and described, with its upper part tubular and slitted longitudinally from its upper end, whereby the mandrel can be kept cool more readily and will allow the coiled wire to move upward upon it more easily, as set forth. 5th. In a machine for making coiled wire ferrules, the combination, with the rotary mandrel C and its driving mechanism, of the rotary brush R and its driving mechanism, substantially as herein shown and described, whereby the uncombined solder is brushed off, and the coiled wire polished, as set forth. 6th. In a machine for coiling ferrules, the combination with the mandrel C, bearing D and jacket E, of a stationary band I inclined at the upper edge to push the wire upwardly as fast as it is coiled, as described.

No. 20,983. Machine for Manufacturing Railway Spikes. (*Machine pour fabriquer les Chevilletes des Chemins de Fer.*)

Leonard Acheson, James M. Duncan, Chattanooga, Tenn., and Hugh L. Fox, St. Louis, Mo., U.C., 26th January, 1885; 5 years.

Claim.—1st. The combination, with the stationary dies A, A and movable headers B, of the transversely movable die-carrier having die H and carrying-plate E, and the revolving cutter-heads C, C, substantially as and for the purpose herein shown and described. 2nd. The combination, with the stationary dies A, A and movable headers B, B, of the transversely movable die-carrier having the die H and carry-plate E, the feed-rolls D, D and revolving cutter-heads C, C, substantially as and for the purpose herein shown and described. 3rd. The movable transverse die-carrier J, provided with the plate E, top gripping-die H and vertically movable bars I, I, constructed as shown, in combination with the stationary dies A, A and movable headers B, B, substantially as described. 4th. The movable transverse die-carrier J provided with the clearing-pins K, K, in combination with the slotted stationary dies A, A, substantially as and for the purpose herein shown and described. 5th. The movable transverse die-carrier J provided with the plate E, top gripping-die H, vertically movable bars I, I, constructed as shown, and the clearing-pins K, K, in combination with the slotted stationary dies A, A and movable headers B, B, substantially as and for the purpose described. 6th. The combination, with the feed-rolls D, D, of the continuously revolving cutter-heads C, C, constructed as shown, for drawing in the bar of iron at one uniform rate of speed, cutting and pointing the blanks ready for heading and pushing the blanks between said feed-rolls, and mechanism for heading said pointed blanks, substantially as described. 7th. The combination, with the heading-plunger R, R, of the plates S, S, having wrists T, T, and the journal caps t, t for changing the angle of said plungers, substantially as herein shown and described. 8th. The cutter-heads C, C, feed-rolls D, D, stationary dies A, A, die-carrier J, provided with plate E, top gripping-die H and vertically movable bars I, I, in combination with the slides L, L, plungers R, R carrying the headers B, B, and the main shaft M, provided with cams N, N and cranks U, U, for moving said slides and plungers L, L and R, R, substantially in the manner as and for the purpose herein shown and described. 9th. The combination, with the main shaft having cams N, N and the slides L, L, of the oil boxes N₁, N₁, in which said cams revolve, substantially in the manner as and for the purpose herein shown and described.

No. 20,984. Hot Air Furnace. (*Calorifere à Air.*)

The Boynton Furnace Company, (Assignee of Nathaniel A. Boynton,) New York, N. Y., U.S., 26th January, 1885; 5 years.

Claim.—1st. In combination with the dome C of the furnace, the dome or hood-like radiator F, constructed and arranged to receive the dome C up within it, and consisting of an annular outer chamber h, divided at a portion of its length to form an escape for gaseous products of combustion, a central chamber or space l, arranged to project above the annular chamber h, arched or upwardly inclining flues G, arranged to conduct said products from the annular chamber h to the elevated central chamber l, and an arched or inclined flue G₁, arranged to pass said products from the elevated chamber l in a downwardly inclined direction, to a side outlet in the annular chamber h, substantially as specified. 2nd. In a hot air furnace, the dome C provided externally with a series of upright side flues D, in combination with the radiator F, having arched or dome-shaped cross-flues, and annular chamber h having flues D₁, arranged to connect with the side flues D, said radiator being arranged to receive the dome C up within it, and being provided with a central chamber l, arranged to project above said annular chamber, essentially as described. 3rd. In a hot air furnace, the combination, with the dome C having exterior side flues D, of the inclined or shelving bottom o of that annular portion of the radiator F, the flues D₁ made flaring in an upward direction, and the arched cross-flues G, G₁ connecting the annular portion of the radiator F, with a central upper chamber thereof, said radiator being constructed and arranged to receive the dome C up within it, whereby air entering up between the flues D, of the dome, is guided up over the dome and made to impinge upon the guiding and inclosing surfaces of the radiator, and provision is made for the radiator to clear itself of soot, substantially as specified.

No. 20,985. Motor for Operating the Music Sheets of Mechanical Musical Instruments. (*Moteur pour faire fonctionner les Feuilles de Musique des Instruments de Musique Mécaniques.*)

John S. Morgan, (Assignee of Lucius T. Stanley,) New York, N. Y., U.S., 27th January, 1885; 5 years.

Claim.—1st. The combination, with a mechanical musical instrument, of a motor operated from the wind inducing apparatus, and serving to propel the travelling music sheet, card or tablet of the instrument. 2nd. The combination, with a mechanical musical instrument, of a motor, substantially as described, operating from the wind-inducing apparatus, and serving to propel the travelling music sheet, card or tablet of the instrument. 3rd. The motor consisting of a number collapsible and expandable chambers, a number of ports communicating therewith, valves for such ports, a shaft carrying said valve, a crank on said shaft, and links connecting the crank with the said chambers. 4th. The combination, with a mechanical musical instrument, of a motor operated from the wind-inducing apparatus, and serving to propel the travelling music-sheet card, or tablet of the instrument, a valve for varying the speed of the motor. 5th. The combination, with a mechanical musical instrument, of a motor operated from the wind-inducing apparatus, and serving to propel the travelling music-sheet, card, or tablet, of the instrument, and a valve for varying the speed of the motor, and having an index connected therewith for indicating the time of the music. 6th. The combination, with a mechanical musical instrument, of a motor operated from the wind-inducing apparatus, and serving to propel the travelling music-sheet, card or tablet, of the instrument, and a valve adapted to prevent the passage of wind the reel cells during re-winding of the music-sheet. 7th. The combination of the trunk E, ports a₁, a₂, etc., shaft D, chambers F₁, F₂, links G₁, G₂, etc., and valves b, c, substantially as specified. 8th. The combination of the trunk E, ports a₁, a₂, etc., shaft D, chambers F₁, F₂, etc., links G₁, G₂, etc., valve b fixed to the shaft, and the valve c loose on the shaft, substantially as specified. 9th. The combination of the trunk E, ports a₁, a₂, etc., shaft D, chambers F₁, F₂, etc., links G₁, G₂, etc., valve b fixed to the shaft, spring b₂ and the valve c loose on the shaft, substantially as specified.

No. 20,986. Envelope Machine.

(*Machine à Enveloppes.*)

Henry A. Mann, Jr., Ballston Spa, N. Y., U.S., 27th January, 1885; 15 years.

Claim.—1st. In an envelope machine, the combination, substantially as hereinbefore described, of the cam I, lifting-strap X, lifting-lever G, lifting-strap W, right-angled lever V, guides b and weight D, all operating the gummer B, the gummer B and its parts, the plato C, platform C₁, gum box and roller E, pushing fingers F operating by the oscillating device composed of the oscillating lever Y, and its attachments, drop lever H, carrying rollers K and creasing-rollers K₁, folder M, and guards n, carrying rollers N, and flat rollers N₁, platform O with its guard o, lever P actuated by oscillating lever Z, and its attachments, creasing-rollers R, carrying rollers S, folder T, and rollers U and U₁, all being constructed and organized for operating, as set forth. 2nd. In an envelope machine, the combination and arrangement, as hereinbefore described, of the gumming apparatus B, gum box and roller E, operating mechanism I X G W V b and D, and their attachments, all being constructed and organized as hereinbefore specified. 3rd. In an envelope machine, the pushing fingers F, with their projecting pins f, operated by the oscillating device consisting of the oscillating lever Y and its attachments, in combination with gummer B, all constructed, arranged and operating as hereinbefore specified. 4th. In an envelope machine, the combination and arrangement of the creasing rollers K₁ and R, folder M, with its curved sides m, guiding fingers l, platform O, and the lever P, operated by the oscillating device Z, all constructed, arranged and operating as set forth and described. 5th. In an envelope machine, the combination and arrangement of the carrying mechanism consisting of the pushing fingers F with pins f, platform C₁, carrying rollers K, creasing rollers K₁, and carrying rollers N, with folder M between them, platform O with guard o, lever P, and oscillating attachments and rollers R, S, U and U₁, all being constructed and organized for operation as set forth and described. 6th. In an envelope machine, the folder T, having curved or folded sides, as shown, and the rollers U and U₁, so that the lower flap is folded, pressed flat and sealed while the seal flap is folded and its fold only is pressed, without sealing the flap, all being constructed and arranged as hereinbefore specified. 7th. In an envelope machine, the combination and arrangement of the creasing rollers K, the carrying rollers S, the folder T, and the pressing rollers U and U₁, so as to fold and press both flaps and at the same time seal the lower flap of the envelopes, as set forth, and all constructed, arranged and operating as hereinbefore shown and described.

No. 20,987. Pneumatic Motor for Organs.

(*Moteur Pneumatique pour Orgues.*)

David L. Proudfit, (Assignee of Robert W. Pain and William B. Tremaine,) New York, N. Y., U.S., 27th January, 1885; 5 years.

Claim.—1st. The combination, with a reed-cell, of a valve consisting of a lever fulcrumed near one end, and a pneumatic motor over which the other end of the lever forming the valve extends, and a music-sheet for controlling the operation of the motor, substantially as specified. 2nd. The combination of a reed-cell, a valve D, and a motor G, substantially as specified. 3rd. The combination of a reed-cell, a valve for closing the opening to said reed-cell, a pneumatic motor for operating said valve, an opening at the hinged end of said motor through which air confined thereby can escape, and a music-sheet for controlling the operating of the motor, substantially as described.

No. 20,988. Saw Mill Feed Mechanism.

(*Mécanisme d'Alimentation des Scieries.*)

Walter J. F. Liddell and Joseph L. Chamber, Charlotte, N. C., U.S., 27th January, 1885; 5 years.

Claim.—1st. In a saw-mill feed mechanism, a friction disk secured to the saw-mandrel, in combination with friction wheels arranged to bear upon the opposite faces of said disk in such manner that one only of said wheels shall bear upon the friction disk at a time, said friction-wheels being secured to parallel shafts geared to and actuating the saw-mill carriage, and mounted in movable bearings, and

connected by level gears with the shaft actuating the saw-mill carriage, substantially as described. 2nd. In a saw-mill feed mechanism, a friction-disk secured to the saw-mandrel, in combination with parallel shafts carrying friction-wheels arranged upon opposite sides of said disk, but at such a distance apart as will adapt them to be brought one only at a time into operative contact with said friction-disk, movable bearings for adjusting said friction-wheels relatively to the friction disk, and bevelled pinions mounted upon said parallel shafts and meshing with corresponding pinions on a shaft, substantially at right angles thereto for actuating the saw-mill carriage, substantially as described. 3rd. The combination, in a saw-mill feed mechanism, of a friction disk secured to, or actuated by, the saw-mandrel friction-wheels arranged to bear upon the opposite faces of said disk, and secured to shafts geared to and actuating the saw-mill carriage and friction-rollers secured to the frame, and arranged diametrically opposite the friction-wheels to bear against the opposite faces of the friction-disk, substantially as and for the purpose described. 4th. The combination, in a saw-mill feed mechanism, of a friction disk secured to, or actuated by, the saw-mandrel, the shafts provided with friction-wheels arranged to bear upon the opposite faces of said disk, the friction-rollers arranged diametrically opposite the friction-wheels to bear against the opposite faces of the friction disk and supported in adjustable bearings secured to the frame. 5th. In a saw-carriage feed mechanism, the combination, with the movable ends of the parallel friction-shafts, of the adjustable bearings consisting of the longitudinally adjustable bed-plate I formed with elevated side flanges, and a longitudinally slotted bottom, bearing-boxes formed with serrations to engage with the corresponding serrations of the bed-plate, and clamping bolts for securing the boxes adjustably to the bed-plate, substantially as described. 6th. In a saw-mill feed mechanism, a longitudinally-adjustable bearing-block, in combination with a bearing-box adjustably longitudinally upon said bearing-block, a sleeve-bearing pivoted within said box by means of trunnion-hubs journaled therein, substantially as and for the purpose specified.

No. 20,989. Steam Engine Governor.

(Gouverneur de Machine à Vapeur.)

Albert L. Ide, Springfield, Ill., U.S., 27th January, 1885; 5 years.

Claim.—1st. In a fly-wheel governor, the combination, with relatively movable parts, of a dash-pot, substantially as described. 2nd. The combination, with a fly-wheel A, a laterally movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a spring G connected at its ends with the free end of the lever and with the fly-wheel, and having its end that is attached to the fly-wheel adjustable upon the latter nearer to, or farther from, the pivot of the lever, substantially as and for the purpose set forth. 3rd. The combination, with a fly-wheel A, a laterally movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a spring G connected at its ends with the lever and wheel, said spring having adjustable connections with the wheel and lever whereby its tension may be varied, and having its end that is attached to the wheel also adjustable upon the latter nearer to, or farther from, the pivot of the lever, substantially as and for the purpose set forth. 4th. The combination, with the fly-wheel A, a laterally-movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a block G₁ movably attached to the wheel and adjustable thereon nearer to, or farther from, the pivot, of the weight-lever and a spring G attached at its outer end to the free end of said lever, and having adjustable connection with the said block, substantially as and for the purpose set forth. 5th. The combination, with the fly-wheel A, the laterally-movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a guide G₂ secured to the said wheel, a block G₁ adjustably held in said guide, and a spring G connected with the free end of said lever and with the said block G₁, substantially as and for the purpose set forth. 6th. The combination, with a fly-wheel A, the laterally-movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a guide G₂ secured to said wheel, with its outer end at a greater distance from the free end of the lever than its inner end, a block G₁ movably secured in said guide and adjustable longitudinally thereon, and a spring G connected with the free end of said lever, and with the said block G₁, substantially as and for the purpose set forth. 7th. The combination, with a fly-wheel A, a laterally-movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a guide G₂ adjustably secured to said wheel, a block G₁ movably secured in said guide and adjustable longitudinally thereof, and a spring G connected with the free end of said lever and with the said block G₁. 8th. The combination, with a fly-wheel A, a laterally-movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a guide G₂ pivotally connected with the said wheel at one end and adjustably secured thereto at its opposite end, a block G₁ movably secured in said guide and adjustable longitudinally thereof and a spring G connected with the free end of said lever and with the block G₁, substantially as and for the purpose set forth. 9th. The combination, with a fly-wheel A, a laterally-movable eccentric C and a pivoted weight-lever E connected with the said eccentric, of a guide G₂ upon the said wheel, a movable block G₁, a threaded shaft G₃, having bearings upon the wheel and engaged with a threaded aperture in the block, and a spring G connected with the free end of the lever E and with the said block, substantially as and for the purpose set forth. 10th. The combination, with a fly-wheel A, a laterally-movable eccentric C and a pivoted weight-lever connected with the said eccentric, of a spring G connected at its ends with the free end of the lever and with the fly-wheel, and having its end which is connected with the lever adjustable longitudinally of the latter, substantially as and for the purpose set forth.

No. 20,990. Type Writing Machine.

(Machine à Ecrire en Caractères d'Imprimerie.)

Henry B. Richardson, Amherst, Mass., U.S., 27th January, 1885; 5 years.

Claim.—1st. In a type-writing machine, a gimbal-frame pivotally supported therein, a letter-block hung in said frame and bearing a

series of printing characters upon one or more surfaces thereof and adapted to be rotated in its bearings, a hammer to strike upon said block and operating mechanism, a movable letter-plate bearing a series of letters and characters upon its surface, the stylus z and appliances, substantially as described, connecting said gimbal-frame and stylus, whereby the latter is permitted to be moved to different positions over the surface of said letter-plate and to be pressed thereupon and moved downward with the latter, combined and operating substantially as set forth. 2nd. The stylus z of conical form, a movable letter-plate and a stylus plate located over said letter-plate and provided with dissimilar perforations, combined and operating substantially as set forth. 3rd. In combination the movable letter-plate d, the perforated stylus-plate c, the gimbal-frame D having the tube m thereon, the rod o and the stylus z, substantially as set forth. 4th. The pivoted bar n₂, bearing hammer n on one end thereof, the movable letter-plate d, lever n₃, rod n₄, and the stylus z, capable by means, substantially as described, of lateral and vertical movements, and adapted to be pressed upon various parts of said letter-plate, combined and operating substantially as set forth. 5th. In combination the letter-plate d having the slotted posts e, e thereon, the parallel bars a and the springs n₂, substantially as set forth. 6th. The combination, in a type writing machine, with a paper-carriage provided with the rack s having two serrated edges, of the stylus z, the stylus-plate c provided with dissimilar perforations, the movable letter-plate d, and mechanism, substantially as described, interposed between said letter-plate and rack s, whereby the latter is allowed to move along to a degree proportionate to the defective movement of said letter-plate, substantially as set forth. 7th. The combination, with the movable table d and lever n₃ and with the rack s, of the lever 26, the lever 15, the sliding-bar 16 provided with pin 19, the dog 20 adapted to engage with said bar, and springs 18, 22, and 30, substantially as set forth.

No. 20,991. Machine for Waxing Paper.

(Machine pour Encrer le Papier.)

Allan H. Dingman, Toronto, Ont., 27th January, 1885; 5 years.

Claim.—1st. For a waxing machine, the hot surface A and the tank B, substantially as and for the purpose hereinbefore set forth. 2nd. In a waxing-machine, the tank B, in combination with hot surface A having the tank C, substantially as and for the purpose hereinbefore set forth. 3rd. In a waxing machine, the metal tubes D, E and F, in combination with the hot surface A, and tank B.

No. 20,992. Combined Heel Plate and Counter Support.

(Plaque et Support de Talon Combinés.)

Henry Schnarr, Nora Springs, Iowa, U. S., 27th January, 1885; 5 years.

Claim.—The herein described, improved combined heel-plate and counter stiffener, the same consisting of a heel-plate composed of a pair of leaves connected by a narrow stem having an upwardly projecting vertically slotted shank, in combination with a counter stiffener consisting of a plate having a semi-circular slot, and provided with a downwardly extending flanged stem, vertically adjustable upon the shank of the heel-plate, substantially as and for the purpose set forth.

No. 20,993. Process for Extracting and Saccharifying Ingredients of Amylaceous Substances by Treatment with Malt.

(Procédé pour Extraire et Saccharifier les Ingrédients Amylacés par le Traitement avec du Malt.)

Léon Cuisinier, Paris, France, 27th January, 1885; 5 years.

Claim. 1st.—The herein described method of manufacturing malt by steeping the grain in lime water before germination, and washing the same in lime water after germination. 2nd. The preparation of active infusion of green malt by bruising, trituration, sitting and decantation, as herein described. 3rd. The fractional use of malt at 50° for saccharification, and at from 70° to 75° for liquefaction and dextrinization of the amylaceous substances, as herein described. 4th. The special preparation of the raw material by maceration, crushing by rollers, trituration before liquefaction by the malt permitting a complete exhaustion and a rapid boiling of the residues. 5th. The method of heating must by a source of heat, not exceeding the temperature at which the action of the malt to be employed is destroyed, whereby must of a very high density is obtained and a considerable economy in evaporation effected. 6th. The method of directly producing very dense sirups and maltose, whereby acid formations are prevented and which are applicable to various industries wherein malt and non-germinated amylaceous matters are used. 7th. The method of clarifying after liquefaction by the malt, whereby the greater portion of the clear must is directly withdrawn. 8th. The fractional addition at short intervals of time during the dextrinization, whereby the weakening effect which the prolonged action of the temperature upon the dextrinising power of the malt is counteracted. 9th. The herein described process of extraction of the must and of saccharification, applicable to various industries wherein malt and non-germinated amylaceous substances are employed. 10th. The production of maltose in must in sirups in masses, etc., and its application in various degrees of concentration either for brewing distilling, or other purposes. 11. The use of paper material for facilitating the expression and exhaustion of the residues. 12th. The combined means, herein described, for the extraction and saccharification of amylaceous matters by means of malt.

No. 20,994. Bob Sleigh.

(Traîneau Accouplé.)

Thomas B. Weller, Waitsbury, Washington T'y, U. S., 27th January, 1885; 5 years.

Claim.—1st. In a bob-sleigh, the combination of the runners A₁ and the cross-bars B₁ having the screws or studs N, with the braces G

having slots S fitting over said screws, and the standards L constructed of two parts and pivotally connected to the runners, substantially as set forth. 2nd. In a bob-sleigh, the combination of the runners A and the bounds F, F₁, with the slide D, secured thereto, with the reach-pole D, the bolster C and cross-bar B flexibly connected together, the said slide being adapted to move longitudinally on the reach-pole, as described and for the purpose set forth.

No. 20,995. Railway Torpedo Signal Lock.

(Griffe de Torpille-Signal de Chemin de Fer.)

William McKay, Moncton, N. B., 27th January, 1885; 5 years.

Claim 1st.—A railway torpedo signal lock, provided with lips or jaws on the under-side of the top plate, between which the torpedo is wedged, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, of the locking piece D and the lever B, as and for the purpose hereinbefore set forth.

No. 20,996. Car Axle Box. (Boîte à Graisse.)

Dosithé Dupert, Ste. Scholastique, Que., 27th January, 1885; 5 years.

Claim 1st.—In a car axle box, the lubricating roller F held by suitable bearings against the car axle, so as to be caused to revolve with it, substantially as and for the purpose set forth. 2nd. The lubricating roller F journalled in the sliding boxes b, which are supported by the spring c in the standards a formed on or attached to the removable bed E, substantially as and for the purposes specified.

No. 20,997. Carriage Apron Case.

(Enveloppe de Tablier de Voiture.)

Joseph F. McNeill, Toronto, Ont., 28th January, 1885; 5 years.

Claim 1st.—The combination, in a carriage apron case, such as described, of the case A constructed to receive the aprons J and K, actuated by a spring T in rollers X₁, as shown and described for the purpose set forth. 2nd. The combination, in a carriage apron case, of the rollers X₁ provided with springs I, flat gudgeons V and long gudgeons X having their outer ends Y made square, and the brake Z, as shown and described for the purposes set forth. 3rd. In an apron case, the rollers X₁, as described, fitted in a protecting case A attached to the dashboard and bottom of a vehicle, substantially as shown for the purpose set forth. 4th. In an apron case, the roller X₁ to which is attached the apron J having straps R, R and rings L, L, as shown and for the purposes set forth. 5th. In an apron case A, one end of which is pierced with holes for the insertion of the long gudgeons X, and the other end provided with slots O to receive the flat gudgeons V, and provided with a brake Z, as shown and described for the purposes set forth. 6th. In an apron case provided with rollers X₁, the aprons J and K having the wings B and F, sewn and folded, as shown and described for the purposes set forth.

No. 20,998. Whiffletree Hook.

(Crochet de Palonnier.)

Ignas Kohn and Morris Hefter, New York, N. Y., U. S., 29th January, 1885; 5 years.

Claim 1st.—The combination of a whiffletree A, a guide socket B inserted into the end of the whiffletree, said guide socket having a transverse slot d and end notches d₁, a transverse fastening-pin n, and a trace-holder C having an enlarged head C₂, shank C₁ and guide-pin d₂, and a spiral spring e interposed between the inner end of the shank C and the pin b, substantially as set forth. 2nd. A trace-holder for whiffletrees consisting of a guide socket B having a transverse slot d and end notches d₁, and of a spring actuated trace-holder C having an enlarged head C₂, and a shank C₁, the latter being provided with a pin d₂ guided in the slot d of said socket, substantially as set forth.

No. 20,999. Device for Tightening Bolting Cloths. (Appareil pour Tendre l'Etamine.)

George S. Smith (assignee of Charles A. Smith), Jackson, Mich., U. S., 29th January, 1885; 5 years.

Claim.—1st. In a flour bolt, the combination of the reel head B provided with the flange b and the smaller flange b₁ which forms a rim for friction rollers, the bolting cloth extending longitudinally of the reel and turned over the edge of the reel head towards the centre, the circular tightener connected to the turned over end of the bolt-cloth, and means for gripping the tightener and the bolt cloth upon the flange b, substantially as set forth. 2nd. In a flour bolt, the combination of the reel-head A, the bolt cloth extending longitudinally of the reel and turned over the edge of the reel head and towards its centre, the circular tightener connected with the turned over end of the bolt cloth, the plate having both ends of the circular tightener attached thereto, and means for adjusting one end of the circular tightener relative to the plate, substantially as set forth.

No. 21,000. Thill Coupling.

(Armon de Limonière.)

Ellis L. Baker, Syracuse, and John W. Bennett, Cortland, N. Y., U. S., 29th January, 1885; 5 years.

Claim.—In combination with the coupling bolt and thill, a thill, iron terminating with a hook engaging the coupling-bolt, a lever connected with said hook back of the coupling-bolt, a wear-block interposed between the lever and coupling-bolt, and a catch movably connected with the thill and adapted to retain the free end of the lever, substantially as described and shown.

No. 21,001. Safety Device for Elevators.

(Appareil de Sécurité pour Ascenseurs.)

Otis, Brothers and Company, New York (Assignees of Rudolf C. Smith, Yonkers), N. Y., U. S., 28th January, 1885; 5 years.

Claim.—1st. The combination of a cage sliding adjacent to vertical bars, wedges arranged between the bars and parts of the cage, and a governing rope and connections with said wedges, and means for retarding the movement of the rope upon any undue increase in the speed of the cage, substantially as set forth. 2nd. The combination, with wedges arranged to act between a cage and bars contiguous thereto, one or more series of wedges connected directly or indirectly to the first, and means for arresting the movement of the supplemental wedges when the cage exceeds its normal speed, substantially as specified. 3rd. The combination of a cage, wedges arranged between the cage and vertical stationary bearings, a governor rope and connections, whereby, upon any excess of speed, the wedges are drawn between the cage and bearings with a regulated power, substantially as set forth. 4th. The combination of the cage, wedges, governor rope and a frictional connection between the governor rope and wedges, substantially as specified. 5th. The combination of the cage, vertical bars, wedges B, supplemental wedges B₁ and slides D, and means, substantially as described, for arresting the vertical movement of the upper wedges when the cage exceeds its normal speed, substantially as set forth. 6th. The combination of the cage, bars and wedges with the rope and friction device, whereby the movement of the cage is permitted during a constant uniform pull upon the wedges, substantially as specified. 7th. The combination of the governor rope, wedges, chains or cords F₁ and friction device E, substantially as set forth.

No. 21,002. Barbed Wire Fence Machine.

(Machine à Clôture en Fil de Fer Barbelé.)

George M. Fish, Oak Park (Assignee of Christian C. Hill, Chicago), Ill., U. S., 29th January, 1885; 5 years.

Claim.—1st. The combination, with mechanism for feeding the fence wires continuously, of mechanism for feeding the barb wire continuously, a continuously revolving drum or wheel provided with a series of slots through its rim, mechanism for severing the barb wire, and rotary devices operating through slots in the drum for applying and forming the barb journalled on the frame of the machine and projecting inside the revolving drum, and conjointly operating stationary barb forming devices secured to the frame outside of said drum, substantially as specified. 2nd. The combination, with a continuously revolving drum provided with slots through the rim, of barb forming tools or devices located inside said drum and barb forming devices located outside said drum, substantially as specified. 3rd. The combination, with a revolving drum for carrying and supporting the fence wires, provided with grooves or devices for carrying and supporting the barbs while they are being supplied, and slots or openings through which the barb may be operated upon by tools inside or outside of the drum, and barb forming and applying tools located inside and outside of said drum, substantially as specified. 4th. The combination, with the revolving drum, provided with slots or openings through its rim, of a series of knives fixed in the periphery, an opposing knife mounted on the frame of the machine, concave flanges or cheeks secured to the frame of the machine, revolving tools journalled on the frame of the machine and projecting inside said drum to force the middle portion of the barb between said cheeks, a tool projecting from between said cheeks to again bend the barb, a pair of rolls set tangentially to said drum to force the fence wires together, and further from the barb opposing revolving tools journalled on the frame of the machine inside and outside said drum to press the bent or loop portion of the barb flat upon the wires, and a device for twisting the fence wires together to fix the same securely in the opposite notches or shoulders formed by the loop and the ends of the barb, substantially as specified. 5th. The combination, with mechanism for continuously feeding the fence wires and barb wire, of mechanism for severing the barb wire, and a revolving wheel or drum provided with devices for carrying the barbs along with the fence wires while the barbs are being formed and applied, and barb-applying devices mounted on the frame of the machine adapted to operate upon the barb as the revolving drum brings the barb in contact therewith, substantially as specified. 6th. The combination of a revolving drum or wheel carrying the fence wire and the severed barbs, of devices mounted on the frame of the machine for applying the barbs to the fence wire as the drum revolves, substantially as specified. 7th. The combination of a revolving drum or wheel carrying the fence wires and barbs, of a stationary knife and a series of knives fixed in said drum or wheel for cutting off the barbs from the barb wire as the drum or wheel revolves, and devices mounted on the frame of the machine for applying the barbs to the fence wire as the drum or wheel revolves, substantially as specified. 8th. The combination, with a slotted wheel rotating continuously in the direction of the feed of the fence wires, and carrying said wires continuously forward, of a series of knives secured at the rim of said wheel and an opposing knife on the frame of the machine for cutting off the barb wire, and a revolving tool journalled on the frame of the machine and projecting into said wheel and opposing cheeks fixed to the frame of the machine outside said wheel, said revolving tool operating on the barb through openings in the rim of said wheel, substantially as specified. 9th. The combination, with a wheel having a slotted rim rotating continuously in the direction of the feed of the fence wires and carrying said wires, of devices for forming or applying the barb to the fence wires located inside and outside of said rim and conjointly operating upon the barbs through the slots or openings in said rim, substantially as specified. 10th. The combination, with a wheel having openings in its rim and carrying the fence-wires, of a pair of revolving barb-forming or applying tools journalled on the frame of the machine, one inside and one outside the peripheral line of said rim, substantially as specified. 11th. The combination of a slotted wheel or drum for carrying the fence wires and provided with transverse grooves or devices on its periphery for carrying the barbs along with the fence wires, opposing knives mounted in the revolving wheel and the stationary frame for cutting off the barbs, revolving tools or devices journalled on the frame of the machine and projecting inside said rim, and stationary devices outside said rim for bending and forming the barbs, tangential rollers or devices for crowding the fence wires together and further forming the barbs, and revolving tools journalled inside and outside said rim to further form and secure the barbs and mechanism for continuously driving

said revolving wheel and revolving tools, substantially as specified. 12th. The combination, with the revolving wheel or drum carrying the fence wires and bars, of devices for crowding the fence-wires together on the periphery of the rim as the wheel or drum revolves and thus applying or partly applying the bars to the fence wires, substantially as specified. 13th. The combination, with a wheel or drum carrying the fence wire thereon continuously forward, continuously revolving knives and an opposing knife for severing the barb in equal barb lengths as said barb wire is fed continuously thereto and barbing and forming devices consisting of continuously revolving and stationary parts, so that all the moving parts of the machine may have a simple continuous rotary motion and be adapted to run at high speed, substantially as specified. 14th. The combination, with a slotted wheel or drum having transverse grooves across said slots, and provided with a series of knives fixed in its rim, of a stationary knife for cutting off the barbed concave cheeks or guards for forcing or guiding the bars into said transverse grooves, and barbing and forming mechanism located part inside and part outside said drum and conjointly operating to bend and form the barb, substantially as specified. 15th. The combination of the revolving wheel carrying the fence-wires on its periphery, of grooved rollers journaled on the frame of the machine tangentially to said wheel for forcing the fence wires together and projecting guides to support the bars and to regulate the action of said rollers in forming the barb, substantially as specified. 16th. In a barb fence machine, the continuous revolving wheel for carrying the fence wires and bars while the bars are being applied, in combination with mechanism for forming and applying the bars mounted on the frame of the machine, substantially as specified.

