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INVENTIONS PATENTED.

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

No. 29,038. Tip for Mucilage and other similar Receptacles. (*Bouchon de réceptif à colle et autre.*)

Walter H. Underwood, Denver, Col., and Norton P. Otis, Yonkers, N. Y., U. S., 1st May, 1888; 5 years.

Claim.—1st. A flexible elastic tip or cap for mucilage and other similar receptacles, having a spreader and a slit or slits, which is or are opened by the spreader, when pressure is applied against it, as in the act of spreading, and is or are closed by the elasticity of the material in resuming its normal shape, substantially as described. 2nd. A flexible elastic tip for liquid receptacles, having a part adapted to operate as a spreader, and having a slit or slits transverse to said spreader, substantially as described. 3rd. A flexible elastic spreading tip, having a closed or solid end and provided on its side or sides with one or more transverse slits, substantially as described. 4th. A flexible elastic spreading tip for liquid receptacles, provided with a slit, and having the material reduced in thickness at, and adjacent to, said slit, to aid in securing the easy opening thereof, substantially as described. 4th. A flexible elastic spreading tip for liquid receptacles, having portions of its walls or sides strengthened, substantially as described. 5th. A flexible elastic cap or tip, adapted to be applied to the neck or opening of a liquid receptacle, said tip having solid walls and a flattened spreader, substantially as described. 6th. A flexible elastic cap or tip, adapted to be applied to the neck or opening of a liquid receptacle, said tip having solid walls, which are adapted to be slit to form a discharge opening or openings, and to form a spreader adjacent to the point of the slit or slits, substantially as described. 7th. A flexible elastic cap or tip, adapted to be applied to the neck or opening of a liquid receptacle, said tip having solid walls, which are adapted to be slit, an index mark or marks to indicate the position of the slit or slits, and a flattened spreader, substantially as described.

No. 29,039. Collar Button and Tie Fastener.

(*Bouton de col et agrafe-cravatte.*)

George R. Helden, St. Thomas, Ont., 1st May, 1888; 5 years.

Claim.—The combination of the tape A and the button B, and the manner of adjusting the same, substantially as and for the purpose hereinbefore set forth.

No. 29,040. Fence. (*Clôture.*)

Melbourne Walker, Florence, Ont., 1st May, 1888; 5 years.

Claim.—1st. The coupling brace F passing under one of the rails R, in combination with the inclined brace A, A, substantially as shown and described and for the purpose specified. 2nd. The anchor brace D and anchor E, in combination with the inclined braces A, A, substantially as shown and described and for the purpose specified. 3rd. The two brace C, longitudinal rail R and top rail W, in combination with the inclined braces A, A, substantially as shown and described and for the purpose set forth. 4th. The combination of the coupling brace F, anchor brace D, anchor E and tie brace C, with the inclined braces A, A, top rail W, longitudinal brace L, uprights U, U, one or more bands B, B, longitudinal rails R, R and support S, substantially as shown and described.

No. 29,041. Measuring Tank.

(*Réservoir-compteur.*)

Jacob H. Linck, Williamsport, Penn., U. S., 1st May, 1888; 5 years.

Claim.—1st. The combination of the cover, having pivoted to it the pump handle, having connected to it both the cylinder and the piston rod, and the pump, inside of the top of which the lower end of the piston fits, substantially as set forth. 2nd. The combination of the pump, the valve loosely connected to its lower end, and valve rod

provided with a tension sufficient to hold it in place as required, substantially as specified. 3rd. A measuring tank, in which are combined two or more measures, which are placed one within the other, and which are connected to a filling tube by means of pipe and cocks, the pump for filling the measures, a valve for closing the lower end of the pump, and a tension rod connected to the valve and operated from outside of tank, and a piston rod having a cylinder connected thereto, substantially as specified.

No. 29,042. Electro-Mechanical Gong.

(*Gongue électro-mécanique.*)

The Electric Gas Lighting Company (assignee of Jacob P. Tirroll), Boston, Mass., U. S., 1st May, 1888; 5 years.

Claim.—1st. In an electro-mechanical gong, the combination of the star-throw D with lever H, provided with pin 12, hammer C, dog F, standard 11, plate E, movable pivoted at 3, and having pins 1 and 2, substantially as and for the purposes set forth. 2nd. In combination with a clock mechanism and electro-magnet, a locking and unlocking device, consisting of a lever or throw-wheel D, lever H, having pin 12, hammer G, dog F, standard 11, movable plate E, with pins 1 and 2, and a latching device consisting of latch lever L, with pins 6 and 7 pivoted at 5, and having latch 1 pivoted at 4, and an armature provided with a lip or extension K, having a pin 8, all substantially as and for the purposes described.

No. 29,043. Apparatus for the Automatic Administration of Electricity for Medical and other Purposes.

(*Appareil pour l'application automatique de l'électricité pour des fins médicales et autres.*)

Mathew C. Greenhill, Tulse Hill, Eng., 1st May, 1888; 5 years.

Claim.—1st. The construction and use of apparatus for automatically administering a current of electricity on the release of a balanced locking catch, by means of the weight of a coin of predetermined size and value, substantially as set forth. 2nd. The combination, with an electric coil, battery and contact breaker, of a rotating handle or knob G, spindle H, cranked lever L, spring K, arm or cam L, balanced catch c, lever e, flap or shield d, graduated quadrant P and index pointer Q, substantially as set forth and shown. 3rd. In the device referred to in the first claim, the combination therewith of a pivoted handle G (Fig. 4), cranked at the lower end and comprising slot i, arm or cam j and spring k, substantially as set forth and shown. 4th. In an apparatus for the automatic administration of electricity, the combination, with an electrical arrangement, of a sliding graduated rod R, handle G, spring k, balanced catch c and lever e, substantially as set forth and shown.

No. 29,044. Load Binding Device.

(*Embrelage de fardeau.*)

Samuel C. Webster, Toronto, Ont., 1st May, 1888; 5 years.

Claim.—1st. A load binder, consisting of a main casting or plate, a hand lever pivoted thereto, a yoke lever pivoted to said hand lever and having a catch for one end of a chain, and means for fastening the other end of the chain to said main casting or plate, substantially as and for the purpose set forth. 2nd. In a load binding device, the combination, with the casting A having hook D, or its equivalent, and bearing a, of the hand lever B, pivot pin at, yoke lever C, pivoted to said hand lever and having slot C, and a suitable chain or its equivalent, substantially as set forth.

No. 29,045. Machine for Drying Wool.

(*Machine à sécher la laine.*)

William Nelson and Eugene Bowen, Tomoana, New Zealand, 1st May, 1888; 5 years.

Claim.—The general combination and arrangement of parts constituting the improved wool drying machine, hereinbefore described and illustrated in the accompanying drawings, that is to say, a drum constructed with open ends and with bars and shelves for supporting and raising the wool, the said drum revolving in a casing furnished with a longitudinal air-trunk and with doors, an air-pipe being ap-

plied to the feed end of the said drum, and the whole being arranged and operating essentially as and for the purposes described.

No. 29,046. Hot Water Heater.

(Calorifere à eau.)

Charles Sellers, Toronto, Ont., 1st May, 1888; 5 years.

Claim.—1st. In a hot water heater, the combination, with a suitable shell and fire grate, of a fire-pot composed of double walls with a water space between them, such walls being inclined from bottom to top towards the centre, so as to form the frustum of a hollow cone, for the purpose specified. 2nd. In a hot water heater, the combination, with a suitable shell and fire grate, of a fire-pot composed of double walls, with a water space between them, the diameter of such pot being less at the top than at the bottom, and the inner wall being corrugated or waved, substantially as and for the purpose described. 3rd. In a water heater, the combination, with a suitable shell fire-pot and grate, of two or more superimposed sections D, each composed of a water chamber, a combustion chamber and a flue passing through the water chamber, said water chamber being connected by two apertures *f, f* arranged in corresponding vertical lines, so as to form two vertical water columns F, F, one at each side of the heater, and a suitable inlet and outlet, substantially as and for the purpose described. 4th. In a sectional hot water heater, the combination, with a suitable base grate and fire-pot, of two or more superimposed sections, each composed of a combustion chamber, a water chamber and an internal flue, the heating surfaces of such sections being corrugated in the line of passage of the products of combustion, substantially as and for the purposes described. 5th. In a sectional hot water heater, the combination, with the grate and with the conical fire-pot B, having the corrugations of the corrugated fire-door, ring C, and two or more superimposed sections D, having corrugations upon their heating surfaces, all of said corrugations being arranged parallel with the line of passage of the products of combustion, substantially as and for the purpose described.

No. 29,047. Saw Swage. (Etampe à scie.)

Isaac M. House, Gravenhurst, Ont., 1st May, 1888; 5 years.

Claim.—1st. In a saw-swage, the combination of two plates firmly connected and having ribs to keep them apart, and forming a recess for the insertion of the saw blade and for operating the die, a stud journaled in the rear plate and projecting through, and bearing in the front plate, and provided with an eccentric to operate the swaging die, and with an angular head for the application of a wrench, a swaging die bedded in a recess and fitted and bearing against the eccentric on said stud, and held thereon by a spring, and guided at its lower end by a projection or rib, and its working face butting against an anvil, an anvil having a lateral angular notch adapted to receive a sliding gauge, a spring gauge or guide having an inclined face entering and moving in a notch in the anvil, and pressed therein and against a guide rib by a spring, a fast clamp dog secured in said back plate for the saw-tooth to butt against, a dog placed opposite to said dog and adapted to slide transversely in the front plate and retracted by a spring, a lever pivoted to the front plate and adapted to bear against the end of the movable dog, a cam ended hand-lever pivoted to the front plate and its eccentric or cam-end adapted to bear against and operate the pressure lever, substantially as set forth. 2nd. In a saw-swage, the combination of the plate A, having the rim *a*, *a*, facing *a*¹ and recess *a*², stud B, journaled in said plate and bearing in the plate H, provided with an eccentric *b* and adapted to be operated by a wrench C, swaging die D, adapted to be operated by the eccentric *b* and spring *d*, anvil E, having a notch *e* adapted to receive a sliding gauge, a sliding gauge F, having an angular face adapted to slide in the notch *e* and operated by a spring *f*, a dog *g* secured firmly in the back plate, a movable dog G¹ adapted to slide in the front plate and operated by a lever and a spring *g*¹, the front plate H adapted to bolt against the facings *a*, *a*¹, of the back plate and provided with lugs *h*, *h*¹, bearing for the stud B, and slot for the dog G¹, a pressure lever I, pivoted to the lug *h* and adapted to bear against the end of the dog G¹, and to be operated by the hand lever J, and provided with a set-screw *i*, and a hand-lever J having an eccentric or cam-shaped end pivoted to the lug *h*¹, and adapted to bear against and operate the lever I, substantially as set forth. 3rd. In a saw-swage, the front plate H and back plate A, firmly connected by bolts, and having formed between them suitable cavities or recesses for the swaging die and the reception of a saw blade, a stud B journaled in said back plate and bearing in said front plate, and provided with an eccentric *b*, and with means of operating said stud, a swaging die D, fitted to the eccentric *b* and held thereon by a spring *d*, substantially as set forth. 4th. In a saw-swage, a plate H having lugs *h*, *h*¹, and a transverse slot to receive a sliding dog G¹, the depending pressure lever I, pivoted to the lug *h* and bearing on the end of the said dog, and provided with a set-screw *i*, a cam-ended hand-lever J, pivoted at its cam-shaped end to the lug *h*¹, and adapted to bear upon the end of the pressure lever I, substantially as set forth.

No. 29,048. Tubular Lantern.

(Lanterne tubulaire.)

John H. Stone, Hamilton, Ont., 1st May, 1888; 5 years.

Claim.—1st. In combination with a tubular or other lantern, of a movable reflector G having its flange *b* cut to conform to, and fit the shape of the globe, and secured to the lantern in any convenient manner, substantially as specified. 2nd. In combination with a tubular or other lantern, of a reflector G having its flange *b* cut to conform and fit the round shape of the globe, and secured to the guard E by hooks *d*, substantially as specified. 3rd. In combination with a tubular or other lantern, of the reflector G secured to the side tubes A, A, by means of wires *c*, *c*, attached to reflector and made to enter sockets *f*, *f*, attached to the tubes, substantially as and for the purpose specified. 4th. The combination, in a tubular or other lantern, of the dash-board spring holder H, attached by sockets A to the tubes A, A, substantially as specified. 5th. In a tubular or other lantern, the combination of the reflector G, guard E, holder H, globe D, all arranged substantially as and for the purpose specified.

No. 29,049. Cartridge Loading Machine.

(Machine à charger les cartouches.)

Gorshom M. Peters, Xenia, Ohio, U.S., 1st May, 1888; 5 years.

Claim.—1st. In a cartridge loading machine, the combination, with a movable table and means for actuating the same, of a stationary table supporting the shell-filling devices, and provided with an opening for the passage of the shell to the shell-holder, an incline to force the shell up as the case is moved forward, and spring catches to hold the shell in place until the case is moved away from the opening in the table, as set forth. 2nd. In a cartridge loading machine, the combination, with a rotating table carrying a series of shell-holders, of a stationary table having adjustable plates supporting the shell as it stands under the indenter, and the wad outer and placers, said plates being vertically adjustable, whereby the pressure upon the shells may be regulated while the loads are being compressed, as set forth. 3rd. In a cartridge loading machine, the combination, with a stationary table provided with adjustable plates for supporting the shells while under the indenter, wad-outter and rammer, of a revolving table and mechanism for moving it within the stationary table, and a series of shell-holding cases secured to said movable table, said cases being at top and bottom and extending over the stationary table as a base beneath the filling devices and over openings in the table to serve as passages to and from the cases, as set forth. 4th. In a cartridge loading machine, the combination, with the shell-indenter mechanism automatically actuated, of a series of shell-holding cases, secured to a revolving table and carried thereby, said cases having slots for the passage of the indenters, said indenters passing through the slots and body of the shell, as and for the purpose set forth. 5th. The combination, with the filling mechanism and a shell feeder, of a shell-placer consisting of a pivoted pocket normally opened toward the shell feeder and turning into line with the shell-holding case and provided with a bolt or piston to force the shell into the shell case, as set forth. 6th. In a cartridge loading machine, the combination, with the table, of a hollow shaft, the upper end of which is secured to the rotating table, a solid shaft passing through the hollow one and connected at its upper end with the filling devices on the stationary table, a cam wheel connected to, and intermittently rotating the hollow shaft, and having also a cam connection with the solid shaft, whereby the latter is longitudinally reciprocated, said connections being so arranged that the movement of the shaft will alternate the hollow shaft intermittently rotating the movable table to carry a given cartridge shell from one filling device to the next in the series, the solid shaft in turn actuating the said filling devices, as set forth. 7th. In a cartridge loading machine, the combination, with a stationary table supporting the filling devices, of a movable table, a hollow shaft connected thereto, a solid shaft reciprocating through the hollow shaft and actuating the filling devices, a reciprocating sliding frame connected to, and rotating the movable table, a flanged cam-wheel imparting motion to the reciprocating frame and to the solid shaft, and a motor for actuating said cam-wheel, as and for the purpose set forth. 8th. The combination, with the stationary table supporting the filling devices, of a movable table carrying the shell-holders, a shaft connected to the filling mechanism, a shaft connected to the movable table, and a wheel *b*, *b*¹, actuating the same, a slotted sliding frame provided with anti-friction rollers which engages a series of flanges on wheel *b* to operate the same intermittently, and a spirally flanged wheel actuating the solid shaft and sliding frame, whereby the filling devices are first operated and then held until the table is turned far enough to move a given cartridge case from one filling device to the next in the series, as set forth. 9th. The combination, with a stationary table supporting the filling devices, a rotating table carrying the shell holders, and the shafts connected to said rotating table and filling devices, of a single spirally flanged cam-wheel connected with the shaft which actuates all the filling devices, as set forth. 10th. In a cartridge loading machine, the combination, with the stationary table supporting the filling devices, of the movable table, a hollow shaft secured thereto, a wheel for actuating said shaft, said wheel having grooves, as described, a reciprocating sliding frame having anti-friction rollers and imparting motion to the grooved wheel through the intervention of a pivoted arm having a roller engaging the grooves, a flanged cam-wheel engaging the friction rollers and imparting motion to the sliding frame and to a solid shaft connected to the filling devices, whereby the shafts are intermittently turned and independently actuated, and the rotating table intermittently turned and held in position, as and for the purpose set forth. 11th. The combination, with the movable table and shell-holders, and the stationary table having an opening for the passage of the shells, of a shell-placer swinging on a pivot in a perpendicular direction, and provided with a bolt to force the shell from the pocket into a shell-holding case, as set forth. 12th. In a cartridge loading machine, the combination, with a sliding cam and levers actuated thereby, of a pivoted shell-placer provided with a bolt or piston operated by the movement of said cam to force the shell into a holding case, the upward movement of the cam causing the lever to turn the pocket to a vertical position and holding it erect until the lever connected with the bolt is operated, as set forth. 13th. The combination, with the shell-supply tube, of the automatically operated shell-placer and actuating mechanism therefor, said placers having a flange or out-off attached to and moving therewith, which closes the bottom of the feed-tube and cuts off the supply when the placers swing out of alignment therewith, as set forth. 14th. In a cartridge loading machine, the combination, with the filling devices and actuating mechanism therefor, of a pivoted shell-placer inclined to the shell-feeder to receive the shells at an angle, said placers being actuated by a cam and levers operated by the central shaft, the upward movement of the cam causing the placers to be raised to an opening leading to the shell-carrier and forcing the shell therein, the up movement of said cam returning the placers to its normal position, as set forth. 15th. In a shell-feeder for cartridge loading machines, the combination, with a hopper, of an endless belt on the bottom thereof, a narrow descending trough at the end of the belt, said trough having one or more openings of less width than the length of a shell, whereby the shells are caused to fall butt first into said openings, and pass to the shell-placer with the butts presented to the opening in the placers, as set forth. 16th. In a capper for cartridge loading machines, the combination, with the stationary table, of a cap-receiving tube B¹ set loosely

ly therein and having a vortical movement, a die on the top of said tube, and a cap-seating plunger reciprocating in such tube, and also pressing upward the same to impress indicating letters or figures on the face of the shell, as set forth. 17th. In a cartridge loading device, the combination, with the cap-placing mechanism, of a cap-feeder consisting of a trough, the upper end having two channels to receive the caps from the belt or hopper and entering the main tube in opposite directions, said trough having a twist in the passage, whereby the caps are caused to turn over on their solid ends as they enter the plating tube, as set forth. 18th. The combination, with the central shaft and actuating mechanism therefor, of a wad cutter and plunger consisting of a tubular cutter and an interior and separate rammer, said rammer passing through the cutter, as set forth. 19th. The combination, with the central shaft and actuating mechanism, of a wad cutter and plunger consisting of a tubular cutter actuated by a cam on the rammer, and an interior rammer passing through the cutter and actuated directly by the central shaft, as set forth. 20th. In a cartridge loading machine, an indenting device consisting of a rammer automatically entering the top of the shell, and two or more indenters driven through the sides of the shell above the upper wad, as set forth. 21st. In a cartridge loading machine, the combination, with indenters passing through the sides of the shell, of a rammer provided with depressions to receive the pointed ends of the indenters, as set forth. 22nd. An indenting device for holding the upper wad of a shell in place, which so indents the sides of the shell as to leave inwardly projecting holding pieces on the upper wad, as set forth. 23rd. In a shot-filling device for cartridge loading machines, the combination, with a movable slide intermittently actuated by a lever connected with the central operating shaft, of a hopper having a sloping bottom provided with an opening leading to said slide, the slide having a spring-blade resting thereon to cut through the shot as the slide is moved in and out, as set forth. 24th. The combination, with the central shaft and actuating mechanism therefor, and wad strip, of a tubular cutter and a solid rammer passing through the cutter, said rammer being attached to, and actuated directly by, the central shaft, said cutter being actuated by a cam on the rammer whereby the cutter is carried through the wad-strip and then he in position while the rammer passes through said cutter and presses the wad into the shell, as set forth. 25th. In a wad cutter and placer, the combination, with the central shaft, of a slotted cam intermittently actuated by the shaft, a tubular cutter and separate rammer, the upper part of said rammer containing a cam, a roller and two cogged segments, one on each side of the rammer, and engaging with arms to operate the cutter, the segments and cam causing the cutter to descend until the cam reaches the perpendicular portion of the slot, and then held in position until the rammer completes its movement, as set forth. 26th. The combination, with the central shaft, actuating mechanism therefor, and wad-feeding mechanism, of a tubular cutter solid rammer and die interposed between the wad-strip and shell, said cutter and rammer descending together through the wad-strip, the rammer passing through the die on the down stroke of the actuating cam, the up stroke of said cam raising both cutter and rammer to their normal position, as set forth. 27th. In a wad-feeder for cartridge loading machines, the combination, with the wad-strip, wad cutter and actuating mechanism therefor, of the feed-rollers A₁, lever D₁ and link E₁, connecting said lever with a ratchet on the rollers, said rollers being actuated by a toothed flange on the under side of the revolving table, as set forth. 28th. In a cartridge loading machine, the combination, of the wad-cutter and reciprocating rammer actuated by a cam M₂, a die plate through which the rammer and cutter pass, with feed-wheels for feeding the wad-strip, said wheels being actuated by a link E₂ through the intervention of a lever D₂, connected therewith by an adjustable sleeve, whereby the feed of the strip is regulated, said lever being actuated by a toothed flange on the under side of the movable table, as and for the purpose set forth. 29th. In a cartridge loading machine, the combination, with the shell indenters, of the sliding bars U₂ moving in slots in a movable head-piece or sleeve on the rammer, and operated by arms S₂ and sliding bars supported by bearings V₂ attached to, and moving with the rammer, as set forth. 30th. In a cartridge loading machine, the combination, with the rotating table, shell filling mechanism, and an ejecting rod for automatically forcing the shell from the holde s, said rod having a die on its lower end, of an inking mechanism actuated simultaneously with the movements of the ejecting rod, as set forth.

No. 29,050. Folding Seat. (*Banc brisé.*)

Frederick M. Willson, Hamilton, Ont., 1st May, 1888; 5 years.

Claim—1st. In a folding seat, the outer frame A having hinged thereto, the seat B, in combination with an inner frame C forked at both ends, and movably secured to the outer frame A by a central rod D passing through both frames, to allow the inner frame A to fold within the outer frame C, substantially as and for the purpose specified. 2nd. In combination with a folding seat, of the movable bracket E attached to an eye F sliding vertically on the central spindle D, and to a rod h attached to a sewing or other machine, organ, etc., etc., for holding a folding seat to its place and allowing it to fold up, substantially as specified. 3rd. In a folding seat, the combination of the seat B, frame A, hinges f, b, frame C and spindle D, substantially as and for the purpose specified. 4th. In a folding seat, the combination, of the plunger k, lugs l, spring m, seat B, frames A, C, spindle D, substantially as and for the purpose specified. 5th. In a folding seat, the bracket E attached at one end to a rod h, and the other to a movable eye F on the spindle D, of a folding seat, to hold the seat at the desired place for use and allow it to fold up, substantially as specified.

No. 29,051. Strength-Testing Machine.

(*Machin à essayer la force.*)

Charles F. Winch, New York, N. Y., U. S., 1st May, 1888; 5 years.

Claim—1st. In a strength-testing machine, the combination, with a case, of a shaft, a hand-piece secured to the shaft, a spring, a flexible connection between the spring and the shaft, and an indicator,

substantially as specified. 2nd. In a strength-testing machine, the combination, with a case, of a shaft, a hand-piece secured to the shaft, a second shaft, a clutch for said shafts, a spring, a flexible connection between the spring and one of said shafts, and an indicator, substantially as specified. 3rd. In a strength-testing machine, the combination, with a case, of a shaft, a hand-piece secured to the shaft, a second shaft, a lever in which said second shaft is stepped at one end, a clutch for said shafts, a spring, a flexible connection between the spring and one of said shafts, and an indicator, substantially as specified. 4th. In a strength testing machine, the combination, with a case, of a shaft, a hand-piece secured to the shaft, a chute down which a coin may be passed, a lever adapted to receive near one end a coin passed down the chute, a detent operated by said lever to engage and disengage an appurtenance of the shaft, a spring, a flexible connection between the spring and the shaft and an indicator, substantially as specified. 5th. In a strength-testing machine, the combination, with a case, of a shaft, a hand-piece secured to the shaft, a chute down which a coin may be passed, a lever adapted to receive near one end a coin passed down the chute, a detent operated by said lever to engage and disengage an appurtenance of the shaft, a movable stop operated by the shaft to prevent a too extended movement of the lever in the direction to disengage the detent until the stop has been moved, a spring, a flexible connection between the spring and the shaft, and an indicator, substantially as specified. 6th. In a strength-testing machine, the combination, with a case, of a shaft, a hand-piece secured to the shaft, a chute down which a coin may be passed, a lever adapted to receive near one end a coin passed down the chute, a detent operated by said lever to engage and disengage an appurtenance of the shaft, a spring actuated stop which, when the lever has been moved in a direction to disengage the detent, will be moved into the path of the lever, when the latter is returning in a direction to cause the engagement of the detent, a releasing device actuated by the shaft for moving said stop out of the path of the lever, a spring, a flexible connection between the spring and the shaft, and an indicator, substantially as specified. 7th. In a strength-testing machine, the combination, with a case, of a shaft, a hand-piece secured to said shaft, a second shaft, a clutch for said shaft, a spring, a flexible connection between said spring and the shaft, a weight and a flexible connection between said weight and the other of said shafts, substantially as specified.

No. 29,052. Pad Plate for Harness Saddles.

(*Filt de selle de harnais.*)

Frederick Rehkoff, Memphis, Tenn., U. S. 1st May, 1888; 5 years.

Claim—1st. The combination herein described, with a metallic pad plate for harness-saddles, and with a loop thereon for a buck-strap, of a friction roller lodged in a slot made in the plate, and having its journal or axle rod held in place by the loop attached to the plate, all substantially as shown and described. 2nd. In combination with the side plates slotted as described, and with their loops half journal-bearings made both in the plate and in the loop, and the axle rods of the rollers resting in such bearings, all as shown and described. 3rd. In combination with the top piece 1, of the pad-plate, the upwardly-projecting bent plate 15, the hook 19, bent plate 20 and friction-roller 21, all substantially as shown and described. 4th. In combination, with the piece 1 having the longitudinal slots 4, the side pieces 2, 3 connected therewith by their cylindrically-beat ends, as shown and described.

No. 29,053. Apparatus for Supporting and Working Centrifugal Machines such as Cream Separators, etc.

(*Appareil pour supporter et actionner les machines centrifuges, tel que les séparateurs de la crème, etc.*)

Carl G. P. de Laval, Stockholm, Sweden, 1st May, 1888; 5 years

Claim—1st. The combination, with a centrifugal machine, such as a cream separator, an emulsifier and the like, of the shaft d driven by a crank through bevel gearing, and operating through the spur e and pinion f, the main shaft s of the centrifugal machine, as and for the purposes set forth. 2nd. The combination, with a centrifugal machine, such as a cream separator, and shaft d driven by a crank through bevel gearing, and giving motion through spur gearing to main shaft s of such machine, of the stand k enclosing such spur gearing, and bracket t carrying casing u of such machine, all as and for the purposes set forth.

No. 29,054. Centrifugal Apparatus that can be Operated by Hand for Separating Substances of Different Gravities, such as Milk and Cream.

(*Appareil centrifuge à bras pour séparer les corps de différentes gravités, tel que le lait et la crème.*)

Carl G. P. de Laval, Stockholm, Sweden, 1st May, 1888; 5 years.

Claim—1st. In a centrifugal separating apparatus, the combination of a separating vessel open at both ends, with a shaft having enlargements or collars, to which the said vessel is fitted, in such a manner that it may be readily taken off the shaft, as and for the purpose set forth. 2nd. In a centrifugal separating apparatus, the combination, with the vessel a open at both ends, of the shaft b, the closed collar d, the spring catch e upon said collar, and the circular ring-shaped and open collar c, substantially as specified. 3rd. In a centrifugal separating apparatus, the combination, with the vessel a, shaft b, and mechanism, substantially as specified, for driving said shaft, of the bearings h, g, at the ends of the shaft, the retaining arms k, k pivoted at i, and the springs l, l, substantially as set forth. 4th. In a centrifugal separating apparatus, the combination, with

the vessel *a*, the casings *f*, *f*, and the bearing *vt*, of the vessel *v*, supply-pipe *u*, float *ht* and curved pipe *w*, substantially as specified.