No. 21,003. Composition of Matter for the Manufacture of a Compound Extract and Sarsaparilla Beer.
(*Composition de Matière pour la Fabrication d'un Extrait Composé et de la Bière de Salsepareille.*)

Martha E. Pell, Belleville, Ont., 30th January, 1885; 5 years.

Claim.—A compound extract, and the process of making sarsaparilla beer, substantially in the proportions and for the purposes above set forth.

No. 21,004. Telephone. (*Téléphone.*)

Thomas Wallace, New York, N. Y., U. S., 30th January, 1885; 15 years.

Claim.—1st. A telephone instrument consisting of a resonant body, a bar of carbon supported in carbon bearings and a weighted covering or casing for said bar, substantially as described. 2nd. A telephonic receiver consisting of a weighted bar of carbon supported in carbon bearings, in connection with a resonating body, substantially as described. 3rd. A combined transmitting and receiving telephone instrument, consisting of a rod of carbon supported in carbon bearings, in connection with a resonating body and suitable mouth and ear connections substantially as described. 4th. A contact piece for telephones consisting of a bar or rod of carbon or similar low conducting material having a covering or casing of metallic foil, substantially as described. 5th. A contact piece for telephones consisting of a bar of carbon having a covering of tea-lead foil, substantially as described. 6th. A telephonic system or line embracing a galvanic circuit including two or more instruments, each consisting of a carbon bar supported in bearings, in connection with a resonant body and adapted to act both as a transmitter and receiver, whereby speech may be transmitted and received without the use of magnets, coils, inductariums or diaphragms, substantially as set forth. 7th. The combination, with a charged line circuit, of a transmitter consisting essentially of a carbon rod supported in carbon bearings upon a resonant body arranged in the main galvanic current, and a receiver consisting of a similar carbon rod supported in carbon bearings and connected to a resonant body in a branch circuit around the transmitter, substantially as described.

No. 21,005. Torpedo Railway Signal.

(*Signal à Torpille de Chemin de Fer.*)

Timothy G. Palmer, Schultsville, N. Y., U. S., 30th January, 1885; 5 years.

Claim.—1st. The combination, in a danger signal, of an anvil upon which the torpedo can be exploded, a slide to move the torpedo, an exploder, a cap for holding the same, and a cam lever acted upon by the slide for raising the exploder before passing the torpedo under it, substantially as specified. 2nd. The combination, in a danger signal, of a slide connected with a switch or other moving device, a torpedo holder placed below the slide and below the level of the track, an anvil, an exploder, a cap to hold the exploder and to cover the slide, and a lever or cam between the slide and the exploder to raise the exploder before passing the torpedo beneath it, substantially as specified. 3rd. The slide receiving an endwise movement and having a jaw for receiving the torpedo, in combination with an anvil upon which the torpedo rests, an exploder, a lever receiving its motion from the slide and by which the exploder is raised or lowered, and a cap covering the slide, substantially as specified. 4th. The combination, with an anvil, of a torpedo magazine below the anvil, a spring to raise the torpedoes, a slide for receiving such torpedoes, an exploder, a cap covering the slide and provided with an opening for the insertion of the torpedoes and a cover for such opening, substantially as specified. 5th. In a danger signal, a moving torpedo holder and exploder, in combination with mechanism, substantially as set forth, for raising and lowering the exploder. 6th. The torpedo having a two-part shell, one of which parts is slightly convex and the other is in the form of a truncated cone, the rim at the edge of one shell setting within the rim at the edge of the other shell, substantially as set forth.

No. 21,006. Machine for Waxing Paper.
(*Machine à Encrer le Papier.*)

Allan H. Dingman, Toronto, Ont., 30th January, 1885; 5 years.

Claim.—1st. The combination of the cylinders A, C and D, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the cylinders A, C and D, with the tank B, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the cylinders C and D, with the cloth covers T and U, substantially as and for the purpose hereinbefore set forth. 4th. The combination of the carrier L and separator N, with the cylinders A, C and D, substantially as and for the purpose hereinbefore set forth. 5th. The combination of the metal pipe F, with the cylinder C, substantially as and for the purpose set forth.

No. 21,007. Steam Boiler Heater Attachment. (*Appareil Réchauffeur pour Chaudières à Vapeur.*)

Charles G. Hunt, (Assignee of Henry M. Young,) Minneapolis, Min., U. S., 30th January, 1885; 5 years.

Claim.—1st. A steam boiler, a coil of pipe communicating with said boiler both above and below the water level, a tank or reservoir containing gasoline or similar fluid, and one or more burners arranged beneath or within said coil and connected to said tank, as and for the purpose set forth. 2nd. A steam-boiler, a coil of pipe communicating with said boiler, both above and below the water-level, a tank or reservoir containing gasoline or similar fluid, and two or more burners arranged, as shown, beneath or within said coil and connected to said tank, whereby the heat generated by one of said burners will keep the remaining burners in condition to at once ignite when supplied with gasoline, as and for the purpose set forth. 3rd. The combination of the coil B communicating by its ends with a steam-boiler, both above and below the water-level, two-way cocks E, E₂, inserted in the circuit of said coil, means, substantially as shown, for admitting a small quantity of water to said coil, and means for heating said coil, substantially as described. 4th. The combination, with a steam-boiler, of a coil B, two-way cocks E, E₂, a gasoline reservoir and two or more burners, arranged as shown, and supplied with gasoline from said tank, whereby the heat radiated from one of said burner will keep the remaining burners in condition to be lighted by supplying them with gasoline, substantially as and for the purpose herein specified. 5th. The combination, with a steam-boiler, a coil B, and burners for heating said coil, of outer and inner supplying tanks D₁, D₂, the outer tank being provided with a gas-tight cover D₃, stuffing-box *n*₁, and feed-pipe *e*₁, communicating with said burners, the inner tank being provided with a valve *n*₁ at its bottom, and a stuffing-box *n*₂ and a valve stem *n*₂, connected with the valve *n*₁, and passing through the stuffing-boxes *n*₁, *n*₂, and adapted to be raised and lowered, whereby the valve *n*₁ is opened and shut, substantially as set forth. 6th. The combination of the coil B, arranged as shown and described, a gasoline tank and one or more burners arranged as shown, and provided with auxiliary tubes *e*₁₁, substantially as described. 7th. The heating-coil B, communicating at both ends with the steam-boiler, and one or more burners arranged as shown, in combination with an inner jacket C₁, surrounding said coil and an outer jacket C₂ surrounding said inner jacket, whereby an air-space is provided between said jackets, substantially as and for the purpose herein specified.

No. 21,008. Nut and Bolt Lock.

(*Arrête-Ecrou.*)

Charles Van Duzen, New Albany, Ind., and William L. Breyfogel, Louisville, Ky., U. S., 30th January, 1885; 5 years.

Claim.—1st. A nut or bolt lock consisting of a piece-plate or ring of metal having a plurality of tongues, one or more of which is partly severed and turned from its body at an angle or incline to its plane, and edged or toothed and adapted by a blow or force to be driven into the substance of the bolt or rod, substantially as and for the purpose described. 2nd. In a nut or bolt lock, a plate or ring of metal adapted to be placed around a bolt or rod, and having a plurality of tongues, one or more of which is partly severed from its substance, projecting into its opening for the bolt or rod and turned out from the body of the plate or ring at an angle or incline to its plane, and adapted to be forced home into the substance of the rod or bolt, substantially as and for the purpose described. 3rd. The combination of the ring-plate or piece of metal having the bolt or rod opening the plurality of tongues, one or more of which is partly severed therefrom and turned out from and at angle or incline to its body to engage a bolt or rod, and the partly severed edge pieces arranged to be turned down upon the sides of a nut to lock said nut after it has been run down from the plate in tightening up a loose fastening or joint, substantially as shown and described. 4th. The combination, with the plate *a*, having a bolt-hole *b*, of tongue *e*₁, projecting into the said hole and the tongue or lever-member *c*, the said tongue or lever-member being arranged in the line of diagonal corners of the plate, substantially as shown and described.

No. 21,009. Apparatus for Delivering Pre-paid Goods. (*Appareil de Livraison des Marchandises Payées d'avance.*)

John G. Sandeman and Percival Everitt, London, Eng., 30th January, 1885; 5 years.

Claim.—The arrangement of the apparatus above described, whereby the deposit in the case containing the articles to be purchased of the proper money for effecting such purchase will unlock a delivery slide, and will discharge the money into a receptacle on the drawing out of the slide.

No. 21,010. Polishing Machine.

(*Machine à Polir.*)

Jean Pierron, Elizabethport, N. J., U. S., 30th January, 1885; 5 years.

Claim.—1st. In a polishing machine, the combination, with the plate L, having a standard I, and a central aperture, of the shaft M, journaled in arms of the standards I, the abrading disk N, mounted on the lower end of the shaft M, and adapted to revolve in the aperture of the plate L, the spring O, and of means for revolving the shaft M, substantially as herein shown and described. 2nd. In a polishing machine, the combination, with the plate L, having a standard I, of the shaft M, journaled in arms of the standard I, the abrading disk N, mounted on the lower end of shaft M, and adapted to revolve in an aperture of the plate L, the spring O, the handle R, and means for revolving the shaft M, substantially as herein shown and described. 3rd. In a polishing machine, the combination, with the plate L, provided with a standard I, of a laterally swing-rod F, to which the standard I is pivoted; the shaft M, the disk N, and of means for revolving the shaft M, substantially as herein shown and described. 4th. The combination, in a polishing machine, of the attaching arms supporting two guide rods upon which moves the adjusting bracket with the frame A, and drum H, mounted upon one of the guide arms, above the adjusting bracket, and a screw-rod for reciprocating said adjusting bracket, substantially as set forth.

No. 21,011. Rotary Engine. (*Machine Rotatoire.*)

John Harrington, Caldwell, Ks., U.S., 31st January, 1885; 5 years.

Claim.—1st. The combination, in a rotary engine, of the revolving pistons and an abutment, with a passage for conveying expanded steam from a point in the piston-space at one side of the abutment to the clearance space at the opposite side of the abutment, at a moment prior to the admission of live steam from the boiler, substantially as described. 2nd. The combination, in a rotary engine, of the revolving piston-disk carrying the pistons, with the annular steam-space provided for the pistons, and a passage, substantially as described, for admitting expanded steam from one side of said abutment into the clearance at the opposite side of the abutment, prior to the admission of live steam from the boiler, substantially as and for the purpose described. 3rd. The combination, substantially as described, in a rotary engine, of the revolving piston-disk having side pistons with the revolving abutment-disk and the expansion port opening at its ends into the annular space for the pistons at points located at opposite sides of the abutment which is formed of the abutment-disk, substantially as and for the purpose described. 4th. The combination, substantially as described, in a rotary engine, of the revolving pistons travelling in an annular steam-space, with an abutment and ports connecting the space-space at opposite sides of the abutment, and having their inlet ends located in the path of the pistons, whereby after the latter passes said ends of the ports, the expanded steam back of the pistons shall enter the ports and pass to the other side of the abutment after the pistons have passed the abutment, substantially as described. 5th. In a rotary engine, the pistons fitted and arranged to work in an annular steam-space formed by four fixed annular walls, of which two are in planes concentric with the axis about which the pistons revolve, and the other two in planes at right angles to the said axis, whereby the expansive force of the steam within said steam-space shall not exert a side pressure, either directly or indirectly against the rotary shaft with which the pistons revolve, substantially as described. 6th. In a rotary engine, the revolving disk having its rim portion dividing the annular steam-space formed by four annular stationary walls, substantially as described, and provided with side pistons which transversely fill the portion of the divided annular steam-space at opposite sides of the piston-disk, for the purpose specified. 7th. In a rotary engine, a rotary disk provided with side pistons, and having an annular peripheral portion enclosed in an annular steam space which is in cross-section entirely filled by the piston and the disk at the points where the pistons occur in the disk, said parts being arranged so that the expansive force of the steam in the annular steam space shall be incapable of exerting a pressure in the periphery of the disk, substantially as described. 8th. In a rotary engine, the combination, with a pair of fixed hubs located centrally within the piston cylinder and having their faces concentric with the interior thereof, of the piston disk revolving between the inner opposing ends of the hubs and extending beyond the circumference of the hubs to the inner wall of the surrounding annular casing, and provided with side-pistons which work in the space between said hubs and the inner side of the piston-cylinder, substantially as described. 9th. The combination, in a rotary engine having duplex segmental cylinders substantially as described, of the rotary abutment-disk having a piston-pocket in its periphery, with a rotary piston-disk intersecting the abutment-disk, and provided with side-pistons which work in an annular steam space formed in one of the segment-cylinders and centrally divided by the said disk, substantially as and for the purpose set forth. 10th. The combination of the duplex segmental cylinder with the revolving piston disk provided with side pistons, a revolving abutment-disk adapted to constitute an abutment, substantially as described, and the hubs D₃ located within one of the cylinders, for the purpose set forth, and provided in their faces with concavities into which the rim portion of the abutment-disk extends, substantially as described. 11th. The combination, substantially as described, in a rotary engine, of the revolving piston disk carrying the pistons, with a revolving abutment-disk having a peripheral annular groove on which the rim portion of the piston-disk is secured, and a piston pocket formed in its perimeter to allow the pistons to pass said abutment, substantially as and for the purpose described. 12th. The combination, in a rotary engine, of the revolving abutment-disk, with a steam space located at a fixed point between said disk, and a bearing which is in turn arranged between said disk and the revolving shaft on which the disk is secured, and means for admitting steam into said space to counter-balance steam pressure against the face of the disk, substantially as described. 13th. In a rotary engine, the revolving abutment-disk, in combination with the stationary hubs received in recesses formed in the disk between the shaft on which the disk is secured and the face of the disk, the steam spaces formed in the faces of the hubs and passages connecting those steam spaces with the annular steam space at or near the point where the live steam is admitted into the latter, substantially as described. 14th. In a rotary engine, the revolving

abutment-disk having in its periphery a piston pocket, and provided with an internal steam space communicating with the pocket and located between a stationary hub through which the disk shaft passes, and an inner face portion of the disk working upon said hub, whereby pressure in the pocket shall be counterbalanced by pressure in the internal space in the disk, substantially as described. 15th. In a rotary engine, the revolving abutment-disk provided with a piston pocket in its periphery and mechanically balanced by grooves cut in its sides, substantially as described. 16th. The combination, in a rotary engine, of the duplex segment cylinder, with the revolving abutment-disk, the revolving piston-disk provided with side pistons and with steam grooves in its sides, the eduction-ports arranged to intersect said steam grooves and ports adapted to connect said grooves with the annular piston space, substantially as described. 17th. In a rotary engine, in which the piston-disk is provided with side pistons working in an annular steam space, a steam cavity formed in the bottom wall of the steam space at a point opposite the clearance space and arranged to communicate with the latter when the pistons are passing said cavity in order to resist pressure against the outer sides of the pistons, substantially as described.

No. 21,012. Vehicle Spring. (*Ressort de Voiture.*)

Richard Mulholland, Dunkirk, N. Y., U. S., 31st January, 1885; 5 years.

Claim.—1st. The combination, with the body, the axle or end bar of a vehicle and torsion spring or springs, of the boxes J₂ having square or equivalent formed seat J₁ and circular bearings J₁ over which are placed caps J₂, substantially as and for the purpose specified. 2nd. The combination, with the body of a vehicle and the axle end bar or leaf spring, of torsion springs having their inner ends crapped and flattened, and attached to the framing of the body by bolts and staples or clip bolts, as shown and described in Fig. 1. 3rd. The combination, with the body of a vehicle and the axle end bar or leaf spring, of a continuous or double torsion spring secured to the body by a central box, clips J₁ having a square seat J₁, the journal ends secured and held by journal boxes J near the sides of the vehicle. 4th. A coupling or shackle C consisting of two hollow cylinders c, c' crossing one above the other at right angles and forged or otherwise formed in one piece c', being formed solid to be inserted between the eye plates e of the leaf spring, the other being cut out and formed into lateral eye plates e' to receive the torsion spring head H. 5th. The combination of the shackle D, then torsion spring end H formed into a head having eye suitably bushed, inserted between the eye plates e, and secured by a pivot or bolt c₂, also the leaf spring end formed into eye plates e, and connected to the part c₁ by a similar bolt c₃. 6th. In a vehicle, the combination of body B, with double and single torsion springs coupled to an elliptical leaf spring E, by means of the shackles C, substantially as described and for the purpose set forth.

No. 21,013. Horse Collar. (*Collier de Cheval.*)

Ambrose B. Coleman, Castleton, Ont., 31st January, 1885; 5 years.

Claim.—As a new article of manufacture, a horse collar wholly made of felt or fibrous pulp, and so compressed or moulded in a moulding or fashioning apparatus as to form a solid, yet flexible horse collar, substantially as and for the purpose set forth.

No. 21,014. Fence. (*Clôture.*)

Lewis Barnes, Somerville, N. J., U. S., 31st January, 1885; 5 years.

Claim 1st.—A fence consisting of posts A, with openings a communicating with narrow slots γ , and bars consisting of strips with terminal lips arranged to overlap at the ends and to bear with their lips against the opposite faces of the posts, substantially as set forth. 2nd. A fence in which the posts are tied together by bars provided with terminal lips, and with overlapping ends within openings in the posts substantially as specified. 3rd. A fence consisting of cast metal posts having openings a, and slots γ , and metal strips bent at the ends to form lips, and arranged in respect to the posts substantially as specified.

No. 21,015. Self-Binding Harvester.

(*Moissonneuse-Lieuse.*)

John C. McLachlan, London, Ont., 31st January, 1885; 5 years.

Claim 1st.—In a self-binding harvester, the raising and lowering of the grain table by a chain F passing around the corner of the grain table A, in combination with a lever B, in easy access of the driver's seat, substantially as shown and described. 2nd. A self-binding harvester in which the grain table A is raised and lowered by a chain F passing around the corner thereof, and operated by a lever B in easy access of the driver's seat, the lever B being set back from the back board of the grain table A, so that the lever will not interfere with the grain when being carried to the elevators, substantially as described. 3rd. A self-binding harvesters in which the grain table A is raised and lowered by a chain F passing around the corner thereof, and operated by a lever in easy access of the driver's seat, and pivoted on the frame of the grain table, in combination with a toothed segment d₁, for the purpose of retaining the lever and grain table at any position to which they may be adjusted, substantially as set forth.

No. 21,016. Wood Sawing Machine.

(*Machine à Scier le Bois.*)

Ephrem Ostigny and Henry Dubuc, Adamsville, Que., 31st January, 1885; 5 years.

Claim 1st.—In a wood-sawing machine, the combination, of the sills A, cross-girts B, posts C and rails D, with the standards J, rod a, arm b, and guides c, substantially as and for the purpose set forth. 2nd. In a wood-sawing machine, the combination of the spur wheel G, pinion H, countershaft I having the crank d, the connecting rod

K and the arm *b* suspended from the rod *a*, supported by the standards *J*, substantially as shown and specified. 3rd. In a wood-sawing machine, the combination of the lever *L*, standard *g*, link *h*, arms *M* and roller *N*, with the swinging arm *b*, guide-pieces *c*, stock *e* and saw *f*, substantially as and for the purpose hereinbefore set forth.

No. 21,017. Device for Stretching Bolting Cloths. (*Appareil pour Tendre l'Elamine.*)

George T. Smith, Jackson, Mich., U. S., 31st January, 1885; 5 years.

Claim 1st.—In a flour bolt, the combination, with the reel frame, of a bolt cloth surrounding the axis of the reel and having one end turned over the outer face of the reel head and extending inward toward the center of the reel, and means outside of the reel-head for supporting the bolt cloth while under tension, substantially as set forth. 2nd. In a flour bolt, the combination, with the reel frame, of a bolt cloth surrounding the axis of the reel, and having one end turned over the outer face of the reel-head, and extending inward toward the center of the reel and a flexible tightener adapted to draw the turned over end of the cloth towards the center of the reel, substantially as set forth. 3rd. In a flour bolt, the combination, with the reel frame, of a bolt cloth surrounding the axis of the reel, and having one end turned over the outer face of the reel-head, and extending inward towards the center of the reel, a flexible tightener arranged on the outer face of reel-head and means for attaching the tightener to the reel, substantially as set forth. 4th. In a flour bolt, the combination, with the reel frame, of a bolt cloth having one end turned over the reel-head at one end of the reel, a flexible tightener arranged on the outer face of the reel-head, and means permanently attached to the reel for increasing the tension of the tightener, substantially as set forth. 5th. In a flour bolt, the combination, with the reel frame, of a bolt cloth turned over the outer face of the reel head towards the center of the reel, a flexible cloth tightener having its end crossed and a guide arranged at the crossing point of the tightener, substantially as set forth. 6th. In a flour bolt, the combination of the reel frame, a bolting cloth surrounding the reel frame and having one end turned over the outer face of the reel head towards the center of the reel, a flexible tightener having its ends crossed and an adjustable guide arranged at the crossing point of the tightener, substantially as set forth. 7th. In a flour bolt, the combination of a many-sided reel provided at one end with a many-sided periphery rim, the angles of which coincide with the angles of the reel, a bolt cloth which surrounds the reel and has one end turned over the many-sided rim towards the center of the reel, a flexible tightener and a series of guide rolls arranged near the angles of the rim, substantially as set forth. 8th. A many-sided flour bolt, in combination with a bolt cloth surrounding the axis and turned over the outer face of the reel, and a tightener arranged upon lines parallel with the bounding line of the periphery of the reel head and mechanism for moving the lines of the tightener towards the center of the reel, substantially as set forth. 9th. In a flour bolt, the combination of a central shaft, a series of spokes radiating from the shaft, longitudinal bars supported at the ends of the spokes, a flat reel head attached to the upper faces of the spokes at one end of the reel, and provided with a circular opening to receive the feed spout, a bolt cloth supported upon the bars and constituting a many-sided bolting surface and having one end turned over the outer face of the reel-head towards the center of the reel, and a flexible tightener adapted to draw the end of the bolt cloth towards the reel shaft, substantially as set forth. 10th. In a flour bolt, a bolting frame and a bolting cloth which extends longitudinally of the reel and is at one end turned inward over the outer face of the reel head towards its axis, and is provided with a series of apertures or eyelet holes, in combination with a flexible tightener inserted in the eyelet holes, substantially as set forth. 11th. In a flour bolt, a bolting frame, and a bolting cloth which extends longitudinally of the reel, and is at its outer ends turned inward over the outer face of the reel head towards its axis, in combination with a flexible tightener and a series of cloth clasps connecting the tightener with the bolt cloth, substantially as set forth. 12th. The combination of the bolt cloth of a circular tightener and a series of clasps, each adapted at one end to be attached to the cloth and at the opposite end to receive said tightener, substantially as set forth. 13th. In a flour bolt, the combination, with a reel head having an outwardly projecting peripheral rib or flange *a*, of a bolt cloth extending longitudinally of the reel and having its end turned over the flange *a*, and extending inward toward the axis of the reel, and tightening devices adapted to draw the end of the cloth towards the center of the reel, substantially as set forth. 14th. The combination of a bolting reel frame, a tubular bolting cloth secured thereto at one end and turned over the frame toward the axis of the reel at its opposite end, and a contractible ring attached to the turned over end of the cloth, and adapted to determine the tension of the cloth, substantially as set forth. 15th. In a flour bolt, the combination, with the reel heads, of the longitudinal bars, nuts applied to the ends of the bars outside of the reel head, a flange, a projecting outwardly from the reel head, a bolt cloth extending longitudinally of the reel and turned over the outer face of the flange *a* towards the center of the reel, and devices for attaching the end of the reel cloth to the head of the reel inside of the flange *a*, substantially as set forth.

No. 21,018. Luminous Sign.

(*Enseigne Lumineuse*)

William J. Stanley, Edward H. Stanley, Gilbert Stanley and Robert Stanley, Quebec, Que., 31st January, 1885; 5 years.

Claim.—A sign consisting of a glass plate having on it opaque sign characters, in combination with a coating of luminous paint covering the space not occupied by the characters and a protecting backing covering said luminous paint, as set forth.

No. 21,019. Watch Case. (*Boîte de Montre.*)

Robert J. Quigley, (Assignee of Edward F. Hifferman,) Toronto, Ont., 31st January, 1885; 5 years.

Claim.—1st. A watch-case in which the centre or movement ring, is slightly smaller in diameter than the back or bezel to which it is

hinged, the said back and bezel being arranged when shut to entirely enclose the centre or ring, substantially as and for the purpose specified. 2nd. A watch-centre, or moving-ring *A*, having grooves *a* and *b*, made around its outer circumference to form snaps for the back and bezel, substantially as and for the purpose specified. 3rd. A back or bezel having the snap edge *c*, formed on its inner circumference, a short distance from its edge, substantially as and for the purpose specified. 4th. A watch-case in which the centre or ring *A*, has two grooves formed around its circumference and is slightly smaller in diameter than the inner diameter of the bezel and back to which it is hinged, in combination with the snap edges *c*, formed on the inside of the back and bezel a short distance from their edge, so that when the back and bezel are snapped over the lips formed by the grooves *a* and *b*, their edge shall come close together to form a single seam, substantially as and for the purpose specified.

No. 21,020. Hay Carrier Machine.

(*Machine de Porte-Foin.*)

Thomas Hall, Augusta, (Co-inventor with James Robinson, Augusta, and Mathew Beane, Prescott.) Ont., 31st January, 1885; 5 years.

Claim.—1st. The reversing mechanism consisting of divided carrier, the upper and lower divisions of which are revolvingly pivoted to each other, and locked at every revolution, substantially as and for the purpose hereinbefore set forth. 2nd. In a hay carrier, the stationary upper part *C* on which *P* swivels, and provided with a locking mortise in ends and at each alternate sides and at the end, the lugs *C*, holder roller wheels *B*, substantially as and for the purpose hereinbefore set forth. 3rd. The combination, with a hay-carrier, of the turn-table *S*, the lock *K*, and link *K*, the split form of *P*, and groove *st*, as in Fig. 4, to fit around turn-table *S*, substantially as and for the purpose hereinbefore set forth. 4th. The combination, with a hay-carrier, of forked holder *J*, rope-holder *F*, releasing-catch *E*, and striker *G*, substantially as and for the purpose hereinbefore set forth. 5th. The combination, with hay-carrier, of stop-block *D*, frame *Z* and hoisting-lever *G*, substantially as and for the purpose hereinbefore set forth.

No. 21,021. Nut Lock. (*Arrête-Ecrou.*)

Charles C. Pennock, Omer Pennock and S. Olin Johnson, Detroit, Mich., U. S., 31st January, 1885; 5 years.

Claim.—1st. A nut lock consisting of an annular piece of spring metal bent into a concavo-convex form, substantially as shown and described, for producing on the same face opposite parts higher than parts opposite each other on that face and in a line at right angles to the said higher parts, and each face having an upward curve from side to side and also a downward curve rectangularly across the upward curve, substantially as and for the purposes specified. 2nd. A nut lock consisting of an annular piece of spring metal curved up and arched from side to side, and having thereon on one or both faces thereof, one or more incline burrs, substantially as and for the purposes specified.

No. 21,022. Sap Spout. (*Bec de Sucrierie.*)

Arlington F. Farman, Sutton, Que., 31st January, 1885; 5 years.

Claim.—The combination of the shield or guard *C*, with its projecting bucket, cover fastener *D*, either loose or solid, and the retaining collar *B*, with a tubular sap-spout, substantially as and for the purposes hereinbefore set forth.