No. 29,055. Apparatus for Supporting and Working Centrifugal Machines, such as Cream Separators, etc., by Hand Power. (*Appareil pour supporter les machines centrifuges tel que les séparateurs de la crème, etc., et les actionner à la main.*)

Carl G. P. deLaval, Stockholm, Sweden, 1st May, 1888; 5 years.

Claim.—1st. In a centrifugal machine for separating substances of different gravities, the combination, with the vertical shaft on which is mounted the separating vessel, of a vertical screw carried in fixed bearings connected to end of such vertical shaft, and rotated by worm wheel mounted on a shaft, and means for rotating same, as described and shown. 2nd. In a centrifugal machine for separating substances of different gravities, the combination, with the vertical spindle carrying the separating vessel, of a centralizing coupling to connect it with a vertical revolving screw carried in fixed bearings, substantially as shown and described. 3rd. In a centrifugal machine for separating substances of different gravities, the casing *h* forming bearings for, and enclosing vertical screw *g*, and the casing *i* enclosing part of separating vessel *a*, such casings forming part of main framing of machine, as described. 4th. The combination, with the shaft *l*, adapted to support the centrifugal vessel upon the same, and the bearings for such shaft, of the vertical worm *g* and its shaft *q*, the coupling *o* connecting the shaft *l* to the shaft *q* of the worm, the worm wheel *f* acting to revolve the worm *g*, the shaft *e*, pinion *d*, gear wheel *a*, shaft *b* and crank *c* for giving rotation to the parts, and the bed plate and stand, and the casing *h* attached to the bed plate and supporting the worm shaft *g* and shaft *e*, substantially as specified.

No. 29,056. Nut Lock. (*Arrête-écrou.*)

John W Parks and Peter G. Roquemore, Marshall, Texas, U. S., 1st May, 1888, 5 years.

Claim.—In a nut lock, the combination, with a bolt and a nut having a notched or serrated face, of a rectangular washer split across one of its sides, the ends thus formed being bent in opposite directions to substantially the same degree, and each end being bevelled from one side to the other to form a knife edge, substantially as specified.

No. 29,057. Apparatus for Heating Railway Cars. (*Appareil de chauffage des chars de chemins de fer*)

Joseph Shackleton, New York, N. Y., U. S., 1st May, 1888; 5 years.

Claim.—1st. In a heating apparatus, the combination of a steam supply pipe, a water pipe, an auxiliary steam pipe within the water pipe and opening into the same, and a connection between the auxiliary steam pipe and the steam supply pipe, substantially as shown and described. 2nd. In a heating apparatus, the combination of a water pipe having vertical water legs, a steam pipe located within the water pipe and extending into the water legs, and an overflow from one of the water legs, substantially as shown and described. 3rd. The combination, with the steam supply pipe and a water pipe, of an auxiliary steam pipe located within the latter and opening into the same, an overflow for the water pipe, an elevated tank connected with the water pipe, and a connection between the steam supply pipe and the auxiliary steam pipe, substantially as shown and described. 4th. A car heating apparatus, consisting of a steam supply pipe, a water pipe, an auxiliary steam pipe within the latter and opening into the same, an overflow for the water pipe, an elevated tank connected with the water pipe and provided with an air cock, and a connection of the tank with the steam supply pipe for creating a vacuum in the former, substantially as shown and described. 5th. The combination, in a car heating apparatus, of a steam supply pipe, a water pipe, an auxiliary steam pipe within the latter and opening into the same, an overflow for the water pipe, a radiator connected with the water and steam pipes, an elevated tank, and means, substantially as set forth, for elevating the water to the tank from the water pipe and radiator, substantially as shown and described. 6th. The combination, with the steam supply pipe and a water pipe, of a radiator connected with both said pipes, substantially as shown and described. 7th. The combination, with the steam supply pipe, a water pipe, a tank connected with the latter, means for creating a vacuum in the tank, and a connection between the steam and water pipes, substantially as shown and described. 8th. The combination, with the railway cars, of radiators within the cars, and steam pipes passing along the upper parts of the cars, and a flexible coupling connecting the steam pipes of one car with that of the next, said flexible coupling being level, or nearly so, to prevent the accumulation therein of water of condensation, substantially as set forth. 9th. The combination, with the steam heating pipes in railway cars, of flexible pipes having internal and external wire helices, and metallic coupling connections at the ends, substantially as set forth.

No. 29,058. Vehicle Gearing. (*Train de voiture.*)

Simon S. Fax, Woodstock, Ont., 1st May, 1888, 5 years.

Claim.—1st. A conveyance with pivoted axle or axles, controllable from the rear, while being propelled from the rear, substantially as and for the purpose hereinbefore set forth. 2nd. A conveyance with pivoted axle or axles, controllable from the rear while being propelled from the rear, with the handle bars, arranged substantially as and for the purpose hereinbefore set forth. 3rd. A conveyance with pivoted axles, with cross-bars for controlling the same, substantially as and for the purpose hereinbefore set forth.

No. 29,059. Oven Odour Exhaust.

(*Aspirateur de fourneau de cuisine.*)

Alfred S. Cox, London, Ont., 1st May, 1888, 5 years.

Claim.—The opening *P*, in combination with an operating device *R* and cover *D*, substantially as and for the purpose set forth.

No. 29,060. Harness. (*Harnais.*)

Meado Williams, Mount Vernon, Ind., U. S., 1st May, 1888; 5 years.

Claim.—1st. The combination of the keeper on the thills, the sleeves sliding thereon, the rear portions of the traces connected at their ends respectively to the ends of the whiffletree and the said sliding sleeves, the front portions of the traces attached to the harness in the ordinary manner, and the rings at their rear ends connected to the sliding sleeves, substantially as and for the purpose specified. 2nd. The combination of the sliding sleeves on the thills, the snap-hooks connected thereto, the rear portions of the traces attached to the ends of the whiffletree and the said snap-hooks, the front portions of the traces attached to the harness and the rings at their rear ends engaged by the said hooks, substantially as and for the purpose specified. 3rd. The combination of the sliding sleeves, the snap-hooks attached to the sleeves, the rear portions of the traces attached to the whiffletree and the said hooks, the front portions of the traces and the rings attached to their rear ends, and provided with hooks *K*, *K*, engaging with said snap-hooks, substantially as and for the purpose specified. 4th. The combination, with the front portion of the traces, and the rings at their rear ends provided with hooks *K*, of the sliding sleeves on the thills, the snap-hooks having loops at their upper ends attached thereto, the sliding spring actuated bolts in the hooks, the rear portions of the traces attached at their front ends to the loops of the said hooks, and *n* pins, substantially as described, whereby the spring actuated bolts may be withdrawn to release the hooks *K*, substantially as and for the purpose specified. 5th. The combination, with the front portions of the traces having rings at their rear ends, provided with hooks *K*, of the snap-hooks attached to the thills of the vehicle and having spring actuated bolts, the said snap-hooks being engaged with the hooks *K*, the rear portions of the traces attached to the snap-hooks, and chains or cords attached to the spring actuated bolts, and extended to within reach of the driver of the vehicle, substantially as and for the purpose specified. 6th. The combination, with the thills having sliding sleeves thereon, and snap-hooks loosely mounted thereon, of the ring attached to the harness and adapted to be engaged by the said hook, substantially as specified. 7th. The combination, with the thills and the snap-hooks mounted loosely thereon, and having spring-actuated bolts, of the ring attached to the harness and engaged by the said hook, and the cord or chain connected at one end to the said spring actuated bolt, and disposed at the other end within reach of the driver, substantially as and for the purpose specified.

No. 29,061. Wire Nail Making Machine.

(*Machine à clou de fil de fer.*)

Christian C. Hill, Chicago, Ill., U. S., 1st May, 1888, 5 years.

Claim.—1st. In a wire nail machine, a pair of revolving opposing nail blank clamping dies, with their operative faces lying lengthwise with their axis of revolution, substantially as specified. 2nd. In a wire nail machine, a pair of revolving opposing nail blank clamping dies, with their operative faces lying lengthwise with their axis of revolution, and a pair of revolving pointing dies coincident with said clamping dies, substantially as described. 3rd. The combination of a pair of revolving clamping dies, with a transversely revolving heading tool, substantially as specified. 4th. The combination, with a pair of revolving clamping dies, of a pair of coincident revolving pointing dies, and a revolving heading tool, substantially as specified. 5th. The combination, with a pair of revolving clamping dies, of a pair of coincident revolving pointing dies, a revolving heading tool, and a wire feed device, substantially as specified. 6th. The combination, with a pair of revolving clamping dies, of a pair of coincident revolving pointing dies, a revolving heading tool, a wire feed device and a rotary nail blank cutter, substantially as specified. 7th. The combination, with a pair of revolving clamping dies, a revolving heading tool, a wire feed device and a stop or gauge for the end of the wire, substantially as specified. 8th. The combination, with a pair of revolving clamping dies, of a pair of coincident revolving pointing dies, a revolving heading tool, a wire feed device, a stop or gauge for the end of the wire, and a rotary cutter, substantially as specified. 9th. The combination, with a pair of revolving clamping dies, of a pair of coincident revolving pointing dies, a revolving heading tool, a wire feed device, a stop or gauge for the end of the wire, a rotary cutter and a curved guard concentric with the path of one of said clamping dies for the severed nail blank, substantially as specified. 10th. The combination, with a pair of revolving clamping dies, of a pair of coincident revolving pointing dies, a revolving heading tool, and a rotary swaging die or block interposed between said clamping dies and said rotary heading tool, substantially as specified. 11th. The combination of a pair of revolving clamping dies, with a transversely revolving heading tool, and a revolving swaging die or block interposed between said clamping dies and said rotary heading tool, substantially as specified. 12th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, substantially as specified. 13th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, and a series of coincident pointing dies, substantially as specified. 14th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, and a transversely revolving rotary heading tool, substantially as specified. 15th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of

coincident pointing dies, and a transversely revolving rotary heading tool, substantially as specified. 16th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, and a transversely revolving rotary heading tool and a wire feed device, substantially as specified. 17th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, and a transversely revolving heading tool, a wire feed device, and a stop or gauge for the end of the wire, substantially as specified. 18th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, and a transversely revolving rotary heading tool, a wire feed device, and a stop or gauge for the end of the wire, substantially as specified. 19th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, and a transversely revolving rotary heading tool, a wire feed device, and a stop or gauge for the end of the wire, a rotary cutter and a curved guard concentric with the path of said revolving clamping dies, substantially as specified. 20th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, and a transversely revolving rotary heading tool, a wire feed device, and a stop or gauge for the end of the wire, a rotary cutter and a curved guard concentric with the path of said revolving clamping dies, substantially as specified. 21st. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, and a transversely revolving rotary heading tool, and a series of rotary swaging dies or blocks mounted upon one of said rotary carriers, and interposed between said clamping dies and said rotary heading tool, substantially as specified. 22nd. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, a transversely revolving heading tool, and a series of rotary swaging dies or blocks mounted upon one of said rotary carriers, and interposed between said clamping dies and said rotary heading tool, substantially as specified. 23rd. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, a transversely revolving heading tool, and a series of rotary swaging dies or blocks mounted upon one of said rotary carriers, and interposed between said clamping dies and said rotary heading tool, and a wire feed device and a rotary cutter, substantially as specified. 24th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, a transversely revolving heading tool, and a series of rotary swaging dies or blocks mounted upon one of said rotary carriers, and interposed between said clamping dies and said rotary heading tool, and a wire feed device and a rotary cutter, substantially as specified. 25th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, a transversely revolving heading tool, and a series of rotary swaging dies or blocks mounted upon one of said rotary carriers, and interposed between said clamping dies and said rotary heading tool, and a wire feed device, a stop or gauge for the end of the wire, and a rotary cutter, substantially as specified. 26th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, a transversely revolving heading tool, and a series of rotary swaging dies or blocks mounted upon one of said rotary carriers, and interposed between said clamping dies and said rotary heading tool, and a wire feed device, a stop or gauge for the end of the wire, and a rotary cutter, substantially as specified. 27th. The combination, with a pair of rotary die carriers, of a series of opposing clamping dies mounted upon each of said carriers, and with their operative faces lying lengthwise of the axes of revolution, a series of coincident pointing dies, a transversely revolving heading tool, and a series of rotary swaging dies or blocks mounted upon one of said rotary carriers, and interposed between said clamping dies and said rotary heading tool, and a wire feed device, a stop or gauge for the end of the wire, and a rotary cutter, substantially as specified. 28th. A pair of revolving rail blank clamping dies D, D, each furnished with a projecting ledge *d*, and counteracting with each other, substantially as specified. 29th. The combination of a pair of rotary disks or die carriers B, C, with a series of clamping dies D, D mounted thereon, provided with projecting ledges *d*, substantially as specified. 30th. The combination, with a pair of rotary disks or die carriers B, C, each provided with a series of clamping dies, of projecting ledges on the disk B for carrying the blank forward, substantially as specified. 31st. The combination, with a pair of rotary disks or die carriers B, C, each provided with a series of clamping dies, of projecting ledges on the disk B for carrying the blank forward, and a blank guard F, substantially as specified. 32nd. The combination, with a pair of rotary disks or die carriers B, C, each provided with a series of clamping dies, of projecting ledges on the disk B for carrying the blank forward, and a blank guard F, substantially as specified. 33rd. The combination, with a pair of rotary disks or die carriers B, C, each provided with a series of clamping dies, of projecting ledges on the disk B for carrying the blank forward, a blank guard F and a drag-spring L, substantially as specified. 34th. The combination, with a pair of rotary disks or die carriers B, C, each provided with a series of clamping dies, of projecting ledges on the disk B for carrying the blank forward, and a blank guard F, said disk C and the dies thereon having a peripheral groove to receive the end of said blank guard F, substantially as specified. 35th. The pointing dies E, E having V-

shaped cutting edges *e*, *e*, and cheeks or meeting faces *e*, *e*, outside, slightly higher than said cutting edges, substantially as specified. 36th. The rotary pointing dies E, E, having their peripheral meeting faces or cheeks ground on a larger circle than the path of their cutting edges, substantially as specified. 37th. The combination, with a pair of continuously revolving rotary die carriers and dies thereon, of a stop for the end of the wire, and a rotary slip for feeding the wire against the stop and across the path of the dies, substantially as specified. 38th. The combination, with a pair of continuously revolving rotary die carriers and dies thereon, of a stop for the end of the wire, a rotary slip feed for feeding the wire against the stop and across the path of the dies, and a rotary cutter, substantially as specified. 39th. The combination of a pair of continuously revolving rotary die carriers and dies thereon, of a stop for the end of the wire, a rotary slip feed for feeding the wire against the stop and across the path of the dies, a rotary cutter, and a curved guard for the severed blank, substantially as specified. 40th. The combination, with a pair of rotary disks B, C and clamping dies thereon, of a transversely revolving rotary heading tool, and a bearing roll to resist the thrust of the heading tool, substantially as specified. 41st. The combination, with a pair of continuously revolving rotary die carriers and dies thereon, of a stop for the end of the wire, and a rotary slip feed for feeding the wire against the stop and across the path of the dies, a rotary cutter, a curved guard for the severed blanks, a transversely revolving rotary heading tool, and a double coned bearing roll R bearing against the bevelled edges, on the disks opposite the point of thrust, substantially as specified. 42nd. The combination, with a pair of rotary disks B, C and clamping dies thereon, of a transversely revolving rotary heading tool and a double coned bearing roll R bearing against bevelled edges on the disk, opposite the point of thrust, substantially as specified. 43rd. The rotary disks B, C, having angular channels *b*, *c*, rings *b*, *c*, and radial slots *b*, *c*, thereon, clamping dies D, D, pointing dies E, E, and radial adjusting devices, substantially as specified. 44th. The combination, with rotary disks B, C and clamping dies D, D thereon, of a radially adjustable transversely revolving rotary heading tool, and vertically and transversely adjustable bearing for the shaft of said heading tool, substantially as specified. 45th. The combination, with rotary disks B, C and clamping dies D, D thereon, of a radially adjustable transversely revolving rotary heading tool, substantially as specified. 46th. The combination, with the shaft C and a wheel or gear thereon, of the inclined keys *o*, *o*, *o*, substantially as specified. 47th. The combination, with the shafts B, C and intermeshing gears thereon, of the inclined adjusting keys *o*, *o*, *o*, substantially as specified. 48th. The combination, with the rotary die carrier disks B, C and their shafts B, C, of gear *o* and a split-gear *o*, *o*, one part of which is adjustable upon the other for taking up wear between the teeth of said gears, substantially as specified. 49th. The combination, with rotary die carrier disks B, C and clamping dies thereon, of a rotary heading tool N, interposed swaging blocks N₁ and a cam N₂ for returning said swaging blocks to position, substantially as specified. 50th. The combination, with rotary die carrier disks B, C and clamping dies thereon, of a rotary heading tool N, interposed swaging blocks N₁, and a cam N₂, for returning said swaging blocks to position, and a guard N, substantially as specified.

No. 29,062. Brick Machine. (*Machine à briques*.)

Charles L. Emens, Holton, Mich., U.S., 1st May, 1888: 5 years.

Claim.—1st. The combination, with the horizontal chamber and the right and left feed screws thereon, of a tempering chamber communicating with the horizontal chamber and containing a tempering shaft, which feeds the clay to the right and left hand feed screws, substantially as specified and shown. 2nd. The combination of the horizontal chamber having duplicate compartments and an intermediate casing, a right and left hand feed screw journaled in the intermediate casing, a tempering chamber located centrally adjacent to the horizontal chamber and communicating with the compartments of the latter, and a tempering or forcing device in the tempering chamber, substantially as described. 3rd. The combination of the horizontal chamber having duplicate compartments, and a casing intermediate between said compartments, the feed screw provided with right hand augers in one compartment, and left hand augers in the other compartment, journaled in the intermediate casing and actuated by devices applied to that portion of the shaft within the said casing, and a tempering chamber and its shaft arranged opposite the middle casing so as to deliver clay to the duplicate compartments, substantially as described.

No. 29,063. Bottle Capsule.

(*Capsule de bouteille*.)

William Lawson, Dublin, Ireland, 1st May, 1888; 5 years.

Claim.—1st. The combination, with a bottle, of a cap adhesively secured on the top of the bottle head, and consisting of a disc of thin pliant paper having sections removed from the circumferential portion thereof to form isolated fingers, which are bent down and adhesively secured to the sides of the bottle head without overlapping, and a strap likewise of thin pliant paper enveloping the bottle neck, and vertical sides of the head to cover the cap fingers and adhesively secured in position, substantially as set forth. 2nd. The combination, with a bottle, of a cap adhesively secured on the top of the bottle head, and consisting of a disc of thin pliant paper having sections removed from the circumferential positions thereof to form isolated fingers, which are bent down and adhesively secured to the vertical sides of the bottle head, and a strap also of thin pliant paper enveloping the neck and fingers on the head, and adhesively secured both to the fingers and to the bottle head between the same, substantially as set forth. 3rd. The combination, with a bottle, of a cap adhesively secured on the top of the bottle head, and consisting of a disc of thin pliant paper having sections removed circumferentially therefrom to form isolated fingers, which are bent down and adhesively secured to the vertical sides of the bottle head, a metallic disc being interposed between the bottle top and the cap, and a strap likewise of thin pliant paper enveloping the neck and fingers on the head and adhesively secured in position, substantially as set forth.

No. 29,064. Composition of Matters (Pills) for the Cure of Jaundice, Constipation, Diseases of the Kidneys, Heartburn, Sick Head-Ache and King's Evil. (*Composition de matières (pilules) pour la guérison de la jaunisse, constipation, des maladies des reins, de la pituite, migraine et des écrouelles.*)

Joseph E. P. Racicot, Montréal, Que., 2nd May, 1888; 5 years.

Résumé.—La composition de matières suivante, savoir: Jalap en poudre, aloès, racine de macaragore, gouttes royales (Tonique), laudanum, gomme de sapin, huile de croton, et gomme arabique, le tout mélangé tel que décrit et pour les fins indiquées.

No. 29,065, Composition of Matters for the Diseases of the Urinary Organs and analogous diseases. (*Composition de matières pour les maladies des voies urinaires et des maladies analogues.*)

Joseph E. P. Racicot, Montréal, Que., 2nd May, 1888; 5 years.

Résumé.—La composition de matières comme remède consistant en baume canadien, baume de copahu et térébenthine, dans les proportions mentionnées et pour les fins indiquées.

No. 29,066. Composition of Matters for the Cure of Dyspepsia, Liver Complaint, etc. (*Composition de matières pour la guérison de la dyspepsie, des maladies du foie, etc.*)

Joseph E. P. Racicot, Montréal, Que., 2nd May, 1888; 5 years.

Résumé.—La composition de matières pour remède comprenant du capsicum, poivre blanc, camphre, clou moulu, cannelle, muscade, huile de cajuput, frêne piquant, eau et alcool, le tout mélangé ensemble dans les proportions décrites et pour les fins indiquées.

No. 29,067. Composition of Matters to be used as a Remedy for the Evacuation of the Tapeworm. (*Composition de matières devant servir comme remède pour l'évacuation du ver solitaire.*)

Joseph E. P. Racicot, Montréal, Que., 2nd May, 1888; 5 years.

Mélangé.—La composition de matières constituant un remède pour l'évacuation du ver solitaire, consistant en fougère mâle et térébenthine, dans les proportions décrites.

No. 29,068. Cooking Stove for Burning Straw, etc. (*Poêle de cuisine consommant la paille, etc.*)

Thomas J. McBride, Winnipeg, Man., 2nd May, 1888; 5 years.

Claim.—1st. A cooking stove consisting of a combustion chamber having at the front an outwardly curved swell 5, tapering inwardly towards the bottom, and divided from an ashpit by a grate 15, an oven 2 surrounded by a flue 20, said flue above the oven provided with a partition 21, and dampers 22, 23, to cause a return circulation under the top of the stove, without passing around the oven, and a smoke outlet 25, near the combustion chamber, said smoke outlet having an inlet below the top of the stove, and another above its bottom, as set forth. 2nd. A cooking stove consisting of a combustion chamber, having a circularly swelled side tapering downwardly, a straw fuel magazine 9 seated on the top of the stove and over the combustion chamber, an oven 2 surrounded by a flue 20, a partition 21 and dampers 22, 23, to cause a return circulation under the top of the stove, and a smoke outlet 25 close to the combustion chamber, said outlet having an inlet below and above the oven, as set forth. 3rd. The combination, with the straw fuel magazine, of the lever 11, chain 12 and pull-handle 13, to start the descent of the fuel, as set forth. 4th. The forked lever 15, fulcrumed to the magazine and extending downwardly into the combustion chamber, for the purpose set forth.

No. 29,069. Method of Transmission through Submarine Cables, and Apparatus therefor. (*Mode et appareil de transmission par câbles sous-marins*)

John Gott, Weston-Super-Mare, Eng., 2nd May, 1888; 5 years.

Claim.—1st. A self-acting device, by which currents of an opposite polarity are sent into a telegraph cable, after the main signal current is sent, and the signal current may be of any duration, this device automatically connects the cable to earth after the reverse current has been sufficiently prolonged to neutralize, or partly neutralize the main signal current, in the manner described. 2nd. The combination, herein described, of an electro-magnet relay, a polarized differential relay, and two hand keys so connected that the two relays are simultaneously actuated by the same pole of the local battery, whichever key is depressed, in order more effectually to accomplish the object aimed at, namely, to send automatically and with perfect regularity reverse currents after each signal current.

No. 29,070. Cover for Pots, Kettles, Pails, etc. (*Couvercle pour marmites, bouilloires, seaux, etc.*)

George Durrand, Hamilton, Ont., 2nd May, 1888; 5 years.

Claim.—1st. In combination with a pot, kettle, or pail cover, of a

series of ventilating openings made therein, and a sliding plate with corresponding openings made to slide back and forth under said openings in the cover to open and close them, to act as a combined ventilator and strainer, substantially as and for the purpose specified. 2nd. In combination with a pot, kettle, or pail cover, of the openings *b* in the cover slot *c*, and a plate *d* provided with corresponding openings *e*, made to slide underneath openings *b* in grooves *f*, and a thumb button *g* attached to plate *d* and made to pass through slot *c*, to open and close said openings *b* for ventilation and straining, substantially as and for the purpose specified.

No. 29,071. Flexible Water Pipe. (*Tuyau d'eau élastique.*)

Herrmann O. Tiedemann, Victoria, B.C., 2nd May, 1888; 5 years.

Claim.—1st. The combination, A, B, C, D, of closing spigot and faucet of pipes hermetically, with vulcanized caoutchouc rings, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, E, F, G, H, of mooring anchors of pipes, substantially as and for the purpose hereinbefore set forth.

No. 29,072. Sash Fastener. (*Arrête-croisée.*)

John E. Brown, Honolulu, Hawaiian Ids., 2nd May, 1888; 5 years.

Claim.—1st. In a window fastener, the combination, with a standard provided with a horizontal recess in its lower front edge and a horizontal base, and a lever pivoted in said standard, provided with a weighted projection upon its outer end, and an oval-shaped inner end having a locking pin secured transversely therein, of a U-shaped finger plate pivoted upon a horizontal base, having the extremities of its members weighted, and provided with vertical lugs above their pivotal points, adapted to engage said locking pin, substantially as shown and described and for the purpose herein set forth. 2nd. In a window fastener, the combination, with a standard having a concaved outer edge, and provided with a horizontal base, and a horizontal recess in its forward edge, near said base, a lever pivoted in said standard, provided with a weight at its outer end, adapted to normally engage the rear surface of the standard and limit the inward throw of the lever, and an oval-shaped inner end, provided with a transverse locking pin, of a U-shaped finger plate pivoted upon a horizontal base, having the extremities of its members weighted and inclined, and provided above their fulcrum with vertical lugs having convex outer edges adapted to engage the locking pin, all arranged to operate substantially as shown and described.

No. 29,073. Nut Lock. (*Arrête-écrou.*)

Edwin C. Rolls, Chatham, Ont., 2nd May, 1888; 5 years.

Claim.—1st. A nut lock consisting of a base-plate, loosely supported, so as to have limited vertical movement, and provided with lower arms extending beneath the nuts and arranged at an angle to the body of the base-plate, substantially as described. 2nd. A nut lock consisting of a base plate loosely supported, so as to have limited vertical movement, and provided with extensions or arms, which bear against the nuts, substantially as described. 3rd. A nut lock consisting of a base-plate, having an elongated central slot, and loosely supported, so as to have limited vertical movement, a post for supporting the same, upper bearing surfaces for the nuts, and a lower bearing flange therefor bent at an angle to the body of the plate and on the line of the opening for the nut, substantially as described. 4th. A nut-lock consisting of a base-plate having an elongated central slot, and loosely supported, so as to have limited vertical movement, a post for supporting the same, and upper and lower bearing surfaces for the nuts, substantially as described.

No. 29,074. Sash Supporter for Windows.

(*Supporte-croisée de fenêtre.*)

Christian W. Cook, West Jordan, U.T., U.S., 2nd May, 1888; 5 years.

Claim.—1st. In a sash supporter, the combination, with the attaching plate, as A, of the roller frame, as B, mounted in guides on said plate, whereby it is connected to, and may slide on, the latter, the rollers mounted in the ends of said roller frame, the arched spring resting at two points on said frame, and a thumb-screw, as E, for varying the tension of said spring, said screw having its head exposed and convenient for manipulation, as set forth. 2nd. In a sash supporter, the combination, with the attaching plate, as A, provided with transversely arranged slots, as *a*, having bevelled margins of the roller frame, as B, its rollers C and the axle *c* of said rollers, the conical ends of said axles projecting into and engaging the slots *a*, thus forming attaching devices, and guides for said roller frame, and the spring, as D, for pressing the rollers up to the window frame, as set forth. 3rd. In a sash supporter, the combination, with the roller frame and rollers, of the screw E, its nut-plate, the spring D resting at two points on said roller frame, and provided with a block *d* having an inclined face, the guide *g* and the wedge-block *a* in said guide and bearing on said block *d*, said screw bearing on said block *a*, substantially as set forth.

No. 29,075. Baling Press. (*Presse d'empaquetage.*)

Peter K. Dederick, Londonville, N.Y., U.S., 2nd May, 1888; 15 years.

Claim.—1st. The plate steel or iron baling press tube or case, with the power fulcruming to the one end thereof, and the plates forming the top and bottom of the bale chamber, provided with flanges to stiffen and strengthen them, and to form a guide to, and increase the friction on the column of pressed material. 2nd. The extensions or projections D, provided with flanges and with the power bearings fulcrumed or secured thereto, substantially as described. 3rd. The plate steel or iron baling press case or tube, arched or built out at the power end to accommodate the pitman, substantially as and for the purpose set forth. 4th. The cast plates K, in combination with the flanged plates A and B, as and for the purpose set forth. 5th. The plate metal baling press tube or case adjustable at the one end and having the pressing power fulcrumed to the other end thereof, sub-

stantially as and for the purpose set forth. 6th. The combination of the plate metal baling press tube or case, with the roller and the ears or projections from the case connecting the same, for the purpose set forth.