No. 21,023. Burglar Trap. (*Chasse-Trappe*)

George Grebe, DeWitt, Neb., U. S., 31st January, 1885; 5 years.

Claim.—1st. The combination, with the door *b*, having the spikes, of the bar secure thereto, its free end moving in guide *L*, a coiled spring located on said bar, a ratchet-bar *e* and a forked detent engaging the same, a spring secured to the door and bearing on the detent and a fulcrum beneath said detent, the rod *C* for holding the door in an open position, and lever *h*, resting against a projection thereon, and wires extending from said rod, whereby the door may be operated, substantially as set forth and described. 2nd. The combination, with the door *b*, the bar secured thereto, its free end moving guide *L*, and a coiled spring located on said bar, of the rod *C*, formed with a projection at or near its lower end, the pivoted lever *h*, bearing on said projection spring *k* whose free end passed through an opening in said rod, bell cranks *l* and *rt*, and foot-treadle *D*, all arranged to operate substantially as set forth and described.

No. 21,024. Construction of Buildings.

(*Construction des Bâtiments.*)

Richard S. Pearsall, Sea Cliff, N. Y., U. S., 31st January, 1885; 5 years.

Claim.—1st. The walls *A*, composed of the timbers *a*, *a1*, *a2*, *a3*, of greater width than thickness and set on end close together and edgewise in the wall, so that the width of the timbers constitute the thickness of the wall, substantially as described. 2nd. The timbers *a*, *a1*, mortised to receive the floor timbers, in combination with said floor timbers, the same being placed edgewise in the mortises and close together, substantially as described. 3rd. The vertical timbers *a*, *a1*, having the horizontal timbers *g*, *g1*, mortised into them, in combination with the tie-rod *E*, arranged substantially as described. 4th. The vertical timbers *a*, *a2*, combined with the vertical timbers *a2*, *a3*, forming the walls of a building, the timbers *a*, *a2*, being set out from the timbers *a1*, *a2*, substantially as and for the purposes set forth. 5th. The combination, with the vertical timbers *a*, *a1*, *a2*, *a3*, of the piece *J*, of different width, built in at the corners of the building, substantially as and for the purposes set forth.

No. 21,025. Reversible Sad Iron.

(*Fer à Repasser Reversible*)

John A. Yarger, New Hampton, Iowa, U. S., 31st January, 1885; 5 years.

Claim.—1st. The combination, with a swinging sad iron having two oppositely placed fluting surfaces, and two oppositely placed polish-surfaces, of a bail or handle in which such iron is journaled, the square locking-block inserted within corresponding openings in the end of the iron, and means substantially as described, for withdrawing such blocks to permit the iron to be rotated. 2nd. The combination, with the handle B, and the sad iron A, journaled therein, and having the square hole at one end of the removable locking block 20, the lever 22, the pivoted latch 14, and the spring 13, all substantially as described.

No. 21,026. Plough Share. (*Soc de Charrue.*)

Alonso Kriner, Arva, Ont., 31st January, 1885; 5 years.

Claim.—The above-described slip-share consisting of the cast steel plate A, having flanged or returned face c, and slip D, to attach the same to the ordinary share of a plough, and in combination therewith, substantially as shown and specified.

No. 21,027. Window Shade. (*Jalousie.*)

Elliott Metcalf, St. Catharines, Ont., 31st January, 1885; 5 years.

Claim.—1st. In a window shade composed of horizontal slots A connected by tapes B, B', the top slat A', provided at the ends with boxes D, having projecting pins or gudgeons to suspend the shade in journal bearings at the side of the window frame, whereby the upper slat A', rocks to cant the others, as set forth. 2nd. The combination, with a window frame L, having journal bearings F, G, of the rocking slat A', cords M, M, eye K, and pulleys C, C, whereby the lower slats may be canted simultaneously and lifted compactly, as set forth.

No. 21,028. Pump. (*Pompe.*)

Joseph A. Wade and John Cherry, Hornsea, Eng., 31st January 1885; 5 years.

Claim.—The combination of a suitably driven screw, or screws C, and blades or beaters E, revolving respectively in a screw chamber B, and a water space, or channel F, fitted between the suction pipe, and the delivery pipe in pumps, substantially as and for the purpose described.

No. 21,029. Bridle Bit. (*Mors de Bride.*)

Clarence A. Chandler, East Bridgewater, and Francois E. Galloupe Boston, Mass., U.S., 31st January, 1885; 5 years.

Claim.—1st. In combination with the bit c, having extensions or cheek-pieces e, of the levers d, provided with springs g, secured thereto, and such springs secured to the said extensions, or cheek-pieces e, substantially as described. 2nd. In combination with the bit c, having forked extension, or cheek-pieces e, of the levers d, provided with coil springs g, which are secured to the levers d, and such springs secured in the fork cheek-pieces e, by a rivet, or rivets H, substantially as described.

No. 21,030. Grain and Flour Elevator.

(*Élévateur pour les Grains et la Farine.*)

Richard H. Everett, Vestal Centre, N.Y., U.S., 31st January, 1884; 5 years.

Claim.—1st. The combination, with the metal casing and flint-glass elevator-legs, of the wire cable provided with flint-glass buckets, and mechanism, substantially as described, for operating the buckets, as set forth. 2nd. The combination, with the metal feed-bin and the metal receiving-bin connected by the metal-pipe front and back elevator-legs, of the metal hub provided with flat radial arms having grooves in their outer ends on a shaft having bearings in the side walls of the feed-bin, the chute-wheel in the receiving-bin and the endless cable provided with flint-glass buckets, substantially as specified. 3rd. The combination, with the receiving-bin of an elevator, of the wheel L, on a shaft journaled in bearings in the side walls of said bin, said wheel L, being composed of two circular heads connected by inclined partitions, as described, forming open ended chutes therein, the endless cable provided with flint-glass buckets and mechanism, substantially as described, for operating said wheel cable and buckets, as set forth. 4th. The combination, with the feed-bin, having a central feed-chute connected therewith and an armed wheel having grooves in the ends of its arm in said feed-bin, the receiving-bin having a central discharge-hopper and a wheel having opened chutes between its heads in the receiving-bin, of the pipe-legs connecting said feed-bin and receiving-bin, and the endless cable resting in the grooved arms of the wheel in the feed-bin and the grooves in the outer ends of the partitions in the chute-wheel and the plate-glass buckets secured centrally to the endless cable, as set forth. 5th. The combination, with the metal feeding-bin and the metal receiving-bin, of the flint-glass tubing connecting said bins and forming the elevator-legs, substantially as specified.

No. 21,031. Fire-Escape. (*Sauveteur d'Incendie.*)

Jesse W. Corder, Grand Rapids, Mich., U.S., 31st January, 1885; 5 years.

Claim.—1st. The double truck with two sets of pulleys or travelers X, Y, X Y, fastened to the supports 2, which supports are so adjusted to the lower portion of the carriage P P, at 66, forming a pivot or swivel, that the truck may follow the track around the corner, substantially as described. 2nd. The combination of the brake M, jointed at O, passing round the friction-wheel 3, firmly secured by two spiral springs R, and tightened by nuts S on the head of the cam Q, in connection with lever K, and operated by the cable-wire C, which passes over idle-pulleys 8, and the flange N, on friction-wheel over which passes endless chain or cable, substantially as described. 3rd. The combination of the carriage by which cable D D, to which baskets A, A, are suspended passes over idle-pulleys F, F, with one or more turns round drum J, and gearings G, H, substantially as described. 4th. The self-dropping clutches 4 and 5, dropping on the

track E, in front and behind wheel X, substantially as described. 5th. The combination of the baskets A, A, suspended to cable D, D, passing over the idle-pulleys F, F, round the drum J, in connection with gearing G, H and I, and the friction-wheel 3, and N, and the brakes M, and the cam Q, and lever K, with spiral spring R, and nut S, and the hinge-joint O, all of which are pivoted to supports 22, with X, Y, X, Y, and connected by bar L, at the top, substantially as described.

No. 21,032. Dredging Machine.

(*Machine à Draguer.*)

Henry C. Carter, Fairfield, N.C., U.S., 31st January, 1885; 5 years.

Claim.—1st. In a dredging machine, the mast D, in combination with the sliding block O, and the dipper handle A, pivoted to said block, said block being secured to the mast by means of the strip D, whereby said block and strip and the rear end of the dipper handle may be raised and lowered, substantially as described and for the purposes set forth. 2nd. In a dredging machine, the mast D, provided with the top and bottom pulleys G₁ and H₁, in combination with the windlass G, chains g, and H, and the block C, having the guide strip D₁, whereby said block may be elevated and lowered to suit the convenience of the operator, substantially as described and for the purposes specified. 3rd. The mast D, mounted on the rotary table E, said mast being provided with the top pulley g₁, and bottom pulley H, in combination with the windlass G, having chains g and H, the block C, and guide strip D₁, said block having the rear end of the dipper handle pivoted therein, as set forth. 4th. In a dredging machine, the rotary table E, provided with the circumferential groove E₁, mast D, and windlass G, said mast being provided with top and bottom pulleys, the chains g, and H, secured to the windlass G, and the sliding block C, in combination with windlass I, and the chain I₁, said chain being secured to the table E₁, whereby said table and its mast and the block may be rotated, as set forth. 5th. In a dredging machine, the mast and windlass G, said mast mast having top and bottom pulleys, as specified, and the chains g, and H, the block C, and guide strip D₁, in combination with the dipper B, handle A, pivoted in the block C, and the chain K, suitably secured to the dipper, said chain passing over suitable pulleys and the windlass O, substantially as described and for the purposes set forth.

No. 21,033. Thill Coupling.

(*Armon de Limonière.*)

George J. Frey, Nova, Ohio, U.S., 31st January, 1885; 15 years.

Claim.—The combination, with a thill A, of a covering or sheathing E, having its lower portion formed tubular and with a coupling eye, the covering being slitted, as at a', said slitted portions being secured together upon the thill, and the cross-bar B, having a covering f₁, provided with ears g, having openings for the passage of rivets for securing the same to the thill A, and a bracing-plate C, located at the angle of the bar B, and thill A, substantially as set forth.

No. 21,034. Machine for Flanging Boiler Heads. (*Machine à Faire les Rebords des Fonds de Chaudières à Vapeur.*)

John O'Brien and William P. Smythe, St. Louis, Mo., U. S., 31st January, 1885; 5 years.

Claim.—1st. In a machine for flanging boiler-heads, the combination of a frame, a vertical shaft having a flanging disk and adapted to be raised and lowered, a table on which the blank is supported, and the button by which the shaft is held down, as set forth. 2nd. In a machine for flanging boiler-heads, the button having an inclined under surface, in combination with a frame on which it is pivoted, a vertical shaft having a flanging disk, and a table, the button adapted to hold the shaft with its disk down on the table, as set forth. 3rd. In a machine for flanging boiler-heads, a shaft having a flanging disk made in sections to facilitate the removal of the boiler-head after it is formed thereon, as set forth. 4th. In a machine for flanging boiler-heads, the flanging disk composed of three sections, the main section being formed with lugs, and the other sections supported on the main section, and having openings through which the lugs are passed, the sections being secured together by keys passed through the lugs, as set forth. 5th. In a machine for flanging boiler-heads, the combination of the table shaft and disk, the shaft and disk being connected together and having friction balls placed between them, substantially as set forth. 6th. In a machine for flanging boiler-heads, the combination of the table shaft and disk being connected by a short shaft and key, and having friction balls placed between them, substantially as set forth. 7th. In a machine for flanging boiler-heads, the combination of a frame having the radial arms A₁ formed with perforations A₂ to receive pins A₃, and a table revolving independently of the arms, as set forth. 8th. In a machine for flanging boiler-heads, in combination with the revolving table and disk, the sliding heads, feed screws, blocks journaled in the heads, friction rollers journaled in the blocks, cog-segments secured to the blocks, worm wheels meshing into the segments, and shafts for operating the worm-wheels, all substantially as and for the purpose set forth.

No. 21,035. Railway Car Cover.

Richard H. Wyman, Evanston, Ill., U. S., 31st January, 1884; 5 years.

Claim.—1st. The combination, with a railway car, of a semi-cylindrical sectional cover, and means for moving said cover and wholly uncovering the car while loading and unloading, substantially as shown and described. 2nd. A railway coal car provided with a movable semi-cylindrical sectional cover, and means for wholly uncovering the car while loading and unloading, substantially as shown and described. 3rd. The combination, with a railway freight car, of the sections D, D, D₁, D₁, with suitable racks, pinions and shafts for operating the same, whereby the car may be wholly uncovered while loading, substantially as described. 4th. The combination, with a

railway freight car, of the movable sections D, D, D1, D1, and suitable means for operating the same, of one or more arch-bars or supports for sustaining said cover while closed, substantially as and for the purposes specified. 5th. The combination, with a movable railway car-cover, of a guard upon one or both sides of the running-board, substantially as described. 6th. The combination, with a movable railway car-cover, of a folding or detachable guard adjacent to the running board, substantially as and for the purposes specified. 7th. The combination, with a movable railway car-cover, of a folding guard adjacent to the running-board, and means for temporarily bracing and securing the same in an upright position when in use, substantially as described. 8th. In combination with a movable coal car-cover, the lateral folding guard K with suitable braces and brackets upon the frame of the car, whereby said guard may serve to protect said cover from injury while open, substantially as described. 9th. The combination, with a movable railway car cover, of a folding guard-rail made in two or more sections supported upon posts pivoted or hinged at the side of the runway, and means for locking and bracing said posts, whereby the same may be supported in an upright position, or the rails moved longitudinally towards each other and folded flatly upon said car, substantially as described.

No. 21,036. Binding Attachment for Sewing Machines. (*Machine à Coudre la Bordure.*)

Robert Hilgner and George B. Laurason, New Orleans, La., U. S., 31st January, 1885; 5 years.

Claim.—1st. The plate A adapted to be attached to a sewing machine, substantially as described, in combination, with the plate B secured at its outer end to plate A, springing its inner end thereon, each plate being folded back nearly upon itself at one edge, each of said folded portions being twisted from a horizontal position at its inner end, to a vertical position at its outer end, the original outer edges of the two folded portions being contiguous when folded and twisted, as described, forming a passage whose inlet is a vertical plane and whose outlet is two parallel horizontal planes joined at one edge, as and for the purpose specified. 2nd. The plate B folded and twisted, as described, in combination with the plate A folded and twisted, as described, and having the point *a* lying across the line of the opening between the adjacent edges of said plates. 3rd. The combination, with the plate A having the notches *p* therein, of the guide *q* having an elastic body attached to said plate, adapted to spring into the aforesaid notches, as shown and described. 4th. The plate A having the notches *p* and ribs *r*, in combination with the guide *q* having the hook *q* adapted to hook loosely over the rib *r*, as shown and described. 5th. The plate A having a hole *f* in it, and the plate B having the inclined-edged projection *f*, adapted to pass through said hole *f*, in combination with the slide *G* provided with a plate *f*, adapted to slide between plate A and projection *f*, to raise the plate B, as shown and described. 6th. The combination, with the plate A having two slots in it, of the slide *G* having two studs *g*, *g*, and the spring *h* held by said studs impinging upon one side of plate A, to hold slide *G* in frictional contact with the other side, as described. 7th. The folded and twisted plate A having the extension *c*, in combination with the folded and twisted plate B having the extension *c* adjacent to each other, as shown and described. 8th. The combination, with the spring arm *l* having the flexible arm *k*, each provided with guiding edges in line with the other of the guide *l* having the flexible arm *k*, each provided with grinding-edges in line with the other, substantially as described. 9th. The flexible arm *k* having the projecting lip *k* and a hole *k*, for the machine needle to enter, and shaped to be secured to a sewing machine beneath the presser-foot, in combination with means for feeding work thereto, substantially as shown and described. 10th. The folded and twisted plate A, having the diagonal serrations *s* at its delivery end, in combination with the folded and twisted plate B having similar serrations *s* adjacent thereto, as shown and described. 11th. The folded and twisted plate A having the diagonal bar *m* secured on its upper face, in combination with the folded and twisted plate B having the bar *m* secured on its lower face adjacent to and practically parallel with said bar *m*, as shown and described. 12th. The plate *l* having holes *i* and an increased thickness or case *i*, in combination with the folded braid channels A and B, and the underneath adjustable guide *k*, as and for the purpose described. 13th. The folded braid channel sections A and B having a ridge or projection *e* between them, at the point where they are fastened together for a hinging action. 14th. The plate *l* having flanges *d* and *d*, in combination with the guide *k* having an opening through it, receiving flange *d* and the braid folding devices, substantially as shown and described. 15th. The braid guide *k* having a lug *k* in advance of the needle, and turned upwardly and inwardly to receive and clamp the presser foot of the machine, as described. 16th. The combination, with the braid folders A and B and the plate *l* of the guide plates *l* and *l*, connected adjustably together by slot *z* and screw *z*, and a set screw *l* for connecting both to the frame *l*, as described. 17th. The combination, with frame plate *l*, the braid folders A and B and the guide *l*, of the set screw *l*, for adapting the strength of the spring to the thickness of the material. 18th. The combination of the frame plate *l* having upturned flange *o*, the guides *k*, *l* and *k*, *l*, having handles *o* and *o* and the braid folding devices, as and for the purpose described. 19th. The frame plate *l* having index lug *l*, in combination with the gauge *l* having graduations *m*, and the braid holding devices, as described.

No. 21,037. Railway Cattle Guard.

(*Ponceau Armé pour Chemins de fer.*)

John T. Gilbert, Bloomington, Ill., U. S., 31st January, 1885; 5 years.

Claim.—1st. In a railway cattle guard, a picket of elastic or spring material secured firmly at its base and having its upper end free, substantially as and for the purpose set forth. 2nd. In a railway cattle guard, a picket of spring or elastic material formed or provided with barbs on its edges, substantially as and for the purpose set forth. 3rd. In a railway cattle guard, a series of short spring pickets secured firmly to a rigid base and having their upper ends free, substantially as and for the purpose set forth. 4th. In a railway cattle guard, a series of spring or elastic pickets, in combination

with a pair of supporting rods passed through their lower ends, and provided with short pipe sections to hold the pockets in position, substantially as and for the purpose set forth.

No. 21,038. Manufacture of Cordage and Machinery Therefor. (*Fabrication du Cordage et Machine pour cet Objet.*)

John Good, Brooklyn, N. Y., U. S., 31st January, 1885; 5 years.

Claim.—1st. The improvement in the manufacture of twine or material for the strands of rope, consisting in twisting together a number of separate slivers without previous separate spinning, substantially as herein described. 2nd. The improvement in the manufacture of rope or cord, consisting in, first, twisting together a number of unspun slivers to form strands, and afterwards laying a number of such strands together spirally, to form the rope or cord, substantially as herein described. 3rd. The strand material or twine, herein described, composed of several separate slivers or collections of fibres twisted separately in the same direction in which they are twisted together. 4th. A rope or cord composed, as herein described, of a number of spirally laid strands, each of which is formed of several slivers or collections of fibres twisted together, and each having a twist of its own in the same direction in which they are twisted together. 5th. The combination with a flyer, a forming tube and a guide plate, of a number of separate nippers or sliver-condensing devices attached to said guide plate, substantially as herein described.

No. 21,039. Electro-Mechanical Clock.

(*Horloge Electro Mecanique.*)

Chester H. Pond, Brooklyn, N. Y., U. S., 31st January, 1885; 5 years.

Claim.—1st. The combination, substantially as hereinbefore set forth, of a mechanical clock train, an electro-motor having continuous movement, an intermediate train and means, substantially such as described, for periodically setting said motor in operation and winding said mechanical clock. 2nd. The combination, substantially as hereinbefore set forth, of a mechanical clock mechanism, an electric motor having a rotating armature, and an intermediate train of wheels for causing the movements of said motor to wind the spring of said clock. 3rd. The combination, substantially as hereinbefore set forth, of a clock mechanism and an electric-motor having a rotating armature, for winding the spring or weight of said clock mechanism. 4th. The combination, substantially as hereinbefore set forth, of a clock mechanism, an electric-motor having continuous movement for periodically winding the same and means, substantially such as described, for preventing a retrograde movement of said motor. 5th. The combination, substantially as hereinbefore set forth, of a clock mechanism, a rotating electric-motor, means, substantially such as described, for periodically actuating said motor and causing it to wind the spring or weight of said clock mechanism, a synchronizing-magnet applied to said clock mechanism, and means, substantially such as described, for vitalizing said magnet from the same source of electricity as is employed for actuating said motor. 6th. The combination, substantially as hereinbefore set forth, of a clock mechanism, a main conductor, a rotating electric-motor, a synchronizing electro-magnet and circuit-controlling devices serving to normally complete the connections of said main conductor through said synchronizing magnet, but at predetermined periods, to connect the same with said motor. 7th. The combination, substantially as hereinbefore set forth, with a time train and a spring or weight for actuating the same, of a rotating electric-motor for winding the same, a circuit closing device for completing the connections of an electric circuit through said motor, at predetermined intervals, through the action of said time-train, and means for interrupting said circuit through the action of said motor. 8th. The combination, substantially as hereinbefore set forth, with a time train and a spring or weight for actuating the same, of an electric-motor for winding said spring or weight, and a circuit-controlling device for periodically completing and interrupting the connections of an electric circuit through said motor, which device consists of an arm loosely surrounding one of the arbors of said train, a pin moving with said arbor, which pin engages said arm, a lever against which said arm is caused to impinge at one point of its revolution and to thereby cause said circuit to be completed, and a pin moving with said winding device, which pin engages said arm and advances it from engagement with said lever into engagement with a second lever or arm, thereby causing said circuit to be interrupted. 9th. In an electric clock-winding device, the combination, substantially as hereinbefore set forth, of the arm R, the wheels C1 and G1, the pins *l* and *l* for engaging said arm, the pendant arm *r* and the circuit-closing arm *r*. 10th. In an electric winding device for clocks, the combination, substantially as hereinbefore set forth, of the motor E, the wheels C1 and O, arbor *c*, the arm R mounted loosely upon said arbor, means, substantially such as described, for advancing said arm first through the movement of the wheel C1 and, subsequently, through the movement of the wheel O1, and the circuit-controlling device, which is operated to close an electric circuit through said motor when said arm has been advanced by the wheel C1 and to interrupt the same when it is advanced by the wheel O1. 11th. The combination, substantially as hereinbefore set forth, in an electric device for winding clocks, of a motor, a circuit-controlling device, and means, substantially such as described, for causing said device to complete an electric circuit by the action of the clock, and to interrupt the same by the action of the winding device. 12th. The combination, substantially as hereinbefore set forth, of a time-train, a rotating electric motor for winding the same periodically, a battery for actuating said motor, a circuit-controlling device actuated by said time train, a synchronizing electro-magnet, a shunt circuit around said magnet, the connections of which are periodically completed by said circuit-controlling device, a circuit-controlling device for said motor, and means for operating the last-named device while said synchronizing magnet is shunted. 13th. The combination, substantially as hereinbefore set forth, of the time train, the synchronizing magnet, the electric-motor for winding said time train periodically, the circuit-controlling device for the same, and means, substantially such as described, for shunting said synchronizing magnet while said motor is actuated. 14th. The combination,

substantially as hereinbefore set forth, of a series of clocks, a battery, a conductor leading from said battery to said clocks, a motor in each of said clocks for winding the same, and means, substantially as described, for completing a circuit through all of said motors from said main line and causing said clocks to be successively wound by the action of the same. 15th. The combination, substantially as hereinbefore set forth, of a series of clocks, a motor in each of said clocks, said motors being arranged in multiple arc, a battery, a conductor leading from said battery to said clocks, and means for simultaneously placing said motors in connection with said battery at predetermined times. 16th. The combination, substantially as hereinbefore set forth, of a battery, a main conductor, a series of clocks, a motor in each of said clocks for winding the same, a synchronizing electro-magnet applied to each of said clocks and inclined in said conductor, and a shunt circuit around each of said magnets, the connections of which are automatically completed at predetermined times. 17th. The combination, substantially as hereinbefore set forth, of a source of electricity, a series of clocks, a rotating electric motor in each of said clocks for winding the same, and a conductor leading from said source to each of said motors.

No. 21,040. Frying Pan. (*Poêle à Frir.*)

Alfred Perkins, London, Eng., 31st January, 1885; 5 years.

Claim.—The covering of the ordinary open frying pan with the loose cover hinged as to be removable at pleasure, the hinged lip or tongue forming a stay or support to the cover when open, substantially as described.

No. 21,041. Cutter for Hoop Machines.

(*Outil de Machines à Cercles.*)

Walter T. Trott, Oil City, Ont., 31st January, 1885; 5 years.

Claim.—A cutter or cutting tool provided with a cutting edge A, and flanges B, B, said flanges B, B, being provided with end cutting edges C, C, and inside cutting edges D, D, said inner cutting edges D, D, being set up above, at about an angle of 45°, and the outer edges set down below the face of the body of the cutter A, substantially as shown and described and for the purpose specified.

No. 21,042. Galvanic and Combination Galvanic and Faradic Batteries.

(*Pile Galvanique et Pile Galvanique et Faradique Combinée.*)

Abner M. Rosebrugh, Toronto, Ont., 31st January, 1885; 5 years.

Claim.—1st. A galvanic battery composed of a case, a series of cells within the same, a set of removable hydrostat-plates carrying the elements and resting upon the tops of the cells, and a hinged lid or cover for closing in the case, having bearing-surfaces for pressing against the tops of the hydrostat-plates when closed, and forcing them into a sealed joint with the cells, as described. 2nd. A galvanic battery composed of alternating drip-cells and exciting-cells, a set of hydrostatic-plates made of width to cover two series of cells, and having the elements attached to the under side of the same near one edge, and a case made of greater length than all the hydrostat-plates, for permitting the lateral adjustment of the hydrostat-plates from the filled cells to the empty cells, or *vice versa*, without turning the plates, as described. 3rd. The combination, in a galvanic battery, of a case having a series of cells, a set of hydrostat-plates resting upon the tops of the cells, elastic supports beneath the cells and a hinged cover adapted to be closed down upon the hydrostat-plates, substantially as described. 4th. The combination, in a galvanic battery, of a case having alternating series of drip-cells and cells filled with exciting-fluid, a set of hydrostat-plates covering two sets of cells and having underneath a series of elements on one side, and on top a conductor G, and a post G, for utilizing a short connection between the elements of one plate and those of the next, as described.

No. 21,043. Bottle Stopper.

(*Bouchon de Bouteille.*)

Edwin L. Lloyd, Philadelphia, Penn., U.S., 31st January, 1885; 5 years.

Claim.—1st. The cork-holder having an eye *m*, elastic loop *n*, and laterally expansible link *p*, with fingers *s*, as set forth. 2nd. The cork-holder having an eye *m*, elastic loop *n*, link *p*, with finger *s*, bent so as to form a guard, as specified. 3rd. The combination of the cork retainer having a side eye *w*, with the cork-holder having an eye *m*, and a laterally expansible loop *p*, as specified. 4th. The combination of the stem *d*, of the cork, with the non-corrosive cap *e*, and packing ring *f*, as set forth.

No. 21,044. Churn. (*Baratte.*)

Thomas Collins, Caradoc, Ont., 31st January, 1885; 5 years.

Claim.—1st. The combination, with the curved bottom *b o c*, of the angular top *b d e*, and the cover *n d*, substantially as and for the purposes hereinbefore set forth. 2nd. The combination, with the curved bottom *b o c*, the angular top *b d e*, and the cover *n d*, of the dash *h a c*, and the wedge-shaped slats *a c, a c, a c, a c, a c, a c, a c, a c*, substantially as and for the purposes hereinbefore set forth.

No. 21,045. Throttle Valve for Steam Engines. (*Valve d'Admission pour Machines à Vapeur.*)

George Parker, Bay City, Mich., U.S., 31st January, 1885; 5 years.

Claim.—1st. A counter-balance attachment, to the stem of the throttle valve of a steam engine, having a detent which is connected with any desired point, and will disengage such detent and allow the counter-balance to close the throttle valve, substantially as and for the purposes described. 2nd. A throttle valve and case, the latter of which has a supplementary port, disclosed by the closing of the throttle

valve, and is connected by a suitable steam pipe, with a brake cylinder, substantially as and for the purposes specified. 3rd. A throttle valve and case having the means, substantially as described, for throttling the valve, and the means, substantially as described, for actuating the brake simultaneously with the closing of the throttle, substantially as and for the purposes set forth. 4th. The combination of the case B, throttle valve C, and stem D, with the lever F, carrying the weight G, the latch I, disc L, cam lever N, and connection O, the parts being constructed, arranged and operating substantially as and for the purposes described. 5th. The combination of the case B, throttle valve C, and stem D, with lever F, carrying the weight G, the latch I, disc L, connection O, port *a*, pipe *b*, and brake cylinder *c*, and the parts being constructed, arranged and operating substantially as and for the purposes specified.

No. 21,046. Roller Skate. (*Patin à Roulettes.*)

John T. Slocomb, Bangor, Me., U.S., 31st January, 1885; 5 years.