No. 29,076. Straw-Burning Attachment to Stoves. (*Poêle consommant la paille.*)

Thomas J. McBride, Winnipeg, Man., 2nd May, 1888; 5 years.

Claim.—1st. The combination, with the combustion chamber having a collar B at the smoke outlet, of the slotted angular plates C, D, and E, F and G, H, bolted adjustably together and to said collar, to suit the front opening of a stove, as set forth. 2nd. In a straw-burning attachment, a feed or fuel drum provided with a pipe or duct L, connecting with the upper part, and discharging downwardly into the combustion chamber or its smoke outlet, as set forth. 3rd. In a straw-burning attachment, the draft inlet having a boxing M, provided with an internal valve N to close by pressure of gas in the combustion chamber, when stronger than the draft, as set forth. 4th. The combination, with the feed drum, of the forked lever O and rack P, for lifting fuel out of the combustion chamber, and retaining it in said feed drum, when combustion of fuel is not desired. 5th. In the herein described straw-burning attachment, the combustion chamber A provided with a dumping door R in the bottom, and having an outwardly attached ash receptacle, as set forth. 6th. A straw-burning attachment to stoves, consisting of a combustion chamber A, having a collar B at the smoke outlet, and adjustable angular plates C, D, E, F, G, H at the top and sides of said collar, the bottom of said chamber provided with a door R and ash receptacle J, and an automatic valve N within a boxing M, enclosing the draft opening, a fuel drum K seated on top of said combustion chamber, and provided with a forked lever O extending downwardly into the combustion chamber, and a pipe or duct L, connecting the fuel drum and combustion chamber, as set forth. 7th. The ring T, having an annular groove at top and bottom, in combination with the combustion chamber A and fuel drum K, to make a smoke-tight joint, as set forth.

No. 29,077. Stove for Burning Straw, etc.

(*Poêle consommant la paille, etc.*)

Thomas J. McBride, Winnipeg, Man., 2nd May, 1888; 5 years.

Claim.—1st. A stove consisting of an oven 2, a flue 9 surrounding said oven, a fire-box 3 in said flue, a smoke outlet 8 over said fire-box and in connection with said flue, a combustion chamber 14 and a straw fuel reservoir above said combustion chamber, substantially as set forth. 2nd. A stove having a fuel reservoir 15 over a combustion chamber 14, a flue therefrom leading around an oven, said combustion chamber provided with bars 25 to support straw fuel while being burned, a rake 18 to clear the fire, grates 20 below the rail, a draft entrance 15 opposite to the smoke outlet, an ash receptacle 26 and with or without a fuel receptacle 24, as set forth. 3rd. A stove for burning straw fuel, having a removable feed receptacle 24, within a reservoir 15, seated above a combustion chamber, in connection with the throat of a flue surrounding an oven, substantially as set forth. 4th. In combination with the combustion chamber 14, a rake 18 to clear ashes from the straw fuel while being burned, and a sliding grate 20, for the purposes set forth. 5th. In combination with a stove, a fuel reservoir 15, provided with doors c, and located above a combustion chamber 14 to feed fuel thereto, as set forth.

No. 29,078. Feed and Water Tray for Chickens. (*Plateau pour la nourriture et l'eau des poulets.*)

Henry J. Mouzon, Bamberg, S.C., U.S., 2nd May, 1888; 5 years.

Claim.—1st. The herein shown and described cap composed of a single piece of sheet material bent to form sides which are provided with a series of vertical openings, and having ends connecting the sides and closing them in, substantially as and for the purpose specified. 2nd. The herein shown and described poultry feeding device composed of the shallow tray A and the cap, consisting of the middle portion made of a single piece of sheet material bent to form sides, which have vertical openings and extensions resting upon the bottom of the tray, and the ends which close in the sides and rest on the ends of the tray, substantially as specified.

No. 29,079. Felt Sock Machine.

(*Machine à chaussettes de feutre.*)

David Spiers, (assignee of Walter Glasby,) Galt, Ont., 3rd May, 1888; 5 years.

Claim.—1st. A tube roller B having a tapered end, in combination with the auxiliary pressure roller F, carried on the shaft E, set at an angle parallel with the tapered end of the roller B, substantially as and for the purpose specified. 2nd. A tube roller B having a tapered end, in combination with the auxiliary pressure roller F, carried on the shaft E, set at an angle parallel with the tapered end of the roller B, and of the pin G, located substantially as and for the purpose specified. 3rd. A feed roller H, located between the roller A and tapered portion of the tube roller B, in combination with the said tapered tube roller B and pressure rollers C and F, arranged and operating substantially as and for the purpose specified. 4th. A feed roller H, located between the roller A and tapered portion of the tube roller B, in combination with the said tapered tube roller B and pressure rollers C and F, and a pin G, arranged and operating substantially as and for the purpose specified.

No. 29,080. Sleigh or Cutter Runner.

(*Patin de traîneau.*)

Richard H. Jones, Plattsville, and John Avery, Clinton, Ont., 3rd May, 1888; 5 years.

Claim.—1st. A sleigh or cutter runner R, in combination with a strengthening bar, brace or flange S, substantially as shown and described and for the purpose specified. 2nd. The sleigh or cutter run-

ners R, R, having a bar, brace or flange S, in combination with the cross-bars H, H, substantially as shown and described and for the purposes specified.

No. 28,081. Storage Battery.

(*Batterie d'emmagasinage.*)

Grosvenor P. Lowrey, (assignee of Charles D. P. Gibson,) New York, N.Y., U.S., 3rd May, 1888; 5 years.

Claim.—1st. A shell, coil or capsule filled with the oxydized active material of a storage battery plate. 2nd. A shell, coil or capsule filled with the oxydizable active material of a storage battery plate. 3rd. A storage battery plate having openings or perforations into which shells or capsules filled with active material are inserted and secured. 4th. The method of forming storage battery plates, which consists in, first perforating the same, then inserting shells or capsules filled with active material into the perforations, interlocking the plates and capsules by pressure, and finally subjecting the plates to the action of an electric current in a suitable electrolyte. 5th. A storage battery plate, the active material of which is placed within cells or openings formed in said plate and partly covered by portions of the metallic body of the plate, whereby the active material is held in place and also is kept in contact with the electrolyte.

No. 29,082. Lasting Machine.

(*Machine à enformer.*)

Charles B. Lancaster, (assignee of Charles H. Kolloy,) Boston, Mass., U.S., 3rd May, 1888; 5 years.

Claim.—1st. In a lasting machine, the combination of the four-square system of shafts and bevelled gearing B, B, B, herein described, the four cams D, D, D, D, one mounted upon each of said shafts, and the four sliding boxes E, E, E, E, for carrying and operating the heel, toe and side lasting plates respectively, all substantially as herein set forth. 2nd. In a lasting machine, the combination of the four-square system of shafts and bevelled gearing B, B, B, B, herein described, the four cams D, D, D, D, one mounted upon each of said shafts, and the four sliding boxes E, E, E, E, for carrying and operating the heel, toe and side lasting plates respectively, each of said boxes being provided with adjustable bearings e, e, for the purpose herein set forth. 3rd. In a lasting machine, the improved gripping and releasing device herein described, consisting of the pivoted jaws H, H, the links h, h and the operating rod I, all substantially as set forth. 4th. In a gripping device for lasting machines, the combination, with the plate F, of the hollow shell f, the pivoted jaws H, H, links h, h and operating rod I, all substantially as set forth. 5th. In the gripping device of a lasting machine, the combination, with the upper and lower plates G, F, of the post L, secured to the lower plate and passing through the upper plate, and the wedge cam K, formed in two parts, one fixed at the post and the other adapted to turn around the same upon the plate G, all substantially as set forth. 6th. In a lasting machine having an overhanging gripping attachment, the improved device for raising and lowering the same, consisting of the hollow post L, the rod M, working therein and bearing at its lower portion upon a down-hold, and the cam-lever N, all substantially as set forth. 7th. In a lasting machine, the combination, with inwardly sliding lasting plates, of springs, substantially as described, extending downwardly on the inner side and below the edge of the upper to be lasted, and adapted to hold the same with a yielding grip against the inward pressure of the slides, all substantially as set forth. 8th. In a lasting machine, the combination, with the vertical rods which support and raise the heel and toe of the last, of the transverse bar R, stirrup-piece S and lever f, operated from the principle source of power in the machine, to raise and lower the said posts, all substantially as set forth.

No. 29,083. Argand Lamp. (*Lampe à Argand.*)

Frank Rhind, Meriden, Conn., and Charles S. Upton, New York, N.Y., U.S., 3rd May, 1888; 5 years.

Claim.—1st. A cylindrical wick holder having an inner and an outer shell with a downwardly extending portion, as shown in Fig. 3, having the inner and outer shells connected to each other, as at z, to form a continuous cover for the wick at the sides. 2nd. A cylindrical wick holder having downwardly extending portions with openings for the wick, and having closed portions y for the cut away portions of the wick, as shown and described. 3rd. A double shell cylindrical wick holder having a continuous opening at the top, and open and closed portions at the bottom. 4th. A double shell cylindrical wick holder having a semi-cylindrical extension at the bottom, the edges of the two shells being joined at the sides of the extension for the purpose of bracing the parts and preventing the rack from receding from the pinion wheel. 5th. A cylindrical and double shell wick holder having one or more extensions, or isolated portions, to accommodate the corresponding portions of the cylindrical wick. 6th. A cylindrical wick holder having a continuous casing inside and outside of the wick, and closed portions where the wick is cut away for the purpose of protecting the wick. 7th. The double shell cylindrical wick holder having the parts braced against each other, as shown and described, and the outer shell being provided with friction teeth for holding and securing the wick. 8th. The combination of the double shell wick holder with the double shell burner, the said parts being arranged substantially as shown and described. 9th. The combination of the lamp burner having the pinion wheel, arranged substantially as described, with the double shell wick holder having the rack in the outer shell of said holder. 10th. A circular and cylindrical lamp wick made of a single piece of material, which has one or more cut away portions with edges secured from raveling, as shown and for the purposes set forth. 11th. A circular and cylindrical wick for argand burners, the said wick forming a single piece of material and having cut away portions stitched at the edges to protect the material from raveling, as and for the purposes set forth. 12th. The lamp burner having the centre draft tube c, the conical perforated tube f having a spreader f, as described, and the perforated tube tube g, all arranged substantially as and for the purposes set forth.

No. 29,084. Clothes Tongs. (Pince à linge.)

Hester V. Hardy, (assignee of Peter Coss), Toronto, Ont., 3rd May, 1888; 5 years.

Claim.—1st. A clothes tong consisting essentially of two bars or sticks pivoted together with handles at one end, and corrugations or flutings at the other, for gripping and retaining the fabrics, substantially as described. 2nd. In a clothes tong, the combination, with two pivoted cross sticks having corrugated or fluted gripping ends, of the depressions *a, b*, on the exterior of said cross-sticks near the points thereof, substantially as and for the purposes described.

No. 29,085. Stove-pipe. (Tuyau de poêle.)

Isaac M. Houso, Gravenhurst, and Hannah A. Train, Burks Falls, Ont., 3rd May, 1888; 5 years.

Claim.—1st. A stove-pipe having the edge at one end bent inwards to form the contracted edge *b*, and having a little distance therefrom the outwardly projecting rib *B*, the edge *a* the other end of said pipe bent outwards to form the flaring end *b*, and having at a little distance therefrom the inwardly projecting rib *B*, substantially as set forth. 2nd. A stove-pipe having one end bent inwards to form the contracted edge *b*, and having a little distance therefrom an outwardly projecting rib *B*, substantially as set forth. 3rd. A stove-pipe having one end bent outwards to form the flaring edge *b*, and having a little distance therefrom an inwardly projecting rib *B*, substantially as set forth.

No. 29,086. Folding Settee. (Banc pliant.)

The Harwood Manufacturing Company, Boston, (assignee of Herbert J. Harwood, Littleton), Mass., U.S., 3rd May, 1888; 5 years.

Claim.—1st. The combination of the back frame *A*, its supporting posts *a*, the bars *G* and *H* secured thereto, and the seats *B* pivoted to said posts, with the legs *D* connected to each other by the bar *E*, and pivoted to said posts *a*, all being arranged substantially as set forth and represented. 2nd. The combination of the back frame *A*, its supporting posts *a*, the bars *G* and *H* secured thereto, and the seats *B* pivoted to said posts, with the legs *D* connected to each other by the bars *C* and *E*, and pivoted to the posts *a*, all being arranged substantially as described and represented. 3rd. The combination of the back frame *A*, its supporting posts *a*, the bars *G* and *H* secured thereto, and the seats *B* pivoted to said posts, with the legs *D* connected to each other by the bars *C* and *E* pivoted to the posts *a*, and provided with the hat supporting bail *K*, all substantially as described and represented. 4th. The combination of the back frame *A*, its supporting posts *a*, the bars *G* and *H* secured thereto, and the seats *B* pivoted to said posts, and provided with the friction hinge *I*, as set forth, with the legs *D* connected to each other by the bars *C* and *E*, and pivoted to the posts *a*, and provided with the hat supporting bail *K*, all substantially as shown and described.

No. 29,087. Counter Stiffening for Boots and Shoes. (Contrefort de chaussure.)

Louis Côté, St. Hyacinthe, Que., 3rd May, 1888; 15 years.

Claim.—1st. A blank for boot or shoe counter stiffenings having its flange edge corrugated, and each corrugation severed throughout a part of its length from the corrugations adjoining it, for the purposes and substantially as shown and described. 2nd. A blank for counter stiffenings for boots or shoes, having its flanged portion corrugated, and each corrugation partially severed from the adjoining corrugations and having a crease, or a crease and a bead at or near the base of the flange portion, substantially as shown and described. 3rd. A counter stiffening curved as required, for use in a boot or shoe, and provided with a corrugated flange portion, the corrugations being partially severed from each other and having a crease, or a crease and bead at or near the base of the flange portion, substantially as shown and described.

No. 29,088. Row Lock. (Tolètere.)

William H. Rice, Addison, N.Y., U.S., 3rd May, 1888; 5 years.

Claim.—1st. In an ear lock, the combination of the pivoted ring *C*, having a slot *D* in its inner edge, the ear passing through the ring, the outer collar *G* embracing and secured to the ear and bearing against the outer side of the ring *C*, and the inner collar *H* secured rigidly to the ear and bearing against the inner side of the ring, and having the stop or stud *K*, to operate in the slot *D* and limit the axial rotation of the ear, substantially as and for the purpose specified. 2nd. In an ear lock, the combination, with the ear of the swivel *A*, the ring *C* pivoted between the arms thereof, and having the semi-circular slot *D* in its inner edge, the outer collar *G* embracing the ear and having the flange *f* fitting in the ring, the inner collar *H* embracing the ear, and having the flange *h* fitting in the ring and provided with a stop or stud *K*, to operate in the slot *D*, and the set-screws *I*, *J*, in the collars, to secure them rigidly to the ear, substantially as and for the purpose specified.

No. 29,089. Car Heater. (Poêle de char.)

James Wardle, Hopo, E.C., 3rd May, 1888; 5 years.

Claim.—An improved stove consisting of the apertured base *B*, the outer perforated cylinder *A* secured to the base, the inner cylinder *A*, provided with a conical bottom projecting through the aperture of the base, the valve *F* for closing the conical bottom of the inner cylinder, the flanged dome *D* covering the upper ends of the said cylinders, and the apertured cap *d*, over the upper end of the inner cylinder and secured between the flange of the dome and the upper end of the inner cylinder, substantially as herein shown and described.

No. 29,090. Organ. (Orgue.)

Charles Blackstone, Clinton, Ont., 3rd May, 1888; 5 years.

Claim.—1st. The combination of the backboard *L*, the lever *A*,

the hinge *M*, the strip *R*, with the pedal brackets *Q*, and the bollovs strap *W* and the case *G*. 2nd. The combination of the heel strip *U* with the pedal brackets *Q*. 3rd. The combination of the auxiliary pedal *T* with the pedal brackets *Q*. 4th. The combination of the auxiliary pedal *T*, the rod *F*, the lever *E*, the pin *I* and the rod *D*, with the rod *C* and the button *B*. 5th. The combination of the strip *R*, with the moulding *H* and the case *G*. 6th. The combination of the casings *N* and *O* with the casings *G* and *Y*. 7th. The combination of the lever *A*, the backboard *L*, the pedal brackets *Q*, the heel strip *U*, the hinge *M* and the strip *R*, with the casings *G*, *N*, *O* and *Y*, and the bollovs strap *W*. 8th. The combination of the bollovs strap *W*, the lever *A*, the backboard *L*, the pedal brackets *Q*, the heel-piece *U*, with the auxiliary pedal *T*, the hook (or otherwise) *P*, the rod *F*, the pin *I*, the lever *E*, the rod *D*, the rod *C* and the button *B*. 9th. The combination of the bollovs strap *W*, the lever *A*, the backboard *L*, the pedal brackets *Q*, the heel strip *U*, the hook (or otherwise) *P*, the rod *F*, the pin *I*, the lever *E*, the rod *D*, the rod *C*, the strip *R*, with the casings *G*, *N*, *O* and *Y*.

No. 29,091. Clothes Dryer. (Séchoir à linge.)

Richard Chappell, Township Sixteen, Assin., 3rd May, 1888; 5 years.

Claim.—1st. The plan of securing or fastening a number of bars *a*, in one casting or bar holder, substantially as and for the purpose hereinbefore set forth. 2nd. The manner of fastening bar holder to clasp ring by catches *E*, *E*, *E*, *E*, substantially as and for the purposes hereinbefore set forth.

No. 29,092. Liquid Extract of Meat Compound. (Extrait liquide composé de viande.)

Stephen M. Caffyn, Middle Brighton, near Melbourne, Victoria, 3rd May, 1888; 5 years.

Claim.—My liquid extract of meat compound, consisting of a combination of the raw juices of lean meat with glycerine, to which may be added chlorido of sodium and the other ingredients mentioned, neither said compound nor its ingredients being either concentrated or subjected to any degree of heat whatever, substantially in the proportions as herein described and explained.

No. 29,093. Cock or Tap for Water Pipes.

(Robinet ou chantepleur pour tuyaux Teau)

Alexander Keith, (assignee of Thomas Gill), Toronto, Ont., 4th May, 1888; 5 years.

Claim.—1st. The raised seat *C* for the disc *C*, with two or more openings *C*, in combination with the valve *G* and the cylindrical body *B*, as hereinbefore set forth and for the purpose specified. 2nd. In a combination compression cock, the disc *C* secured to the raised seat *C*, in combination with the screw made to screw against a shoulder at *f*, as hereinbefore described and for the purpose specified. 3rd. The combination of the disc *C*, with the valve *G*, inclosed within a cylindrical body *B*, having a rectangular branch *d* for connection to the pipes, as hereinbefore described and for the purpose set forth.

No. 29,094. Steam Engine. (Machine à vapeur.)

Elmer S. Smith, New York, and Ray V. Pierce, Buffalo, N. Y., U. S., 4th May, 1888; 5 years.

Claim.—1st. The combination, with the segmental case, of a segmental piston provided with an internal valve seat and inlet and exhaust passages, and a valve capable of movement in said seat in one direction by centrifugal force, and in the opposite direction by a tension device, whereby the valve is adjusted automatically and the supply of the actuating fluid is increased or reduced inversely with the speed, substantially as set forth. 2nd. The combination, with the segmental case and the segmental piston provided with an internal valve seat and inlet and exhaust passages, of a valve capable of longitudinal movement in said seat, and a spring which resists the outward movement of the valve in its seat, substantially as set forth. 3rd. The combination, with the segmental case, of a knuckle *M* secured to said case, a segmental piston provided with an internal valve seat and inlet and exhaust passages, a valve capable of longitudinal movement in said seat, and a resisting spring attached to said knuckle and connected with the valve, substantially as set forth. 4th. The combination, with the segmental case *A*, *A*, and segmental piston *B*, provided with supply ports *e*, main ports *F* and exhaust space *G*, of the valve capable of longitudinal movement in the seat, and with inlet ports *f*, *f* and exhaust ports *g*, *h*, substantially as set forth. 5th. The combination, with the segmental case *A*, *A*, and segmental piston *B*, provided with an internal valve seat *E*, of the valve *E* provided with an equalizing passage *r*, extending from end *c* end of the valve, substantially as set forth. 6th. The combination, with the segmental case *A*, *A*, provided with an external chamber *L*, of the segmental piston *B*, provided with ports *F*, an exhaust space *G* around said ports, and openings, whereby said exhaust space communicates with the exhaust chamber *L*, substantially as set forth.

No. 29,095. Steam Engine. (Machine à vapeur.)

Elmer S. Smith, New York, and Ray V. Pierce, Buffalo, N. Y., U. S., 4th May, 1888; 5 years.

Claim.—1st. In an engine, the combination, with a case having the form of a spherical segment, of a similarly shaped piston, filling said case partially and leaving a space for the actuating fluid between the face of the piston and the head of the case, a shaft arranged in line with the axis of the case, and a crank-pin connecting said shaft with the piston in the axis of the latter, substantially as set forth. 2nd. The combination, with the case, having the form of a spherical segment, of a similarly shaped piston filling the case partially, and provided with ports for the actuating fluid, abutments arranged in the space between the piston and the case, and supply and exhaust passages for the actuating fluid, substantially as set forth. 3rd. The

combination, with the case having the form of a spherical segment, of a similarly shaped piston filling said case partially, and provided with ports for the actuating fluid, and rocking abutments extending across the space between the piston and case, seated in one of said parts and entering recesses in the opposite part, substantially as set forth. 4th. The combination, with the case having the form of a spherical segment, of a similarly shaped piston filling said case partially and provided with ports for the actuating fluid, abutments extending across the space between the piston and the case, and an induction valve seated in the piston, substantially as set forth. 5th. The combination, with the case having the form of a spherical segment, of a similarly shaped piston filling said case, and provided with ports for the actuating fluid, abutments extending across the space between the piston and the case, a shaft arranged in line with the axis of the case, a crank-pin connecting said shaft with the piston in the axis of the piston, and an induction valve seated in the piston and connected with said crank pin, substantially as set forth. 6th. The combination, with the case having the form of a spherical segment, of a similarly shaped piston filling said case partially, and provided with ports for the actuating fluid, abutments extending across the space between the piston and the case, a supply chamber arranged at one end of the case, and a shaft and hollow crank arranged in said chamber, substantially as set forth. 7th. The combination, with the case having the form of a spherical segment, of a similarly shaped piston arranged obliquely in said case, a shaft and crank connected with the convex back of the piston, and a pivot secured to the flat head of the case and supporting the piston centrally, substantially as set forth. 8th. The combination, with the case having the form of a spherical segment, of a similarly shaped piston arranged obliquely in said case, and provided with ports for the actuating fluid, and a reversible valve seated in said piston, substantially as set forth. 9th. The combination, with the case having the form of a spherical segment, of a similarly shaped piston arranged obliquely in said case, and provided with ports for the actuating fluid, a supply valve and an automatic cut-off valve, substantially as set forth. 10th. The combination, with the case A having the form of a spherical segment, of a similarly shaped piston B arranged obliquely in said case, a chest C arranged at the convex end of the case A, a shaft D, disk D and hollow wrist pin E arranged in said chest, a valve E arranged in said piston and connecting with the hollow wrist-pin, and a hollow knuckle I secured to the case and communicating with said valve, substantially as set forth. 11th. The combination, with the case A, having the form of a spherical segment, of a similarly shaped piston B arranged obliquely in said case, and provided in its face with a spherical cavity c, and a spherical knuckle I entering the cavity c, and made adjustable in the case toward and from the piston, substantially as set forth. 12th. The combination, with the spherical case A, and a similarly shaped piston B arranged obliquely in said case, and provided with a spherical cavity c and a valve communicating therewith, of the knuckle I provided with a bore p, and passages r, a chamber J formed on the case around said knuckle, and a passage J' connecting with said chamber, substantially as set forth. 13th. The combination, with the spherical case A, and the similarly shaped piston B, of movable abutments t and cylindrical packing strips h bearing against opposite sides of the abutment, substantially as set forth.

No. 29,096. Alarm Water Gauge.

(Indicateur d'eau à sonnerie.)

George Fisher and Peter Rappold, Toledo, Ohio, U.S., 7th May, 1888; 5 years.

Claim.—1st. In an alarm water gauge, a well, a float adjustably secured to a vertical rod within the well, having a flexible connection with an alarm and indicator, as and for the purpose set forth. 2nd. In an alarm water gauge, a well, a float rod therein having a float adjustably secured thereon, as and for the purpose set forth. 3rd. In an alarm water gauge, a revoluble disk connected with a float and indicator thereon, and an alarm mechanism caused to sound by the rise of the float as and for the purpose set forth. 4th. In an alarm mechanism, a well, a float rod and a hollow float secured thereon, in combination with an alarm and indicator connected with the float rod, as and for the purpose set forth.

No. 29,097. Auger Bit. (Mèche de tarière.)

Charles H. Irwin, Martinsville, Ohio, U.S., 7th May, 1888; 5 years.

Claim.—In a central stem auger bit, the central stem A provided with an extended convoluted blade B, made concave, as at c, on its upper or back surface, and having a cutter c on one side of the stem at its advance end, and a short convoluted blade B' at the advance end of the stem, terminating in another cutter c' on the opposite side of the stem, substantially as shown and described.

No. 29,098. Saw Hammering Machine.

(Machine à marteler les scies.)

William Gowen, Wausau, Wis., U.S., 7th May, 1888; 5 years.

Claim.—1st. The combination, in a saw hammering machine, of saw supporting pulleys, the hammer and anvil supported in proper position to operate upon the saw carried by said pulleys, and a reciprocating pawl arranged to work with the teeth of said saw and feed the same between said hammer and anvil, substantially as and for the purposes set forth. 2nd. The combination, in a saw hammering machine, with supporting pulleys, of a slide adjustable transversely to the saw, a hammer and anvil mounted upon said slide, and mechanism for feeding the saw between said hammer and anvil, substantially as and for the purposes set forth. 3rd. The combination, in a saw hammering machine, with saw supporting pulleys, of a fixed supporting standard, a slide movable vertically in ways on said standard, a screw arranged to adjust said standard vertically, and a hammer and anvil mounted upon said slide, substantially as and for the purposes set forth. 4th. The combination, in a saw hammering machine, with horizontal saw supporting pulleys, having flanges about their lower edges, of a vertically adjustable slide, a vibrating hammer arm journaled therein and provided at its free end with a

hammer arranged to work with an anvil also mounted upon said slide, a cam supported upon said slide and arranged to work with a projection of said hammer arm, and an adjustable spring connected with said hammer arm, substantially as and for the purposes set forth. 5th. The combination, in a saw hammering machine with saw supporting pulleys, of a fixed standard, a slide vertically adjustable thereon, means for raising and lowering said slide, a vibrating hammer arm provided with a hammer and a right angled projection and supported upon said slide, a cam also supported upon said slide and arranged to work with the projection on said hammer arm, a leaf spring secured to said slide and connected with said hammer arm, and a screw or screws arranged to adjust the tension of said spring, substantially as and for the purposes set forth. 6th. The combination, in a saw hammering machine, of saw supporting pulleys, a hammer and anvil adjustable transversely to said saw, a pawl arranged to work with the teeth of the saw and connected with a vibrating arm of a rock shaft, and a cam arranged to oscillate said rock shaft, substantially as and for the purposes set forth. 7th. The combination, in a saw hammering machine, of saw supporting pulleys, a vertically adjustable hammer and anvil, a hammer actuating cam movable with said hammer, and a counter shaft provided with a wheel, connected by a belt with a similar wheel on the cam shaft, substantially as and for the purposes set forth. 8th. The combination, in a saw hammering machine, with saw supporting pulleys, of a vertically adjustable slide and hammer and anvil mounted on, and movable with said slide, and mechanism for feeding the saw between said hammer and anvil, substantially as and for the purposes set forth. 9th. The combination, in a saw hammering machine, with a hammer and anvil, of saw supporting pulleys and a wheel or gear mounted upon the shaft of one of said pulleys, and arranged to work with another continuously rotating wheel or gear, substantially as and for the purposes set forth.

No. 29,099. Saw-Mill Carrriage.

(Chariot de scièrie.)

William Gowen, Wausau, Wis., U.S., 7th May, 1888; 5 years.

Claim.—1st. The combination, with a guiding track, of a sawmill carriage having its supporting wheels mounted upon said track, a log frame movable upon the axles of said wheels transversely to the line of travel of said carriage, screws acting transversely to said track on said axles and on said log frame, internally threaded boxes or nuts working with said screws and secured to said log frame or to said axles, and means for turning said screws and thereby moving said frame lengthwise of said axles, substantially as and for the purposes set forth. 2nd. The combination, with a guiding track, of a sawmill carriage having its supporting wheels mounted upon said track, a log supporting frame mounted upon and movable lengthwise of the axles of said wheels, connected screws acting simultaneously transversely to said guiding track on said axles and on said log frame, threaded boxes or nuts secured to said axles or frame, and means for turning said screws and thereby moving said frame laterally lengthwise of said axles, substantially as and for the purposes set forth. 3rd. In combination with a saw and track by the side thereof, a log carriage movable upon the track past the saw, a rack or rail set parallel with said track, offsetting mechanism for moving the log frame toward and from the saw, and an arm connected with the offsetting mechanism journaled on the carriage and movable in the direction of its travel and working with said rack or rail, whereby when the travel of the carriage is reversed, said arm is caused to swing to one or the other side of its journal to actuate the offsetting mechanism, substantially as and for the purposes set forth. 4th. The combination, in a sawmill carriage, of the log support laterally movable with reference to the line of travel of said carriage, screw E applied thereto and arranged to shift said log support laterally, and an automatic trip arranged to operate said screw alternately in opposite directions whenever the movement of said carriage is reversed, substantially as and for the purposes set forth. 5th. The combination, in a sawmill carriage, of the wheels C, C' and axles O, O, the log supporting frame A laterally movable thereon with reference to the line of travel of said carriage, screws E, E, mounted upon axles O, O and working in internally screw-threaded boxes D, D, which are secured to said frame A, and mechanism for operating said screws, substantially as and for the purposes set forth. 6th. The combination of the log supporting frame A, mounted and laterally movable upon wheels C, C' and axles O, O, brackets B, B secured to said frame A and provided with internally screw-threaded boxes D, D, screws E, E mounted upon said axles and working in said boxes D, D, cranks g, g, and connecting rod t, substantially as and for the purposes set forth. 7th. The combination, in a sawmill carriage, of the log supporting frame A laterally movable upon its trucks with reference to the line of travel of said carriage, shifting screws E, E applied thereto, tooth a and rack I arranged to operate said screws when the movement of the carriage is reversed, substantially as and for the purposes set forth. 8th. The combination, in a sawmill carriage, of the log supporting frame A laterally movable upon its trucks with reference to the line of travel of said carriage, shifting screw E applied thereto, tooth block I pivoted to said screw, gravitating tooth a pivoted to said block, and rack I substantially as and for the purposes set forth. 9th. The combination, with a saw and guiding carriage track, of a carriage arranged to travel upon said track past the saw and movable transversely to said track, automatic offsetting mechanism arranged to move said carriage towards and from the plane of the saw, and a hand lever fulcrumed upon said carriage and connected with said offsetting mechanism so as to disconnect said offsetting mechanism or operate the same, substantially as and for the purposes set forth.

No. 29,100. Music and Book Holder.

(Serre-feuille de musique et de livre.)

Herbert O. Brown, Auckland, N.Z., 7th May, 1888; 5 years.

Claim.—1st. A book and leaf holder consisting of a pivoted weighted finger, substantially as described. 2nd. In a book and leaf holder the combination, with the pivoted and weighted finger D, of the clip A adapted to embrace the edges of the music rack shelf, substantially as described.

No. 29,101. Harp. (Harp.)

John C. Dietz, Brussels, Belgium, 7th May, 1883; 5 years.

Claim.—1st The use, for playing on a harp, of a mechanical finger with angular pulling part *re*, fixed rigidly to a sliding block *W* and so arranged in combination with a key that, on the depression of the latter, the said finger is made to pull the string of the harp so as to sound it, and is then pushed or pulled to one side by the action of a weight or spring so as to escape the string as it moves back again, the part *re* being afterwards made to resume its original position behind the string by an incline, or equivalent device, substantially as herein described. 2nd. In a mechanical finger, such as is referred to in the preceding claim, the use of a weight, such as *e*, connected by a spring *7* to the finger, and so arranged that, on drawing forward the finger sharply, the inertia of the weight will cause the spring to exercise pressure upon the finger in order to produce a loud tone, while, on drawing this forward gently, the weight will move so as to reduce the pressure of the spring and thereby produce a soft tone, substantially as herein described. 3rd. In combination with a harp, a keyboard *K*, keys *L*, fingers *re*, escapement *Z*, recovery mechanism *c, d, d'*, sound regulating mechanism *e, f, p*, dampers *l, n* and dampor operating pedals *i, q*, substantially as herein shown and described and for the purpose stated. 4th. In combination with a harp, a keyboard *K* and keys *L*, provided with mechanism for sounding the cords or strings, consisting of a pillar *M* fixed to the keys *L*, stops *R, S*, a pin *N* at the upper end of the pillar, a block *X* placed on the pin *N*, said block *X* being connected to the block *W* by a distance regulating pin *Y*, a cord playing finger *re* fixed to block *W*, an inclined recovery piece *c* fixed to block *W*, and guides *d, d'*, substantially as herein shown and described and for the purpose stated. 5th. In combination with a harp, a keyboard *K* and keys *L*, provided with a pillar *M*, carrying a pin *N* at its upper end, on which the cord sounding apparatus and dampers are mounted, substantially as herein shown and described and for the purpose stated.

No 29,102. Process of and Apparatus for Dyeing Scouring, Bleaching and otherwise Treating Yarn in Cops. (Procédé de séchage, nettoyage, blanchiment et de traitement général des fils en écheveaux)

August Graemiger, Warwick, R-I., U.S., 7th May, 1883; 5 years.

Claim.—1st. The continuous process of dyeing, scouring, bleaching or otherwise treating a series of cops hereinbefore described, which consists in the contemporaneous but distributive subjection of said cops, each in turn, to its appropriate step of the following contemporaneously conducted successive steps or operations, namely: first, saturation or impregnation by sucking or forcing dyeing, bleaching or other selected liquids through given cops, and second, substitution of cops to be impregnated for given impregnated cops, substantially as set forth. 2nd. The continuous process of dyeing, scouring, bleaching or otherwise treating a series of cops, hereinbefore described, which consists in the contemporaneous but distributive subjection of said cops, each in turn, to its appropriate step of the following contemporaneously conducted successive steps or operations, namely: first, saturation or impregnation by sucking or forcing dyeing, bleaching or other selected liquids through given cops, second, liquid exhaustion by forcing or sucking air, or other suitable fluid, through given impregnated cops, and third, substitution of cops to be impregnated and liquid exhausted for given impregnated and liquid exhausted cops, substantially as set forth. 3rd. The continuous process of liquid exhausting a series of cops, hereinbefore described, which consists in the contemporaneous but distributive subjection of said cops, each in turn, to its appropriate step of the following contemporaneously conducted successive steps or operations, namely: first, liquid exhaustion by forcing or sucking air, or other suitable fluid, through given cops, and second, substitution of cops to be liquid exhausted for given liquid exhausted cops, substantially as set forth. 4th. The continuous process of dyeing with easily oxidizable liquid dyes a series of cops, hereinbefore described, which consists in the contemporaneous but distributive subjection of said cops, each in turn, to its appropriate step of the following contemporaneously conducted successive steps or operations, namely: first, air exhaustion by sucking air from out given cops to be dyed, second, saturation or impregnation by sucking or forcing dyeing liquid through given air exhausted cops, and third, substitution of cops to be air exhausted and impregnated for given air exhausted and impregnated cops, substantially as set forth. 5th. The continuous process of dyeing with easily oxidizable liquid dyes a series of cops, hereinbefore described, which consists in the contemporaneous but distributive subjection of said cops, each in turn, to its appropriate step of the following contemporaneously conducted successive steps or operations, namely: first, air exhaustion by sucking air from out given cops to be dyed, second, saturation or impregnation by sucking or forcing dyeing liquid through given air exhausted cops, third, liquid exhaustion by forcing or sucking air or other suitable fluid through given air exhausted and impregnated cops, and fourth, substitution of cops to be air exhausted, impregnated and liquid exhausted for given air exhausted, impregnated and liquid exhausted cops, substantially as set forth. 6th. In combination, a rotatable cop carrier having perforations in communication with which cops are applied to said carrier, and one or more fixed conduits over the mouths of which the perforations of the carrier are caused to present as the carrier is caused to rotate, substantially as and for the purposes specified. 7th. In an apparatus for dyeing, bleaching or otherwise treating yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, a charging conduit in communication with a charging pump, and fourth, a dead face, substantially as set forth. 8th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, a charging conduit in communication with a charging pump, and fourth, a liquid exhausting conduit in communication with a liquid exhausting pump, substantially

as set forth. 9th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, a charging conduit in communication with a charging pump, fourth, a liquid exhausting conduit in communication with a liquid exhausting pump, and fifth, a dead face, substantially as set forth. 10th. In an apparatus for treating yarn in cops, the following instrumentalities in combination, first, a fixed frame-work, second, a perforated rotatable cop carrier, and third, a liquid exhausting conduit in communication with a liquid exhausting pump, substantially as set forth. 11th. In an apparatus for treating yarn in cops, the following instrumentalities in combination, first, a fixed frame-work, second, a perforated rotatable cop carrier, third, a liquid exhausting conduit in communication with a liquid exhausting pump, and fourth, a dead face, substantially as set forth. 12th. In an apparatus for treating yarn in cops, the following instrumentalities in combination, first, a fixed frame-work, second, a perforated rotatable cop carrier, third, a charging conduit in communication with a charging pump, fourth, a dead face, and fifth, mechanism essentially, for instance such as set forth, for imparting to the cop carrier a predetermined movement relative to the frame-work liquid exhausting conduit and dead face, substantially as set forth. 13th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, a charging conduit in communication with a charging pump, fourth, a dead face, and fifth, mechanism essentially, for instance such as set forth, for imparting to the cop carrier a predetermined movement relative to the tank charging conduit and dead face, substantially as set forth. 14th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, a charging conduit in communication with a charging pump, fourth, a liquid exhausting conduit in communication with a liquid exhausting pump, fifth, a dead face, and sixth, mechanism essentially, for instance such as set forth, for imparting to the cop carrier a predetermined movement relative to the tank charging conduit, liquid exhausting conduit and dead face, substantially as set forth. 15th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, a charging conduit in communication with a charging pump, fourth, a dead face, fifth, a carrier body, and sixth, mechanism essentially, for instance such as set forth, for imparting to the cop carrier a predetermined movement relative to the tank charging conduit and dead face, substantially as set forth. 16th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, an air exhausting chamber in communication with an air exhausting device, fourth, a charging conduit in communication with a charging pump, fifth, a dead face, and sixth, a carrier body, substantially as set forth. 17th. In an apparatus for dyeing yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, an air exhausting chamber in communication with an air exhausting device, fourth, a charging conduit in communication with a charging pump, fifth, a liquid exhausting conduit in communication with a liquid exhausting pump, sixth, a dead face, and seventh, a carrier body, substantially as set forth. 18th. In an apparatus for dyeing yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, an air exhausting chamber in communication with an air exhausting device, fourth, a charging conduit in communication with a charging pump, fifth, a liquid exhausting conduit in communication with a liquid exhausting pump, sixth, a dead face, and seventh, a carrier body, substantially as set forth. 19th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a tank to contain dyeing, bleaching or other desired liquid, second, a perforated rotatable cop carrier adapted to be supplied with removably applied cops, third, a charging conduit in exterior communication with a suction or pressure pump and in interior communication with given perforations in the cop carrier, fourth, a dead face to act in connection with other given perforations of the cop carrier, and fifth, suitable means, such, for instance, as the carrier body *B*, for maintaining the foregoing instrumentalities in their given relative disposition, substantially as set forth. 20th. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a tank to contain dyeing, bleaching or other desired liquid, second, a perforated rotatable cop carrier, adapted to be supplied with removably applied cops, third, a charging conduit in exterior communication with a suction or pressure pump, and in interior communication with given perforations in the cop carrier, fourth, a liquid exhausting conduit, in exterior communication with a liquid exhausting pump, and in interior communication with other given perforations in the cop carrier, fifth, a dead face, to act in connection with yet other given perforations of the cop carrier, and sixth, suitable means, such, for instance, as the carrier body *B* for maintaining the foregoing instrumentalities in their given relative disposition, substantially as set forth. 21st. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a tank to contain dyeing, bleaching or other desired liquid, second, a perforated rotatable cop carrier, adapted to be supplied with removably applied cops, third, a charging conduit in exterior communication with a suction or pressure pump, and in exterior communication with given perforations in the cop carrier, fourth, a dead face to act in connection with other given perforations of the cop carrier, and fifth, a carrier body, with reference to which the cop carrier rotates, which has a chamber in communication with the charging conduit, and which also embodies the aforesaid dead face, substantially as and for the purposes set forth. 22nd. In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a tank to contain dyeing, bleaching or other desired liquid, second, a perforated rotatable cop carrier adapted to be supplied with removably applied cops, third, a charging

conduit in exterior communication with a suction or pressure pump, and in interior communication with given perforations in the cop carrier, fourth, a liquid exhausting conduit in interior communication with a liquid exhausting pump, and in interior communication with other given perforations in the cop carrier, fifth, a dead face to act in connection with yet other given perforations of the cop carrier, and sixth, a carrier body, with reference to which the cop carrier rotates, which has a chamber in communication with the charging conduit, and a chamber in communication with the liquid exhausting conduit, and which embodies the aforesaid dead face, substantially as and for the purposes set forth. 23rd In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a tank for containing liquid, second, a carrier body fixedly mounted referably to the tank and partly within said tank, third, a rotatable perforated cop carrier adapted to be supplied with removably applied cops, and which is rotated with respect to said carrier body, fourth, a charging conduit in communication with a charging pump and through the intervention of the carrier body with given perforations in the cop carrier, and fifth, a dead face through the intervention of said carrier body presented to given perforations of the cop carrier, substantially as and for the purposes set forth. 24th In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, the following instrumentalities in combination, first, a tank for containing liquid, second, a carrier body fixedly mounted referably to the tank, and partly within said tank, third, a rotatable perforated cop carrier adapted to be supplied with removably applied cops, and which is rotated with respect to said carrier body, fourth, a charging conduit, in communication with a charging pump and through the intervention of the carrier body, with given perforations in the cop carrier, fifth, a liquid exhausting conduit, in communication with a liquid exhausting pump, and through the intervention of said carrier body with given perforations in the cop carrier, and sixth, a dead face through the intervention of said carrier body presented to given perforations of the cop carrier, substantially as and for the purpose set forth. 25th In an apparatus for dyeing yarn in cops, the following instrumentalities in combination, first, a fixed tank, second, a perforated rotatable cop carrier, third, an air exhausting conduit in communication with an air exhausting pump, fourth, a charging conduit in communication with a charging pump, fifth, a liquid exhausting conduit in communication with a liquid exhausting pump, sixth, a dead face, seventh, suitable means, essentially such as set forth, for disconnecting or cutting off the air exhausting conduit and the liquid exhausting conduit, separately or together, from the pump or pumps in connection with which they operate, substantially as set forth. 26th In an apparatus for dyeing, bleaching and otherwise treating yarn in cops, screens in combination with a cop carrier adapted to be supplied with cops, substantially as and for the purpose specified. 27th In a machine of the class herein recited, in combination with a rotatable cop carrier having perforations, hollow nipples provided with spindle retaining catches and applied to said perforations, substantially as and for the purpose specified. 28th In a machine of the class herein recited, the combination of a fixed tank, a carrier body, a cop carrier, having movement referably to said carrier body, and dye slots formed in the carrier body, substantially as and for the purposes set forth.

No. 29,103. Conduit for Electric Railways.
(*Conduit pour chemins de fer electriques.*)

Frederic Euphrat, San Francisco, Cal., U.S., 7th May, 1888. 5 years.

Claim.—1st. A conducting wire, in combination with an elastic tube inclosing said wire, and split longitudinally, as described, and an attachment of a travelling motor, which enters said sleeve through said slit and makes electrical contact with said wire, the tube closing behind, substantially as set forth. 2nd. The combination, with a conduit B, having a longitudinal opening a, as specified, of an insulated cable D, composed of a central conducting wire b, a projecting pipe E, longitudinally opened at c, and the insulating tube d normally closed, but separable its entire length, all operating substantially as herein described. 3rd. In a system for supplying a continuous current of electricity to a travelling motor, the combination, with the conduit C, the motor B and arm F, with its connecting sleeve or brush, of the cable E provided with an insulating tube d, separable longitudinally by s, d arm, and consisting of elastic material in order that it may close automatically behind said arm, as and for the purpose stated.

No. 29,104. Saw Hammering Machine.
(*Machine à marteler les scies.*)

William Gowen, Wausau, Wis., U.S., 7th May, 1888. 5 years.

Claim.—1st. In a saw hammering machine, the combination, with a hammer and anvil, of laterally adjustable pulleys arranged to support the saw in position to be operated upon by the hammer, substantially as and for the purposes set forth. 2nd. In a saw hammering machine, the combination, with a hammer and anvil, of laterally adjustable saw supporting pulleys, an oscillatory hammer arm, and a C-spring connected therewith and arranged to impart force to the blows of said hammer, substantially as and for the purposes set forth. 3rd. In a saw hammering machine, the combination, with a hammer and anvil, of laterally adjustable saw supporting pulley, an oscillatory hammer arm, an adjustable C-spring connected therewith and arranged to regulate the force of the hammer strokes, substantially as and for the purposes set forth. 4th. The combination, in a saw hammering machine, with a hammer and anvil, of laterally adjustable saw supporting pulleys, a C-spring linked at one end to the hammer arm and secured at the other end to an adjusting screw, substantially as and for the purposes set forth. 5th. The combination, in a saw hammering machine, with a hammer and anvil, of saw supporting pulleys, laterally adjustable shifters engaging said pulleys, and screws arranged to move said shifters and pulleys, substantially as and for the purposes set forth. 6th. The combination, in a saw hammering machine, of a hammer and anvil, laterally adjustable saw supporting pulleys, shifters connected with said pulleys, and screws engaging said shifters and connected so as to be operated simultaneously and to move said pulleys together, substantially as and

for the purposes set forth. 7th The combination, in a saw hammering machine, of a hammer and anvil, saw supporting pulleys, and a pawl and ratchet wheel arranged to turn one of said pulleys, substantially as and for the purposes set forth. 8th. The combination, in a saw hammering machine, of a hammer and anvil, saw supporting pulleys, a ratchet wheel in contact upon one of the pulleys, shafts and a pawl connected with an adjustable crank-pin and arranged to work with said ratchet wheel, substantially as and for the purposes set forth. 9th The combination, in a saw hammering machine, of a hammer and anvil, saw supporting pulleys, shifting blocks engaging said pulleys, screws supporting and working with said shifting blocks, and sprocket wheels mounted upon said screws and connected by a chain belt, substantially as and for the purposes set forth. 10th. The combination, in a saw hammering machine, of a hammer and anvil and laterally adjustable saw supporting pulleys, one of which is supported in bearings adjustable parallel with the saw, substantially as and for the purposes set forth. 11th. The combination, in a saw hammering machine, of a hammer and anvil, an oscillatory hammer arm having an extension at the end opposite the hammer, a cam arranged to work with said extension, a crank mounted upon the cam shaft and carrying a pawl, saw supporting pulleys, and a ratchet wheel mounted upon the shaft of one of said pulleys in position to be operated by said pawl, substantially as and for the purposes set forth. 12th. The combination, in a saw hammering machine, with a hammer and anvil, of a saw supporting device and mechanism arranged to adjust the saw laterally upon the anvil, substantially as and for the purposes set forth.

No. 29,105. Book, Magazine or Paper Holder.
(*Puce-lure.*)

Nathaniel A. Hamilton, St. Joseph, Mich., U. S., 7th May, 1888; 5 years.

Claim.—The combination, with the trough-shaped spring-clasp having a portion near each edge, bent to one side and adapted to rest against the sides of the covers, and having openings formed near the end of flexion, of the strap passed around the clasp inward through said openings, up and over the edges of the bent portions, substantially as shown and for the purpose described.

No. 29,106. Apparatus for Effecting Marine Propulsion by Gas or Petroleum Motor Engines.
(*Appareil de propulsion de marine au moyen de machines motrices à gaz ou à pétrole.*)

Gottlieb Dainler, Cannstadt, Germany, 7th May, 1888; 5 years.

Claim.—1st. The combination of a gas or petroleum motor engine, with the propeller shaft of a vessel through a friction-clutch, the propeller shaft being made capable of sliding longitudinally in its bearings, so that the thrust of the propeller, when in motion, will maintain the frictional contact of the coupling, such frictional contact being decreased more or less by pushing the propeller shaft backwards against the said thrust, substantially as herein described. 2nd. In combination with a frictional coupling connecting the engine shaft with the sliding propeller shaft, the friction discs or wheels a, c, c', c'', and the levers f, f', connected to the propeller shaft constituting mechanism for reversing the motion of the propeller, the pull of the latter when reversed being made to effect the required frictional contact between the discs c', c'' and a', c', for this purpose. 3rd. The combination, with a motor engine coupled to a propeller shaft, as set forth in the preceding claims, of a thrust bearing, such as g, for taking the thrust of the propeller, and provided with means for rotating the engine, consisting of the crank handle r1 and sliding pin r2. 4th. The herein described arrangements for steering the vessel and shifting the propeller shaft at one and the same point, consisting in the shaft a1, levers a2, a3, and chain n, or equivalent means for actuating the rudder, and the screw spindle k1, with lever l or levers l' only, for actuating the propeller shaft, whereby the entire movements of the vessel can be controlled from such point. 5th. In combination with the water jacket of the engine cylinder A, the pipe a1 extending down to below water line and communicating with the outer water at or near the stern of the vessel, the branch pipe v with three-way cock w, centrifugal pump u, the pipe z1 leading down to below water line and communicating with the outer water at or near the stern of the vessel, and the charging funnel r1 with stop-cock r2 for filling the water jacket and pipes a1, z1, in the first instance, thus producing a siphon-like action whereby, on the movement of the vessel, the outer water is made to rise up to the jacket through the pipe a1, and to descend therefrom again through the pipe z1, substantially as herein described. 6th. In a vessel driven by a gas motor engine, the combination of gas holders containing compressed combustible gas arranged under the seats or other parts of the vessel, and a reservoir for gas at atmospheric pressure, arranged in the hold or waste spaces of the vessel, the last-named reservoir being made to supply the motor engine with combustible gas, and being itself supplied with gas from the high pressure gas holders through one or more reducing cocks or valves, substantially as described. 7th. In a vessel propelled by a gas motor engine, the combination, with the gas motor engine, of a screw propeller, whose shaft is capable of sliding longitudinally and is geared to the engine shaft by a friction coupling, means for longitudinally shifting the propeller shaft for varying the speed, stopping and reversing, a petroleum evaporating apparatus or low pressure gas reservoir for supplying the gas motor engine with combustible gas, and one or more high pressure gas holders that supply the low pressure reservoir through reducing cocks or valves, substantially as herein described.

No. 29,107. Mechanical Movement.
(*Transmission de mouvement.*)

William L. Grant and Edward L. Bowers, Orange, Mass., U.S., 7th May, 1888. 5 years.

Claim.—The cranked driving shaft and the parallel shafts a1, a2, c2, combined with a connecting rod joined to, and rotating the said shafts in the same direction in unison, substantially as described.

No. 29,108. Saw Hammering Machine.*(Machine à marteler les scies)*

William Gowen, Wausau, Wis., U.S., 7th May, 1888, 5 years.

Claim.—1st. In a saw hammering machine, the combination, with a hammer and anvil, of a vibrating hammer arm, a shaft supporting said hammer arm, a spring connecting said hammer with a ratchet wheel, and a lever and pawl arranged to turn said ratchet wheel and strain said spring, substantially as and for the purposes set forth. 2nd. In a saw hammering machine, the combination, with a hammer and anvil, of mechanism arranged to operate said hammer, an adjustable spring arranged to impart an impetus to, and to regulate the force of, the blows of said hammer, a saw supporting device arranged to hold the saw in position to be operated upon by said hammer, mechanism for moving the saw between said hammer and anvil, and mechanism arranged to change the relative positions of the saw and anvil, whereby the hammer is caused to deal a succession of blows upon said saw in parallel lines, substantially as and for the purposes set forth. 3rd. The combination, in a saw hammering machine, of the hammer and anvil, the driving shaft provided with a pulley E, and a wheel E' working below its centre, with a wheel F on the shaft F, shaft F' bearing adjacent thereto in a movable box, and carrying another wheel F', which works below its centre with the wheel on the drum shaft c, bearing adjacent thereto in a movable box, and a lever arranged to move said wheels into and out of engagement, substantially as and for the purposes set forth. 4th. The combination, in a saw hammering machine, of an anvil, a hammer adjustable transversely to the saw mechanism for operating the hammer, and drums arranged to support the band-saw between said hammer and anvil, substantially as and for the purposes set forth. 5th. The combination in a saw hammering machine, with supporting drums, of a slide adjustable transversely to the saw, a hammer and anvil carried by said slide, and mechanism arranged to feed the saw between said hammer and anvil, substantially as and for the purposes set forth. 6th. The combination, in a saw hammering machine, of a laterally adjustable hammer and anvil, mechanism arranged to operate said hammer, drums arranged to support a band-saw between said hammer and anvil, and a screw arranged to move said hammer and anvil together transversely to the saw, substantially as and for the purposes set forth. 7th. The combination, in a saw hammering machine, with a hammer and anvil, of a frame drums mounted thereon and arranged to support a band-saw in position to be operated by said hammer, and supports for said frame having a hinged or removable section to facilitate packing said saw upon said drums, substantially as and for the purposes set forth. 8th. The combination, in a saw hammering machine, of a supporting frame, a carriage movable transversely upon said frame, a hammer mounted upon said carriage, an anvil connected and movable therewith, mechanism for operating the hammer, and drums arranged to support a band-saw in proper position to be operated upon by said hammer, substantially as and for the purposes set forth. 9th. The combination, in a saw hammering machine, of a band saw supporting drums, a carriage movable transversely to the saw, a hammer and its actuating cam mounted upon said carriage, an anvil connected and movable therewith, and suitable gearing connecting the cam shaft with one of said drums, substantially as and for the purposes set forth. 10th. The combination, in a saw hammering machine, of the hammer and anvil, a circular saw supporting gear journaled upon a carriage movable towards or from the anvil, a feathered shaft placed parallel with the ways upon which said carriage travels, and connected by suitable gearing with the driving mechanism, and a gear mounted upon said feathered shaft and arranged to move with said carriage in engagement with the saw supporting gear mounted thereon, substantially as and for the purposes set forth. 11th. The combination, in a saw hammering machine, of the hammer and anvil, a circular saw supporting carriage movable towards and from said anvil, a rack adjustably connected with said carriage and a spur working with said rack, and arranged to impart an intermittent movement to said carriage, substantially as and for the purposes set forth. 12th. The combination, in a saw hammering machine, of the hammer and anvil, a circular saw supporting carriage, and mandrel movable towards and from said anvil, a rack attached to said carriage, and a rotary shaft provided with a spur working with said rack, and arranged to impart an intermittent movement to said carriage, substantially as and for the purposes set forth.

No. 29,109. Saw Hammering Machine.*(Machine pour marteler les scies.)*

William Gowen, Wausau, Wis., U.S., 7th May, 1888, 5 years.