Claim.—1st. In a roller skate, a longitudinal spring D, so arranged and secured as to act by torsion or twisting. 2nd. In a roller skate, the parts B, B, of the hubs with the projections *p, p*, so formed as to serve as bearings for the axles *a, a*. 3rd. In a roller skate, the combination of the foot-plate P, slotted hangers H, H, H, H, hanger E, torsion spring D, secured in hanger E, by set screw *e*, and in the hubs C, C, by set screws *b, b*, and hubs B, C, B, C. 4th. In a roller skate, the steel *brr*, either immovable or adjustable fixed upon the part B, of the hub, in combination with the sleeve K, and spindle *h*. 5th. In a roller skate, the combination of the slotted hangers H, H, H, H, spindles *h, h*, hubs C, B, C, B, bolts or set screws *b, b*, slides or slots *bt, bt*, in B, B, adjustable nuts *brr, brr*, studs *brr, brr*, and sleeve K, K. 6th. In a roller skate, the combination of the foot-plate P, hangers H, H, slots or notches *ct, ct*, hubs B, C, B, C, and stops *c, c*, upon the parts C, C, of the hubs. 7th. In a roller skate, the elastic cushions P, P, filling the spaces between the underside of the foot-plate P, and the tops of the parts C, C, of the hubs, and surrounded and held in place by the walls of the aperture *m, m*, in the hanger plates M, M. 8th. The improved roller skate, the herein-described consisting of the tilting foot-plate P, slotted hanger H, H, H, H, having the spindles *h, h*, and slots or notches *ct, ct*, hubs C, B, C, B, bolts or set screws *b, b*, stops *c, c*, slides or slots *bt, bt*, adjustable nuts *brr, brr*, studs *brr, brr*, sleeves K, K, spring D, hanger E, set screws *e*, axles *a, a*, and rollers A, A. 9th. In a roller skate, the clamp F, consisting of the arms *f, f*, bored longitudinally, and the bores provided with right and left female screw to receive a right and left male screw bolt *d*, the whole secured to the foot-plates by the sleeve rivetted to the underside of said foot-plate, all as shown and described, and substantially as and for the purpose specified.

No. 21,047. Car Brake. (*Frein de Char.*)

Henry Flad, St. Louis, Mo., U.S., 31st January, 1885; 5 years.

Claim.—1st. The combination, with the direct brake operating air chamber and devices connecting it with the brakes, of the valve chamber containing the tubular valve, the reservoir connected with said valve chamber and main pipe, the electro-magnet, and suitable connections for operating said tubular valve, for opening communication between said chamber and the external air, and *vice versa*, substantially as described. 2nd. In the air brake apparatus, the combination, with the cylinder or diaphragm and connections substantially as described, of the vertical valve chamber having the compartments *e, e, e*, the tubular valve extending through the partitions separating said chambers, and having openings from its bore to the intermediate chamber, the armature carried by said valve and the electro-magnet arranged to attract and release said armature for operating the valve, essentially as set forth. 3rd. The combination, with the reservoir, brake cylinder or diaphragm, the valve chamber and valve, and electro-magnet and connections arranged to operate said valve, of the pipe connecting said reservoir and brake cylinder, and the check valve arranged to prevent the escape of the air within the reservoir, when the main pipe is broken, and the valve released by its magnet, essentially as set forth.

No. 21,048. Electro-Magnetic Air Brake.

(*Frein Atmosphérique Electro-Magnétique.*)

Henry Flad, St. Louis, Mo., U.S., 31st January, 1885; 5 years.

Claim.—1st. The combination, with the main air pipe of an air brake system, and a series of brake cylinders arranged on different cars, and having pistons connected with the brakes thereof, respectively, of a series of valves arranged to connect said cylinders through suitable connections, alternately with the main pipe and with the external air, and a series of electro-magnets arranged to operate said valves, substantially as described, whereby the brakes of a train may be operated automatically and simultaneously. 2nd. The combination, with the cylinder having openings or ports, substantially as described, of the annular valve having suitable air passages, and arranged to open and close said cylinder-ports, an electro-magnet arranged to operate said valve, and means for including said electro-magnet in an electric circuit extending outside of the cylinder essentially as set forth. 3rd. The combination, with the cylinder having an annular valve seat formed therein, and suitable ports or openings leading outward from said seat and provided with proper air passages, of an electro-magnet secured to said valve, and a stationary electro-magnet arranged to co-operate with the said valve magnet, the helices of said magnet being connected and arranged to be included in a circuit extending outside of the cylinder, substantially as described. 4th. The combination, with an air brake cylinder provided with ports, substantially as described, its pistons, and the supply exhaust pipe and coupling hose of a railway car, of an electro-magnet valve arranged to open said ports, conducting wires connected with the electro-magnetic devices of said valve, and arranged within the supply or exhaust pipe and coupling hose, and automatic wire connecting devices arranged in the hose couplings, whereby the electric wires may be connected from car to car simultaneously with the coupling of the hose, substantially as set forth. 5th. The combination, with the air pipes, coupling hose, conducting wires arranged within said

pipes and hose, and the automatic wire connecting devices arranged in the hose couplings, of the stationary couplings, one or more arranged upon a car, and connected with a wheel or wheels thereof through intermediate electrical conductors, essentially as and for the purpose set forth. 6th. In an air brake system, the combination, with the air pipes and inclosed conducting wires, and electric battery, and circuit including said conducting wires, of the three-way cock arranged in the air conduit, and provided with circuit closing and breaking devices, and means for operating the same simultaneously with the operation of the said three-way cock, substantially as described.

No. 21,049. Sad Iron. (*Fer à Repasser.*)

Charles H. Cheney, Ypsilanti, Mich., U.S., 31st January, 1885; 5 years.

Claim.—1st. A sad iron with two operating faces centrally supported in trunnions and with a chamber between the two operating faces, having a lamp arranged to heat said chambers, in combination with perforated slides upon the side walls of said chamber adapted to close or disclose openings therein, substantially as described. 2nd. In a reversible sad iron having two operating faces and supported upon trunnions, and having a chamber between such operating faces, recesses in the outer walls of said chamber and on each side thereof adapted to form supports and guides for the sliding dampers, substantially as specified.

No. 21,050. Oscillating Steam Engine.

(*Machine à Cylindre Oscillant*)

Charles P. Waldron, New York, N.Y., U.S., 31st January, 1885; 5 years.

Claim.—1st. The link mechanism, herein described, consisting of the bell-crank lever H, pivoted to the cylinder, the stationary segmentally slotted plate I, sliding block L, operating lever N, and connecting rods K, M, all arranged to operate substantially as described. 2nd. The slide valve E, provided with the stem E1, in combination with the sliding head F, placed on rod F1, and connected to the link mechanism, substantially as described. 3rd. The cylinder A, provided with the pipe P, having pipe O, in combination with the lever U, pivoted to the frame and connected to the arm Q1, of the cock by the rod U1, pivoted coupling U2, substantially as described. 4th. The cylinder A, provided with the pipe P, and coupled to the pipe S, by the pivoted coupling R, in combination with the waste pipe T, the pipe P, being provided with a cock Q, substantially as described. 5th. The cylinder A, provided with the pipe P, having cock Q, and coupled to the pipe S, by the coupling R, in combination with the waste pipe T, and lever U, attached to the cock Q, by the link U1, and pivoted coupling U2, substantially as described. 6th. The hinged coupling R, composed of the slotted shell r, and r1, fitted in the shell,

the core being formed with a passage through it and to receive the pipe P1, substantially as described.

No. 21,051. Wheel for Roller Skates.

(*Roulette pour Patins.*)

Samuel Carman, St. Catharines, Ont., 21st January, 1885; 5 years.

Claim.—The combination of ball bearings adapted to wheels for roller skates, with the boxing B, and the adjusting cylinders C, and D, secured by the lock nut E, substantially as and for the purpose set forth.

No. 21,052. Railway air Brake.

(*Frein Atmosphérique de Chemin de fer.*)

Henry Flad, St. Louis, Mo. U.S., 31st January, 1885; 5 years.

Claim.—1st. The combination, with an air brake pipe having a cut-off cock arranged therein, of the by-pass or loop pipe having its ends connected with the main pipe on opposite sides of the cock, and the electric conducting wire arranged through the main pipe and the by-pass pipe and seated in the latter, substantially as and for the purpose set forth. 2nd. In an air brake operated by electricity, and air brake pipe provided with one or more by-pass pipes or loops adapted to carry the electric conducting wire around points between the junctions of each loop with the main pipe, substantially as set forth. 3rd. The combination, with the main pipe, the reservoir, the brake cylinder or chamber, the valve chamber and valve, the electric conducting wire arranged in the main pipe and connected to the valve, and the pipe connecting the reservoir with the valve chamber, of the cut-off cock J1, arranged in said pipe, substantially as set forth. 4th. The combination, with an air brake pipe of a railway car, and an electrical conducting wire arranged through said pipe, of a branch pipe extending up into the car and having a loop of the wire sealed in it, and a circuit breaker arranged in said loop, substantially as set forth. 5th. The combination, with the main air pipe of the branch pipe K, extending up into the car, the conducting wire looped into said branch pipe and provided with terminal plates near the top of the same, and the adjustable metallic cone or wedge to make or break electrical connection between said terminal plates as desired, substantially as described. 6th. The combination, with the hose coupling and spring-actuated circuit-connecting rod arranged therein, of the disk r, having an air passage, and a valve secured upon said circuit-connecting rod and adapted to open or close said air passage, according to the position of the rod, substantially as described. 7th. The combination, with the two pipe-connecting hose and the two coupling parts connected to the same, of the spring-actuated circuit connecting rods arranged in said parts, air passages arranged in said parts respectively, and the valves carried by said rods respectively, and adapted to open said air passages, when the coupling parts are engaged, and to automatically close said passages, when the parts are uncoupled, substantially as described.

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

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|---|--|
| <p>314. J. LIVESSEY and J. and J. KIDD, 2nd 5 years of No. 10,964, from the 26th day of January, 1885. Apparatus for enriching illuminating gas. 5th January, 1885.</p> | <p>321. A. S. KENNEDY, 2nd 5 years of No. 12,816, from the 17th day of May, 1886. Improvements in felt boots. 22nd January, 1885.</p> |
| <p>315. The Patent Cheese Machinery Company, (assignee,) 2nd 5 years of No. 10,866, from the 22nd day of January, 1885. Improvements in the method and machinery for manufacturing cheese. 5th January, 1885.</p> | <p>322. J. MYERS, 2nd 5 years of No. 10,864, from the 22nd day of January, 1885. Improvements on salves for the curing of sores, boils, felons, abscesses, burns, scalds, etc., etc. 22nd January, 1885.</p> |
| <p>316. D. D. CATTANACH, 3rd 5 years of No. 4297, from the 23rd day of January, 1885. Improvements on heating oil for paint. 12th January, 1885.</p> | <p>323. W. T. and J. CHADWICK, (Co-inventors and assignees) 2nd 5 years of No. 10,898, from the 22nd day of January, 1885. Improvements on the art or process of manufacturing and purifying sulphate of alumina and alum. 22nd January, 1885.</p> |
| <p>317. C. R. HARRISON and W. D. CONKLIN, 2nd 5 years of No. 11,000, from the 8th day of March, 1885. Improvements on furniture and apparatus for railway postal cars. 12th January, 1885.</p> | <p>324. W. W. BOSTWICK, (assignee,) 2nd and 3rd 5 years of No. 15,066, from the 8th day of July, 1887. Improvements in Gates. 22nd January, 1885.</p> |
| <p>318. J. B. WHITE, (assignee) 2nd 5 years of No. 10,839, from the 20th day of January, 1885. Improvements in the art of manufacturing horse shoes. 12th January, 1885.</p> | <p>325. A. HARRIS, J. HARRIS, J. K. OSBORNE and L. M. JONES, (assignees,) 2nd 5 years of No. 10,893, from the 31st day of January, 1885. Improvements on mowing Machines. 28th January, 1885.</p> |
| <p>319. W. F. PHILLIPS, 2nd 5 years of No. 10,861, from the 22nd day of January, 1885. Improvements on pleasure swings. 19th January, 1885.</p> | <p>326. J. LEWIS, 3rd 5 years of No. 4328, from the 29th day of January, 1885. Improvements in water meters and which improvements are also applicable to water motors. 28th January, 1885.</p> |
| <p>320. A. RICHARDSON, 2nd 5 years of No. 10,870, from the 22nd day of January, 1885. Machine for respectively supporting and locking window sash. 20th January, 1885.</p> | <p>327. BAIN, FUDGER & CO., (assignees,) 2nd 5 years of No. 11,057, from the 22nd day of March, 1885. Improvements on a mechanical movement for operating blowers, forges, etc., 28th January, 1885.</p> |

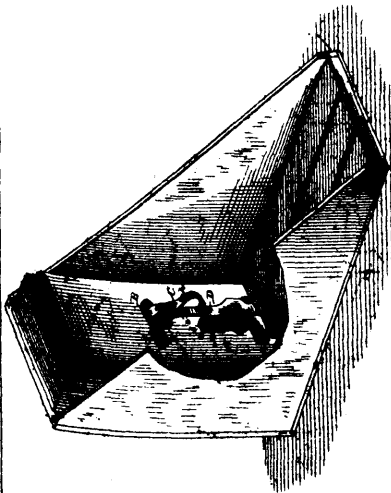
THE
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

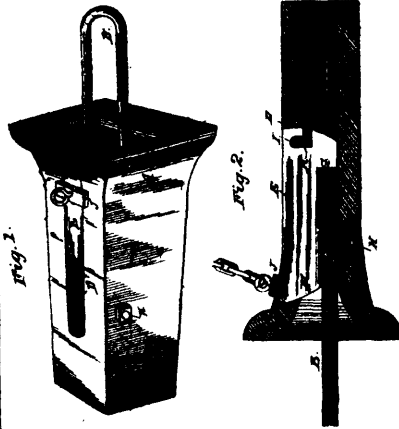
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FEBRUARY, 1883.

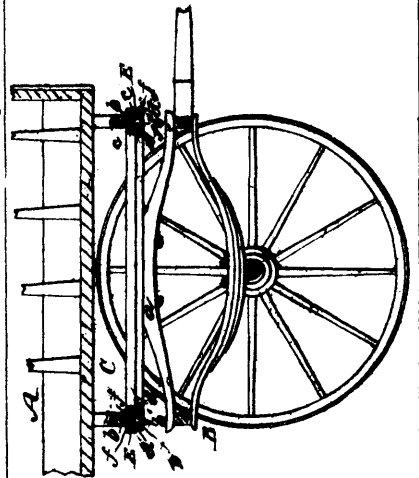
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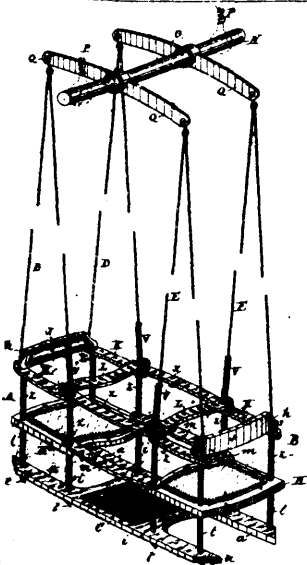
20833 Tucker's File Box or Paper-Holder.



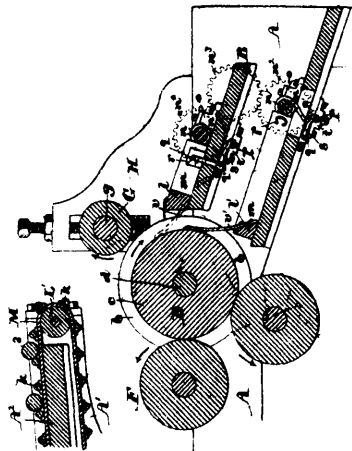
20834 Hunter's Car-coupling.



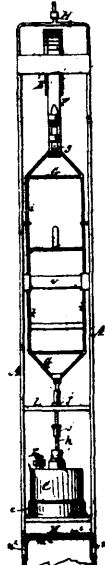
20835 Evan's Fifth-wheel for Waggon.



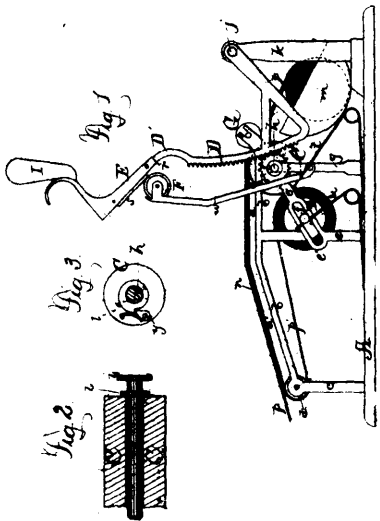
20836 Shields' Chair.



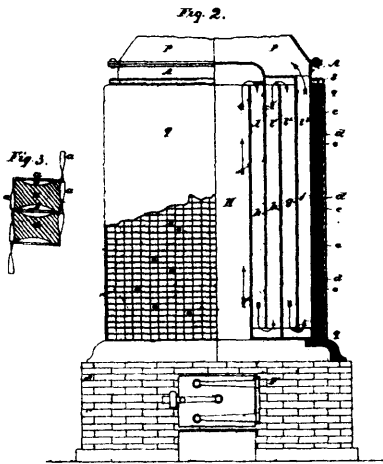
20837 Chase's Machine for making Losenges.



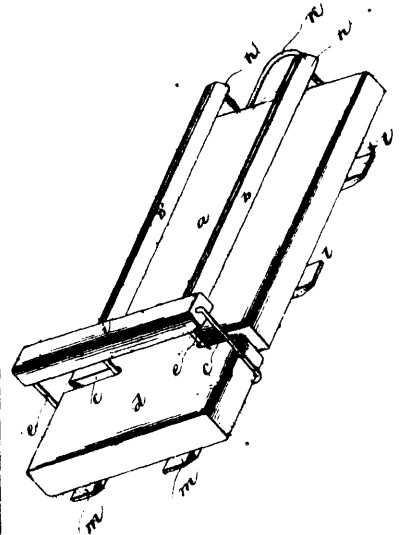
20838 Booth's Pneumatic Signal.



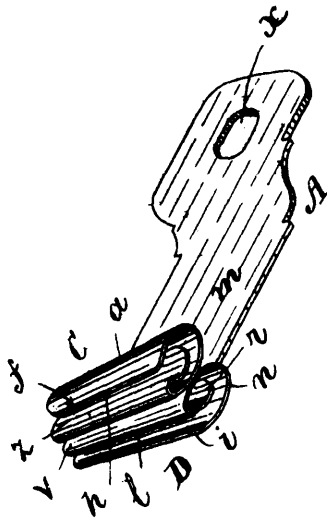
20839 Blackhall & Smith's Combined Bill-Head Printing and Automatic Registering Device.



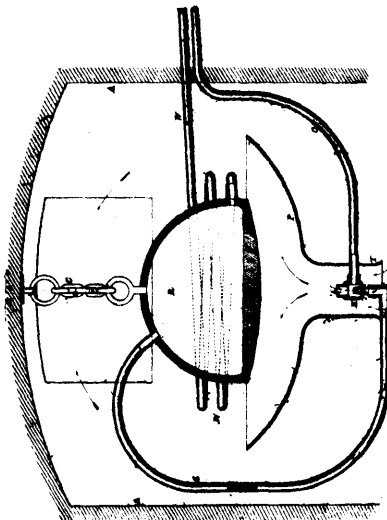
20840 Woodward's Thermo-Electric Generator.



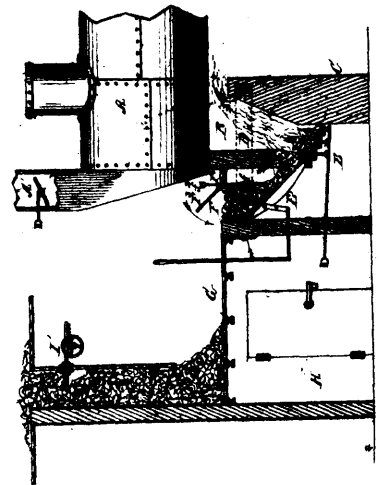
20841 Cupler's Bosom Board.



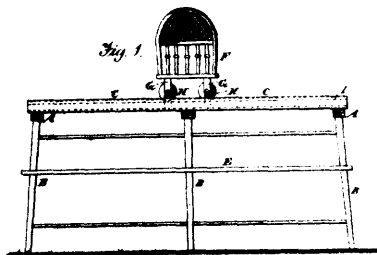
20842 Lyon's Folder for Sewing Machines.



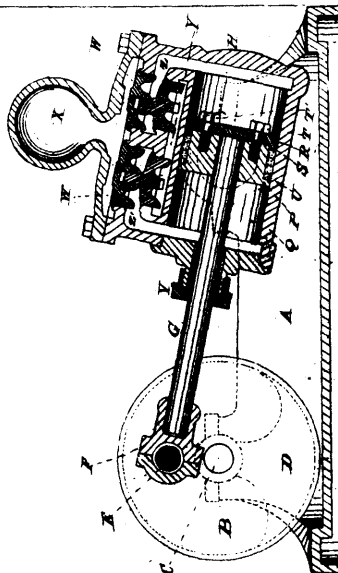
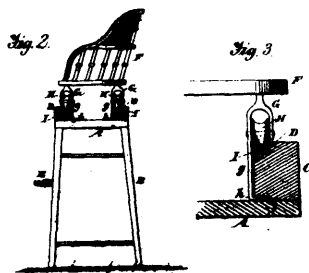
20843 Burgess' Apparatus for Combustion of Liquid Fuel.



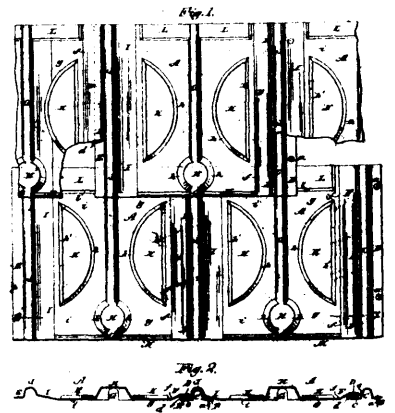
20844 Backus' Boiler Furnace.



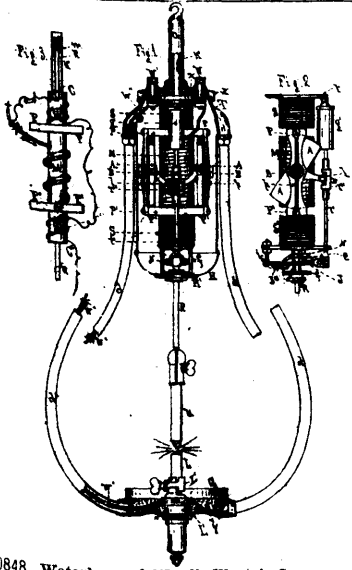
20845 Edward's Book-keeper's Stool.



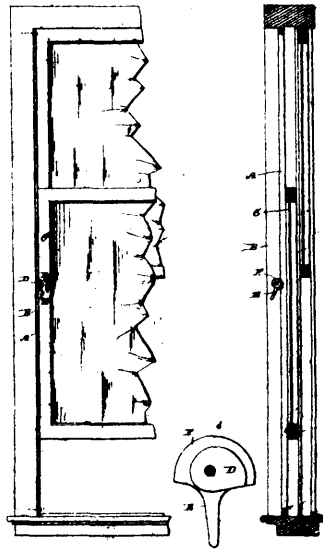
20846 Shepard's Pump



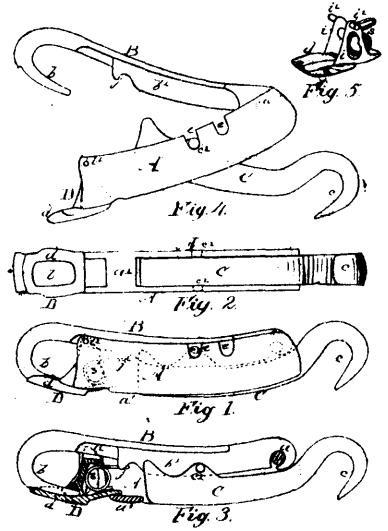
20847 Regan's Sheet Metal Roofing Plate.



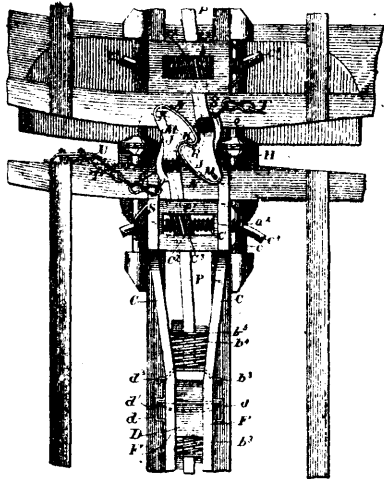
20848 Waterhouse & Ward's Electric Lamp.



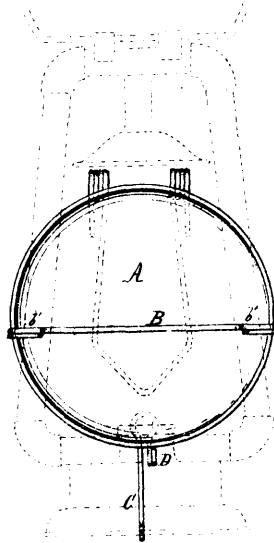
20849 Bereman's Sash-Holders.



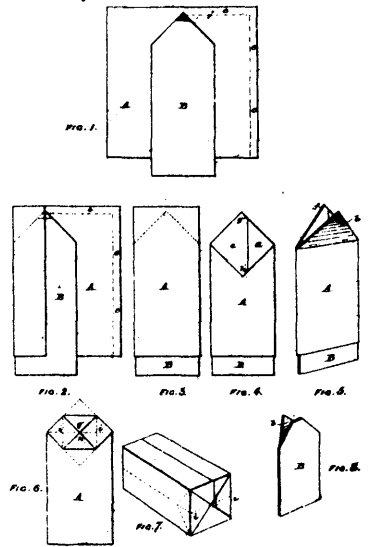
20850 Sly's Hame Fastener



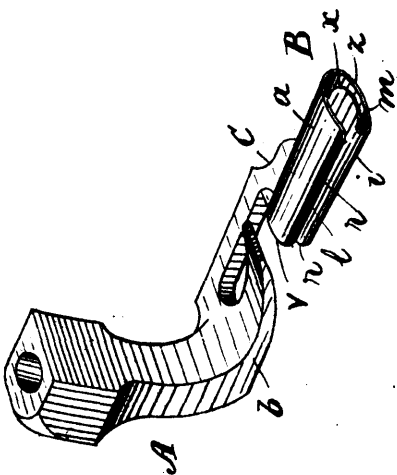
20851 Merrick's Car-Coupling.



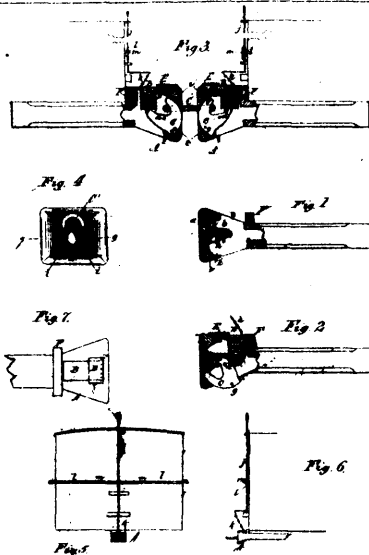
20852 Higgins' Lantern-Holder.



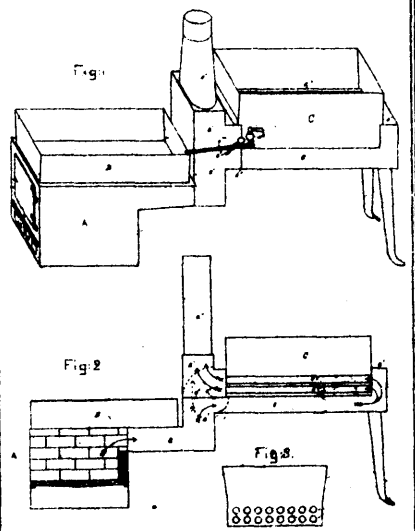
20853 Laughton's Paper Bag.



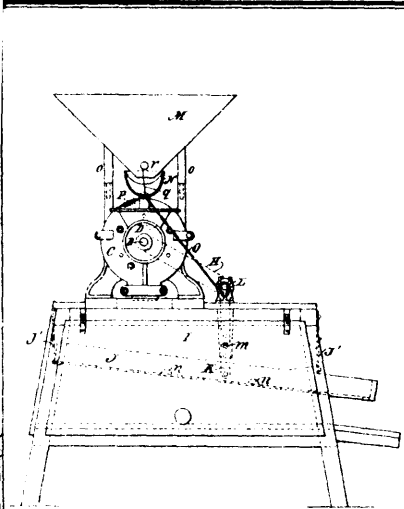
20854 Lyon's Sewing Machine Folder.



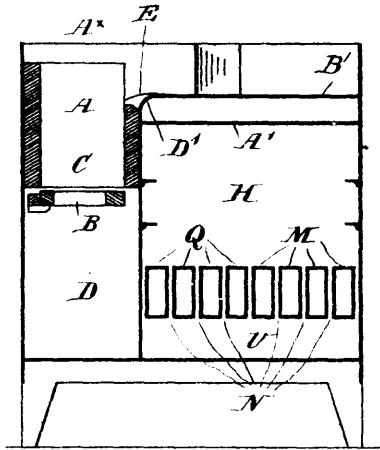
20855 Power's Car-Coupling.



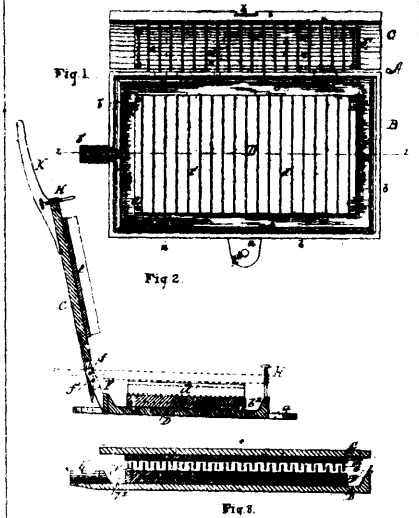
20856 Noyes' Sugar-making Apparatus.



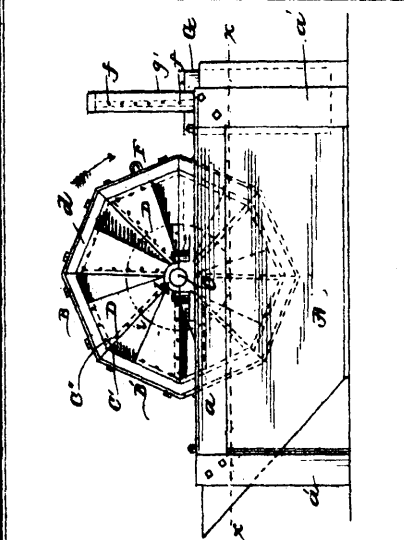
20857 Dodson's Disintegrating Machine.