Claim.—1st. In a saw hammering machine, the combination, with the hammer and anvil, of a saw support movable towards and from said anvil, substantially as and for the purposes set forth. 2nd. In a saw hammering machine, the combination, with a hammer and anvil, of a saw supporting carriage and mandrel movable towards and from said anvil, and mechanism arranged to impart a rotary movement to said saw, substantially as and for the purposes set forth. 3rd. In a saw hammering machine, the combination, with an overhanging supporting arm, of a saw supporting device, an anvil, a reciprocating hammer working in a groove formed thereon in said arm, a leaf spring bearing at one end against said hammer, and at the other against said supporting arm, and an adjusting screw connecting said spring with said arm, substantially as and for the purposes set forth. 4th. In a saw hammering machine, the combination, with a hammer and anvil, of a rotary saw support and a reversible pawl, and a right and left ratchet-wheel connected by suitable mechanism with, and arranged to produce an intermittent rotation of said saw support, substantially as and for the purposes set forth. 5th. In a saw hammering machine, the combination, with a hammer and anvil, of a rotary saw support, a right and left ratchet-wheel connected with said support, a crank pin adjustable towards and from the centre of its shaft, and a reversible pawl journaled upon said crank-pin and working with said ratchet wheel, substantially as and for the purposes set forth. 6th. In a saw hammering machine the combination, with a hammer and anvil, of a rotary saw support mounted upon a carriage and provided with a spur or tooth, and a fixed rack arranged to be engaged by said spur or tooth and thereby move said

carriage an interval to each revolution of said saw support, substantially as and for the purposes set forth. 7th. In a saw hammering machine, the combination, with a hammer and anvil, of a carriage movable on ways towards and from the anvil, a rotary saw support mounted on said carriage and provided with a spur or tooth, and a stationary rack capable of longitudinal adjustment, substantially as and for the purposes set forth. 8th. In a saw hammering machine, the combination, with the hammer and anvil, of a saw supporting carriage movable towards and from said anvil, mechanism arranged to impart a rotary movement to said saw, and an offsetting device arranged to move said carriage at intervals towards or from the anvil, substantially as and for the purposes set forth. 9th. In a saw hammering machine, the combination, with a hammer and anvil, of a rotary saw support and reversible feeding mechanism arranged to rotate said saw in either direction, substantially as and for the purposes set forth. 10th. In a saw hammering machine, the combination, with a hammer and anvil, of a rotary saw support, reversible mechanism arranged to rotate said saw in either direction, and an offsetting device arranged to move the saw towards or from the anvil, substantially as and for the purposes set forth. 11th. In a saw hammering machine, the combination, with a hammer and anvil, of a rotary saw support, mechanism for imparting an intermittent rotation to said saw support, and gears arranged to produce continuous rotation thereof, substantially as and for the purposes set forth.

No. 29,110. Machine for Filling Fruit Cans, etc. *(Machine à emplir les boîtes à fruits, etc.)*

Albert E. Carpenter and Egerton DeCow, Hamilton, Ont., 8th May, 1888; 5 years.

Claim.—1st. In a machine for filling cans, the combination of box A, feed tubes F, F, receiver G and operating plunger H, all constructed substantially as and for the purposes specified. 2nd. In a machine for filling cans, the receiver G provided with openings a, a, spouts b, b, and a longitudinal slot c on one side, in combination with a hopper E, feed tubes F, F, and a plunger H, substantially as and for the purpose specified. 3rd. In a machine for filling cans, in combination with receiver G, provided with openings a, a, an interior plunger having a pivoted spindle g attached, the latter made to slide in a groove of the pivoted lever I driven by eccentric wheel J, substantially as and for the purposes specified. 4th. In a machine for filling cans, the combination of the box A, feed tubes F, F, receiver G, grato C, plunger H, spindle p, sleeved lever I, fulcrum pin p, guides i, i, connecting rod k, eccentric wheel J, pin l, shaft L and driving pulley M, all constructed substantially as and for the purpose specified.

No. 29,111. Inhaler. (Inhalateur.)

John W. Culbertson, Indianapolis, Ind., U.S., 8th May, 1888, 5 years.

Claim.—A hollow elastic ball having a screened opening at a single point flush with the walls of the ball, through which a medicated compound may be driven by pressure upon the ball, said screened opening adapted to spreading the compound upon the atmosphere in the form of smoke for the purpose of inhalation, substantially as shown and set forth.

No. 29,112. Manufacture of Boots and Shoes and apparatus therefor. (Fabrication des chaussures et appareil pour cet objet.)

Christopher Daggett, London, Eng., 8th May, 1888; 5 years.

Claim.—1st. A machine for forming holes in soles of boots and shoes for receiving a number of plugs or pieces of metal, consisting of a bed plate a provided with a number of drivers or plungers b, b and of a top plate c, upon which is placed the sole d to be operated upon, the said plate c having a series of holes d, d, corresponding with, and arranged for receiving the drivers or plungers b, b, substantially as described and for the purpose set forth. 2nd. A machine for forming holes in sole of boots and shoes into which are driven a number of plugs or pieces of metal, consisting of a bed plate a provided with a number of driving or plungers b, b, and of a top plate c having series of holes d, d, corresponding with, and arranged for receiving the drivers or plungers b, b, the said plates a and c being connected together by the screws e, e, and normally kept apart by the spring e, substantially as described and for the purposes set forth. 3rd. In a machine for the purpose set forth, consisting of a top plate c provided with a series of holes d, d, corresponding with, and arranged for receiving the plungers b, b, of a plate a, the said plates a and c being connected by the screws e, e, and kept apart by the spring e, in combination with a plate h, having holes i, i, formed thereon, and corresponding in position and number to the holes d, d, in the top plate c, the said plate h having pins j, j, fitting into sockets in the plates a and c, and thereby allowing the said plate h to be removed and replaced without altering the relative position of the holes d, d and i, i, substantially as shown and for the purposes set forth. 4th. As a new article of manufacture, a sole g formed of any suitable material and having driven into it a number of plugs or pieces of metal f, f, substantially as described and set forth.

No. 29,113. Button Setting Machine.*(Machine à poser les boutons.)*

Francis H. Richards, Hartford, Conn., U.S., 8th May, 1888; 5 years.

Claim.—1st. In a button setting machine, a setting die, in combination with a button carrier in front of, and extending under, said die, said carrier having a button receiving pocket through which the button fastener prong can have access to said die, substantially as described. 2nd. In a button setting machine, a setting die, in combination with a rotary button carrier in front of, and extending under, said die, said carrier having a series of button receiving pockets through which the fastener prongs can have access to said die, substantially as described. 3rd. The combination, in a button setting

machine, of a setting die, a rotary carrier in front of, and having a rim extending under said die, and having one or more button receiving pockets, and the button chute leading to said die, said chute terminating in a channel for the passage of said rim, and the button shanks, substantially as described. 4th. The combination, of the stationary setting die, and the wheel F, having the rim N extending under said die, said wheel having the button head receiving pockets 25, and said rim having the corresponding button shank receiving openings 24 through which the button fastener prong has access to said die, substantially as described. 5th. The feed-wheel F consisting of a disk or plate 15, the rim at one side of said plate, the whole having the button receiving pockets, all substantially as described. 6th. The feed wheel F consisting of a disk or plate 15, having the pockets 25, the rim N at one side of said plate and having the openings 24, and the cut or slot 14 extending laterally from said openings 24, substantially as described. 7th. The feed-wheel F consisting of a disk or plate 15, having the pockets 25, the rim N at one side of said plate and having the openings 24, the plate 15 between said pockets 25, forming teeth that extend outside of rim N, substantially as shown and described. 8th. The combination, of the setting die having the rounded edge 61, the feed-wheel having a rim extending under said die, and the finger 79 forming the outer wall of the space or channel 75, all substantially as described. 9th. The combination and arrangement, with the fixed setting die and the button chute T leading to said die, of the intermittently moving feed-wheel F having teeth 23 spaced as described, so that, when the feed-wheel is at rest holding one button at the setting die, another button may in sliding down the chute pass the point of tooth 23 and rest on teeth 25, all substantially as shown and described. 10th. The combination, with the setting die and with the feed-wheel having a rim extending under said die, said wheel having button receiving pockets, substantially as described, of the spring guide arranged in front of said wheel, and operating to hold the button with its shank in the opening in said rim and against said die, all substantially as described. 11th. The combination, with the setting die, and with the feed-wheel having a rim extending under said die and having button receiving pockets, substantially as described, of the button guiding edge 61 within said wheel, the button guiding finger 79 outside of said wheel, and the button chute leading to said wheel and terminating in the channel between said edge 61 and finger 79, substantially as described. 12th. The combination, with the setting die and with the feed-wheel having a rim extending under said die, and having button receiving pockets, substantially as described, of the button-guiding edge 61 within said wheel, the button guiding finger 79 outside of said wheel and forming the outer wall of the channel 75, and the spring guide arranged to serve as a cover for said channel and operating to hold a button in the pocket of said wheel and with its shank against said die, all substantially as described. 13th. The combination, with the setting die and with the feed-wheel having a rim extending under said die and having button-receiving pockets, substantially as described, of the movable presser slide under said rim, said slide having a driver channel in alignment with said die, and through which the fastener can be driven up through the fabric and through the pocket in said rim into said die, all substantially as described. 14th. The combination, with the setting die and with the button carrier having a rim extending under said die, and having button receiving pockets, substantially as described, of the movable presser slide under said rim, said slide having a driver channel in alignment with said die, and the reciprocating driver in said channel operating to drive the fastener prong through the fabric and the pocket in said rim into said die, all substantially as described. 15th. The combination, in a button-setting machine, of the movable presser slide, the reciprocating driver, a yielding plunger, as 19, carried on said slide, a stop limiting the downward stroke of, and a spring acting downward on, said plunger, all arranged and operating substantially as described. 16th. The combination, in a machine of the class specified, of the stationary setting die, a rotary button carrier having a rim extending under said die and having button receiving pockets, substantially as described, the movable presser slide under said rim and die having a driver channel in alignment with said die, the reciprocating driver in said channel, means, substantially such as described, operating said slide from the driver during the latter part of the stroke of the driver, and connecting mechanism operating the driver and carrier, whereby said carrier is moved forward during the downward stroke of said slide, all substantially as described. 17th. In a button-setting machine, the fixed setting die, the presser slide and driver, a driving crank and connections from said crank to the driver, having therein a spring sustaining the work of setting the fastener, and arranged to yield on the driver meeting obstructions, all substantially as described. 18th. In a button setting machine, the combination of the fixed setting die, the driver, the driving crank and connections actuating said driver from said crank, said connections having therein a spring through which is transmitted the power for setting the fastener, and having an adjustable stop for regulating the position of the driver with respect to said die, all substantially as described. 19th. In a button setting machine, the combination of the head H, the feed-wheel having the rim 32, and the die B set on said head and standing within said wheel and rim, as set forth. 20th. The combination, with the feed-wheel F and the setting die, of the stud 30 and the feed-arm having a hub turning on said stud and with-in said feed wheel, the hub extending within said wheel to said die, all substantially as described. 21st. The combination of head H, having shoulder 31, the die B engaging said shoulder, stud 30, wheel F and arm 64, substantially as set forth. 22nd. The combination, with the feed-wheel and die, of the arm 64 fitted to turn said wheel relative to said die, and the oscillating arm 9, said arm 64 having a cam-shaped groove, whereby the movement thereof by said arm 9 is timed to conform to the movement of the driver and presser slide, all substantially as described. 23rd. The combination, in a machine of the class specified, of the feed-wheel actuated by arm 64, shaft 6 having arm 9, actuating arm 64, the hopper having a chute leading to said wheel and having a rotary reciprocating brush delivering buttons to said chute, and gear 7 and 8, said hopper being removably attached to the machine, and the whole organized and co-acting substantially as set forth, all substantially as described. 24th. The combination of the hopper having the chute T, the cover 35 and the guard pivotally attached at 42 to said cover,

to swing laterally over said chute, substantially as set forth. 25th. The combination, with the presser slide, of the indicator X, as set forth. 26th. The combination, with presser slide, of the indicator Y formed in two parts pivoted together, substantially as set forth. 27th. The combination, with the presser slide, of the indicator 120, lever 122 and a cam operating said lever, all substantially as set forth. 28th. The combination, with the presser slide, of indicator arm 129, having stop 133, lever 122, a cam whereby said lever is moved back and a spring to throw the same forward, all substantially as described. 29th. The combination, with the presser slide and driver, of the shaft B actuating said driver and having arm 7, the indicator pivoted substantially as described, said arm and indicator having one of them a cam, and the other resting against said cam, all substantially as described.

No. 29,114. Guard for Hatchway Elevators.

(*Garde-corps pour ascenseurs d'écouilles.*)

Tom Braden, Des Moines, Iowa, U. S., 8th May, 1888; 5 years.

Claim.—The combination of a rock shaft having a crank, and also an arm extending at right angles therefrom, and at right angles to each other, in bearings fixed to the elevator wall or frame, a bar pivoted to the corner of the same wall or frame, a rod connected with the crank of the rock shaft and also with the pivoted bar, and a cam or double inclined plane fixed to the side of an elevator cage or platform, substantially as shown and described for the purposes stated.

No. 29,115. Fastening for Envelopes, Boxes, etc.

(*Agrafe pour enveloppes, boîtes, etc.*)

William H. Hubbard, Indianapolis, Ind., U. S., 8th May, 1888, 5 years.

Claim.—1st. The combination, with an envelope, paper-bag, box or analogous package, of a metallic fastening secured to the body thereof near its end, and having a portion projected beyond said end when folded adapted to be bent so as to rest upon the folds or flaps of the envelope, box or other package, its end and rear face, substantially as and for the purpose described. 2nd. The combination, with the envelope A folded at its open end upon the body, as shown, of the oblong metallic fastening B secured to the body of the envelope or the strip C, which fastening is laid over so as to bear upon the folds bent around the end thereof, and pressed downward upon the rear face of the envelope, substantially as set forth and for the purpose specified. 3rd. A fastening for envelope, paper bags, boxes, etc., consisting of the one piece of flexible wire bent to form the end bar b, the two side bars c, c' at right angles thereto, and the holding bars f, f', in combination with the flexible strip C, for securing the metallic fastening to the envelope or other package, substantially as shown and described. 4th. In combination, the envelope A folded at its open end, as shown, the wire fastening B, consisting of the end bar b, side bars c, c' and holding bars f, f', and the holding strip C, having the openings c' formed therein, through which the ends of the wire are extended, and by which the fastening is secured to the body of the envelope, said fastening being bent so as to bear upon the front and rear faces of the envelope near the outer edges to hold the folds in close contact with the body of the envelope, substantially as shown and described. 5th. The envelope or box A, having the flap C, with the slit b' therein, in combination with the metallic fastening B secured to the body of the envelope or box, and having its end a' extended through said slit and bent down to hold the flap securely against the body, substantially as described. 6th. The combination, with the envelope or box A, having the flap C, with the slit b' therein, of the one piece metallic fastening B secured to the body of the envelope or box by the strip C, and having its end or ends projected through said slit or slits in the flap C, and bent inward or outward down upon said flap to hold it, as described and for the purpose set forth. 7th. The combination, with the box A, having the flap C, with the notches d' formed in its outer edges, of the fastening device B formed from a single piece of metal secured to the box by the strip C, through which its ends a' are projected which ends engage with the notches of the flap, and are bent inward and downward upon the flap to press it closely against the body of the box, substantially as shown and described. 8th. The combination, with the body of the envelope or box A, of the U-shaped metallic fastening B, constructed from a single piece of wire bent, as described, at the centre of the U-shaped end at right angles, to form the fastening end a', to extend through a slit in and hold the flap C against the body, said fastening being secured, at its ends a' to the body of the envelope or box by the strip C, substantially as described. 9th. The combination, with the envelope or box A, having the flap C, with the slit b' therein, of the flat sheet metal fastening B, having the enlarged end e, which is secured to the body by the strip C, pasted over the enlarged end to the body of the envelope or box, said strip having a slit therein of the same length as the width of, and through which the small end of the fastening is extended, said small end being also extended through the slit in the flap C, and bent over upon it to hold said flap against the body, substantially as described. 10th. The combination, with the envelope, A having the flap C, of the metallic fastening device B, secured to the body of the envelope by the strip C, and of such construction that its ends may be bent up and around the edges of the flap C, and bear upon its face to press it tightly in contact with the body, substantially as specified.

No. 29,116. Fire Protecting Hood for Horses

(*Capuchon pour protéger les chevaux contre le feu.*)

Charles A. Sullivan and John D. Sullivan, Windsor, Ont., 5th May, 1888; 5 years.

Claim.—1st. A hood for animals, provided with an expansible frame A and canvas B, substantially as described. 2nd. The combination, in a hood for horses, of a frame A, a supplementary frame B and a canvas D, substantially as described. 3rd. The combination, in a hood for horses, of the canvas D and frame A, the supplementary frame B and the link G, all substantially as described.

No. 29,117. Machine for Making Sheathing Paper. (*Machine à faire le papier à doubler.*)

William H. H. Childs, Brooklyn, N.Y., U.S., 8th May, 1888; 5 years.

Claim.—1st. In a machine for coating paper, two rollers with one or more pieces closely fitting on their upper and inner surfaces, forming with such surfaces a trough or hopper, arranged at intermediate portions between their ends, substantially as shown and described. 2nd. The pieces C, C, adjustable laterally by the bolts *v*, *y*, and slots, substantially as shown and described. 3rd. The pieces C, C, adjustable vertically by the screws *c*, *c*, substantially as shown and described. 4th. The process of coating a restricted area of one or more sheets of paper, which consists in sustaining a supply of asphalt or other material in fusion upon the restricted area in question of the paper, where it passes over the rolls, substantially as shown and described. 5th. The combination, with two rolls, of adjustable retaining pieces held between the rolls to bear upon the surfaces of the paper passing over and between the rolls, substantially as set forth. 6th. The combination, with the rolls R, R, of the pieces C, C, having lugs *d* and the bolts *c*, substantially as shown and described. 7th. The combination, with the rolls R, R, of the adjustable pieces C fitting between the rolls, the bolts *c* engaging the said pieces, and the bolts G, substantially as shown and described. 8th. The combination of side pieces C, formed of the two overlapping parts C', having slots *yl* and the bolts *v*, substantially as shown and described.

No. 29,118. Brace or Trouser Suspender.

(*Bretelle de pantalon.*)

Richard Lewis, Kilburn, Eng., 8th May, 1888; 5 years.

Claim.—1st. The manufacture and use of metallic or other struts of any convenient shape, and whether fixed or movable, substantially as and for the purpose hereinbefore described. 2nd. In the manufacture of brace ends, the combination of the main plate *a*, sliding struts *c*, *c*, springs or equivalent adjusting devices *d*, and loops *e*, *e*, suspended by the hook *g* fitted in any one of the eyelet holes *b*, *b*, or *b*, substantially as hereinbefore described. 3rd. In the manufacture of brace ends, the combination of the back plate *a*, sliding struts *c*, *c*, and loops *e*, *e*, constructed as aforesaid and united to the buckle *f* by the rivet *h*, substantially as hereinbefore described. 4th. The manufacture and use of brace, or trouser suspenders, fitted with fixed struts or strut ends *e*, *e*, substantially as and for the purposes hereinbefore described.

No. 29,119. Car Coupler. (*Aitelage de chars*)

John W. Chisholm, Liverpool, N.S., 9th May, 1888; 5 years.

Claim.—1st. In a car-coupling, the combination of dog E and key A, as and for the purpose hereinbefore described. 2nd. In a car-coupling, the combination of dog E, key A and pin G, as and for the purpose hereinbefore set forth.

No. 29,120. Potato Harvester. (*Arrache-patates*)

Thomas Hall and Robert J. Mitchell, Winnipeg, Man., 9th May, 1888; 5 years.

Claim.—The scoop A with the movable point B, in combination with the shaft C, the frame, D, D, with the quadrant racks E, E, the slots at G, G, the braces F, F, the single pulley wheel H, the rotary knives I, I, the chain or band J, the springs K, K, the axle crank levers L, L, the handle M, spring holder N, the dogs O, O, the spindle P, the draft wheels Q, Q, the cog wheels R, R, the eccentric pin S, double pulley wheel T, chain or band U, single pulley wheel V, box W, screen X, rod Y, bag Z, the flap doors or covers *a*, *b*, *c*, the spindle *d* the rakes *e*, *e*, either straight or curved, the regulator wheel *f*, the pinion wheels *g*, *g*, box for bag *h*, stand for bag *i*, *i*, the braces *k*, *k*, the stop frame *l*, lever *n*, rack *n*, the rests *p*, *p*, slots *r*, *r*, fastener *t*, spring *u*, tension wheel *v*, tension jaws *x*, *x*, shaft back *y*, the pin *z*, tension screw *3*, guide pins *4*, *4*, spindle *5*, *5*, bolts *6*, *6*, couplings *7*, *7*, slide pulleys *8*, *8*, picker *9*, bag holder *10*, sides forming shoot *11*, *11*, the lip *12*, crank axle *13*, straining plate *14*, slots in tension jaws *15*, *15*, endless band *16*, cylinders *17*, *17*, bag fastener *18*, stop plate *20*, the apron *21*, screen bars *22*, *22*, etc., screw bar *23*, the sole *24*, projecting portions of the frames *D*, *D*, *25*, *25*, substantially as and for the purpose hereinbefore set forth.

No. 29,121. Brake Applicable to Railways, etc. (*Frein pour chemins de fer, etc.*)

Friedrich W. Minck, Zurich, Switzerland, (assignee of Florian Tentschert, Vienna, Austria, 19th May, 1888; 5 years.

Claim.—1st. The combination of the brake-screw *a*, with the guide or bracket K, and the hollow cylinder *l*, of sheet iron, substantially as and for the purpose hereinbefore described. 2nd. The combination of a brake screw *a* held in proper by a guide or bracket K, with one or two sliding levers *d*, *d*, provided with slots *f* of an obtuse angular shape, with the nut *b* and brake rod *s*, substantially as and for the purpose hereinbefore described. 3rd. The combination of sliding levers *d* having slots *f* of an obtuse angular shape, with rollers *r*, *r* fixed on a pivot or fulcrum *z*, substantially as and for the purpose hereinbefore described.

No. 29,122. Device for Releasing Horses in Case of Fire. (*Appareil pour libérer les chevaux en cas d'incendie.*)

John D. Sullivan and Charles A. Sullivan, Windsor, Ont., 9th May, 1888; 5 years.

Claim.—1st. The combination of a series of brackets with a corresponding series of pins, a corresponding series of independent elbow levers connected to said pins, and a rope connecting all of said elbow levers and moving them simultaneously, substantially as described. 2nd. The combination of a series of brackets C, a corresponding series

of pins D, a corresponding series of independent elbow levers F, a rope connecting said elbow levers, and means, as the lever F¹ and rope J, for operating said levers, substantially as described. 3rd. The combination, with the head gear of a horse, of a rope connected to said head gear held by supports, as the staple N, adapted to be pulled away when desired, substantially as described.

No. 29,123. Machine or Mechanism for, or Connected with, the Making of Casks, Barrels, or Hogsheads. (*Machine à faire la futaille.*)

Samuel Wright, Glasgow, Scotland, 9th May, 1888; 5 years.

Claim.—1st. In a machine for trussing and churning casks and barrels, the herein described mode of, and means for, trussing and then removing the finished casks and barrels, consisting in moving the end, or trussing headstock, or headstocks A, A¹, forward and backward respectively on their slide guides B, by screw spindles C, C¹ actuated by chain wheels *c*, *c*¹, and chains *c*², and reversing belt gearing I to I¹, substantially as herein described. 2nd. In a machine for trussing and churning casks and barrels, the fitting of screw grippers with shifting pressers or dogs *a* to *a*¹ on the front ends of the headstocks A, A¹, for trussing up the hoops Y, Y¹, and steadying the casks or barrel while being rotated for churning both ends, and then having the lower screws A² with lockers U folded down on either side out of the way for removing or inserting a cask or barrel, substantially as herein described and shown. 3rd. In a machine for trussing and churning casks, the use of a collapsible or expanding gripping driving drum, consisting of a driving central guide box F¹ having *w* thin it an inclined expander F², and reciprocating expanding segmental grippers *f*, *f*¹, *f*², which grip the internal surface of the cask or barrel Z and rotate it by the action of the inner hollow shaft F¹, and short outer hollow driving shaft F, substantially as described and shown.

No. 29,124. Printing and Similar Machines. (*Machine à imprimer et autres.*)

Murray H. Spear, London, Eng., 9th May, 1888; 5 years.

Claim.—1st. In a machine such as described, the method of causing the type and impression cylinders or equivalent to perform a complete revolution for every feeding action of the machine, such method consisting (a) in the employment of mechanism to turn the said cylinders during the actual feed of the paper, and (b) in the employment of separate mechanism to complete the partially performed revolution during the interval which elapses between the termination of one feed of the paper and the commencement of the next, substantially as and for the purpose described. 2nd. In a machine such as described, the combination, with shafts I and L carrying the type and impression cylinders or equivalent, of pulleys H and S mounted loosely on the said shafts, and carrying pawls H¹ and S¹ adapted to engage with ratchet wheels I¹ and L¹, fixed on the said shafts, in manner substantially as and for the purpose described and illustrated in the accompany drawings. 3rd. In a machine such as described, the combination, with pulley C¹, cord E, pulley H¹ pawl H¹ and ratchet wheel I¹, and gear wheels J, K, for imparting rotation to the type and impression cylinders during the feed, of cam O, lever Q, cord R, pulley S, pawl S¹, and ratchet wheel L, for completing the partially performed revolution of the said type and impression cylinders, in manner and for the purpose substantially as described and illustrated in the accompany drawings. 4th. In a machine such as described, the combination of cam O and lever Q, provided with notches Q¹ for the attachment of the cord R in a definite position according to the amount of motion it is desired to impart to the pulley S, substantially as described. 5th. In a machine such as described, the complete apparatus for printing a number, or sign, upon any number of consecutive sheets of paper, in such manner that the said number, or sign, shall occupy a similar relative position on every sheet, substantially as described and illustrated in the accompanying drawings.

No. 29,125. Brick Machine. (*Machine à brique*)

Cyrus Chambers, jr., Philadelphia, Penn., U.S., 9th May, 1888; 5 years.

Claim.—1st. The combination, with the tempering-case, pugging-shaft and knives, of the roller B, the ratchet wheel, the cam and pawl, and lever, substantially as and for the purpose specified. 2nd. The combination, with the pugging-shaft, of the knives immediately beneath the delivery-opening into the tempering-case arranged in two opposite lines, and the knives in advance thereof arranged spirally upon said shaft, substantially as and for the purpose specified. 3rd. In that class of brick machines wherein the clay is tempered, in and forced out from a tempering-case by means of a series of knives spirally set on the pugging-shaft, and a screw on the end of said shaft, the first three knives arranged with relation to each other and to the screw, as specified, upon a spiral running in the same direction as that of the screw, and the succeeding knives arranged on a spiral whose direction is in the reverse of that of the screw, all as shown and for the purpose specified. 4th. The combination, with the regulating belt, of the series of rollers *e* having their faces of less width than the width of said belt, substantially as and for the purpose specified. 5th. The combination, with the off-bearing belt and its frame having its cap-boards close to said belt, of the rollers *e* having their faces of less width than the width of said belt, substantially as and for the purposes specified. 6th. In a brick machine of the class recited, the combination, with the regulating belt, the cut-off device and the mechanism for driving the same, of the rotating cam for determining the movement of the cut-off wheel together with the measuring-pulley F, having its circumference plus that of the middle line of said belt equal to the length of the bricks to be cut off from the bar of clay, or a multiple thereof, substantially as and for the purpose set forth. 7th. In a brick machine of the class recited, the combination of the rotatable wheel journaled above the continuously moving bar of clay, the series of transverse cut-off wires fixed to the periphery of said wheel, so as to successively cross the path of

the clay bar as the wheel rotates together with mechanism, substantially as shown, whereby said wheel is caused to rotate in the same direction as that of the movement of the clay bar and in unison therewith, so as to cover the bar into brick-lengths, substantially as and for the purpose set forth. 8th. In a brick machine of the class recited, the combination of the rotating wheel having transverse cut-off wires mounted thereon, and arranged to move with, and across the path of the moving bar of clay, the tappet wheel, and the rotating cam engaging with the tappets for determining the movement of the cut-off wheel, and thereby the movement of the wires thereon through the bar of clay, substantially as and for the purpose set forth. 9th. In a brick machine of the class recited, the cut-off wheel having the radial arms and U-shaped elastic bows secured to, and around the periphery thereof to which the wires are adapted to be secured, substantially as and for the purposes set forth. 10th. In a brick machine of the class recited, the combination of the regulating bolt, the cam J, the wheel carrying the transverse cut-off wires arranged and adapted to move with and across the bar of clay, the tappets, whose tappets engage with the said cam, together with the positively driven friction belt device for driving said tappet wheel, all constructed and adapted to operate substantially as and for the purpose set forth. 11th. The combination, with the regulating belt, the cut-off wheel, the cam J and the friction bolt, of the pivoted tightener, and the spring regulating arm with devices for locking the said arm in the required position, substantially as and for the purpose set forth. 12th. The combination, with the regulating belt, cut-off wheel, cam J, the friction bolt, the pivoted tightener and the spring-regulating arm, of the lever J₃, substantially as and for the purpose described. 13th. In a cut-off brick machine, the combination, with the endless belt running over pulleys F, F₁, and regulated by the moving bar of clay thereon, the compound pulley F composed of the middle straight faced section fixed to its shaft, and rounding or tapering side sections loose upon said shaft, substantially as and for the purpose described. 14th. In combination with the regulating belt, and the cut-off wheel arranged with relation to each other, substantially as shown and described, the compound pulley F composed of a middle straight faced section fixed to the shaft, and rounding or tapering side sections loose upon said shaft, substantially as and for the purpose set forth. 15th. In a wire cut-off brick machine of the class recited, the combination, with the cut-off wires and mechanism for moving the same with, and across, the path of the bar of clay, of the slide-plate located with relation to the bar of clay as shown, the pivoted yoke to which said plate is attached, the lever K, and the rotating cam L, all constructed and adapted to operate substantially as and for the purpose set forth. 16th. The combination of the slide-plate relatively located as shown, the pivoted yoke, the lever K, the rotatable cam L, and the adjustable arm M, for regulating the elevation of said plate, substantially as and for the purpose specified. 17th. In a brick machine of the class recited, the combination, with the clay bar supporting belt E, the wire cut-off wheel, and the wiper, of the spout N, arranged as shown, so as to carry off the droppings from the wires beyond the line of said belt, and its supports, substantially as and for the purpose specified. 18th. In a brick machine of the class recited, the combination, with the cut-off wheel, of the adjustable arm M, provided with the plate M₁ for holding a flexible wiper and the spout N, whereby the said spout and the wiper may be adjusted together simultaneously, substantially as described. 19th. The return belt support consisting of the combination of the adjustable bifurcated bracket O, adapted to be secured to the frame upon which said belt is carried, and the pulley journalled in said bracket together with the screw secured thereto, substantially as and for the purpose specified.