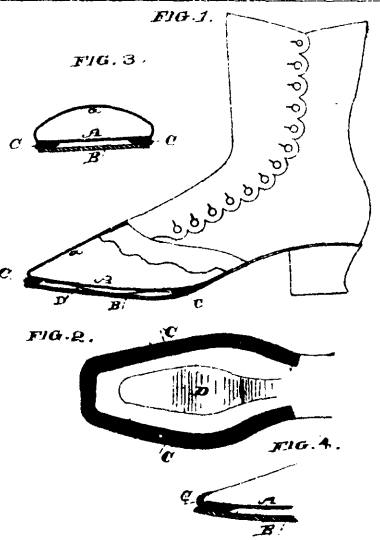
20858 Prowse's Stove, etc.



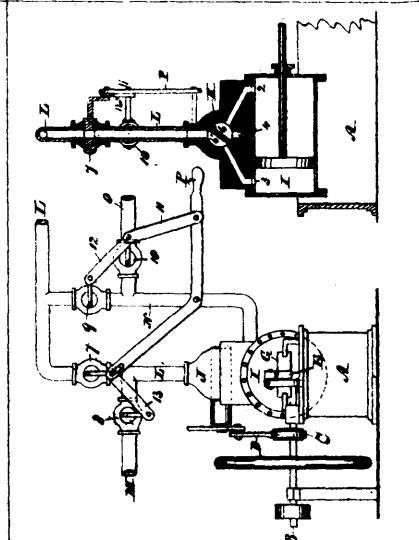
20859 Clothier's Meat Tenderer.



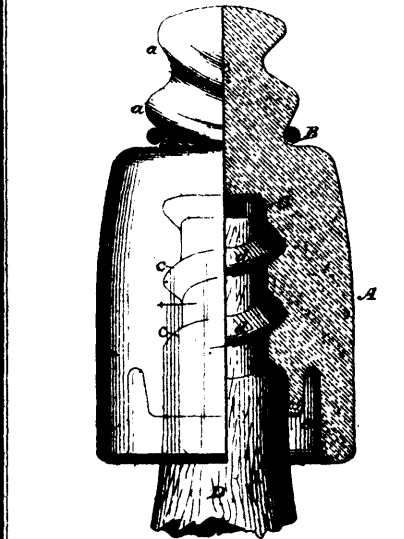
20860 Vanduzen's Rubble for Scouring Castings. Ores, etc.



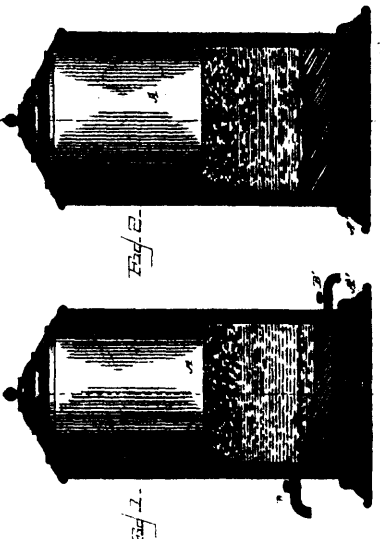
20861 Gianville's Bottom for Boots or Shoes.



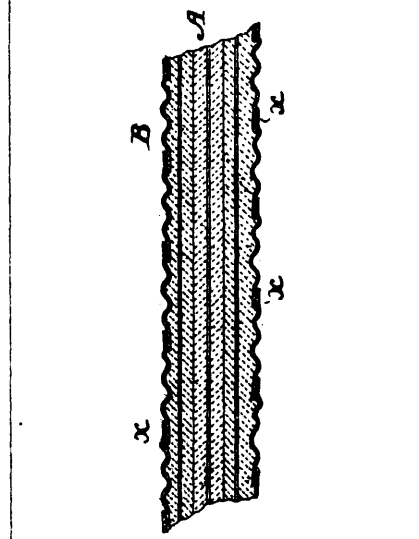
20862 Henry's Steam Engine Reversing and Governing Device.



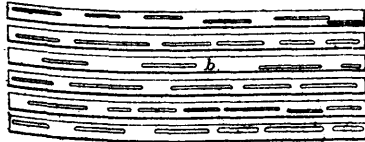
20863 Pope's Insulator for Electrical Conductors.



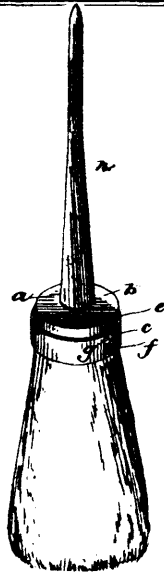
20864 Brookbank's Water-Cooler.



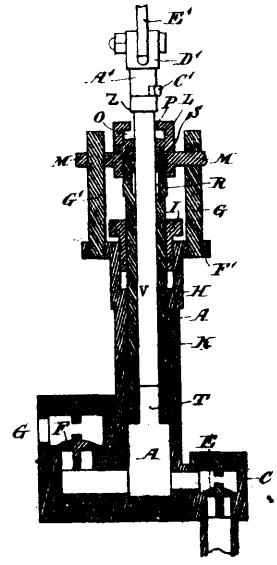
20865 Greenalgh's Electric Cable.



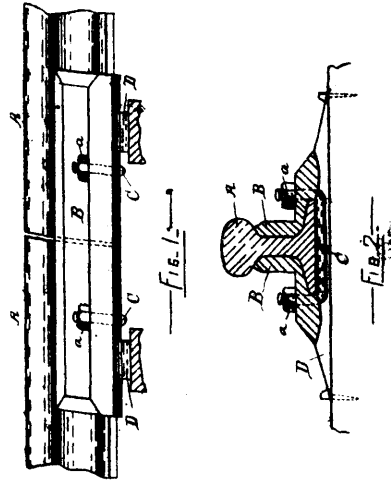
20866 Chase's Treatment of Birch Bark.



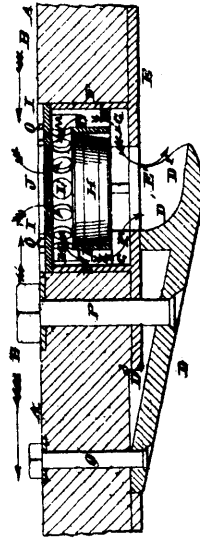
20867 Fish's Brush.



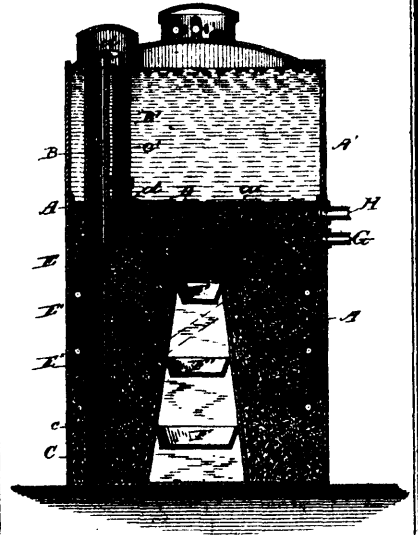
20868 Kerr's Pump.



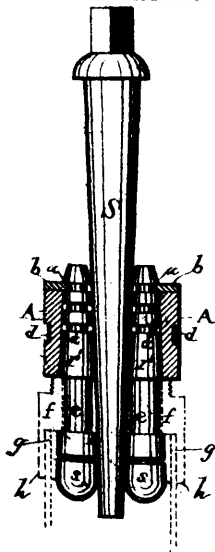
20869 Thoma's Railway Fish-Plate.



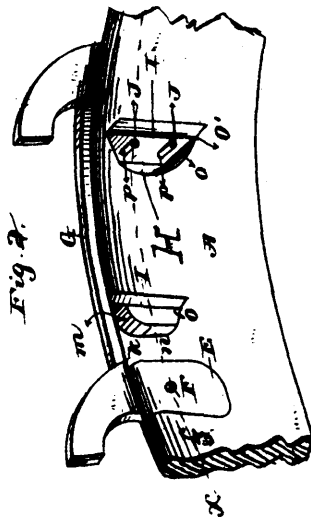
20871 Jobin's Bilge Pump.



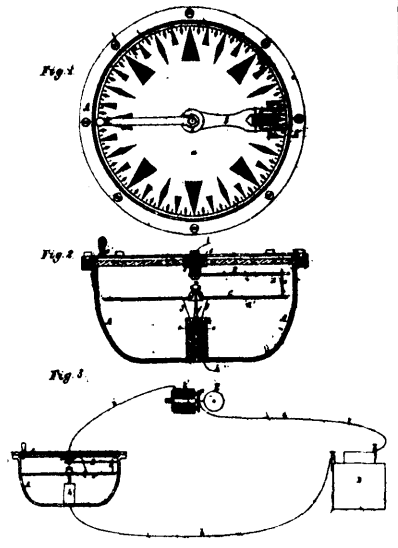
20872 Saunderson's Carburetor.



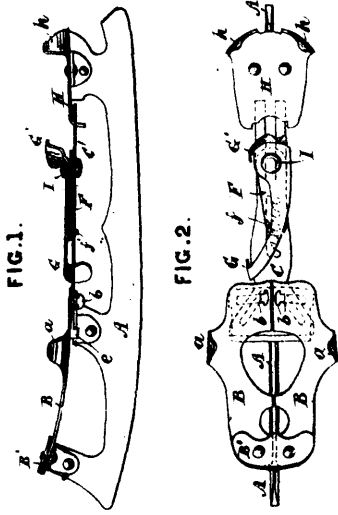
20873 McGraw's Tube Expander.



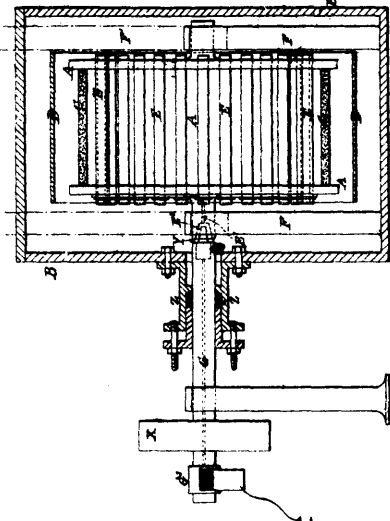
20874 Ledward's Saw.



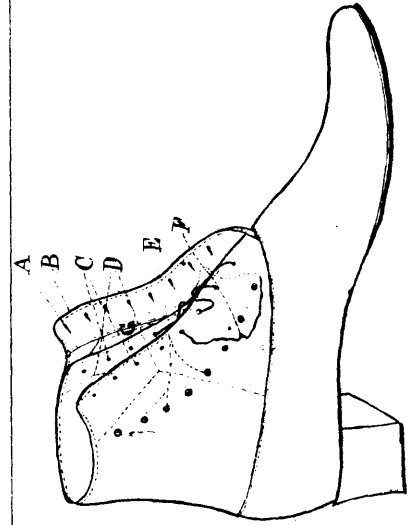
20875 Scotland & Gordon's Mariner's Compass.



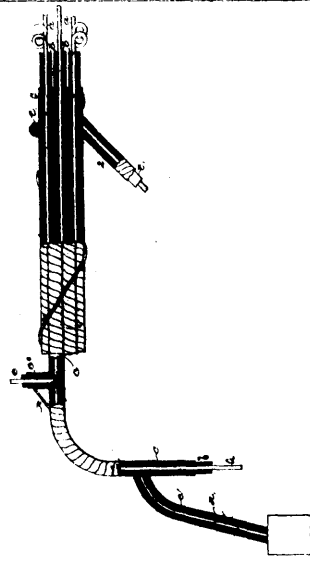
20876 Wilbur's Skate.



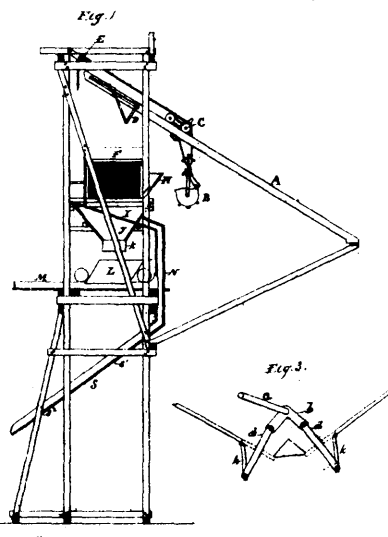
20877 Cassel's Apparatus for the Extraction of Gold and other Metals from Ores, &c.



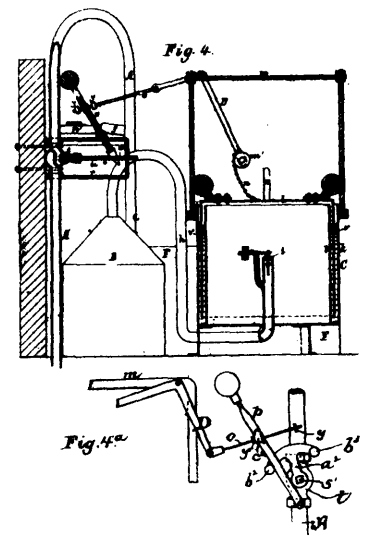
20878 Renaud's Boots and Shoes.



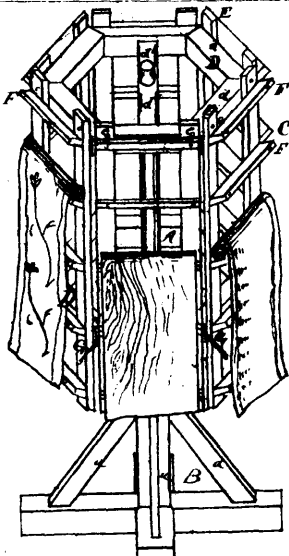
20880 Campbell's Electrical Conductor.



20881 Bailey & Hyde's Coal-Handling Machinery.



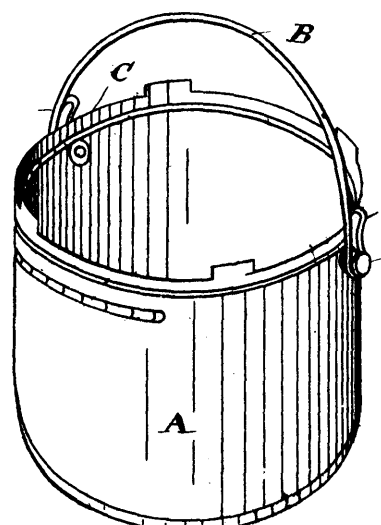
20882 Burrow's Apparatus for Carbureting Air



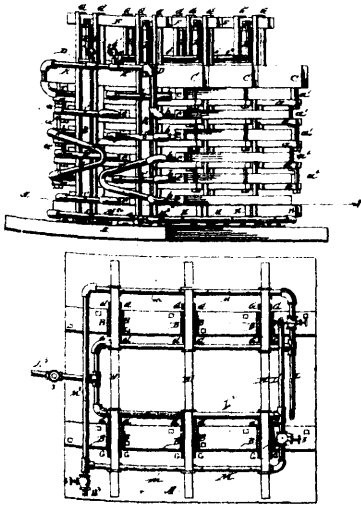
20883 Forsyth's Wall-Paper Exhibitor.



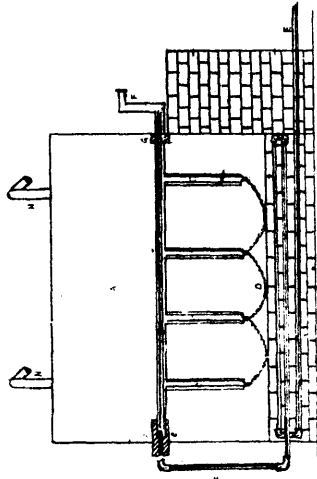
20834 Muller's File.



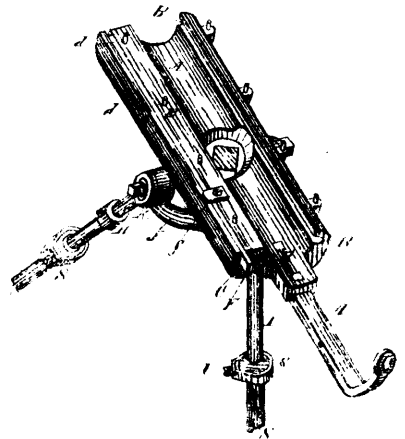
20885 Ross' Device for Adjustably Connecting the Ball of a Pall or Pot.



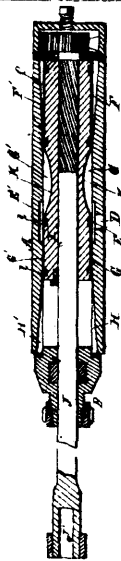
20886 Noyes' Lumber Dryer.



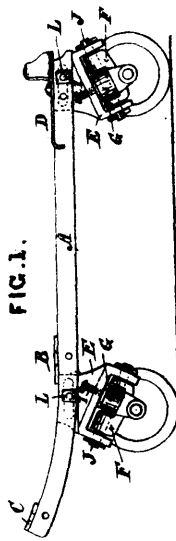
20887. Meigher's Still for Refining Petroleum Oils.



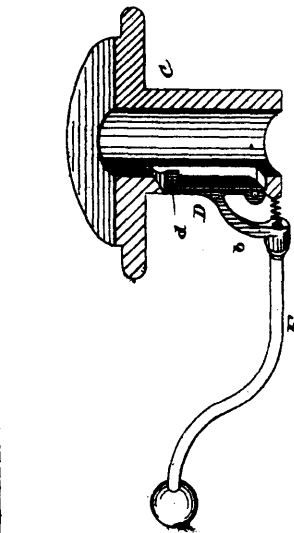
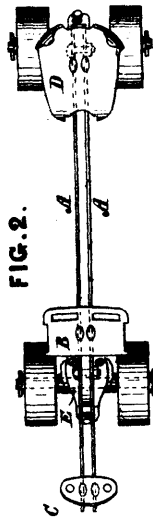
20888 Westbrook's Support for Rock Drills.



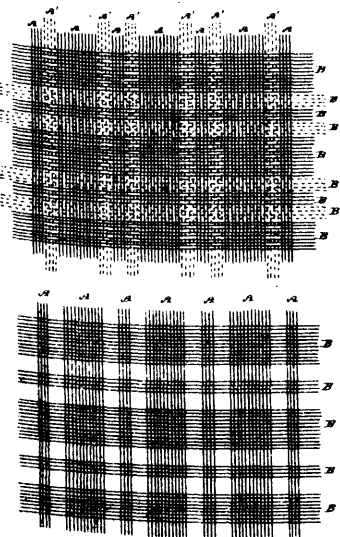
20889 Westbrook's Rock Drill.



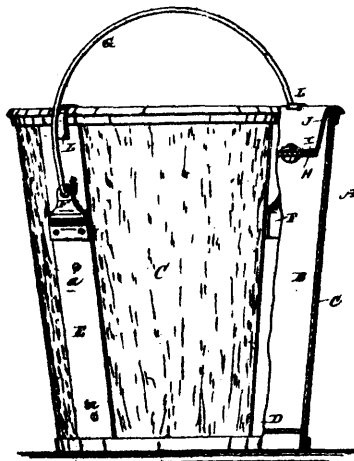
20890 Wilbur's Roller Skate.



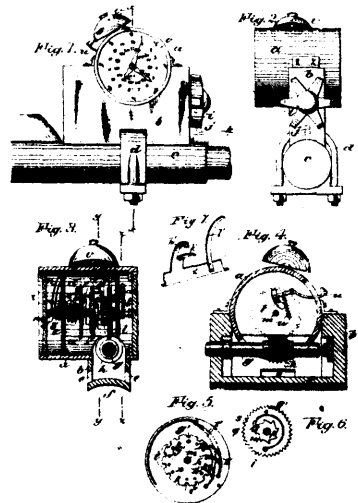
20891 Mathie's Device for Securing Plano-Stools, &c.



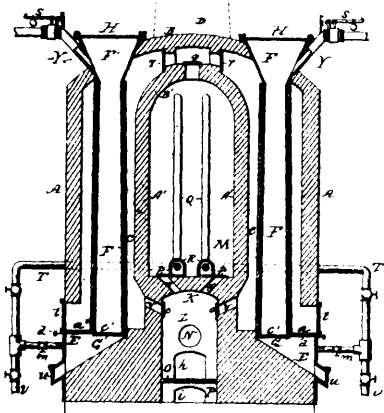
20892 Maerten's Producing Textile Fabrics.



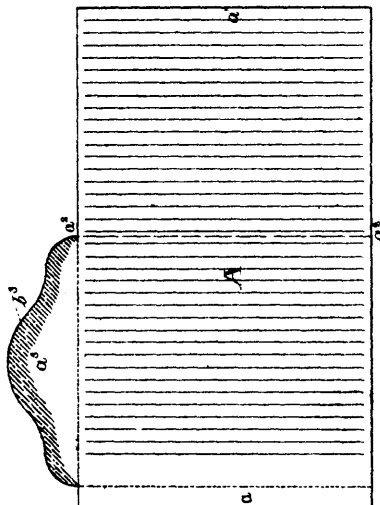
20893 McAdam's Butter Tub.



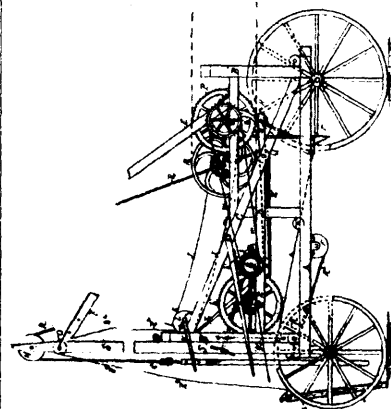
20894 Gillespie's Odometer.



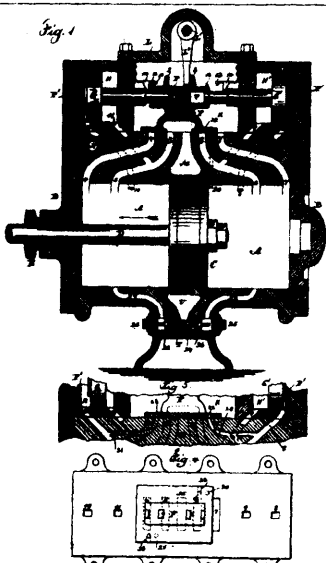
20895 Cherry's Apparatus for Treating Metalliferous Ores.



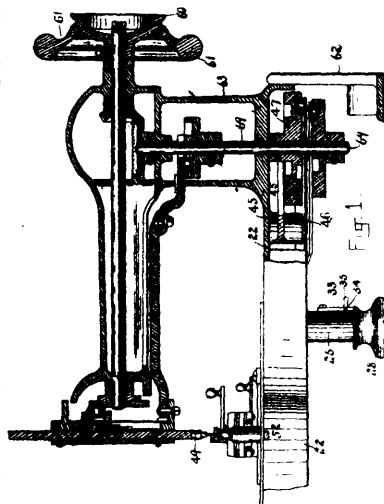
20896 Clegg's Combination Letter Sheet and Envelope.



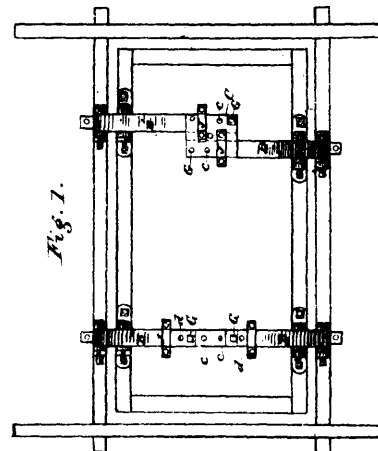
20897 Brown's Well-Drilling Machine.



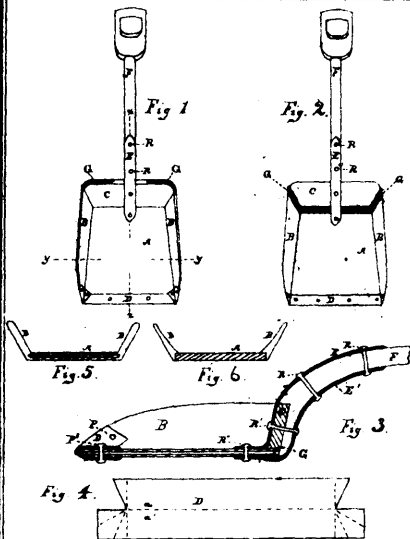
20898 Carricaburn's Steam Engine.



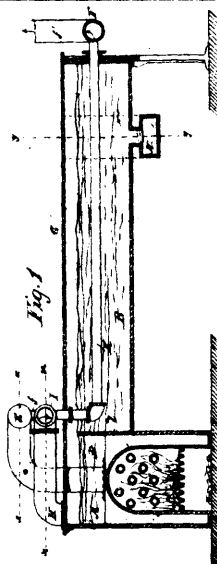
20899 Humphrey's Button-Hole Stitching Machine.



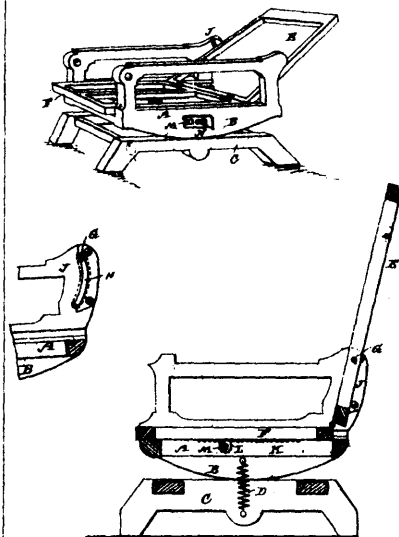
20900 Artz's Vehicle Spring



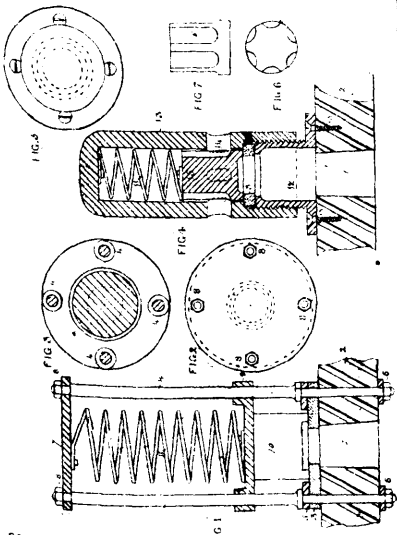
20901 Locke's Wooden Scoop Shovel.



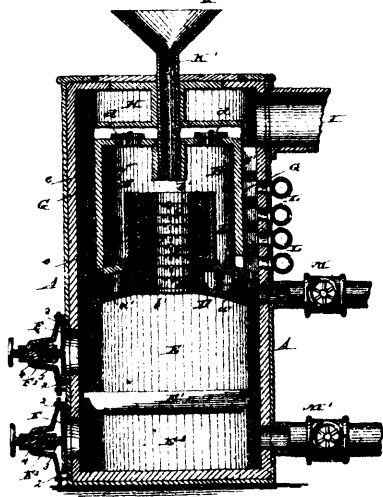
20902 Kayse's Evaporator.



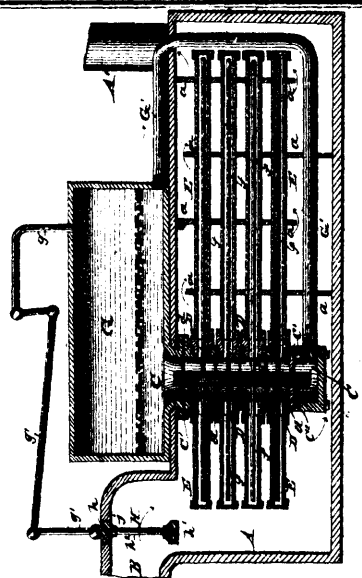
20903 Cupp's Combined Platform Rocker and Inclining Chair.



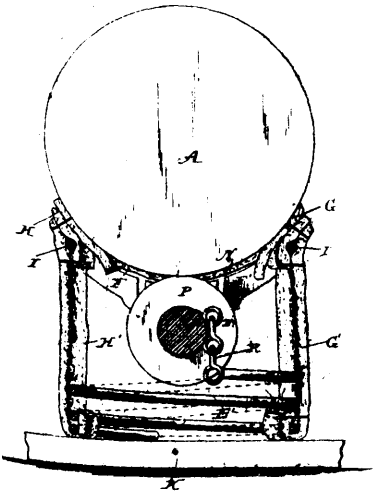
20804 Minnitt & Vickers' Apparatus for Closing Tap Holes of Casks, &c.



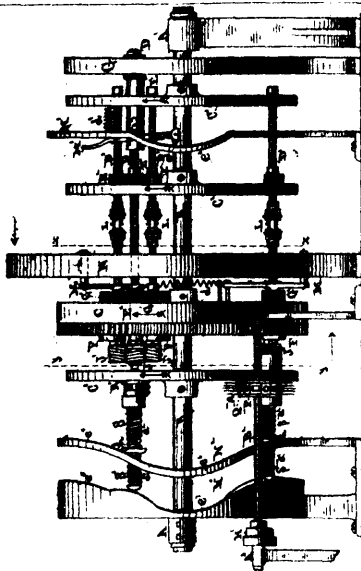
20905 Blanchard's Furnace.



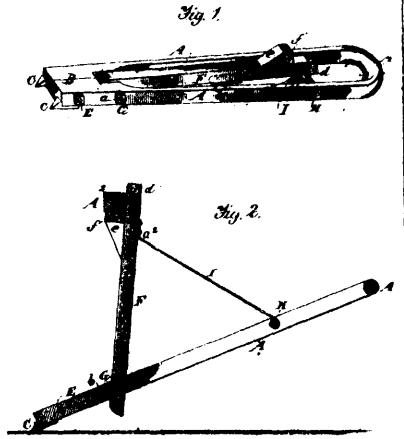
20906 Blanchard's Steam Boiler.



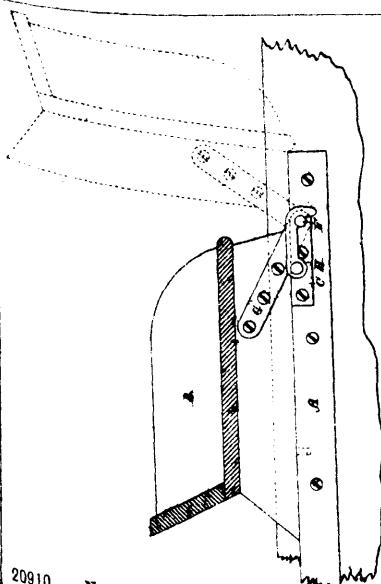
20907 Mitchell's Car Axle Lubricator.



20608 Werts' Machine for Threading Sheet Metal Screws.



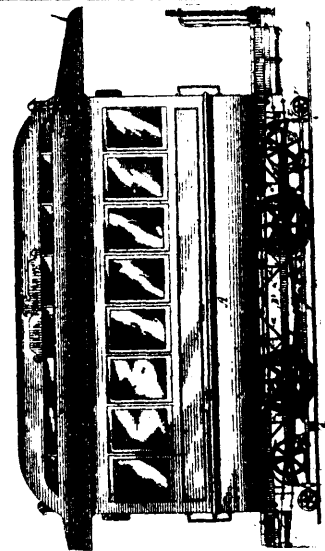
20909 England's Lifting Jack.



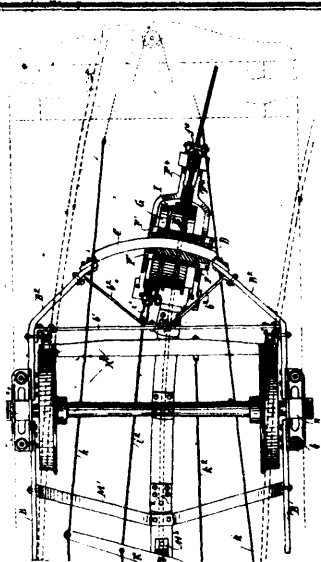
20910 Newacheck's Seat for Vehicles.



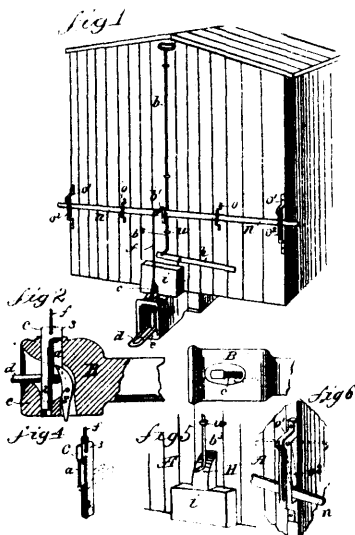
20911 Grantiers' Billiard Cue.



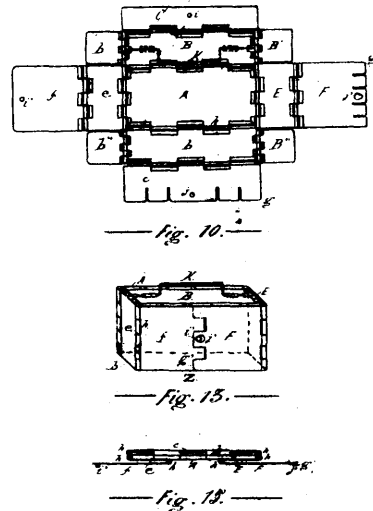
20912 Rasmusen's Cable Railway Apparatus.



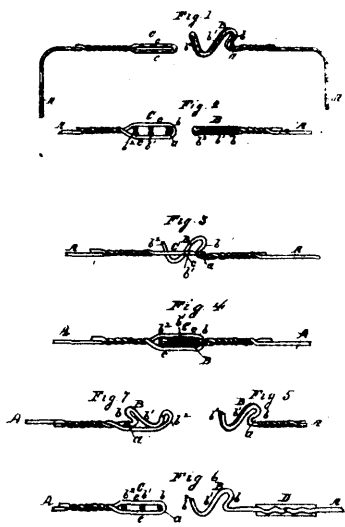
20913 Rasmusen's Cable Railway Apparatus.



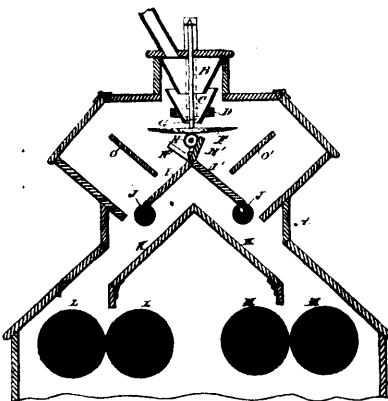
20914 Prescott's Car-Coupling.



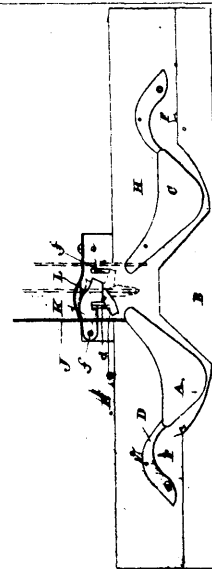
20915 Duguay's Box for Packing Goods.



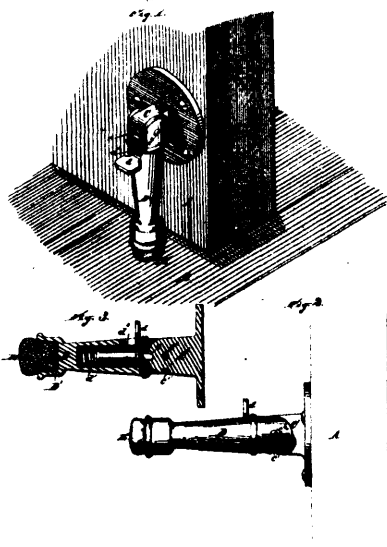
20916 Griswold's Bale Tie.



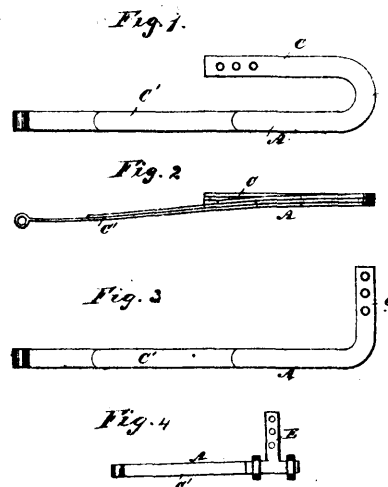
20917 Hutchison's Roller Mill Feed Mechanism



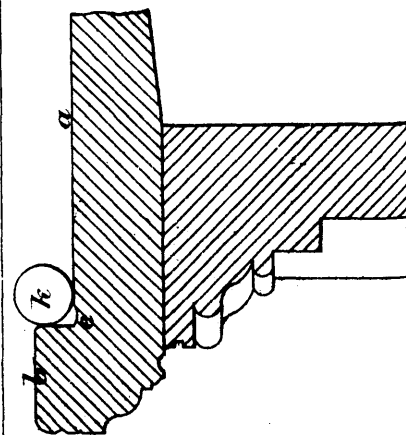
20918 Bremner's Knitting Machine.



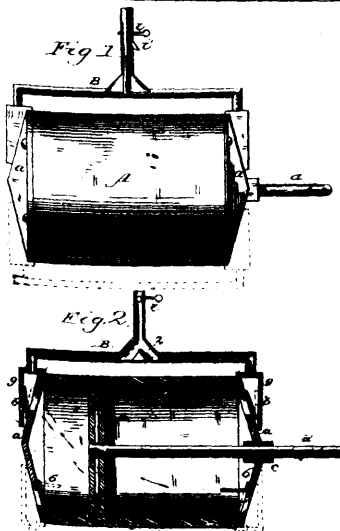
20919 Teetzal's Door Stop and Bumper.



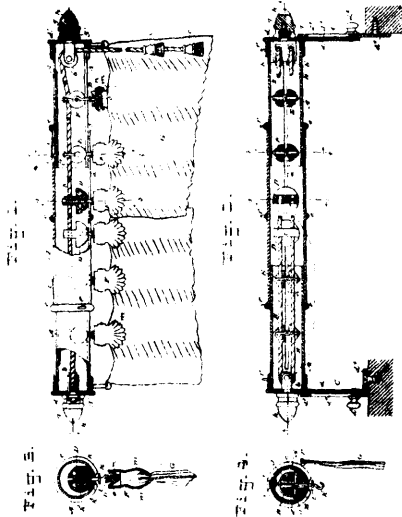
20920 Johnson & Wright's Carriage Spring.



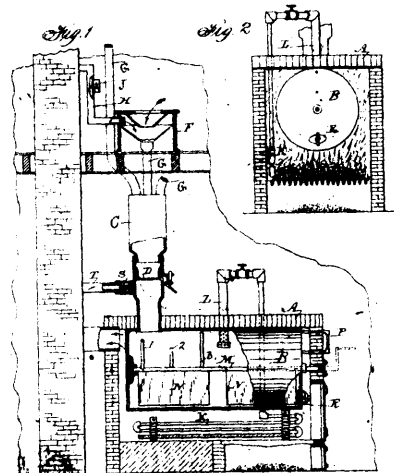
20921 Honeyman's Table and Ball for Playing Billiards, &c.



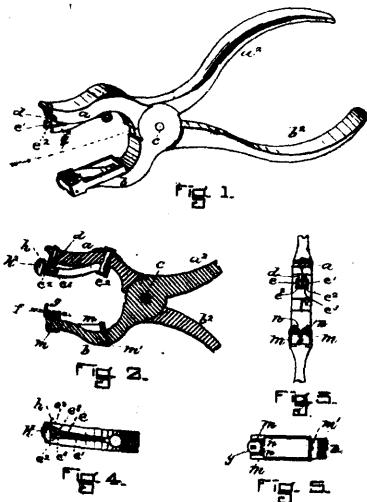
20922 Shelmutt's Air and Water Forcing and Exhausting Machine.



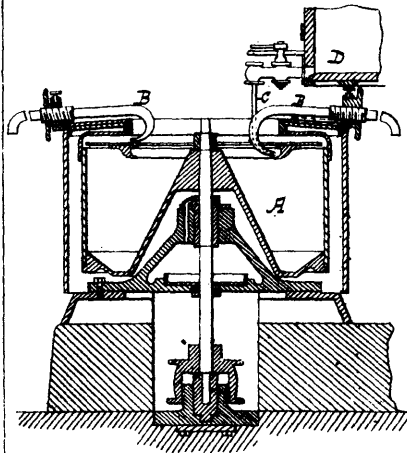
20923 Weber & Page's Curtain Fixture.



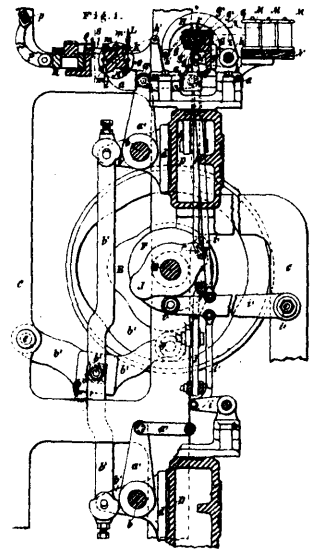
20924 Engle's Apparatus for Destroying and Utilizing Night Soil and Offal in Buildings, Towns and Cities.



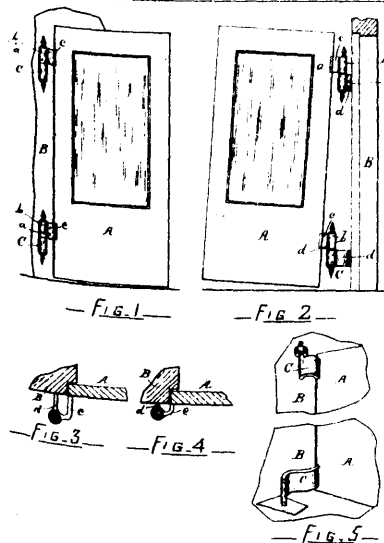
20925 Pratt's Apparatus for Setting Buttons.



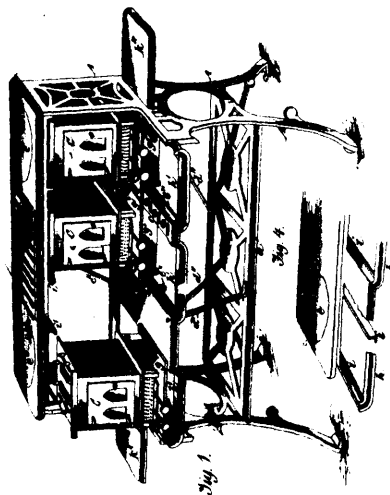
20926 Burmeister's Apparatus for the Emulsion of Milk and Fat by Centrifugal Force.



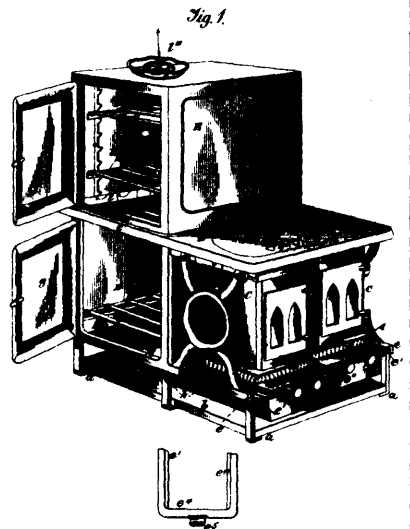
20927 Sobotka's Embroidering Machine.



20928 Cerin's Door Hinge.

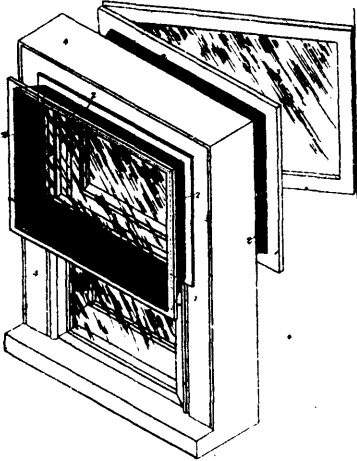


20929 Armour's Oil and Gas Stove.

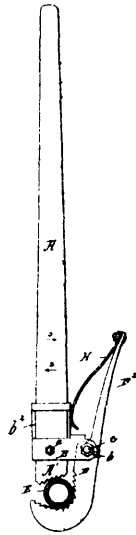


20930 Armour's Oil Stove.

FIG. 1.



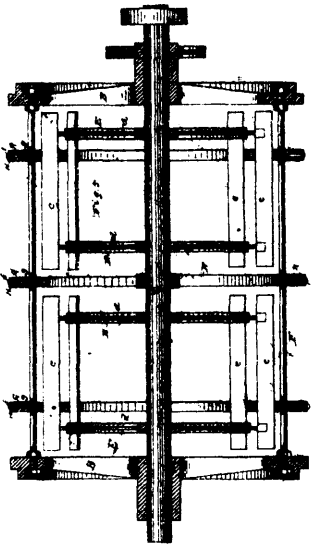
20931 Lawrence & Wintour's Ventilating Apparatus.



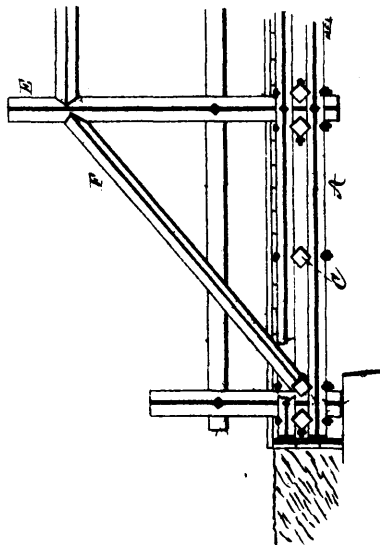
20932 Porter's Wrench.



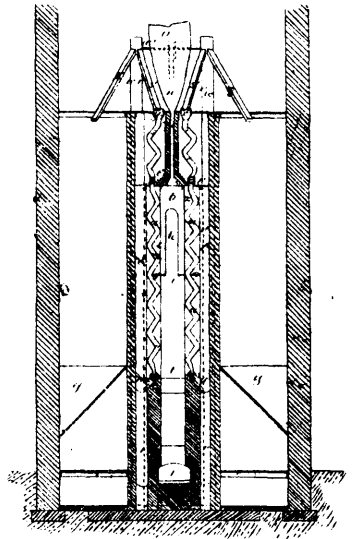
20934 Dealy's Game.



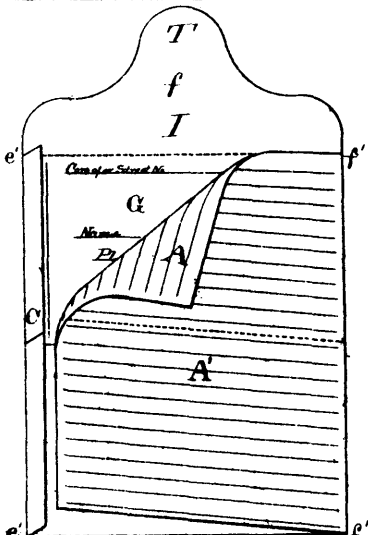
20935 Smith's Flour Bolt.



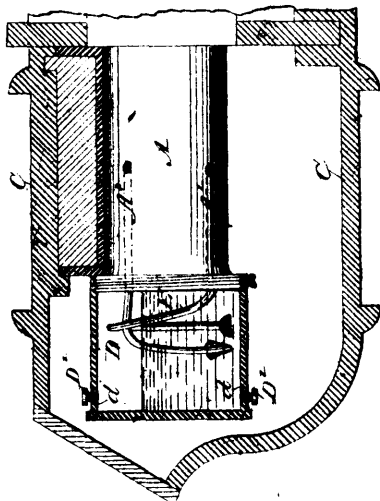
20936 Holman's Bridge.



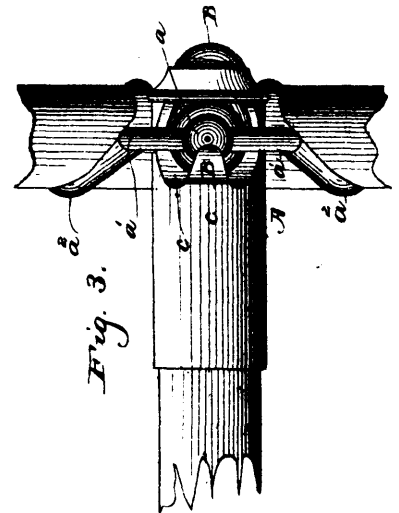
20937 Milne's Apparatus for Drying Grain.



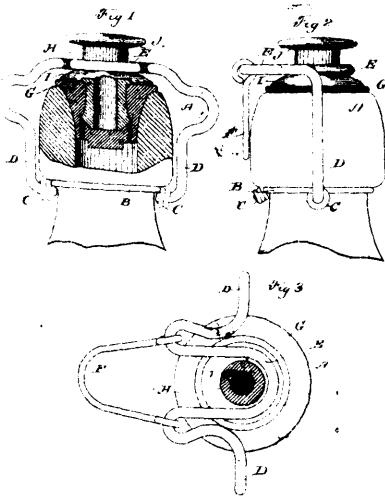
20938 Clegg's Combined Letter Sheet and Envelope.



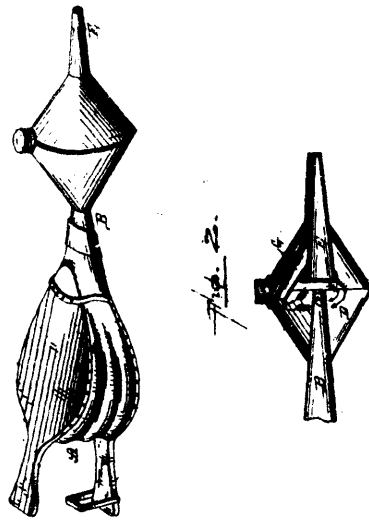
20939 Nichol's Lubricator.



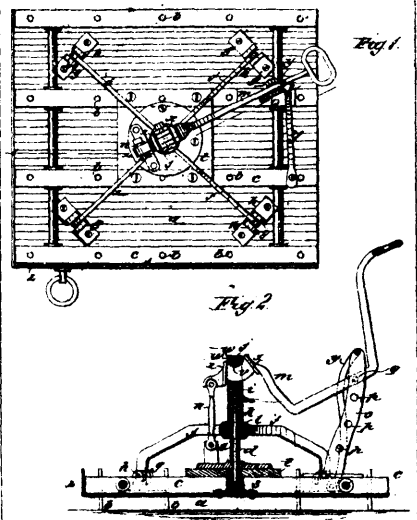
20940 McKibben's Neck Yoke Coupling.



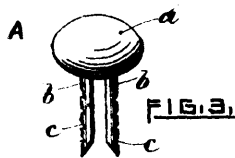
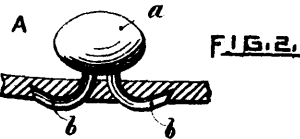
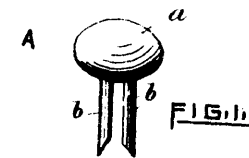
20941 Walter's Bottle Stopper.



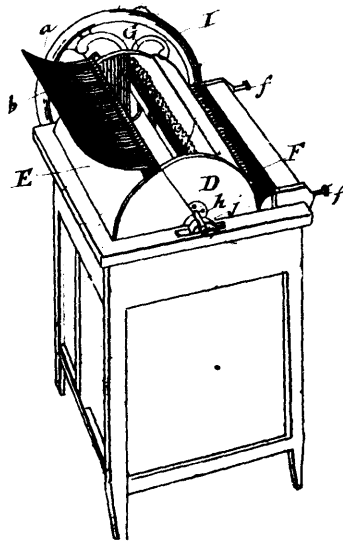
20942 Woodason's Bellows Attachment for Insect Powder, &c.



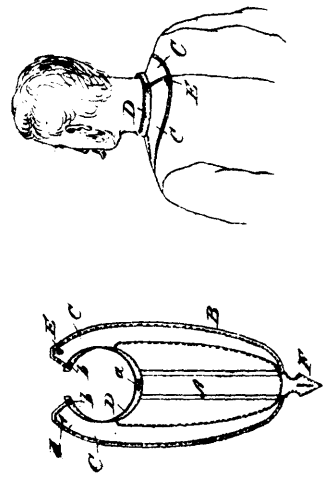
20943 Drew, Leisner & Nelson's Harrow.



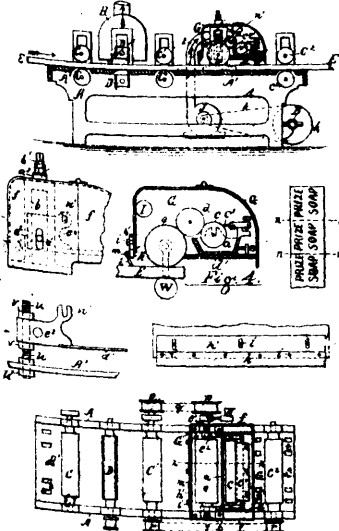
20944 Prentice's Button and Fastening.



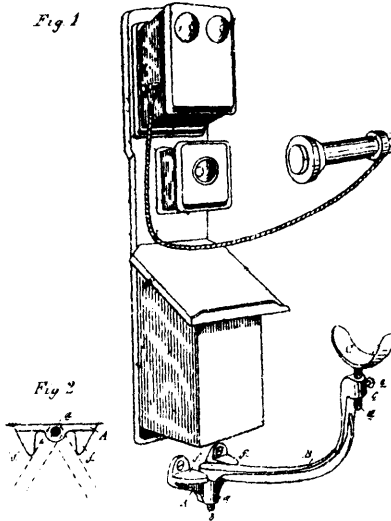
20945 Walsh's Machine for Cleaning and Brightening Dried Fruit.



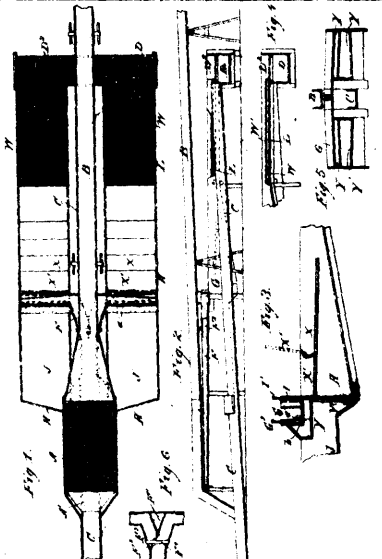
20947 Lee's Detachable Bosom.



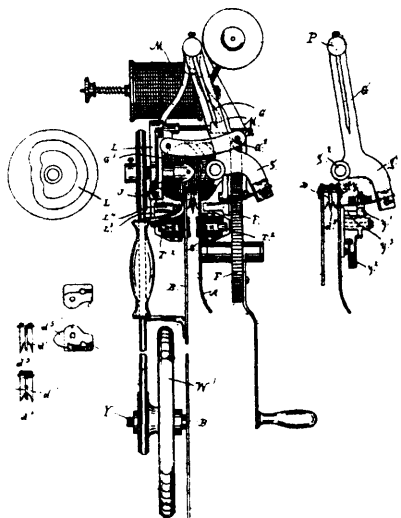
20948 Compton's Wood-Planing and Printing Machine.



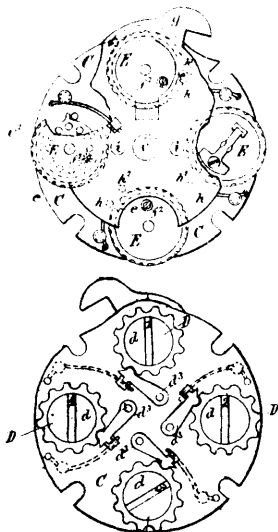
20949 Fitch's Arm-rest for Telephone Uses.



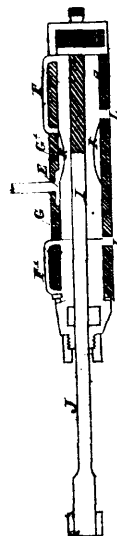
20950 Clarke's Ore Concentrator.



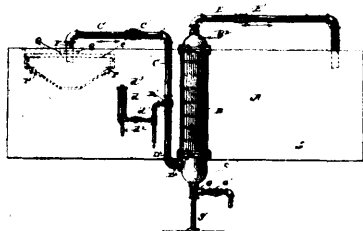
20951 Grisel's Sewing Machine for Stitching Carpets, Sall-Cloth, &c.



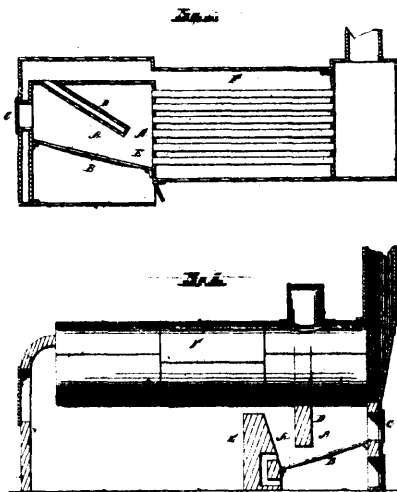
20952 Green's Permutation Lock.



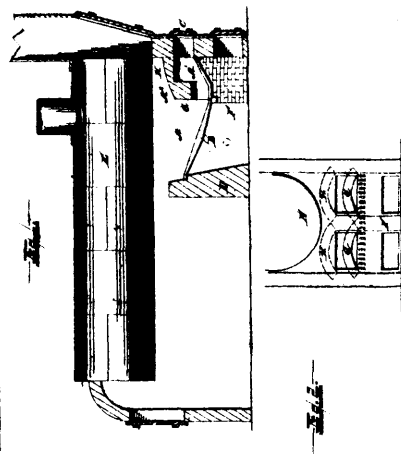
20953 Westbrook's Rock-Drill.



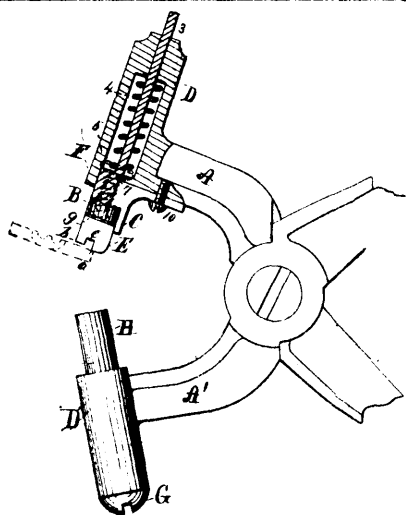
20954 Vanduzen's Automatic Boiler Cleaner and Water Purifier.



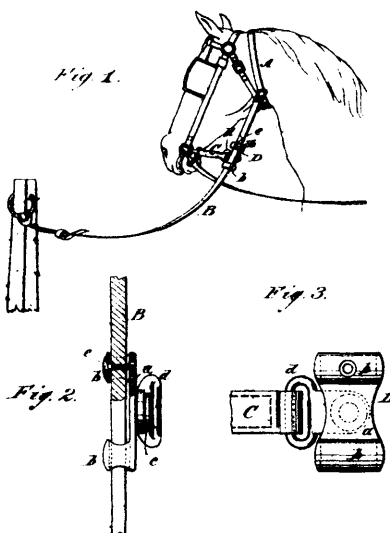
20955 Backus' Furnace.