No. 29,126. Coin-Holder. (*Etui à monnaie.*)

Charles J. Luce, Niantic, Conn., U.S., 9th May, 1888. 5 years.

Claim.—1st. A coin-holder consisting of a cylinder of impenetrable material, in combination with a double-pointed curved bar or plate adapted to be flattened and extended, as herein described, to retain the coins within said cylinder. 2nd. A coin-holder consisting of a cylinder of impenetrable material, in combination with a locking bar of the form specified, said cylinder being provided with characters to indicate its capacity, all substantially as herein set forth.

No. 29,127. Pen-Holder and Blotter Combined. (*Porte-plume avec buvard.*)

George W. Norton, Oxford, Eng., 9th May, 1888; 5 years.

Claim.—1st. A combined pen-holder and blotter, consisting of an ordinary pen-holder and a small roller covered with blotting paper, set either parallel to, or at a slight angle from, said pen-holder, as herein described and set forth. 2nd. A cylindrical blotter for attaching by spring clip, or otherwise, to a pen-holder, the centre of said blotter consisting of cork, or hollow paste board, or other light material, or of layers of blotting paper, as herein described and set forth.

No. 29,128. Preparation of Disinfectants, Deodorants and Antiseptics. (*Préparation des désinfectants et antiseptiques.*)

August Dur and Cecil N. Hako, Westminster, Eng., 9th May, 1888; 5 years.

Claim.—In a disinfectant, the combination of a manganate of the alkalies, with the sulphate of lime, or its chemical equivalent.

No. 29,129. Machine for Straightening Round Rods, Bars, Pipes, etc. (*Machine à redresser les baguettes et barres rondes, les tuyaux, etc.*)

Martin Krumm, Columbus, Ohio, U.S., 9th May, 1888; 5 years.

Claim.—1st. In a machine for straightening round rods, bars, etc., the combination of a pair of rolls having alternate circumferential grooves and ridges, so disposed that the ridges of the one will work opposite the grooves of the other, and suitable gearing rotating them

in the same direction at different circumferential speeds, as and for the purpose explained. 2nd. In a machine for straightening round rods, bars, etc., the combination, with a pair of rolls rotating in the same direction, of a feeding device, consisting of a bar running the entire length of the rolls, pivoted to the shaft of one of said rolls and provided with a handle, for prehension, as explained. 3rd. In a machine for straightening round rods, bars, etc., the combination, with a pair of rolls rotating in the same direction, of a feeding device consisting of a bar pivoted at its ends to the shaft of one of said rolls and provided with a number of fingers for supporting the rod to be operated upon, and a handle for prehension, as set forth.

No. 29,130. File Case. (*Serre-papier.*)

Frank R. Alderman, Detroit, Mich., U.S., 9th May, 1888; 5 years.

Claim.—1st. The combination, with the box having open side, of a bail formed of a single piece of wire, pivotally secured near its ends to the bottom of said box, and provided with arms d and the springs B attached at one end to said arms, and at the other to the case, substantially as described. 2nd. The combination, with the box having recessed sides a, of the clamp bail C formed of a single piece of wire, pivotally secured near its ends to the front edge of the bottom of said box, and having formed integrally therewith the arms d, and the springs B, secured within the recesses in the sides a and connected with said arms, substantially as and for the purposes described.

No. 29,131. Water-Proof and Non-Conductive Composition. (*Composition imperméable à l'eau et mauvais conducteur.*)

Bernard Overlack, Cambridge, Mass., U.S., 9th May, 1888; 5 years.

Claim.—The herein described water-proof and non-conductive composition of matter, consisting of white sharp sand, rosin, slaked lime, boiled linsed oil, sulphuric acid and sub-oxide of copper, in the proportions specified.

No. 29,132. Window Catch. (*Arrête-croisite.*)

John Stauffer, Thessalon, Ont., 9th May, 1888; 5 years.

Claim.—A dog pivoted on a hollow plate fixed to a window sash, and having a notch formed in it to engage with a projection formed on a plate fixed to the window-frame, in combination with a lug attached to the dog and projecting through a curved slot in its plate to engage with a spring held in the said plate, and designed to hold the dog against the window frame, substantially as and for the purpose specified.

No. 29,133. Undertaker's Embalming or Cooling Board. (*Table d'embaumeur.*)

Charles Blood, Dunkirk, N.Y., U.S., 9th May, 1888; 5 years.

Claim.—1st. An undertaker's cooling board or embalming table, consisting of three sections adapted to hold together, the main section being provided with four pivoted legs, and the swing bars 12 and 13 for holding them in position, in combination with the head and foot sections hinged thereto, and having a means, substantially as specified, for holding them rigidly in position when opened out, and a head board adapted to swing on hinges and made adjustable vertically, substantially as and for the purposes described. 2nd. An undertaker's cooling board or embalming table, consisting of the body frame portion or section having a top 32 of light material, and four legs adapted to fold into the top, as specified, in combination with the pivoted swinging bars 12 and 13 for holding them rigidly in position, the hinged head board, the hinged section at the head of the table, having two legs pivoted thereto and adapted to fold into the table, a toggle joint brace pivoted thereto for holding the legs securely when opened out for use, a hinged foot section and a toggle joint pivoted thereto and to the cross-piece 10, the whole combined for joint action and adapted to be folded up, substantially as and for the purposes described. 3rd. An undertaker's cooling board or embalming table, consisting of three folding sections hinged together, their swinging bars and toggle joints or braces for keeping the legs and sections in position when opened out, the swinging head board adapted to be adjusted vertically and horizontally, as set forth, and a foot rest adapted to be adjusted horizontally, substantially as described. 4th. An undertaker's cooling board or embalming table formed in three sections adapted to fold together, substantially as specified, in combination with an adjustable hinged head board frame adapted to fold over on the main portion, as and for the purposes described. 5th. An undertaker's cooling board or embalming table, having head and foot rests made adjustable longitudinally to or from each other, substantially as and for the purposes described.

No. 29,134. Child's Carriage. (*Voiture d'enfant.*)

John E. Garrett, Glasgow, N.S., 9th May, 1888; 5 years.

Claim.—A child's carriage, having parallel reaches 33, provided with a metal shoe 6, curved upwardly in front and supporting the body of the carriage, and the rear termination of said reaches, provided with a jointed annex 9 having a hand rail for propulsion, as set forth.

No. 29,135. Nurse's Toilet Cabinet. (*Lavabo.*)

Francis Holt, Newark, N.J., U.S., 9th May, 1888; 5 years.

Claim.—1st. A toilet case for infants, combining a body consisting of four sides and a top board b, the latter having receptacles for wash-bowl, soap, etc., and a drawer t, and a supplemental case serving as a cover to conceal said wash-bowl, soap, etc., and having a receptacle for towels and cover for said supplemental case, substantially as set forth. 2nd. A toilet case for infants, combining a body composed of sides a₁, a₂, a₃, and a top b having perforations c, d, e, f, said body being supported by suitable legs, a hinged cover, consisting of a partition board k₁, and side pieces k₂ forming a chamber above and below said board k₁, and a cover o

for said chambers above said partition *k*, all said parts being arranged and adapted to operate substantially as set forth. 3rd. In a child's toilet case, the combination, with the body thereof, of a rack forming a loop with said body, the said rack being adapted to be closed and the part *h* to engage the body, substantially as and for the purposes set forth. 4th. In a toilet cabinet, the combination, with the body thereof, and a supplemental case, of a towel rack having parts *h*, *h'*, adapted to fold up against the side of said case into a groove therein, substantially as and for the purposes set forth.

No. 29,136. Printer's Galley. (*Galley*)

James H. Westman, Toronto, Ont., 9th May, 1888. 5 years.

Claim—An improved printer's galley, the sides of which are made of square metal tubing, and forming the corners of said galley by cutting only part of the tube away, and bending the part that is not cut to form a right angle and close joint on the inside of said galley, thereby binding the sides and end together with the bent part of the outside of the tube, substantially as and for the purpose hereinbefore set forth.

No. 29,137. Shoal Water Alarm.

(*Indicateur de bas-pont.*)

James Marshall and Alexander White, North Sydney, N.S., 9th May, 1888; 5 years.

Claim—1st. The combination of rods A, A, and link B, connected with rod C, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of chain E, passing over wheel H, connected with weight F, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of tube G and the vessel, substantially as and for the purpose hereinbefore set forth.

No. 29,138. Device for Detaching Buttons.

(*Appareil pour dégager les boutons.*)

William D. Schiefer, Fort Wayne, Ind., and John C. Hunt, Concord, Mass., U.S., 9th May, 1888, 5 years.

Claim—1st. The combination, with the hollow casing A provided with the slot B, of the stationary cutter blade E, having a number of cutting edges, and adapted to be adjusted as and for the purpose described. 2nd. The combination, with the hollow casing A, provided with the slot B, and the curved or rounded flanges H and cutter, of the spring actuated trap G, substantially as and for the purposes described. 3rd. The combination, with the hollow casing A provided with the slot B, cutter blade and aperture J, of the pivoted and sliding plate or door I, substantially as and for the purposes described. 4th. The combination of the hollow casing, provided with the longitudinal slot B and aperture J, the cutter flanges H, spring actuated traps G and a plate or door I, substantially as described. 5th. The hollow case A, provided with the slot B and depression D, in combination with the stationary cutter blade having a series of cutting edges, and adapted to be adjusted as and for the purposes described.

No. 29,139. Wire Bale Tie.

(*Lien de ballot en fil de fer.*)

The Tronton Iron Company, Trenton (assignee of William Hewitt, Chambersburg), N.J., U.S., 9th May, 1888; 5 years.

Claim—1st. In combination with a loop formed at one end of a wire composing the band of a wire bale tie, an independently formed metal locking head, possessing a hook and a brace, and engaged with and secured to one side or lateral member of said loop. 2nd. In a wire bale tie, the combination of a wire band formed with a closed loop at each of its ends, with an independently formed and applied metal locking head possessing a hook, a brace and a hollow sleeve through which one side or lateral portion of one of the loops of the wire band passes, in order to effect the attachment of said head, substantially as set forth. 3rd. In a wire bale tie, the combination of a wire band formed with a closed loop at each of its ends, with an independently formed and applied locking head, composed of a blank of metal, possessing wing portions, connected by a web or neck portion, and engaged with one of the loops of the wire band by being folded, as to its neck portion, about one side or lateral portion of said loop, substantially as set forth.

No. 29,140. Tubular Lantern.

(*Lanterne tubulaire.*)

Lewis F. Boits, New York, N.Y., U.S., 11th May, 1888. 5 years.

Claim—1st. The combination, with a tubular lantern, of angular air tubes, each having substantially vertical and horizontal portions, a central air pipe joined with said tubes and the flat topped oil pot, the lower horizontal portions of the tubes bearing upon the oil pot and secured thereon, and the seams being located on the inner faces of the tubes, substantially in the manner and for the purposes set forth. 2nd. The combination, with a tubular lantern, of the adjustable dome, the globe ring secured thereto, and the globe holding spring connecting the globe and ring, substantially as shown and described. 3rd. The combination, with a tubular lantern, of the air tubes, the dome, the globe and the spring lift wire passing through the air tubes and connected with the dome, said wire being bent and arranged to automatically lock the globe down by bearing upon the under surfaces of the upper faces of the air tubes, through which the bent portions of the spring project, substantially as shown and described. 4th. The combination, with a tubular lantern, of the perforated globe bottom burner cone, and depending wires or equivalent locking devices, arranged to secure the perforated globe bottom to points of the lantern below it, substantially as explained. 5th. In a tubular lantern, the combination, with the air tubes provided with perforations and indentations, as shown, of the ball, the ends of which enter said perforations in the tubes, and rest in said indentations, substantially as shown and described.

No. 29,141. Radial Tube Steam Boiler.

(*Chaudière à vapeur à tubes radiaux.*)

Edward S. T. Kennedy, New York, N.Y., U.S., 11th May, 1888; 5 years.

Claim—1st. In a radial tube boiler, the stand pipe composed of cylindrical sections having their vertical riveted seams in adjacent sections, placed at lateral intervals one from the other, adjoining to form one-fourth to one-half of the circumference of the cylinders, as and for the purpose described. 2nd. In a radial tube boiler, the stand pipe composed of short cylindrical sections riveted together in such manner that the vertical riveted seams of adjacent sections shall extend in different vertical lines at suitable distance apart, whereby the radial tubes may be arranged and spaced in the successive sections so as to divert and distribute the heated currents around the stand-pipe. 3rd. In a radial tube boiler, the stand-pipe composed of short cylindrical sections connected together, and the vertical seams of adjacent sections placed at quarter-arcs of the circumference distant one from the other, as and for the purpose described. 4th. In combination with a stand-pipe resting upon the floor of the ash-pit, the brackets *h* rivetted thereto, and ring H of larger diameter than the stand-pipe, so as to provide an annular space between the two and resting on the brackets for supporting the inner ends of the grate bars. 5th. In combination with a radial tube boiler, the furnace walls having a ledge *d* at the top of the ash-pit, the brackets *h* rivetted to the stand-pipe, and ring H of larger diameter than the stand-pipe resting on the brackets for supporting the circular grate. 6th. In combination with a radial tube boiler, the central supplementary brick foundation rising above the floor of the ash-pit, and foundation plate *f* for supporting the lower end of the stand-pipe above the floor of the ash-pit, and preventing injury thereof by water on the ash-pit floor.

No. 29,142. Tablet for Registering Appointments. (*Tablettes à notes.*)

John Morgan, Pontardawe, Wales, 11th May, 1888. 5 years.

Claim—1st. A daily register or tablet arranged in the form of a clock face, with rays or lines corresponding to numerals denoting the hours for registering appointments at various hours of the day, as herein described and set forth. 2nd. A combined diary and register divided into segments of a circle, or other convenient spaces, corresponding with indicated intervals of time, as herein described and set forth. 3rd. A pocket register containing a number of leaves divided, as before described, and furnished when preferred with pencil and pencil sharpener, as herein described and set forth.

No. 29,143. Telephone Transmitter.

(*Transmetteur de téléphone.*)

Isaiah H. Farnham, Malden, Mass., U.S., 11th May, 1888. 5 years.

Claim—1st. The combination, in a telephone transmitter, of a containing chamber having rigid wall or floor closing the lower end thereof, of a mass of granulated rear finely divided conducting material enclosed within said chamber and upon the said floor, a horizontal flexible vibratory diaphragm surmounting the said mass, closing the other end of said chamber, and constituting one of the electrodes of a circuit, a second or complementary electrode embedded or buried in the finely divided conducting material, and an adjusting device for the extensible rear wall, whereby the said wall may be extended into the interior of the chamber thus diminishing the capacity thereof, and for the purpose of maintaining permanent but elastic connection between the diaphragm and conducting mass, substantially as hereinbefore described. 2nd. The combination, in a telephone transmitter of the type class hereinbefore specified, of a mass of granular carbon, a cell or chamber with vertical non-conducting side walls confining said mass, a horizontal conducting diaphragm situated over the said granular mass, a mobile or elastic and extensible floor closing the cell at its lower end, and supporting the granular mass upon its upper surface, an adjusting device acting upon the centre of the said extensible floor, and adapted to elevate the same into the interior of the chamber, thus contracting the space thereon, whereby an initial contact is maintained between the carbon and the diaphragm, and whereby an elastic cushion is also provided for the carbon mass, as described. 3rd. In a telephone transmitter of the character hereinbefore referred to, the combination of a containing chamber, with non-conducting side walls, a flexible vibratory and conducting diaphragm closing one end of said chamber and serving as one electrode, an elastic and extensible non-conducting floor or rear wall closing the other end of said chamber, an adjusting or regulating screw controlling the said elastic rear wall, and adapted to force the centre thereof into the interior of said chamber, a mass of granular or finely divided carbon enclosed within said chamber, and a complementary or fixed electrode perforated for the free passage of the carbon particles, and mounted or stretched within the said chamber, and through the mass of carbon between the diaphragm and relative, substantially as specified. 4th. The combination, in a granular carbon transmitter, with a cell containing the granules, of a flexible metal vibratory diaphragm closing one end of the said cell, and connected with one end of an electric circuit, a fixed electrode enclosed in said cell extending through, and in contact with, the carbon granules, and connected with the other end of an electric circuit, a mobile and resilient rear wall or floor closing the other end of the said cell, and adjusting devices acting upon the said elastic floor, and adapted to raise the centre thereof into the interior of said cell, for the purpose of initially compressing the granules to the requisite degree and of establishing and maintaining elastic and yielding contact between the diaphragm and the carbon granules, and between the respective granules, as described herein. 5th. In a telephone transmitter of the hereinbefore described character, the combination, with a loose mass of conducting particles confined within a chamber, and a conducting and flexible diaphragm surmounting the said mass, of an elastic cushion upon which the said mass rests, and whereby the said mass may be retained in yielding but permanent contact with the surmounting diaphragm. 6th. A telephone transmitter comprising the

following elements, a containing cell having rigid non-conducting side walls, a metal cap piece therefor, and a flexible conducting vibratory diaphragm clamped thereby to the upper edge of the said side walls, a mouth-piece fitted to an orifice in the centre of said cap piece, a metal plate fitted to the lower edge of the cell constituting a portion of the outer case thereof and closing the same, a complementary perforated electrode mounted upon a standard fixed to said plate, a sheet of thin elastic rubber, or its equivalent, stretched over the inner surface of said plate, a mass of granular or finely divided carbon enclosed in said cell between the rubber sheet and flexible diaphragm and surrounding the perforated electrode, and an adjusting screw extending through the closing case plate and bearing upon the centre of the rubber sheet, whereby the same may be projected forward into the cell for the purpose of establishing and adjusting contact pressure between the carbon particles and the diaphragm, and to provide an elastic cushion for the said particles, substantially as described. 7th. A telephone transmitter comprising the following elements, in combination, a containing cell in the form of a short cylinder having rigid vertical non-conducting side walls, a metal cap piece therefor, centrally perforated for the reception of a mouth piece, a horizontal platinum vibrating diaphragm clamped to the upper edge of said cylinder, a sheet of thin elastic rubber serving as the rear wall bottom or floor of the containing cell and clamped to the lower edge of the vertical wall thereof by a metal plate, which plate is bolted to, but insulated from, the cap piece, a fixed or complementary electrode suspended or mounted within the cell at a suitable distance from the diaphragm and in electrical connection with the said lower metal plate, a mass of finely divided carbon in a loose and free state enclosed within the said cell and upon the rubber floor thereof, and an adjusting device for the said carbon and rubber floor consisting of a screw projecting through the lower metal plate against the centre of the said rubber floor, whereby the said floor centre may be elevated and the carbon particles elastically compressed with respect to one another, and brought into permanent and resilient contact with the horizontal diaphragm which rests upon the upper surface of said particles, as described. 8th. In a granular carbon transmitter, a carbon containing cell with vertical non-conducting side walls having a flexible conducting diaphragm to close its upper end, and an adjustable elastic floor closing its lower end upon which the carbon particles rest within the chamber, and whereby they can be moved into, and maintained in elastic contact with the diaphragm, for the purposes specified. 9th. In a telephone transmitter of that class in which the current varying material is a mass of finely divided carbon in a loose and free state, a horizontal and flexible conducting diaphragm, and a carbon holding chamber mounted immediately thereunder, clamped to the edges thereof, having rigid non-conducting side walls, and provided with a spring floor, or rear wall, supporting the mass of carbon, the central portion of which floor is adjustable by means of a screw with respect to the diaphragm, whereby the said mass of carbon may be caused to make an initial but elastic and variable contact with the diaphragm, substantially as and for the purposes specified herein. 10th. In a telephone transmitter of the hereinbefore described type or class, a horizontal vibrating diaphragm and a carbon holding cup supported below the said diaphragm, and provided with an elastic and extensible spring bottom upon which the enclosed mass of carbon rests, and whereby the said carbon may be maintained in intimate but elastic contact with the said diaphragm.

No. 29,144. Rock and Ore Crushing Machine. (*Machine à broyer la pierre et le minéral*)

Alvan P. Granger, Denver, Col., U.S., 11th May, 1888; 5 years.

Claim.—1st. The combination, with a rotating wheel mounted on a horizontal axis, and having peripheral depressions, of a vertically movable crushing roller arranged above said wheel and fitted to enter the depressions thereof. 2nd. The combination of a wheel mounted to rotate on a horizontal axis, and provided with a succession of peripheral depressions and elevations, and with side flanges forming a peripheral trough, and a vertically movable roller arranged to ride upon the wheel and to enter the peripheral depressions thereof between the flanges. 3rd. The combination of a rotating wheel having a horizontal axis and provided with peripheral depressions, a crushing roller riding said wheel, and an elevator mechanism to raise material to be crushed to the top of the wheel. 4th. The combination of a rotating wheel having a horizontal axis and provided with peripheral depressions, a crushing roller riding said wheel, and a screen arranged at the descending side of the wheel in position to receive the material crushed thereon. 5th. The combination of a rotating wheel mounted on a horizontal axis and having peripheral depressions, a crushing roller arranged to ride on top of said wheel and an elevator, and a screen arranged to deliver the insufficiently crushed material to the elevator. 6th. The combination of a rotating wheel having a horizontal axial shaft and peripheral depressions, a crushing roller arranged to ride the periphery of the wheel, and a cushion, or cushions, supporting the rotating wheel adapted to relieve the shock of the crushing roller. 7th. The combination, with a rotating "mortar" wheel mounted on a horizontal axis, and a crusher arranged above the wheel, of an elevator comprising a belt with buckets thereon, and supporting pulleys arranged to guide the buckets in contact with the ascending side of the "mortar" wheel. 8th. The combination, with a rotating "mortar" wheel mounted on a horizontal axis, and a crusher arranged above the wheel, of an elevator belt provided with buckets spaced to correspond with the depressions of the "mortar" wheel and supported in contact with the wheel, the belt being actuated by engagement with the wheel.

No. 29,145. Adjustable Stool and Chair.

(*Banc et fauteuil brisés.*)

George W. Tripp, Auburn, N.Y., U.S., 11th May, 1888; 5 years.

Claim.—1st. The improved adjustable stool consisting of a standard formed with vertical central channel extending through the lower end thereof, and provided with a vertical guide sleeve at its upper end, sheaves pivoted to the upper part of the interior of the standard,

or cords or chains running over said sheaves and carrying between their adjacent ends a bearing block, a weight attached to the pendant ends of the said cords or chains, a spindle carrying the seat and stepped on the said bearing block, and a catch adapted to engage said spindle and confine the same in its adjusted position, as set forth. 2nd. The combination of the tubular standard A, cap C provided with the cylindrical guide *g*, sheaves *c, c* pivoted to the interior of the standard, the weight D formed with the central passage *d*, the cord or chain *e* running over the sheaves and connected at opposite ends to the aforesaid weight, the bearing block *f* mounted on the central portion of the cord or chain, the spindle *h* sliding in the guide *g*, and stepped on the bearing block *f*, and provided with circumferential grooves *a*, a catch connected to the standard and adapted to engage either of the aforesaid grooves, and the seat *l* secured to the spindle, substantially as described and shown. 3rd. In combination with the standard A and the seat supporting the spindle *h*, provided with the grooves *h¹*, *h²*, the latch *i* pivoted at one end to the standard, and having the opposite end adapted to engage the grooves of the spindle, the handle *j* formed integral with the latch, and the spring *k* bearing against the back of the latch, substantially as described and shown.

No. 29,146. Machine for Tightening Clothes Lines. (*Machine à tendre les lignes d'étendage.*)

Charles E. Pitman, Brooklyn, N.S., 11th May, 1888; 5 years.

Claim.—1st. The combination, of the frame A, the windlass W, the crank C, the ratchet *r*, the pawl P, the handle H and H¹, with the ring swivel K to form a machine for drawing clothes lines up tight when hanging out clothes to dry, substantially as and for the purpose hereinbefore set forth. 2nd. A clothes line tightener having the frame A, the windlass W, the crank C, the pawl P, the ratchet *r*, the handle H¹, the swivel ring K, the slot in the frame V, the nuts N, the rods M, the handle H and the line R, with the loop L at the end, substantially as and for the purpose hereinbefore set forth.

No. 29,147. Electric Traction Increasing System for Railways. (*Méthode électrique pour augmenter la traction des chemins de fer.*)

Elias E. Ries, Baltimore, Md., U.S., 11th May, 1888; 5 years.

Claim.—1st. The method of increasing the traction of a wheeled vehicle moving upon a metallic track, which consists in establishing and maintaining a traction circuit, which moves with the vehicle, and includes two or more wheels, and that portion of the rails which extends between the same, and charging said circuit with a low tension current of electricity, substantially as described. 2nd. The method of increasing the traction of a wheeled vehicle moving upon a metallic track, which consists in establishing and maintaining a traction circuit, which is independent of the motive power, moves with the vehicle, and includes two or more wheels and the portion of the rails extending between the same, and charging said circuit with a low tension current of electricity, substantially as described. 3rd. The method of increasing the traction of a wheeled vehicle moving upon a metallic track, which consists in establishing and maintaining a traction circuit, which moves with the vehicle, and includes two or more wheels and the portion of the rails which extend between the same, and variably charging said circuit with currents of low tension, substantially as described. 4th. The method of increasing the traction of a wheeled vehicle moving upon a metallic track, which consists in establishing and maintaining a traction circuit, which moves with the vehicle, and includes two or more wheels, and the portion of the rails extending between the same in series and charging said circuit with a low tension current or currents of electricity, substantially as described. 5th. The combination of a closed electrical circuit moving with a railway car or vehicle, including that portion of the track rails lying immediately below the said vehicle or between the driving wheels thereof, with a source of low tension electricity for charging said circuit, substantially as described. 6th. The combination of an electrical circuit moving with a railway car or vehicle, including that portion of the track rails lying immediately below the said vehicle or between the driving wheels thereof, with a circuit-controller for said circuit and a source of low tension electricity for charging said circuit, substantially as described. 7th. The combination of an electrical circuit moving with a railway car or vehicle, including that portion of the track rails lying immediately below the said vehicle, with means for varying the resistance of said circuit, and a source of low tension electricity for charging said circuit, substantially as described. 8th. The combination, with a wheeled vehicle adapted to travel upon an electrical conducting surface or surfaces, of an electrical generator furnishing currents of low tension and great quantity mounted upon the vehicle, and a traction circuit formed in part by two or more wheels of the vehicle, the rails extending between the same and the generator, substantially as described. 9th. The combination, with a wheeled vehicle adapted to travel upon an electrical conducting surface or surfaces, of an electrical generator furnishing currents of low tension and great quantity mounted upon the vehicle, and a traction circuit formed in part by two or more wheels of the vehicle, the rails extending between the same, the generator and an adjustable rheostat, substantially as described. 10th. The combination, with metallic track rails, of a motor car mounted thereon, having two connected pairs of driving wheels, an electrical generator of currents of low tension and great quantity mounted upon the motor car, and an electrical circuit including said generator, each of the said pairs of driving wheels and the portion of the conducting rails between the pairs of wheels, substantially as described. 11th. The method of increasing the traction of electrically propelled vehicles, which consists in establishing a traction circuit including two or more wheels of the vehicle, and the rails extending between the same and charging said circuit with currents of low tension derived from the circuit supplying the motor, substantially as described. 12th. The method of increasing the traction of a wheeled vehicle moving upon a metallic track, which consists in transforming currents of high tension passing upon the vehicle into

currents of low tension, and then passing such low tension currents through a traction circuit, including two or more wheels, and the rails extending between the same, substantially as described. 13th. The method of increasing the traction of a wheeled vehicle moving upon a metallic track, which consists in establishing and maintaining a traction circuit moving with the vehicle, and including two or more wheels, and the portion of the rails extending between the same and charging said circuit with alternating electrical currents of low tension, substantially as described. 14th. The combination of a wheeled vehicle moving upon metallic rails, and an electric motor mounted upon the vehicle for propelling the same, with a traction circuit derived from the circuit supplying the motor, including two or more wheels of the vehicle and the rails extending between the same, substantially as described. 15th. The combination of a wheeled vehicle moving upon metallic rails, and an electric motor mounted upon the vehicle for propelling the same, with a traction circuit derived from the circuit supplying the motor, including two or more wheels of the vehicle and the rails extending between the same, and an adjustable resistance and switch in the traction circuit, substantially as described. 16th. The combination of a wheeled vehicle moving upon a metallic track, and an electric motor actuated by currents of low tension and high quantity mounted upon the vehicle for propelling the same, with a circuit derived from the motor circuit charging inductively with currents of low tension and great quantity, a traction circuit, including two or more wheels of the vehicle, and the rails extending between said wheels, substantially as described. 17th. The combination, with a track composed of conducting rails, of a wheeled vehicle mounted thereon, an electric circuit traversed by a current of high tension for propelling said vehicle, a transformer or secondary generator, having one of its coils included in said circuit, and a traction circuit including the other coil of said transformer, two or more wheels of the vehicle and the rails extending between said wheels, substantially as described. 18th. In an apparatus for increasing the traction of rail-way vehicles, the combination of a motor circuit traversed by the current of high tension, with a circuit derived from the motor circuit, provided with means for rendering said current alternating and intermittent, including the high resistance coil of a transformer, and a traction circuit including the low resistance coil of the transformer, two or more wheels of the vehicle and the rails extending between the same, substantially as described.