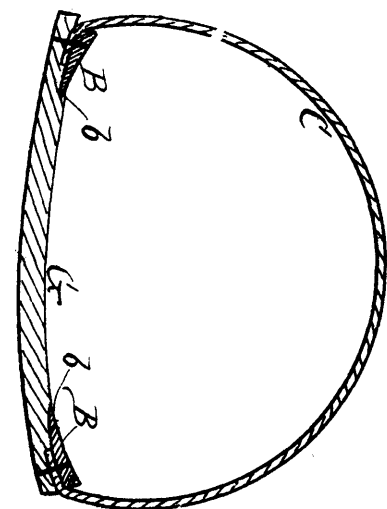
20956 Backus' Furnace.



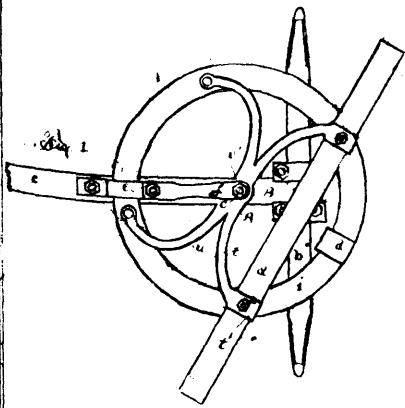
20957 Wilkins & Miller's Implement for Securing Buttons to Fabrics.



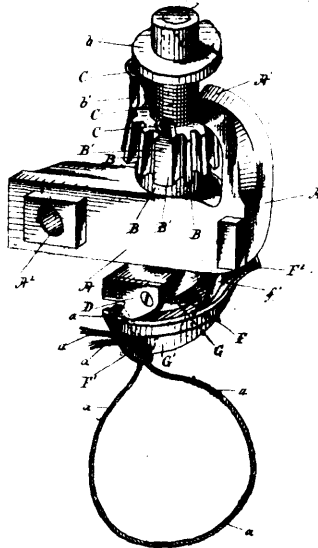
20958 Birdsall's Hitching Strap.



20959 Elam's Shoe.



20960 Higdon's Vehicle Coupling and Fifth-Wheel.



20961 Holmes' Automatic Grain Binder.

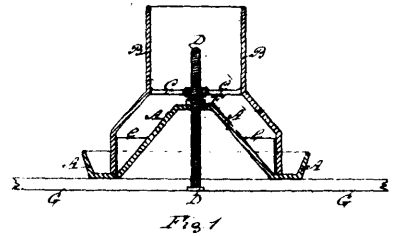


Fig. 1

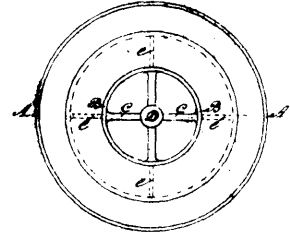
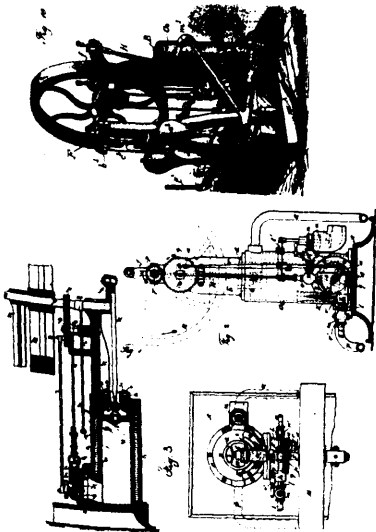
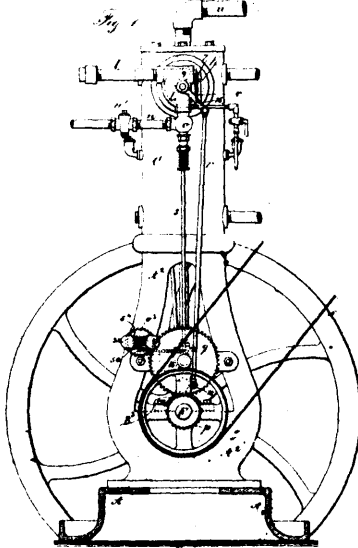


Fig. 2

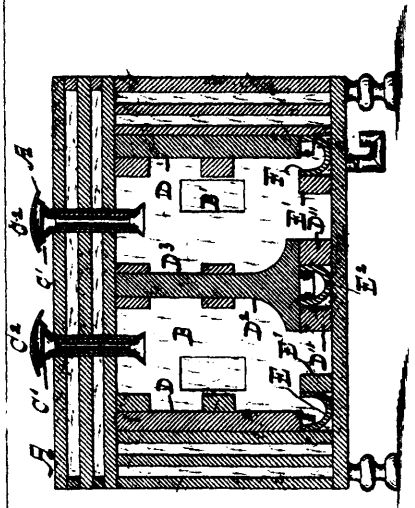
20962 Nolan's Feeder for Hogs.



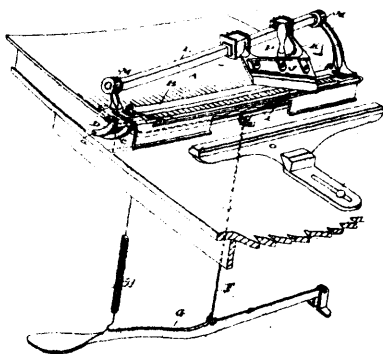
20963 Lawson's Gas Engine.



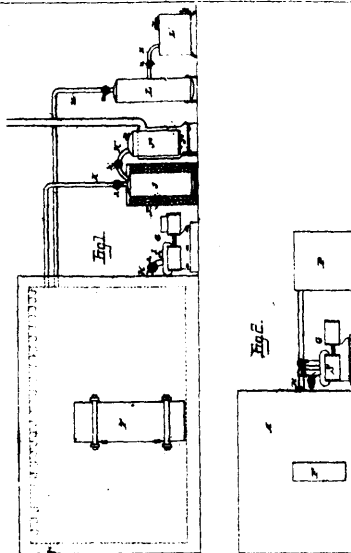
20964 Lawson's Gas Engine.



20965 Castell's Refrigerator.



20966 Ames' Machine for Shearing Sheets of Cardboard, &c.



20967 Holgate's Method and Means of Preserving Meat, &c.

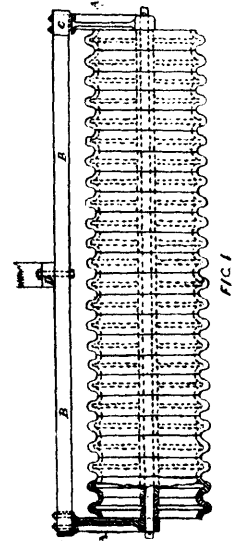
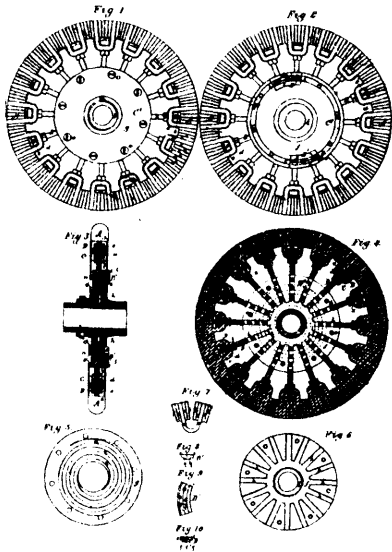
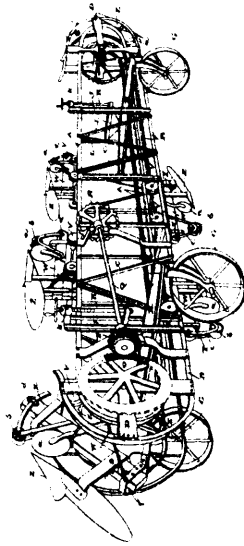


FIG. 1

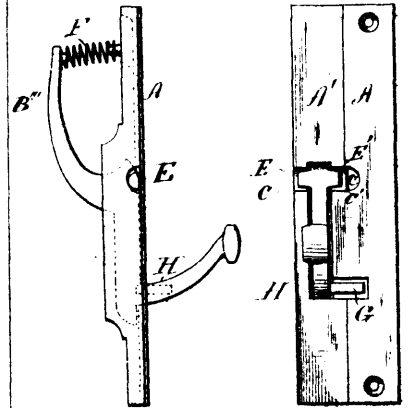
20968 Waldock's Land Roller.



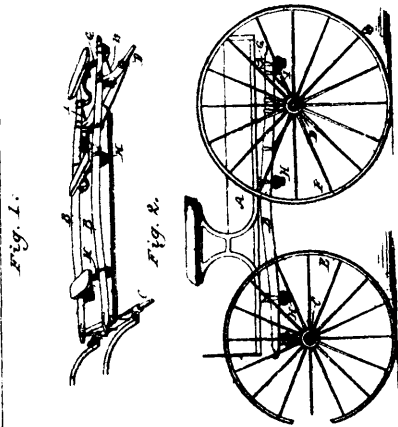
20969 Compton's Wheel for Grinding, &c.



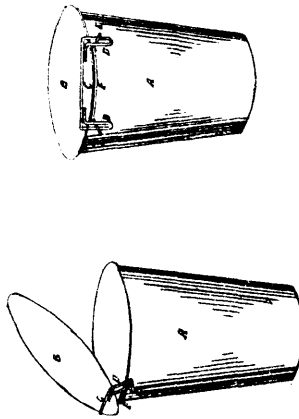
20970 Ingleton's Steam Ploughing Apparatus.



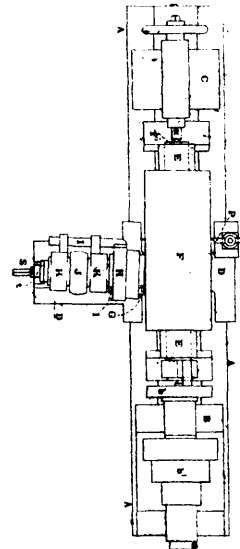
20971 Hugunin's Sash Fastener.



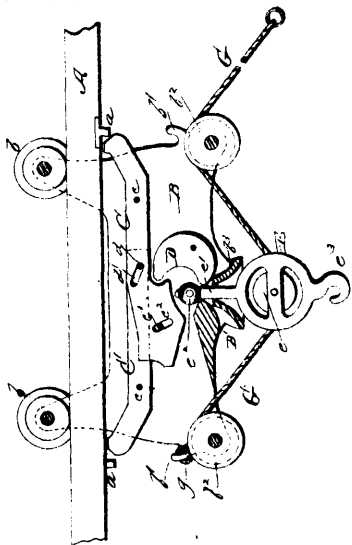
20972 Selby's Side-Bar Spring Waggon.



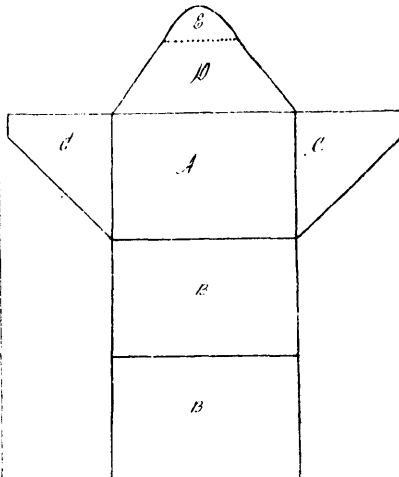
20973 Hall's Attachment for Sap Bucket Covers.



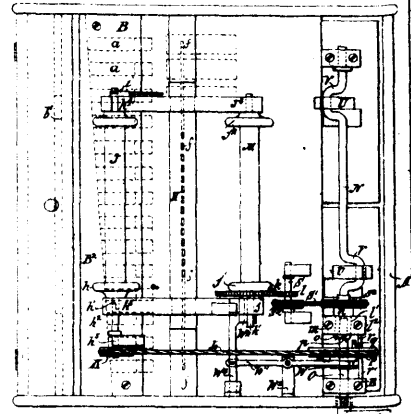
20974 Barclay's Machine for Grinding and Turning Curved Surfaces.



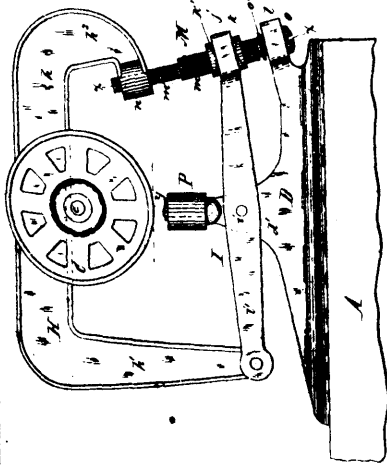
20975 Burbank & Page's Hay Carrier.



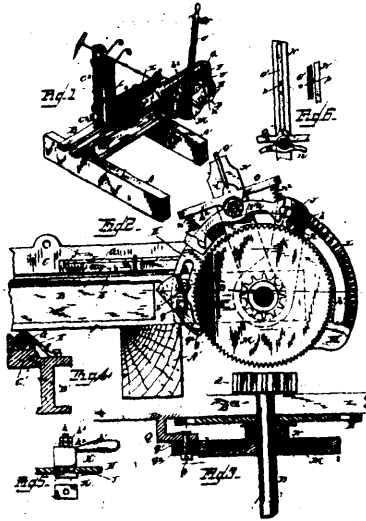
20976 Ames' Combination of Writing-paper and Envelope.



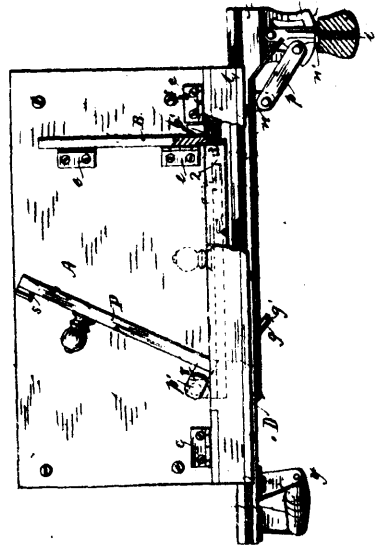
20977 Proudfit's Mechanical Musical Instrument.



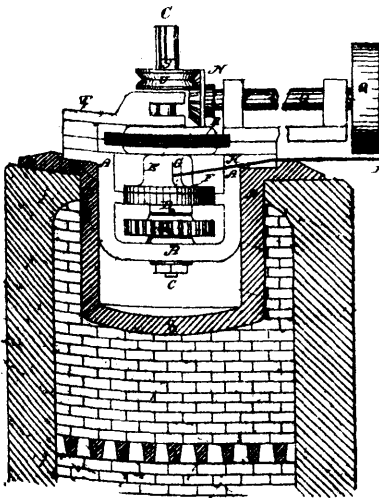
20978 Seely's Door-Hanger.



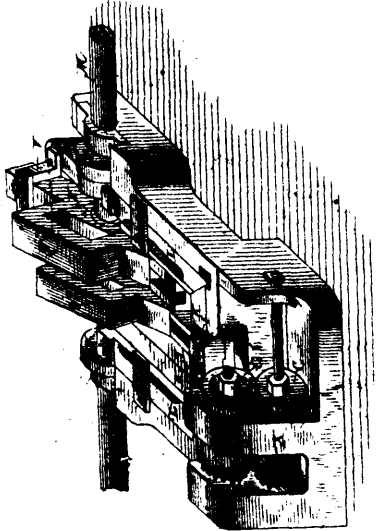
20980 Liddell's Set-work for Saw-mills.



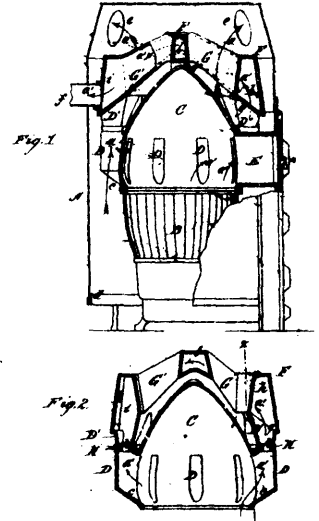
20981 Stevens' Meat and Vegetable Slicing Machine.



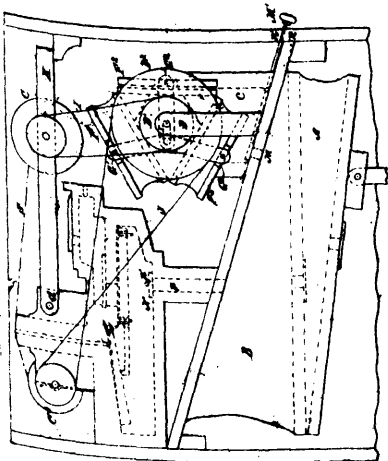
20982 Crowfoot's Machine for Making Coiled Wire Ferrules.



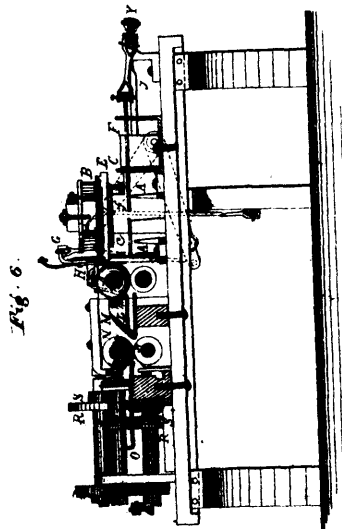
20983 Acheson's Machine for Manufacturing Railroad Spikes.



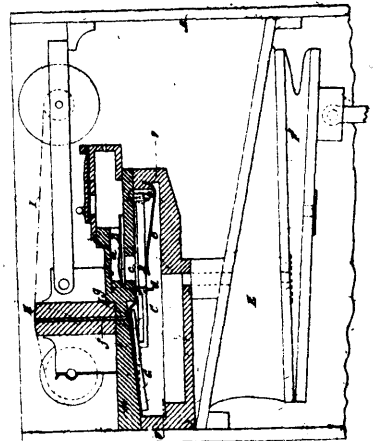
20984 Boynton's Hot Air Furnace.



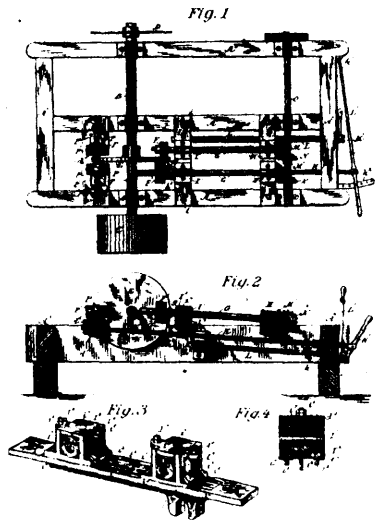
20985 Stanley's Motor for Music Sheets.



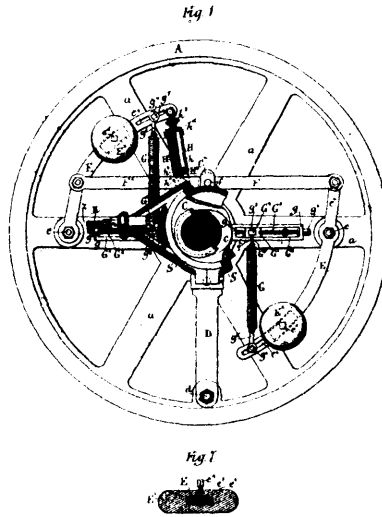
20986 Mann's Envelope Machine.



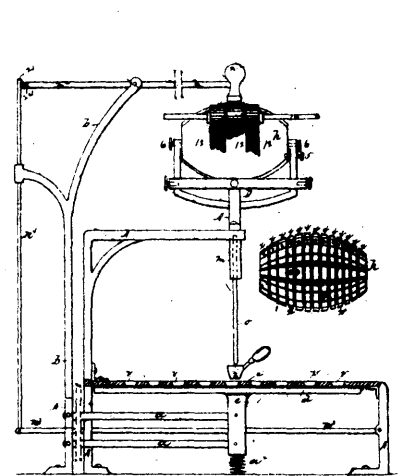
20987 Pain & Tremaine's Pneumatic Motor for Organs.



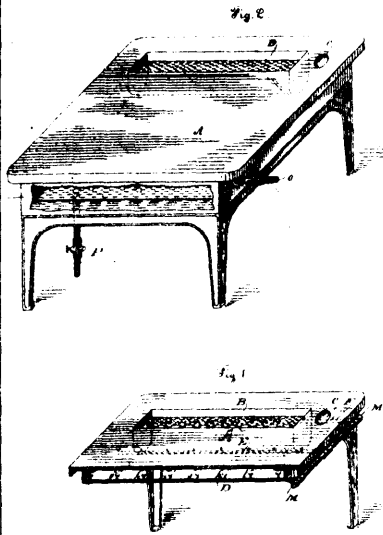
20988 Liddell's Saw-mill Feed Mechanism.



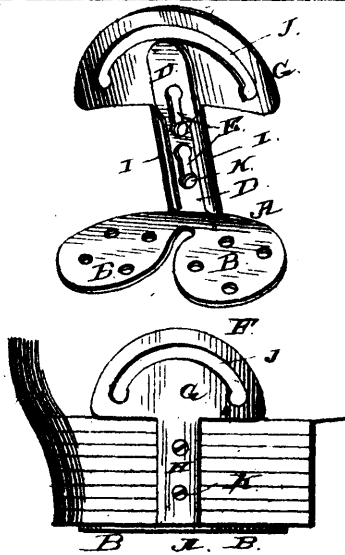
20989 Ide's Steam-Engine Governor.



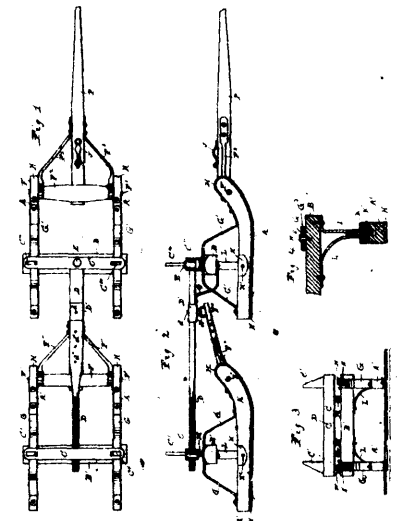
20990 Richardson's Type-writing Machine.



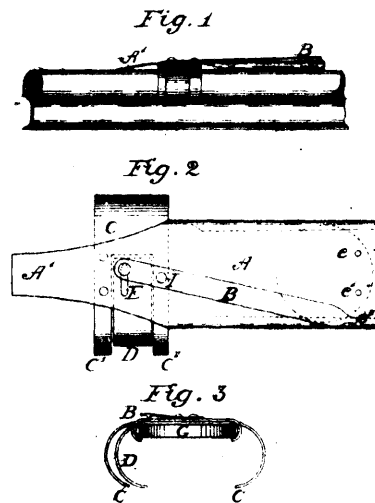
20991 Dingman's Machines for Waxing Paper.



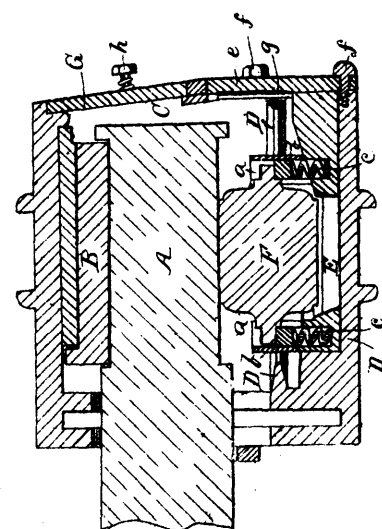
20992 Schnarr's Combined Heel-Plate and Counter-Support.



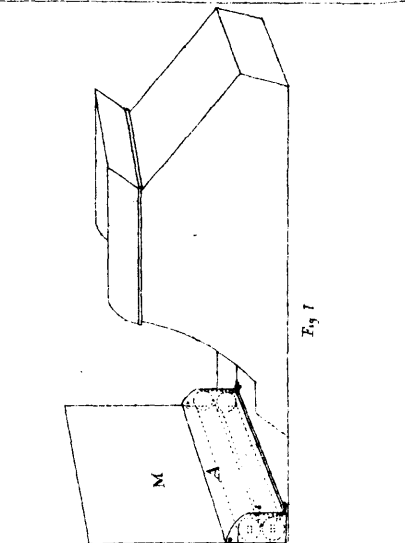
20994 Weller's Bob Sleigh.



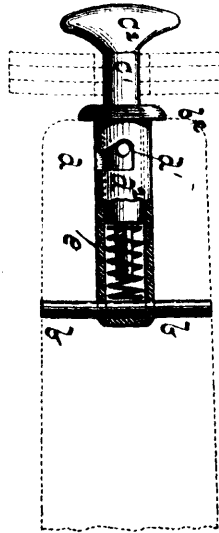
20995 McKay's Railway Torpedo Signal Lock.



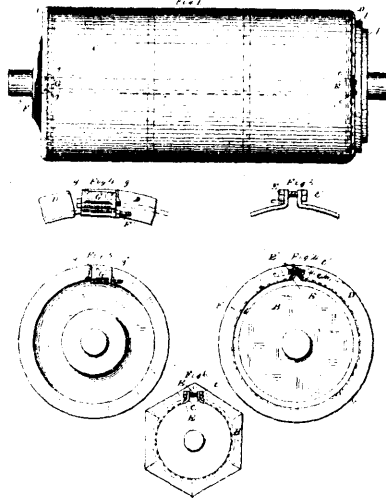
20996 Duprat's Car Axle Box.



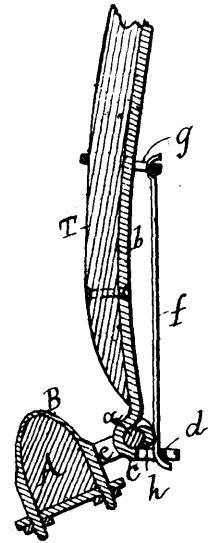
20997 McNeill's Carriage Apron Case.



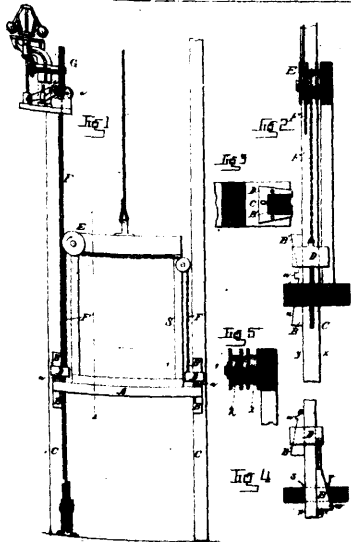
20998 Kohn's Whiffletree Hook.



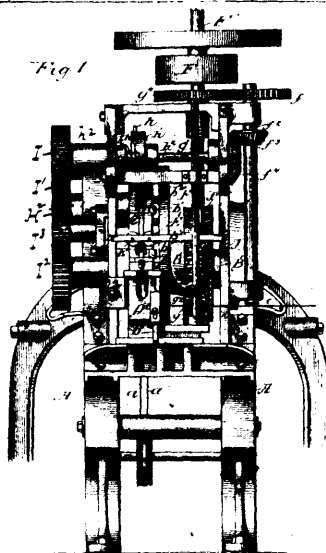
20999 Smith's Device for Tightening Bolting Cloth.



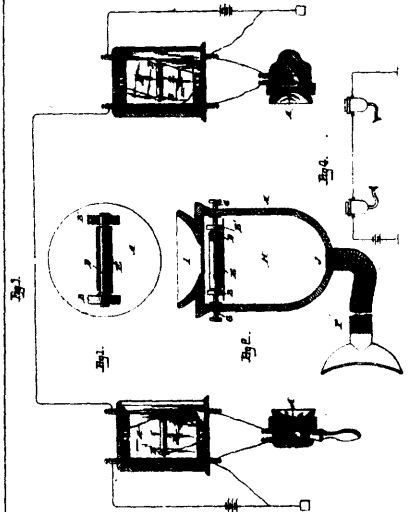
21000 Baker's Thill Coupling.



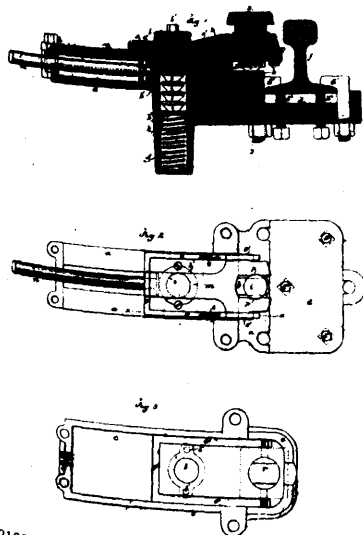
21001 Smith's Safety Device for Elevators.



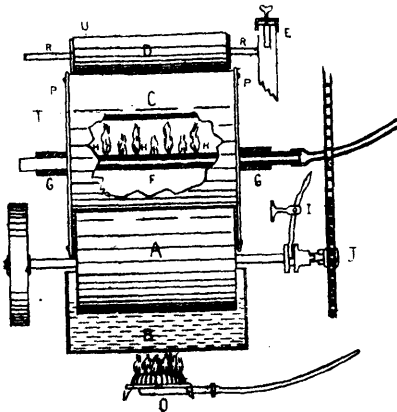
21002 Hill's Barbed Wire Fence Machine.



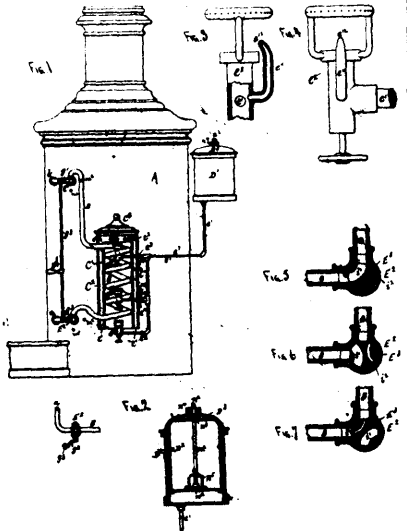
21004 Wallace's Telephone.



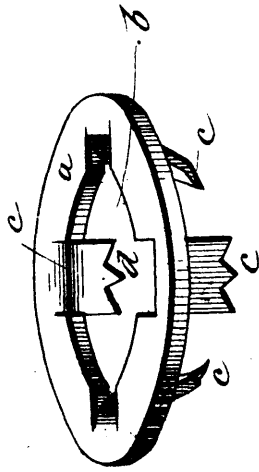
21006 Palmer's Torpedo Railway Signal.



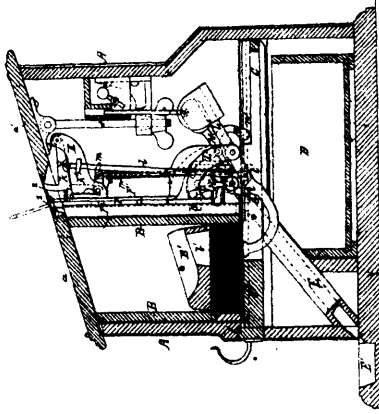
21006 Dingman's Machine for Waxing Paper.



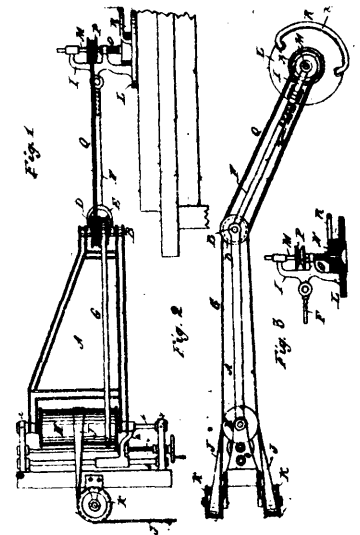
21007 Young's Steam Boiler Heater Attachment.



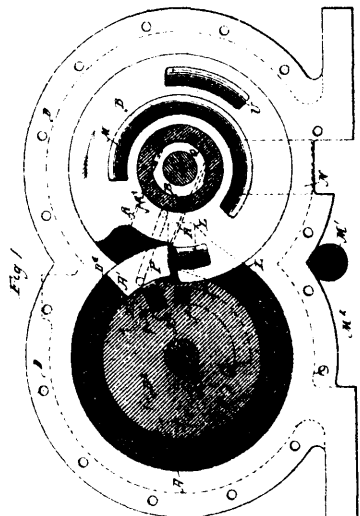
21008 Van Dusen's Nut and Bolt Lock.



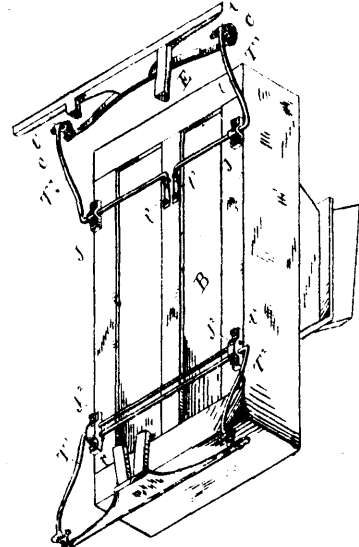
21009 Sandeman & Everitt's Apparatus for Delivering Prepaid Goods.



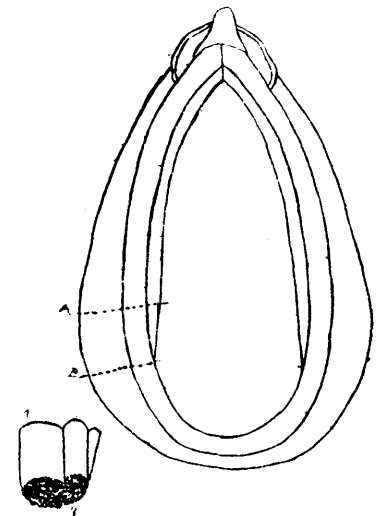
21010 Pierron's Polishing Machine.



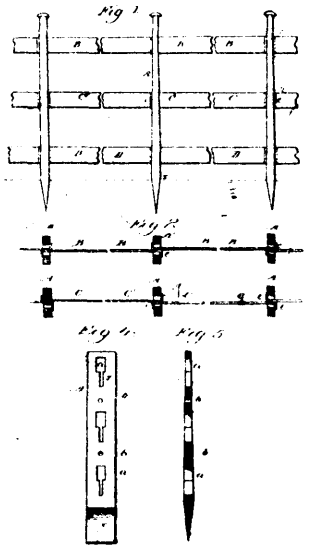
21011 Harrington's Rotary Engine.



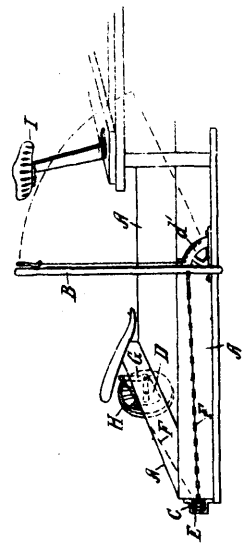
21012 Mutholland's Vehicle Spring.



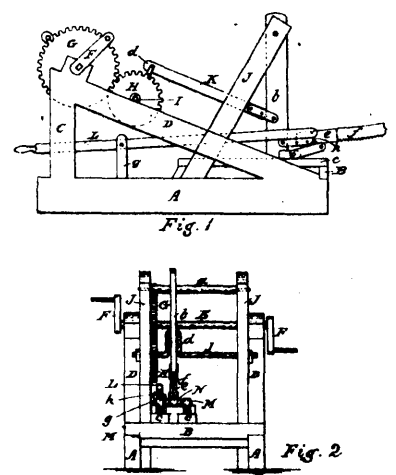
21013 Coleman's Horse Collar.



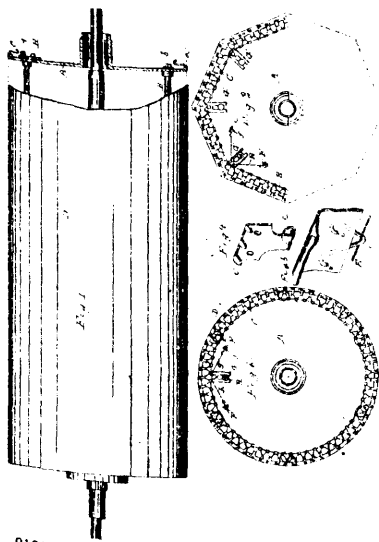
21014 Barnes' Fence.



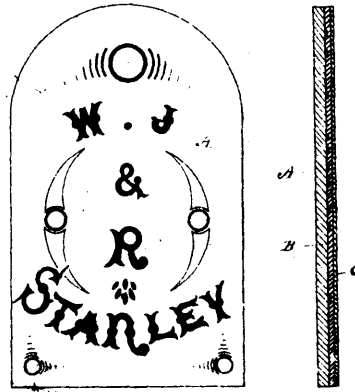
21015 McLachlan's Self-binding Harvester.



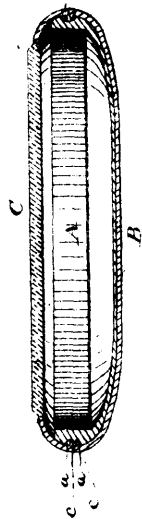
21016 Ostigny & Dubuc's Wood-Sawing Machine.



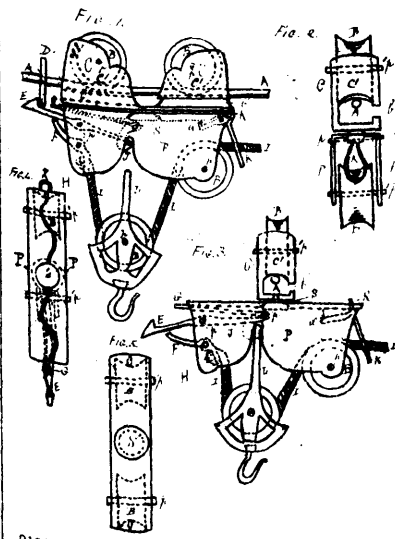
21017 Smith's Device for Stretching Bolting Cloth.



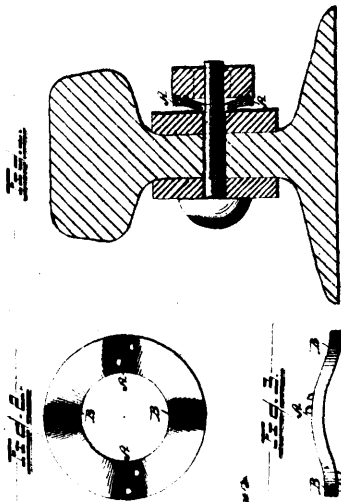
21018 Stanley's Luminous Sign.



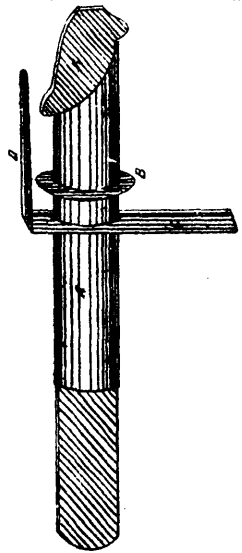
21019 Hefferman's Watch Case.



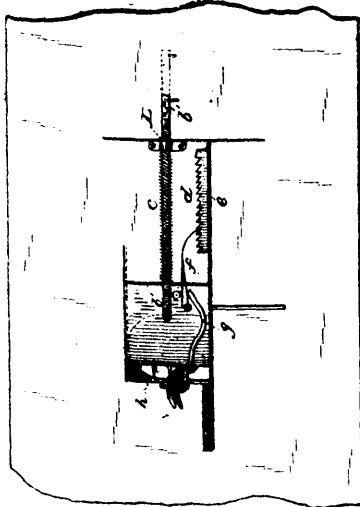
21020 Hall, Robinson & Beane's Hay-Carrier Machine.



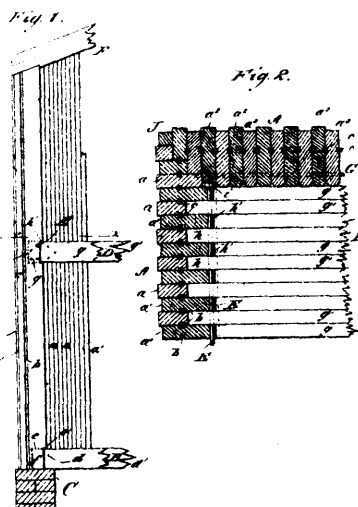
21021 Pennock's Nut Lock.



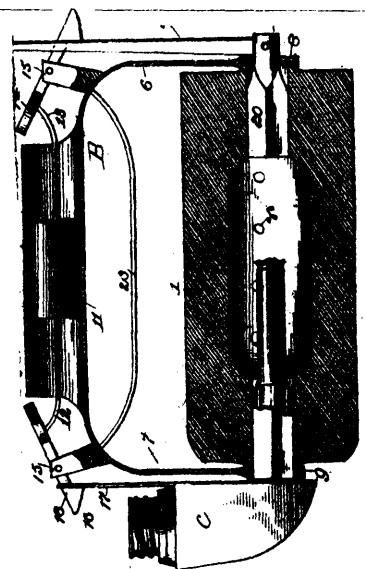
21022 Farman's Sap Spout.



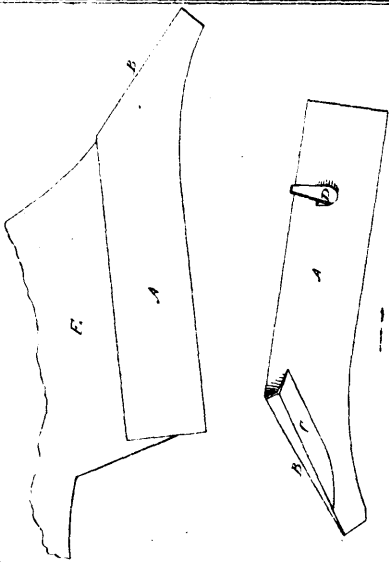
21023 Grebe's Burglar Trap.



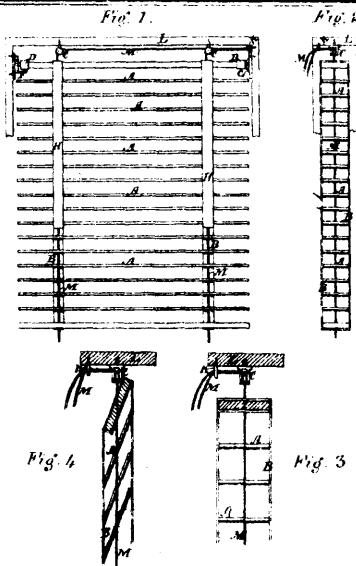
21024 Pearsall's Construction of Buildings.



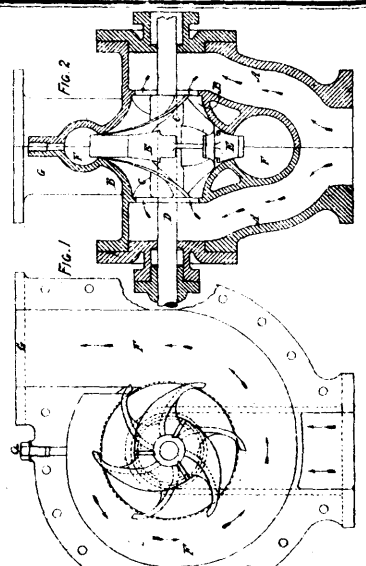
21025 Yarger's Reversible Sad Iron.



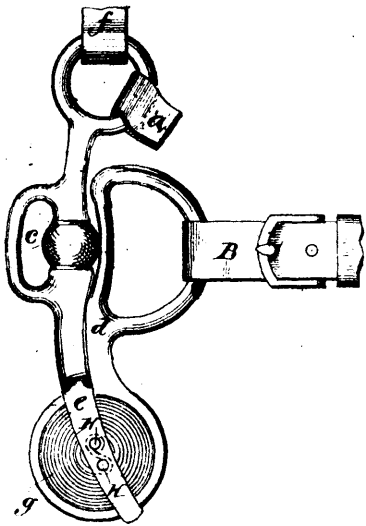
21026 Kriner's Plough Share.



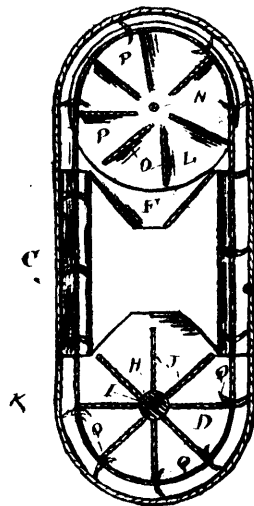
21027 Metcalfe's Window Shade.



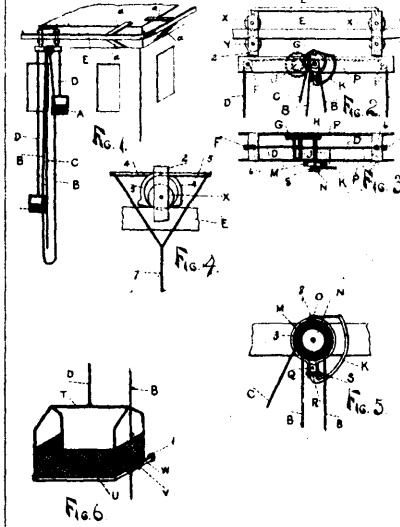
21028 Wade & Cherry's Pump.



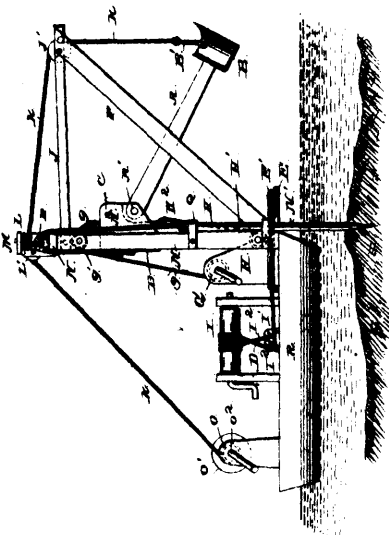
21029 Chandler's Bridle Bit.



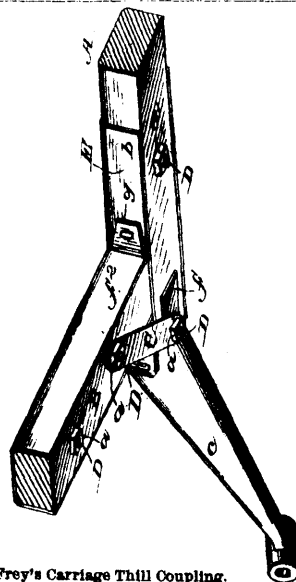
21030 Everett's Grain and Flour Elevator.



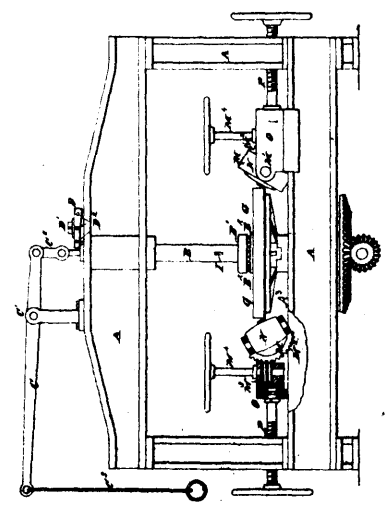
21031 Corder's Fire-Escape.



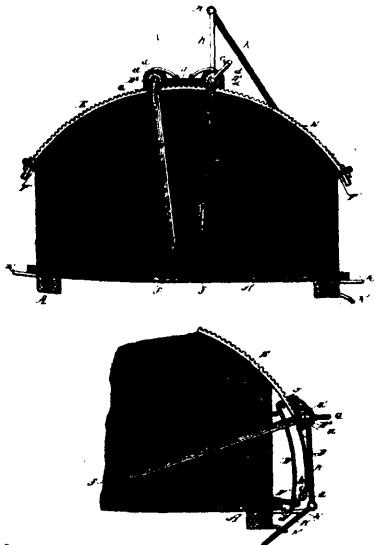
21032 Carter's Dredging Machine.



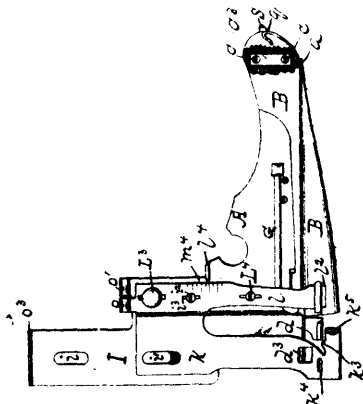
21033 Frey's Carriage Thill Coupling.



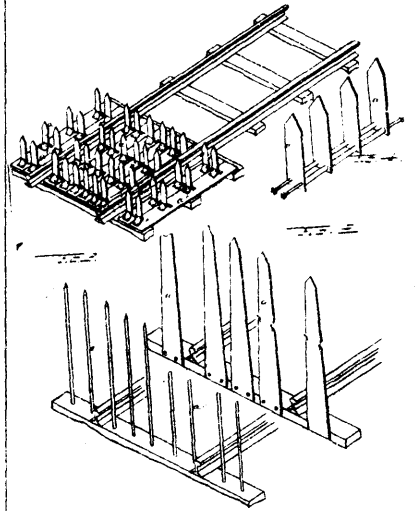
21034 O'Brien's Machine for Flanging Boiler Heads.



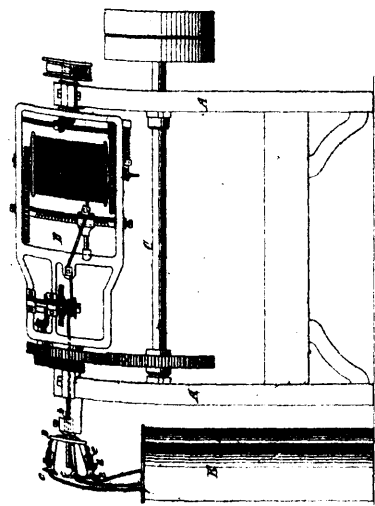
21035 Wyman's Railway Car Cover.



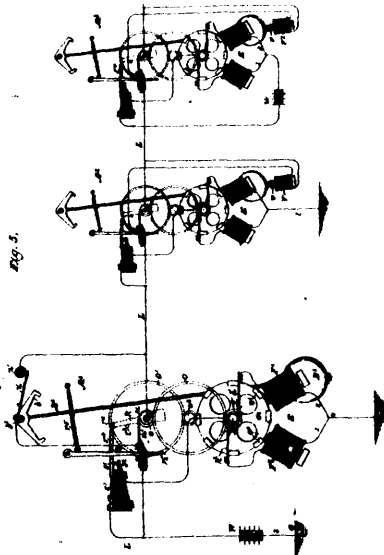
21036 Hilgner's Binding Attachment for Sewing Machines.



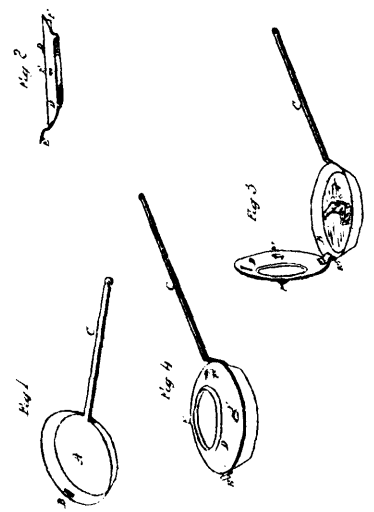
21037 Gilbert's Railway Cattle Guard.



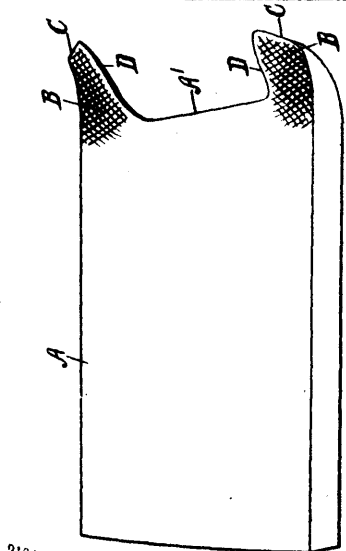
21038 Good's Manufacture of Cordage, &c.



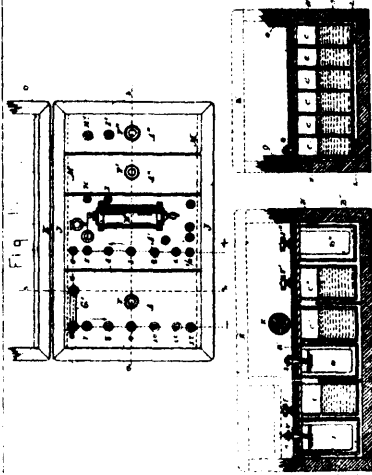
21039 Pond's Electro-Mechanical Clock.



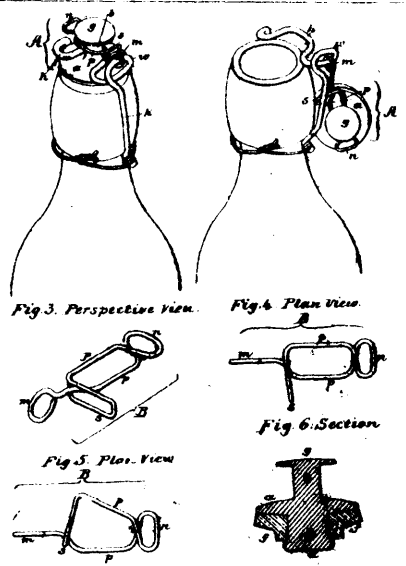
21040 Perkins' Frying Pan.



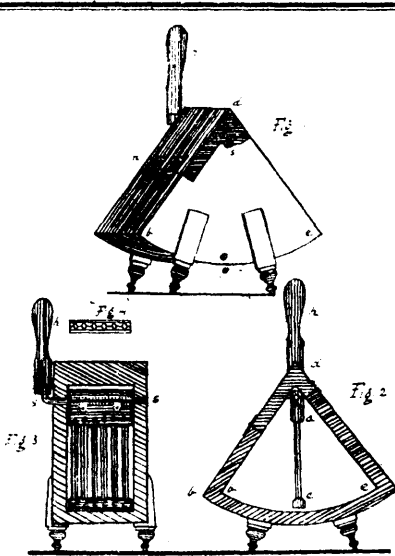
21041 Trott's Cutter for Hoop Machines.



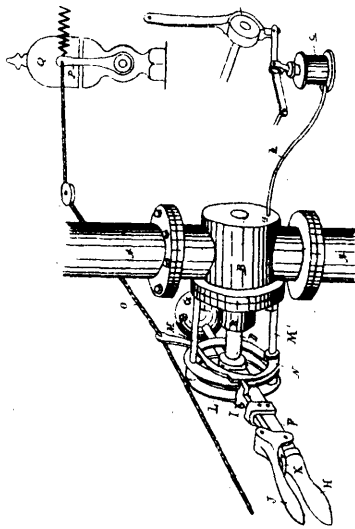
21042 Rosebrugh's Galvanic and Combination Galvanic and Faradic Batteries.



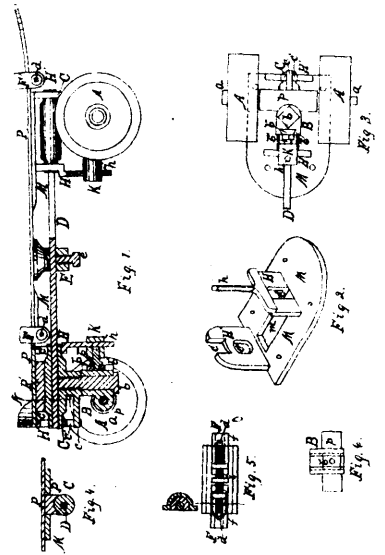
21043 Lloyd's Bottle Stopper.



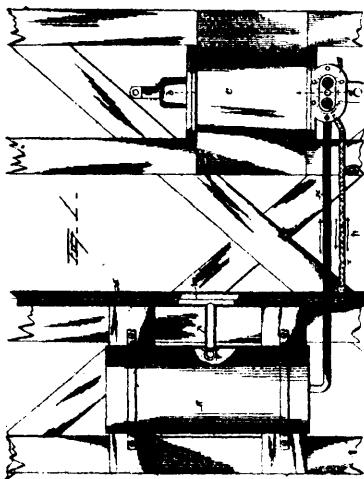
21044 Collins' Churn.



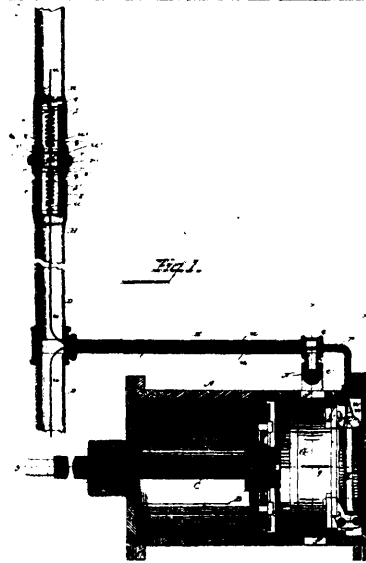
21045 Parker's Throttle Valve.



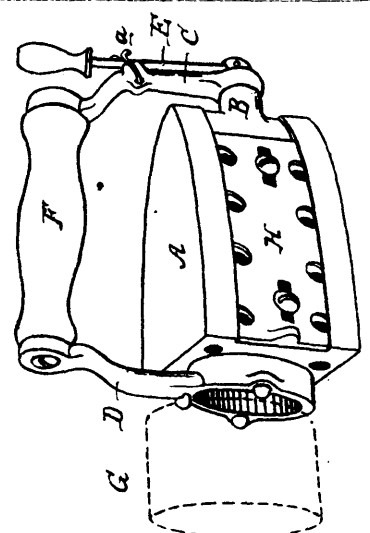
21046 Slocomb's Roller Skate.



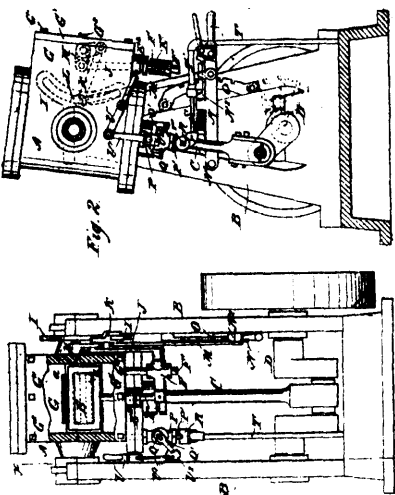
21047 Flad's Car Brake.



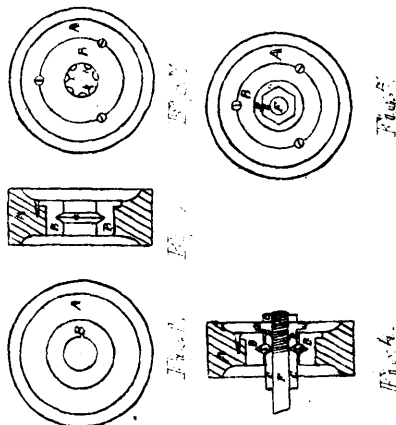
21048 Flad's Electric Magnetic Air Brake.



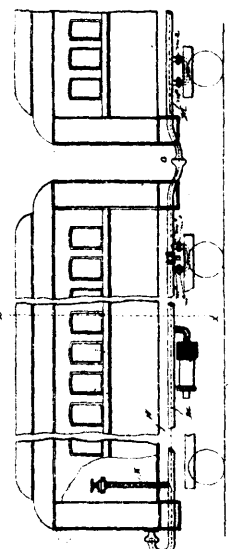
21049 Cheney's Sad Iron.



21050 Waldron's Oscillating Steam Engine.



21051 Carman's Wheel for Roller Skates.



21052 Flad's Railway Air Brake.

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