No. 29,148, Spark Arrester and Extinguisher. (*Arrêt étincelle extincteur.*)

Quinton J. Hoko, Yorkville, S.C., U.S., 11th May, 1888; 5 years.

Claim.—1st. As a means for extinguishing and arresting incandescent particles carried along with the products of combustion through the smoke stack of a steam engine, injecting jets of steam into the base of the stack from points arranged in a circle concentric with the axis of the stack, and on lines tangential to the said circle, substantially as and for the purpose specified. 2nd. Means for extinguishing and arresting incandescent particles carried along with the products of combustion through the smoke stack of a steam engine, which consists essentially in a multiplicity of steam nozzles having their terminals arranged in a circle concentric with the axis of the stack, the terminals of said nozzles being curved inwardly and lying in different radial planes from those of their initials, substantially as and for the purpose specified. 3rd. The combination, with the exhaust pipe of a steam engine and the smoke stack of the boiler thereof, of the head A having tubes *a*, arranged as described, in combination with the screw-plug *A*, said head being connected with the exhaust pipe at or near the base of the smoke stack, substantially as and for the purpose specified. 4th. The combination, with the smoke stack of a steam boiler, and the head A of the herein described spark-arrester, of the screw-plug *A* and an ordinary steam nozzle or pipe constructed to be interchangeably connected with said head *A*, to convert the spark-arrester into an exhaust pipe, and *vice versa*, substantially as and for the purpose specified.

No. 29,149. Shut-Off Box. (*Puisart.*)

Michah Walker, Port Huron, Mich., U.S., 11th May, 1888, 5 years.

Claim.—1st. The combination, with the shut-off box, of an extension sliding loosely thereon and provided with exterior spiral-shaped wings *E*, extending therefrom free of the box, whereby said extension is held in position in the earth by said wings, substantially as and for the purpose set forth. 2nd. The combination of a shut-off box having an extension sliding loosely thereon, said extension being provided with exterior spiral shaped wings *E*, extending therefrom free of the box, whereby said extension is held in position in the earth by said wings with a spring *L*, the parts being constructed, arranged and operating substantially in the manner and for the purposes described.

No. 29,150. Valve Mechanism.

(*Mécanisme de soupape.*)

Thomson Kingsford, (assignee of John J. Tonkin), Oswego, N.Y., U.S., 12th May, 1888; 15 years.

Claim.—1st. The combination, with the steam-chest and a main slide-valve, of the automatic cut-off valves, the pivoted levers *G*, *G*, oscillated by the governor stem *D*, and governor *E*, to operate the cut off valves, and the removable cut-off valve frame *L*, whereby the cut off valve mechanism can be removed bodily and the work of the engine continued without it, substantially as set forth.

No. 29,151. Weighing Machine.

(*Pont à bascule.*)

The National Weighing Machine Company, (assignee of Theodore A. Weber), New York, N.Y., U.S., 12th May, 1888; 5 years.

Claim.—1st. The combination, in a weighing machine, of the platform and index, and a connection between them, of an automatic arresting device for arresting said connection both at the zero posi-

tion and in the position to which it is brought in weighing, a motor for controlling the operation of said arresting device, a stop for said motor, a tumbler or lever for receiving a coin, and a connection between said tumbler and stop, all substantially as herein described, for effecting the temporary liberation of the motor to permit the temporary disengagement of said arresting device by the weight of the coin, as herein set forth. 2nd. The combination of the connecting rod *D*, the dogs *I*, *I*, the loaded disengaging lever *G*, the windlass *m*, and chain or cord *m*, for operating said lever, a motor for operating said windlass, a stop for said motor, the tumbler lever *r* for receiving the coin, and connections, substantially as herein described, between said tumbler lever and the said stop and motor, whereby the weight of the coin is made to liberate the windlass from the motor and disengage the motor from its stop, all substantially as herein set forth. 3rd. The combination, with the connecting rod *D*, the arresting dogs *I*, *I*, the loaded disengaging lever *G*, the cord or chain *m*, the windlass *m* and its ratchet wheel *m*₃, and stop pawl *q*, a motor furnished with a pawl *o* for operating said windlass, the tumbler lever *r* for receiving the weight of a coin, the connection *p* between the tumbler lever and the pawl *o*, whereby the pawls *q* and *o* are caused to be removed from the ratchet wheel by the weight of the coin, substantially as described.

No. 29,152. Type Writing Machine.

(*Graphotype.*)

The Typograph Company, Hartford, (assignee of Arthur W. Cash, Bridgeport), Conn., U.S., 12th May, 1888; 5 years.

Claim.—1st. In a type writing machine, in combination with the key-lever, the type-bars pivotally connected to the type-base and to the key-levers by the intermediate link, each type-bar bearing a type adapted to strike upon a common point in printing, the reciprocating index bar terminating in a pointer and overlying the writing surface in its normal position and directly indicating the point where each type will strike, all substantially as described. 2nd. In combination, in a type writing machine, the semicircular type-base having type-bar sockets that are formed on radial lines meeting at the striking point of the type in printing, the said base having an undercut groove opening downward and adapted to receive the type-bar pivots, and the pivot-clamp screws, whereby the said pivot and the type-bars are removably held in place, all substantially as described. 3rd. In a type writing machine, in combination with the base, the platen carriage having a lateral movement across the bed, and the platen supported on said carriage, the platen rod passing through a sleeve and guide fast to the carriage, and the said support of the platen, all substantially as described. 4th. In a type writer, in combination, the supporting bed and frame, the platen carriage movable laterally across the bed, the platen borne on the platen carriage and movable along it across the line of movement of the carriage and its bed, the ratch fast to the platen, the line-spacing lever *h* pivoted to the platen carriage and bearing the spring-pawl *h*₂ adapted to engage the teeth of the ratch and the spacing lever spring *h*, whereby the pawl is held normally out of engagement with the ratch, all substantially as described. 5th. In a type writing machine, in combination with the laterally movable platen carriage, the rack-bar pivoted thereto, the detent lever in engagement with the escapement and pivotally connected to the bearer, the escapement having a fixed and a movable tooth and co-operating with those on the rack-bar in limiting the movement of the platen carriage, and the bearer overlying the key levers and spacing-bar levers, all substantially as described. 6th. In a type writing machine, in combination, the base with the platen carriage guides the platen carriage having the side bearing supported in the said ways or guides and bearing a sleeve and guide *f*, the platen rod *f* fast to the platen and the lateral supports for the platen, all substantially as described. 7th. In combination, in a type writing machine, the base with the guides for the platen carriage, the laterally movable platen carriage supporting a pivoted rack-bar, the trip-lever pivoted to the carriage with one arm in engagement with the rack-bar, the pull wire connecting the upper arm of the lever, and the pad pivoted to the outer end of the line-spacing lever, and the line-spacing lever, all substantially as described. 8th. In combination, in a type writing machine, the base with its guide ways, the laterally moving platen carriage, the platen mounted on the said carriage and bearing the ratch *f*, the line-spacing lever pivoted to the platen carriage and bearing a spring-pawl adapted to engage the teeth of the ratch, the adjustable stop placed in the path of movement of the spring-pawl, the spring-bolt adapted to engage the ratch, and the releasing lever pivoted to the platen carriage with one end in engagement with the spring-bolt, all substantially as described. 9th. In combination with the platen bearing, a platen-rod and a ratch *f*, the line-spacing lever pivoted to the platen carriage and bearing a spring-pawl *h*₂, held normally out of engagement with the ratch by a spring *h*₁, the pawl-guard *h*₃ pivoted to the platen carriage and overlying the spring-pawl, and the spring-pawl cut away at the side to permit the passage of the pawl-guard, all substantially as described. 10th. In a type writing machine, in combination, the detent lever *K* pivotally connected to the frame of the machine and to the bearer *K*_s, the latter being located in the path of movement of the key-levers, the inking ribbon extending across and over the surface to be printed, and through the index-bar, the reciprocating index-bar terminating in a pointer and having the ribbon guide, and the within described mechanism for reciprocating the index-bar, all substantially as described. 11th. In combination, with the frame of a type writing machine, the detent-lever pivotally connected to the bearer *K*_s, the ribbon reels *M* arranged on opposite sides of the type-base, the within described mechanism of levers and ratchets connecting the said reels and the detent-lever, the inking ribbon passing through the guide in the index-bar, and the reciprocating index-bar bearing a pointer *an*, having the ribbon guide, all substantially as described. 12th. In combination in a type writing machine, the detent-lever branching to opposite sides of the frame of the machine and pivotally connected to the bearer that is located in the path of movement of the type-levers, the ribbon reels placed upon opposite sides of the type-base, the reel feeding mechanism, as described, connecting the detent lever and the reels, the inking ribbon and the reciprocating index-bar having the ribbon guide, all substantially as described. 13th. In combination with the ribbon

reels arranged upon opposite sides of the type-base, each bearing a ratchet wheel, the ribbon feed mechanism consisting of a feed lever pivoted to the lever-bases, one end of the lever engaging an arm of the detent-lever K, and the other end having a hook adapted to engage the ratchet wheel, the detent-lever pivotally connected to the bearer, and the bearer, all substantially as described. 14th. In combination with the ribbon reels, each having a ratchet wheel, the lever-bases pivoted to the frame of the machine, with one end adapted to swing toward and from the ribbon reels, the reel-feed lever pivoted to the said base and adapted to move in a plane across the plane of movement of the said reels, with one end of the said lever pivotally connected to a branch of the detent-lever, and the other end adapted to engage the ratchet wheel on the reel, the spring-pawl borne on the lever-base and adapted to engage the ratchet wheel on the reel, and the detent-lever, all substantially as described. 15th. In combination with the frame of a type writing machine, the detent-lever K branching on opposite sides of the frame and pivoted thereto, and also pivotally connected to the bearer, the bearer overlying the key-levers, the ribbon reels secured to the frame on opposite sides of the key-base, the lever-bases pivoted to the top of the frame, and joined at their outer ends by a connecting-rod, the said lever-bases, each bearing a feed-lever, with one end adapted to engage a ratchet wheel on the respective ribbon reel, and its other end engaging a branch of the detent-lever, whereby, when one of the feed-levers is in engagement with the ribbon reel, the opposite lever is thrown out of engagement with the opposite wheel, all substantially as described.

No. 29,153. Grate for Stoves and Furnaces. (*Grille pour poêles et fourneaux.*)

Robert H. Dolliver, Montreal, Que. (assignee of Pillsbury C. Dolliver, San Luis Obispo, Cal., U.S.), 12th May, 1888; 5 years.

Claim.—1st. The combination, with the grate frame having the keepers F, of the oppositely pivoted grate sections provided with pivots G at one end, and books E engaging the keepers F at the opposite end, and a sliding support, as K, substantially as shown and described. 2nd. The combination, with the grate frame, of the overlapping oppositely pivoted grate sections C, D, the sliding bolt K for supporting said sections in their normal positions, and the pivoted operating lever H engaging recesses in the pivots of the grate sections, substantially as shown and described. 3rd. A grate consisting of two overlapping pivoted sections, the longitudinal bars of which alternate, in combination with a support, as K, and an operating device, substantially as shown and described. 4th. A grate consisting essentially of two oppositely pivoted grate sections, the longitudinal and cross bars of one section being in the same plane, and the longitudinal bars of the other section being above the plane of the cross bars thereof, one of said sections having support from the other section, in combination with the operating devices, substantially as shown and described.

No. 29,154. Gate Catch. (*Gluche de barrière.*)

Philip Dyer, Mooretown, and William Abernethy, Moore, Ont., 12th May, 1888; 5 years.

Claim.—1st. A gate catch comprising the body C, yoke D, guides E and gravitating levers H, H, journalled in a recess G in said body, and operating as and for the purpose set forth. 2nd. The combination of the bar B, having offset ends, and body C of the catch, having a yoke D, guides E and gravitating levers H, H, substantially as set forth. 3rd. The U-bent bar J, journalled to the body C of the catch, to fall and straddle the end of a gate, as set forth. 4th. The notched plate F in combination with the gravitating levers H, H, as and for the purpose set forth.

No. 29,155. Insect Destroyer. (*Destructeur d'insecte.*)

Asa H. Ingalls, Hanover, N.H., U.S., 12th May, 1888; 5 years.

Claim.—1st. The combination, with the receptacle having a perforated bottom, of the rotary clearer, the bent axle, the bent operating rod passing through the wall of the receptacle, and a handle or arm below the rod having a bearing for the said rod, whereby the clearer is rotated, by turning the rod or the receptacle is oscillated and the clearer rotated at the same time by swinging said rod from side to side, as set forth. 2nd. The combination, with the receptacle provided with a perforated bottom and an opening *f*, of the rotary clearer, the bent axle, the transverse cross-bar having an opening or bearing for said axle, the hooked bent operating rod and its handle I having an arm *j* perforated to give an outer bearing for said operating rod, as set forth.

No. 29,156. Machine for Moulding or Running Cornices. (*Machine à mouler les corniches.*)

Robert F. Mould, Stouffville, Ont., 12th May, 1888; 5 years.

Claim.—1st. The combination of the mitred ends of moulder, and the straight face of moulder, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the mitred ends of moulder or fashioner, and the longitudinally angled members attached thereto, substantially as and for the purpose hereinbefore set forth.

No. 29,157. Package for Liquid Glue, Mucilage, etc. (*Réceptif pour la colle liquide, mucilage, etc.*)

John W. Kirkpatrick, Newburyport, Mass., U.S., 12th May, 1888; 5 years.

Claim.—1st. A screw cap for receptacles, provided with an opening in its top, and a removable elastic plug adapted to enter the opening, said plug having a disk formed thereon, substantially as set forth. 2nd. A screw cap for receptacles, having an opening in its top, and a removable perforated elastic plug adapted to enter said opening,

substantially as set forth. 3rd. A screw cap for receptacles, having an opening in its top, and a removable elastic perforated plug, said plug having a restricted neck and an elastic disk formed integral therewith, substantially as set forth. 4th. A screw cap for receptacles, having a bail and handle rigidly secured thereto, an opening in its top, and a removable elastic plug adapted to enter the opening in the cap, substantially as set forth. 5th. In packages for liquid glue and mucilage, the combination, with a receptacle having a screw threaded collar and flanges on the receptacle, and collar for removing superfluous liquid from the brush, of a screw cap having an opening therein, and an elastic plug adapted to enter the opening for the purpose substantially as set forth. 6th. In a screw cap for receptacles, a bail extending partway around said cap and rigidly secured thereto, and having handles or eyes on its ends.

No. 29,158. Ventilating and Changing the Temperature of Buildings. (*Moyen de ventilation et de changement de température des bâties.*)

Henry Tilden, Minneapolis, Minn., U.S., 12th May, 1888; 5 years.

Claim.—1st. In combination, central chimney H, fire pot or magazine A located in the chimney bottom, provided with the smoke and flame pipe *at*, terminating below the chimney top, independent foul air outlets B, C, D, provided with automatic valves *b*, *b*, *b*, *b*, *b*, connecting each with its respective room through registers *b*, *c*, *d*, in the floor of the same, and with the chimney H below the top of *at* and above the body of A, independent fresh air inlet ducts E, F, G, connecting at one end through the ceiling by registers *e*, *f*, *g*, each with its respective room, and at the other directly or indirectly with the external atmosphere, and a heating or cooling device J intermediate the fresh air intake and the point of discharge into the rooms, all substantially as described for the purpose set forth. 2nd. In combination, central chimney H, fire pot or magazine A located in the chimney bottom, and provided with the smoke and flame pipe *at*, terminating below the chimney top, foul air outlet ducts B, C, D, connecting each with its respective room at one end, and with said chimney *at* at the other end below the top of pipe *at*, fresh air inlet ducts E, F, G, connecting at one end each with its respective room, and connecting at the other end directly or indirectly with the external atmosphere and a heating or cooling device J intermediate the fresh air intake and the point of discharge into the rooms, substantially as and for the purpose set forth. 3rd. In combination, a central shaft or chimney extending from above the roof to the bottom of the cellar, a foul air burning and exhaust producing fire magazine located within and at the bottom of said chimney, and provided with a smoke and flame pipe, extending a short distance up said chimney, but terminating below the top of the same, foul air outlet ducts from the various rooms connecting with said chimney below the top of said flame and smoke pipe, and suitable fresh air inlet ducts, from the external atmosphere to the various rooms, substantially as described, whereby complete and continuous ventilation is secured.

No. 29,159. Wheeled Scraper. (*Grattoir à roues.*)

Patrick Deovy, Dudley, Iowa, U.S., 14th May, 1888; 5 years.

Claim.—1st. A wheeled scraper, provided with an automatic locking device, consisting of a catch pivotally mounted on a standard, the free end of said catch being curved upward, substantially as described. 2nd. In a wheeled scraper, the scoop having a reinforcing strip secured thereto, as set forth. 3rd. The combination of the crank axle, the suspended scoop, the rear U-shaped frame pivoted to the scoop, and the links adjustably connecting said frame and the axle, substantially as set forth. 4th. The combination of the crank axle, the scoop suspended thereon, the rear frame pivoted to the scoop, and connected to the axle draw bars pivoted to the scoop, and connections between the rear frame and the draw-bars, substantially as set forth. 5th. In a wheeled scraper, the combination, with the crank axle, of the scoop and a manipulating lever supported by a frame, within which the scoops swing, as set forth. 6th. The combination of the scoop, the rear frame pivoted thereto, the slotted rearward extending arm, and the latch pivoted in said slotted arm and engaging the said frame, as set forth. 7th. The combination, with the cranked axle, of the scoop pivotally hung thereon, the draft frame pivotally secured to the sides of the scoop, the rearwardly extending yoke pivoted to the sides of the scoop, below and in advance of the pivotal point of the draft frame and connected to the cranked axle, the arm *e* rising from the draft frame and the catch *f* pivoted to said arm and adapted to engage said yoke, as set forth. 8th. The combination of the cranked axle, the scoop hung thereon, the draft frame pivoted to the scoop, the rearwardly extending yoke also pivoted to the scoop, the slotted arm extending rearwardly from the scoop, and the catch pivoted in said arm and bearing against the scoop at its lower end, and engaging the yoke at its upper end, substantially as described. 9th. The combination of the scoop, having the vertical standards, the cranked axle journalled to the said standards and having the supporting wheels, the draft frame, having its arms pivoted to the side of the scoop, the yoke, having its arms pivoted to the sides of the scoop at points below, and in advance of the pivotal connections of the draft frame, the said yoke being further provided with the detents adapted to engage the draft frame, for the purpose set forth, and the links connecting the said yoke to the cranks of the axle, substantially as described. 10th. The combination of the scoop, the draft frame pivotally connected thereto, the cranked axle from which the scoop is suspended and having supporting wheels, the yoke extending rearward from the scoop, and having its side arms pivoted to the sides of the scoop and longitudinally adjustable thereon, the said yoke being further provided with the detents, for the purpose set forth, and the links pivoted to the lower end of the crank arms of the axle, and having their lower ends pivoted to the side arms of the yoke and longitudinally adjustable thereon, substantially as described. 11th. In the combination with the scoop, the cranked axle from which the scoop is pivotally hung, the draft frame pivotally attached to the scoop, and the yoke pivotally attached to the draft frame, and having the arms or detents to engage the draft frame to lock the scoop when the latter is swung to an inclined position, as set forth.

No. 29,160. Folding Seat. (*Siège pliant.*)

The American Folding Chair Company (assignees of Samuel W. Knott), St. Louis, Mo., U.S., 14th May, 1888; 5 years.

Claim—1st. The combination, with a flexible seat and back, of pivoted front and back folding legs, a top bar connecting the front legs, and to which one end of the flexible seat and back is attached, horizontal bars pivoted at a point remote from their ends to the front legs, and having the other end of the flexible back attached thereto, catches with which the rear ends of the horizontal bars engage when the seat is unfolded, and which allow the rear ends of the said bars to pass when disengaged from said catches, whereby they are brought into line with the front legs and the flexible seat is straightened out, substantially as set forth. 2nd. In combination with slats connected by wires, the frame, consisting of paired vertical and inclined legs pivoted together, catches secured to the vertical legs of the frame, and horizontal bars connected to the inclined legs and to the vertical legs of the frame by means of brackets E, screwed onto said horizontal bars, and having projections Q, substantially as and for the purpose set forth.

No. 29,161. Machine for Constructing Boxes.

(*Machine à fabriquer les boîtes.*)

J. Erwin Wakeman and Robert L. Crocker, Lockport, N. Y., U. S., 14th May, 1888; 5 years.

Claim—1st. The herein described machine for constructing boxes consisting of the board or table, the V-shaped plate or iron, the plate having projecting ways, the sliding block having the spring and shouldered pin inclosed therein, and the cam lever arranged substantially as shown and described. 2nd. The combination, with the board or table and the V-shaped plate or iron secured thereto, of the sliding block having a central aperture and grooved in either side thereof, the guide-way plate secured in an aperture of the said board or table, the headed pin inclosed in said aperture of the sliding block, the spring encompassing said pin and the cam lever, substantially as shown and described, the vertex of said V-shaped plate being opposite to that of the sliding block, as stated. 3rd. The combination, with the board or table and the plate or iron, of the plate having projecting ways and secured in an aperture of said board or table, the sliding block, the spring-pressed pin inclosed in said block and the cam-like lever, arranged to operate substantially as shown and described.

No. 29,162. Ball and Socket Joint for Reaper and Mower Pitmans, etc.

(*Joint à rotule pour les essieux à manivelle des faucheuses-moissonneuses, etc.*)

Hiram M. Yale, Albion, N. Y., U. S., 14th May, 1888; 5 years.

Claim—1st. The combination of a socket, a connection for connecting the parts of the socket, and a cam for bringing and holding the socket to the ball, as specified. 2nd. The combination of a socket connected with spring plates, a bolt provided with a slot, and a cam lever operating in said slot to contract the parts of the socket upon the ball, or release the same from it, as specified. 3rd. The combination of a socket, a bolt having a slot, a shouldered nut and a cam lever, as specified. 4th. A universal coupling, consisting of the combination of a ball, socket plates, slotted bolt, a cam lever and a spring catch for locking the lever, substantially as described.

No. 29,163. Capsule for Packing Bottles.

(*Erlose pour emballer les bouteilles.*)

Stephen J. White, Bellville, Ont., 14th May, 1888; 5 years.

Claim—1st. A sheet of wood veneer, made sufficiently large to encompass a bottle, and split, so that the portion encircling the bottle's neck may be contracted to form a bottle capsule, tapered and closed at one end, substantially as and for the purpose specified. 2nd. A sheet of wood veneer, made sufficiently large to encompass a bottle and split, so that the portion encircling the bottle's neck may be contracted to form a bottle capsule, tapered and closed at one end, cords, or their equivalent, being sewn or otherwise secured to the veneer, so as to hold the capsule in its desired shape, substantially as and for the purpose specified.

No. 29,164. Fire Arrester and Heat Retainer. (*Poêle sourd.*)

Philip Williams, Hantsville, Ont., 14th May, 1888; 5 years.

Claim—1st. The combination of the drum A, with the cylinder B and the bevelled diaphragm C, as shown. 2nd. The combination of the damper F and the deflector E, as described and shown. 3rd. The combination of the aforesaid 1st and 2nd combinations to complete one arrester, as described. 4th. The combination of two arresters, forming one double arrester, connected by elbows at the top and bottom.

No. 29,165. Fire Escape. (*Sauveteur d'incendie.*)

Joseph Esson and John Esson, Parkdale, Ont., 14th May, 1888; 5 years.

Claim—As an improved fire escape, two pulleys C, D, journaled in the spindle E between the compressible jaws H, in combination with two wires A, B, wound on their respective pulleys C, D, as described, and a body strap F connected to the loops I, substantially as and for the purpose specified.

No. 29,166. Baker's Oven. (*Four de boulangerie.*)

George S. Baker, London, Eng., 14th May, 1888; 5 years.

Claim—1st. In a baker's oven, the combination of the furnace C, having first cover C' and air space over said furnace, communicat-

ing heat to oven A by means of front heating flues l, l, and back heating flues o, o, and to upper oven B by flues m and p, p, and by means of flues n, n, with top heating space C, said flues opening into main heating flues J, J, K, K, in furnace, and by means of exit flues r with main flue R and chimney, the syphon flues q, q, connecting ovens A and B with main exit flue R, and the syphon flue S forming the exit from top heating space C to main exit flue R, all as described and substantially as set forth. 2nd. In a baker's oven, the combination of inclined air space F and the top heating space E, the heating flues l, l, o, o, opening into main heating flues J, J, K, K, in furnace, and by exit flue r and syphon flue S with main exit flue R and syphon flue S with main exit flue R and chimney, all operating together as described and for the purposes set forth. 3rd. In a baker's oven, the combination of an oven heated by flues l, l, o, o, and direct flue C, C, fitted with syphon flue q, q, and steam flue n, n, opening into main flue, and chimney R, all as described and for the purpose set forth.

No. 29,167. Steam Clothes Washer.

(*Blanchisseuse à vapeur.*)

More Dill and William Hughes, Toronto, Ont., 14th May, 1888; 5 years.

Claim—1st. An open grate-formed tray arranged to fit into the boiler, and be supported a little distance from the bottom of the said boiler, substantially as and for the purpose specified. 2nd. The combination, with a boiler A, of an open grate-formed tray B, provided with legs C and border D, substantially as and for the purpose specified.

No. 29,168. Glazed Roof. (*Toit vitré.*)

Thomas W. Helliwell, Brighouse, Eng., 17th May, 1888; 5 years.

Claim—1st. A sealing strip D, for sealing the joints of roofs, made of soft or ductile metal and consisting of a head or flange f, a body g and two wings h, h, substantially as set forth. 2nd. A sealing strip D, for sealing the joints of roofs, made of a strip of soft or ductile metal bent upon itself, to form a head or flange f at its middle, a body portion g of two thicknesses, and two wings h, h, of one thickness, adapted to be bent away from each other and turned down, substantially as set forth. 3rd. In a roof, the combination, with the roofing plates laid in courses, of a bar A between the courses, projecting above the edges of the plates made in two pieces joined together, and having a groove e in its top, extending into the joint between said pieces and enlarged at its bottom, and a sealing strip D having a head or flange f, fitting the enlargement in said groove, whereby the drawing out of the strip from the groove is prevented, substantially as set forth. 4th. In a glazed roof, the combination, with the sheets of glass, of a glazing bar A, having ledges a, for supporting the edges of the glass, and a projection C extending up above the glass, and a sealing strip D, fixed to said projection and having wings h, h, to be turned down over said projection upon the glass, substantially as set forth. 5th. In a glazed roof, the combination, with the sheets of glass, of a glazing bar A having ledges a for supporting the edges of the glass, and a projection C extending up above the glass, a sealing strip D fixed to said projection and having wings h, h, to be turned down over said projection upon the glass, and angle strips k, k, inserted over the edges of the glass against said projection, substantially as set forth. 6th. In a glazed roof, the combination, with the sheets of glass, of a glazing bar A having ledges a, for supporting the edges of the glass, and a projection C extending up above the glass, a sealing strip D fixed to said projection and having wings h, h, to be turned down upon the glass, and a yielding packing placed against the edge of the glass and covered by said turned down wings, substantially as set forth. 7th. In a glazed roof, the combination, with the sheets of glass laid to overlap each other, of a glazing bar A, a sealing strip D, fixed thereto and having wings h, h, to be turned down upon the edges of the glass, and angle strips k, k, placed over the edges of the sheets with their upper ends abutting against the overlapping edges of the sheets of glass above and fastened to the bar A, substantially as set forth, whereby the slipping down of the glass is prevented. 8th. In a glazed roof, the combination, with the sheets of glass, of the glazing bar A having ledges a, and one or more gutters formed on its sides, the sealing strip D fixed to the glazing bar, and the strip E having gutters m, m, fastened beneath the glazing bar, substantially as set forth. 9th. The formation of a solid metal glazing bar or astragal, such as A in Figs. 11, 12 and 13, or having two channels on each side of the solid central rib, as shown and described. 10th. In a glazed roof, the combination, of a saddle C, cap D and a solid double grooved astragal, such as A, where the dividing rib e and shoulder p are more elevated than the parts d and c, as shown in Figs. 11, 12 and 13. 11th. In a glazed roof the construction of a solid glazing bar or astragal, such as A, having two grooves on each side of the solid central rib e, so arranged that the sheet of glass rests upon the shoulder p and part c, as shown in Figs. 11, 12 and 13. 12th. The formation of a glazing bar or astragal, such as A, where the central part c is grooved to receive packing, as shown in Fig. 12.

No. 29,169. Hoop Machine. (*Machine à cercles.*)

William Hockin, Sr., London, Ont., 17th May, 1888; 5 years.

Claim—1st. In a hoop machine, the combination of one or more gauges D, presser-bar F and weight G, or its equivalent, in combination with a saw C, substantially as and for the purpose set forth. 2nd. In a hoop machine, the combination of one or more gauges D, presser-bar F and weight G, or its equivalent, in combination with a saw C, and supports E, E, substantially as and for the purpose set forth.

No. 29,170. Device for Extinguishing Fires in Railway Car Heaters. (*Appareil pour éteindre les feux dans les calorifères des chemins de fer.*)

Austin Berry, Shefford, Que., 17th May, 1888; 5 years.

Claim.—1st. In a device for extinguishing the fire in a railway car heater, the combination of the following instrumentalities, to wit: a tank containing an alkaline solution, a glass vessel disposed in said tank and containing an acid, a piston fitted to work in a cylinder connected with said tank and having a piston rod provided with a plunger adapted to crush said glass vessel, a car having a heater disposed therein, a pipe connecting said tank with the fire pot of said heater, a cylinder containing compressed air, a pipe connecting said air cylinder with the cylinder of the tank containing the alkaline solution above said piston, a stop-cock disposed in the pipe leading from the air cylinder to said tank, and adjunctive mechanism for automatically opening said valve when the car is accidentally overturned, or partially overturned, substantially as set forth. 2nd. In a device for extinguishing the fire in a railway car heater, the combination of the following instrumentalities, to wit: a tank containing an alkaline solution, a glass vessel disposed in said tank, and containing an acid, a piston fitted to work in a cylinder connected with said tank, and having a piston rod provided with a plunger adapted to crush said glass vessel, a car having a heater disposed therein, a pipe connecting said tank with the fire-pot of said heater, a cylinder containing compressed air, a pipe connecting said air cylinder with the cylinder of the tank containing the alkaline solution above said piston, an auxiliary piston disposed in the body of said tank above said plunger, a stop-cock disposed in the pipe leading from the air cylinder to said tank, and adjunctive mechanism for automatically opening said valve when the car is accidentally overturned, or partially overturned, substantially as specified. 3rd. In a device for extinguishing the fire in a railway car heater, the combination of the following instrumentalities, to wit: a tank containing an alkaline solution and an acid in an unmixed condition, a railway car containing a heater, a pipe connecting said tank with the fire-pot of said heater, and means whereby the alkaline solution and acid in said tank may be mixed when the car is accidentally overturned, or partially overturned, and the compound and gases formed by said admixture forced through said pipe into the fire-pot of the heater to extinguish the fire therein substantially as set forth. 4th. In a device for extinguishing the fire in a railway car heater, the combination of the following instrumentalities, to wit: a railway car having a heater disposed therein, a tank disposed adjacent to said heater and containing an alkaline solution and an acid, a pipe connecting said tank with the fire-pot of said heater, and adjunctive mechanism for automatically mixing the alkaline solution and acid within the tank and forcing the same and the mixture thus formed through said pipe into the fire-pot of the heater, to extinguish the fire therein when the car is accidentally overturned, or partially overturned, substantially as specified. 5th. In a device for extinguishing the fire in a railway car heater, the combination of the tank E provided with the piston 47, piston rod 48 and plunger 49, the glass vessel J containing acid and disposed in said tank beneath said plunger, an alkaline solution disposed in said tank, the spring 75 for keeping said plunger elevated, the cylinder H for containing compressed air, the pipe G leading from said air cylinder into said tank above said piston, a stop-cock, as K, disposed in said pipe, the heater B connected with said tank by the pipes 52, 53 and 55, and adjunctive mechanism for automatically opening said stop-cock when the car is accidentally overturned, or partially overturned, and permitting the air from the air cylinder to force said plunger against said glass vessel and break it, substantially as set forth. 6th. In a device for extinguishing the fire in a railway car heater, the tank E provided with the chamber 44 and cylinder 45, the piston 47 fitted to work in said cylinder, and provided with the rod 48, carrying the plunger 49, the auxiliary piston 50, disposed in said tank above said plunger, a spring, as 75, for keeping the plunger elevated, the glass vessel J containing an acid, an alkaline solution disposed in said tank, and the pipes 52 and G, substantially as specified. 7th. In a device for extinguishing the fire in a railway car heater, the stop-cock K disposed in the pipe G and having the valve-stem 56 provided with the spring 58, and arm 57, the spring-lever 62 provided with the catch 63, the chain 64 secured to said lever and to the ball 69 the standard 67 and support 68, substantially as set forth. 8th. In a device for extinguishing the fire in a railway car heater, the combination of the ball 69, standard 67 and support 68 with the cylinder M, whereby, when said ball is dropped from the support, it will be caused to pull properly on the chain 64, substantially as specified. 9th. In a device for extinguishing the fire in a railway car heater, the combination of the pipes 52 and 53 with the tank E and heater B, said pipes being extended above the level of the alkaline solution in said tank to prevent the accidental overflow of said solution, substantially as set forth.

No. 29,171. Stripping Machine for Ramie, Jute, etc. (*Machine à décortiquer la ramie, le chanvre du Bengal, etc.*)

Christian C. Kauffman, New Orleans, La., U.S., 17th May, 1888; 5 years.

Claim.—1st. In a machine for decorticating ramie, jute and other fibrous plants, the combination, with the feed-rolls B, B, of the slotted frame or box C and two reciprocating slotted double-acting breaker E, substantially as specified. 2nd. The combination, with the feed-rolls B, B, the slotted frame or box C and the reciprocating slotted double-acting breaker E, of the rolls D, D, in rear of said breaker, essentially as herein set forth. 3rd. In a machine for decorticating ramie, jute and other fibrous plants, the combination of the revolving whippers G, G, the rolls D, D, the slotted frame or box C and the reciprocating double-acting breaker E, substantially as specified. 4th. In a machine for decorticating ramie, jute and other fibrous plants, the combination, with the forward rolls D, D, and the rear rolls H, H, of the whippers G, G and a mechanism for revolving said whippers alternately in reverse directions simultaneously, substantially as specified. 5th. The combination of the reticulated carrier or support I, the whippers G, G, alternately revolving in reverse directions simultaneously, the rolls H, H, D, D, the double-acting reciprocating breaker E and the slotted frame or box C, essentially as and for the purposes herein set forth.

No. 29,172. Apparatus for Drying and Cleaning Ramie and other Fibres. (*Appareil pour sécher et nettoyer la ramie et autres fibres.*)

Christian C. Kauffman, New Orleans, La., U. S., 17th May, 1888; 5 years.

Claim.—1st. In apparatus for drying and cleaning ramie and other fibres after decortication, the combination of a hot air drying chamber adapted to solidify the gum or sap in the fibre, cleaners adapted to mechanically remove such solidified material or materials, and feeding devices adapted to pass the fibre through the drying chamber, and to or through and between the cleaners, substantially as specified. 2nd. In apparatus for drying and cleaning ramie and other fibres after decortication, the combination of a series of rotary cleaners driven to revolve alternately in reverse directions, a hot air drying chamber, through which the fibre is passed to said cleaners, and feeding devices adapted to continuously move the fibre in the same direction through the drying chamber, and to and between said alternately reversely rotating cleaners, essentially as specified. 3rd. In apparatus for drying and cleaning ramie and other fibre after decortication, the drying chamber A, of close or closed construction, provided with apertures b in its ends, in combination with the endless apron or belt-like carriers B, B, adapted to receive the fibre in between them, and operated to travel in like directions through and outside of said drying chamber, substantially as described. 4th. In apparatus for drying and cleaning ramie and other fibre after decortication, the combination, with the drying chamber A and its endless travelling belt-like carriers B, B, adapted to pass the fibre through said chamber, of the furnace or air-heating chamber D, the pump or blower E and pipes adapted to conduct the air from the blower through the furnace to the drying chamber and to establish an outlet from the latter, essentially as described. 5th. The combination of the hot air drying chamber A, the endless travelling belt-like carriers B, B, the feeding and delivery rollers 7 operated to move in concert with said carriers, as described, and the whippers or beaters E and brushes F, operated alternately in reverse directions, substantially as specified.

No. 29,173. Door Knob. (*Bouton de porte.*)

Samuel Crawford, London, Ont., 17th May, 1888; 5 years.

Claim.—The mode of attaching the shank D, of a door-knob A, to the washer-plate on door or lock by means of a groove or channel E, formed in or on the surface of said shank, which is encircled by the edge of the orifice of the washer plate and retained therein by the engagement of the sides of the groove, or of flanges, with the inner face of the recessed washer plate, substantially as shown and specified.

No. 29,174. Auriphone. (*Auriphone.*)

James A. Maloney, Washington, D.C., U.S., 17th May, 1888; 5 years.

Claim.—1st. An auriphone consisting of a sound collector, an ear-piece and an elastic diaphragm interposed between the two and stretched between two rings, substantially as described. 2nd. An auriphone consisting of a sound collector, an ear piece and a diaphragm having its two surfaces held under the same degree of tension, substantially as described. 3rd. In an auriphone, the combination of a sound collector, ear piece and diaphragm of a cam secured to the ear piece, substantially as described, for locking the auriphone to the ear. 4th. In an auriphone, the combination, with a sound collector and ear piece, of a diaphragm composed of elastic non-hygroscopic material, and two rings applied concentrically upon the opposite sides of said diaphragm, as described, for holding both faces under equal tension. 5th. A diaphragm for auriphones, consisting of a stretched membrane and two concentric rings cemented to said membrane, as described, for maintaining the tension of both faces. 6th. The process of making diaphragms for auriphones, which consists in first stretching a membrane, and then clamping the same on both sides concentrically, substantially as described. 7th. The process of making diaphragms for auriphones, which consists in first stretching both faces of a membrane, and then framing the same by concentric clamps, substantially as described. 8th. A mouth piece for an auriphone, consisting of a hollow shell, having in its edge a small curved notch delineated to fit the portion of the human face, between the septum of the nose and the upper lip, and a larger curved notch delineated to fit the face between the lower lip and the chin, substantially as described. 9th. In an auriphone, the combination, of a mouth piece, having an edge delineated to conform to the shape of that portion of the human face which immediately surrounds the mouth, with an ear piece and diaphragm, and a flexible sound conveyer extending between mouth and ear piece, substantially as described. 10th. In an auriphone, the combination of a diaphragm stretched between two rings, with a mouth piece which hermetically incloses the mouth of the speaker, and a sound conveying tube extending between the two, substantially as described.

No. 29,175. Twist Drill Milling Machine.

(*Machine à faire les forets tordus.*)

Moses C. Johnson, Hartford, Conn., U.S., 17th May, 1888; 5 years.

Claim.—1st. The combination of the splined and threaded spindle D, the feed nut engaging the thread on said spindle, the worm gear splined to said spindle, a worm meshing with said worm gear, the cam M connecting shafts and gearing simultaneously rotating said worm and the feed nut, and cam N, said cam being operatively connected to slide said worm during the rotary movement thereof, substantially as described. 2nd. The combination of the spindle D, the driving wheel 34, splined thereto, worm 36 on shaft 40, slide 70 and the cam geared to revolve in unison with shaft 40, the slide being connected to be actuated from said cam, all substantially as described. 3rd. The combination, in a twist drill milling machine, of the spindle D, the increase pitch feed apparatus, substantially as described, the

oppositely disposed milling heads and lifting cams operating the slides of said heads, said lifting cams being geared to be moved in unison with the pattern cam of said apparatus, all substantially as described. 4th. The combination, in a machine of the class specified, of the slide S, cam 80, and spindle 50 bearing on said cam, and adjustably fixed in said slide, all substantially as shown and described. 5th. The combination, with spindle D and with shafts 40 and 61, geared together, as described, of gear 34, splined to said spindle, worm 36 on shaft 40, the pattern cam, bearing 68 having slot 71, and slide 70 having arm 72, working in said slot in engagement with said cam, all arranged and operating substantially as described. 6th. The combination, in a machine of the class specified, of the two slides S, S', one carrying a cutter spindle above, and the other carrying such spindle below the drill blank, shaft 82 and cams 80, 80', oppositely placed on said shaft, whereby one slide is moved up while the other moves down, substantially as described and for the purpose specified.

No. 29,176. Curd Mill. (Menole.)

Richard H. Casswell, Ingersoll, Ont., 18th May, 1888; 5 years.

Claim.—1st. In a curd mill, the combination of a reciprocating trough D, having knives *d* in the bottom, and a swinging presser E, closing upon said knives, as set forth. 2nd. The combination, with the frame A, of the reciprocating trough D, having knives *d*, gate M, swinging presser E, and means for reciprocating the trough, substantially as set forth. 3rd. In a curd mill, the trough D, having diagonally intersecting knives *d*, in combination with a swinging presser E, closing upon said knives, as set forth.

No. 29,177. Coin Operated Device for Delivering Articles. (Appareil actionné par une pièce de monnaie pour livrer les marchandises.)

William A. Wolff, New York, N.Y., U.S., (assignee of James M. O'Kelly, London, Eng.), 19th May, 1888; 5 years.

Claim.—1st. In a vending apparatus, the combination of a delivery slide projecting from a casing, a spring for pressing said slide outward, a coin chute, a coin receiver, a latch block for locking the delivery slide, which latch block is operated by the coin receiver, substantially as herein shown and described. 2nd. In a vending apparatus, the combination of a delivery slide projecting from a casing, a spring for pressing the slide outward, a coin chute, a pivoted lever, a coin receiver on one end of said lever, and a latch block for engaging part of the delivery slide connected with the opposite end of said lever, substantially as herein shown and described. 3rd. In a vending apparatus, the combination of a delivery slide, a coin chute, a pivoted coin receiver open at one end, and a plate adjacent to the coin receiver, which plate is supported by the delivery slide, substantially as shown and described. 4th. In a vending apparatus, the combination of a delivery slide, a coin chute, a pivoted lever, a coin receiver on one end of said lever, said coin receiver being open at one end, a plate adjacent to the open end of the coin receiver, said plate being supported by the delivery slide, and a latch block connected to the opposite end of the pivoted lever, substantially as shown and described. 5th. In a vending apparatus, the combination of a delivery slide springs for pressing the same outward, an arm on the inner part of the delivery slide, a latch block against which said arm can rest, a pivoted lever supporting the latch block, a coin receiver on the opposite end of the lever, and a coin chute, substantially as shown and described. 6th. In a vending apparatus, the combination of a delivery slide having a part of its top made flat, a fixed plate provided with a slot above the flat part of the top, a piece secured on the delivery slide above the fixed plate, and having a bevelled front, a partition forming a slot with the back of said bevelled piece, a vertically sliding wedge shaped piece resting on the bevelled front of the piece on the slide, substantially as shown and described. 7th. In a vending apparatus, the combination of a delivery slide having parts of its top made flat, and having a slot above the flat part, a slotted plate directly above the flat part of the slide, a vertically sliding wedge-shaped piece operated by the upper bevelled part of the slide, and a curved plate having hooks projecting into the top part of the slide, substantially as shown and described. 8th. In a vending apparatus, the combination, with a casing, of a delivery slide having an inclined top, and a ledge at its outer edge, which delivery slide projects through an opening in the casing, and a coin operated latch block for said delivery slide, substantially as shown and described. 9th. The combination, with a delivery slide, of a cigarette receptacle, a coin operated latch-block for the delivery slide, and a match-shifting slide, and a lever for operating it from the delivery slide, substantially as shown and described. 10th. The combination, with a box having an aperture in one of its walls, a match receptacle behind said wall, a match shifter, a delivery slide in the box, a cigarette receptacle in the box, a coin operated latch block for the delivery slide, and a lever for operating the match shifter from the delivery slide, substantially as shown and described. 11th. The combination, of a box having an aperture in one of its walls, a serrated plate on the outer surface of the wall and provided with an aperture registering with the aperture in the wall, a match receptacle in the box, a match shifter, a cigarette receptacle, a delivery slide and a lever for operating the match shifter from the delivery slide, substantially as shown and described. 12th. The combination of a box, the partition S, guides *a*, the tube *g*, the sliding rod *m*, the lever *h*, the arm *j*, a cigarette receptacle and a delivery slide with which the arm *j* is connected, substantially as shown and described.

No. 29,178. Supporter for Boots and Shoes.

(Renfort de semelle de chaussure.)

Chester Pronty, William F. Ruff and Ransom L. Clark, Galton, Penn., U.S., 19th May, 1888; 5 years.

Claim.—1st. An improved article of manufacture, the bifurcated strip D having prongs D', D', and an integral shank F provided with perpendicular uprights F', and having a series of perforations G, G', G', constructed as herein described and for the purpose set forth

2nd. The sole A of an ordinary boot or shoe having an upper B and a counter C, in combination with the bifurcated strip D having prongs D', D', and perforations G, G', G', whereby joiner is made to the inner side of the inner sole by sewing or otherwise, the shank F integral therewith and similarly secured having perpendicular uprights F', which after passing between the counter and the upper are clinched under the heel, and whole co-operating as and for the purpose herein set forth and in the manner illustrated and specified.

No. 29,179. Method of Protecting Roofs of Buildings from the Damaging Effects of the Accumulation of Snow and Ice. (Mode de protection des toits contre les effets de l'accumulation de la neige et de la glace.)

George F. Gnavitt, Josiah H. Whitcomb and Carlo R. Taylor, Berlin, Wis., U.S., 19th May, 1888.

Claim.—1st. A supplemental or protecting roof, placed upon and supported by the permanent roof, leaving an air chamber between them, as set forth. 2nd. The combination, with the permanent roof of the joists or like supports, and covering boards arranged as described, whereby an air chamber is formed between said covering and the roof, as set forth.

No. 29,180. Shingle Machine.

(Machine à bardeau.)

The Waterous Engine Works Co., (assignee of James N. Peol), Brantford, Ont., 19th May, 1888; 5 years.

Claim.—1st. On a shingle machine, the set bars K, K, provided with adjustable bearings *r*, *r*, as shown, substantially as and for the purposes hereinbefore set forth. 2nd. On a shingle machine, the set bars K, K with adjustable bearings *r*, *r*, in combination with the bell cranks I, I, as shown, substantially as and for the purposes hereinbefore set forth. 3rd. On a shingle machine, the set bars K, K with adjustable bearings *r*, *r*, in combination with the bell cranks I, I and bevelled bars L, L, as shown, substantially as and for the purposes hereinbefore set forth. 4th. On a shingle machine, the combination of the set bars K, K, with adjustable bearings *r*, *r*, bell cranks I, I, bevelled bars L, L, cams M, M, shaft N, pawl wheel O, pawls P, Q and J, J, as shown, substantially as and for the purposes hereinbefore set forth.

No. 29,181. Metal Cheek Piece for Bridle.

(Pièce métallique pour aillères de brides.)

Oscar Botsford, Eureka, Mich., U.S., 19th May, 1888; 5 years.

Claim.—1st. In a cheek piece, the sheet metal blank tubularly folded, and provided with buckles secured to the ends thereof by ears formed on the blank, substantially as specified. 2nd. In a cheek piece, a sheet metal blank tubularly folded, in combination with a billet secured within a fold of such blank, substantially as described. 3rd. In a cheek piece, the sheet metal blank A tubularly folded, and provided with the buckles secured to the ends thereof by the ears A formed on the blank, in combination with the billet B secured within a fold of the blank and carrying the binder, all arranged substantially as described. 4th. In a cheek piece, the sheet metal blank A tubularly folded, and provided with the re-inforced ends, and the buckles secured thereto by straps formed on the blank, the billet secured thereto by tacks or rivets between the tubular fold, and an outer fold of said blank, substantially as described. 5th. As a new article of manufacture, a cheek piece formed of sheet metal, folded and provided with a billet enclosed within a fold of the sheet metal, and secured thereto by tacks or rivets likewise concealed within folds of the sheet metal, substantially as described.

No. 29,182. Vehicle Top. (Couverture de voiture)

Thomas B. McCurdy, Lancaster, Texas, U.S., 19th May, 1888; 5 years.

Claim.—An improvement in vehicle tops, the combination of the supporting bows having grooves in their side, the upper ends of the grooves overlapping the curtain supporting frames comprising the flexible side bars H, provided with lateral tongues fitting in the grooves of the supporting bows, and the cross bars I secured to the side bars H having their ends fitted in said grooves, and the covering L secured to said frame, substantially as specified.

No. 29,183. Knitted Under-Vest and its Manufacture. (Sous-veste tricotée et sa fabrication.)

John S. Wells, Nottingham, Eng., 19th May, 1888; 5 years.

Claim.—The combination of knitted vests made of plain and ribbed work, and a thick warm band formed around, and a little below, the waist of said knitted vests, substantially as and for the purposes hereinbefore set forth and illustrated in the drawings heronto annexed.

No. 29,184. Circular Saw Holder.

(Porte-scie circulaire.)

John Slater, Parthenia, Penn., U.S., 19th May, 1888; 5 years.

Claim.—1st. In a circular saw holder, the combination of an adjustable frame, a shaft journalled in, and projecting from, said frame, and a saw arbor on the end of, and at right angles to, the said shaft, substantially as described. 2nd. In a circular saw holder, the combination of a pivoted main frame, a longitudinally and vertically adjustable frame carried by said main frame, a shaft journalled in and projecting from the adjustable frame, and a saw arbor on the end of, and at right angles to the said shaft, substantially as herein shown

and described. 3rd. In a circular saw holder, the combination of a vertically and longitudinally adjustable frame, a shaft for holding the saw to be operated upon journaled in the said frame, a pivoted frame, a grinding wheel journaled in the said pivoted frame, a cord attached to the pivoted frame, and a spring connected to said cord and to a support, substantially as described. 4th. In a circular saw holder, the combination, with a supporting frame, of a bar fitting on ways in the said frame, and provided with a rack, a screw for adjusting the bar, a sliding frame on said bar, a pinion engaging the rack on the bar, and means for locking the said sliding frame, substantially as described. 5th. In a circular saw holder, the combination, with a vertically and longitudinally adjustable frame, and a main frame supporting the said frame and mounted to turn vertically, of a shaft mounted to turn in said adjustable frame, and carrying the circular saw to be operated upon, and an arvil on which the said circular saw can be placed while held on the said shaft, substantially as shown and described. 6th. In a circular saw holder, the combination, with an adjustable frame, and a shaft for carrying the saw to be operated upon journaled in said frame, of the viso W consisting of the fixed jaw W₁, the hinged jaw W₂, and the hinged V-shaped clip W₃ provided with the set-screw W₄, substantially as described. 7th. In a circular saw holder, the combination, with a main frame mounted to turn, of guideways formed on the said frame, a post mounted to slide on the said guideways, screw rods mounted to turn on the said frame and screwing in the said post, a frame hold vertically adjustable on the said post, and a shaft mounted to turn on the said frame, and carrying the circular saw to be operated upon, substantially as shown and described. 8th. In a circular saw holder, the combination, with a main frame mounted to turn and provided with guideways, of a post held to slide longitudinally on the said guideways, a frame hold to slide vertically on the said post, a transverse shaft mounted in the said frame, and provided with a crank-arm, a gear wheel secured on the said shaft, a rack secured to the said post and into which the said gear wheel meshes, and a longitudinally extending shaft mounted to turn in the said frame, and adapted to carry the circular saw, substantially as shown and described.

No. 29,185. Metallic Grape-Vine Tie.

(Lien métallique de vigne.)

Zebulon C. Phoatt, Toledo, Ohio, U.S., 19th May, 1888; 5 years.

Claim.—1st. A grape-vine tie consisting of a wire loop, one end of which terminates in a spiral, and the other end in a hook, substantially as shown and described for the purpose specified. 2nd. As a means of supporting vines, a spring consisting of a wire loop having at one end a hook, and at the other end a spiral, in combination with a trellis wire, substantially as shown and described for the purpose specified.

No. 29,186. Chimney Top. (Haut de cheminée.)

John Leo, Southampton, Ont., 19th May, 1888, 5 years.

Claim.—1st. In a chimney top, the combination of a sheet metal cap or housing A, open at both ends, door C adapted to nearly close the open ends, and hinged thereto horizontally at the bottom of said opening and adapted to swing outwards, a connecting rod c connecting said doors and causing them to act in unison, substantially as set forth. 2nd. In a chimney top, the combination of a sheet metal cap or housing A, open at both ends, doors C hinged horizontally at the bottom of said open ends and adapted to swing outwards, a connecting rod c connecting said doors and causing them to act in unison, the balance levers E, each connected by rods e to one of the doors and tending to close the same, substantially as set forth. 3rd. In a chimney top, the combination, with the housing A, of doors C adapted to nearly close said end and hinged horizontally at the bottom of said opening, the shaft D supporting balanced levers, the weighted levers E connected to said doors, substantially as set forth.

No. 29,187. Automatic Feed Regulator for Roller Mills and Purifiers. (Régulateur automatique de l'alimentation des moulins à blé et des épurateurs.)

George R. Davidson, Brockway, Mich., U.S., 19th May, 1888; 5 years.

Claim.—1st. In a feed regulator, the combination, with the feed roller and feed hopper, of a feed gate held in said hopper, and resting with its bottom against the said roller, slotted arms on which said feed gate is held adjustably, and pivoted arms extending from said slotted arms to form a fulcrum, the said slotted arms having their bearings in the sides of said hopper, substantially as shown and described. 2nd. In a feed regulator, the combination, with a feed gate, of slotted arms on which said gate is held adjustably, pivot arms extending from the said slotted arms and forming the fulcrum for said feed gate, a lever arm secured to one of the pivot arms, a spring connected with said lever arms, and means, substantially as described, for adjusting the tension of said spring, as set forth.

No. 29,188. Under Garment. (Sous vêtement.)

Jeremiah A. Scriven, New York, N.Y., U.S., 19th May, 1888; 5 years.

Claim.—An under garment, consisting of the body A, and the laterally and longitudinally elastic knitted insertions B between the longitudinal sections of the body A, the said insertions being more elastic than the body A, as specified.

No. 29,189. Imperishable Fuel Cartridge.

(Cartouche combustible indestructible.)

William H. E. Whiting, London, Ont., 19th May, 1888; 5 years.

Claim.—1st. A perforated case, formed with a handle E, in combination with a porous absorbent fire-proof filling, consisting of the combination of silicate and asbestos, substantially as and for the purpose set forth. 2nd. A perforated body C and perforated caps D, D'

formed with flanges d, bolt B and handle E, in combination with a fire-proof absorbent filling, substantially as and for the purpose set forth. 3rd. In combination with a receptacle K, a perforated case formed with a handle E, and having a fire-proof absorbent filling, substantially as and for the purpose set forth. 4th. In combination with an extinguisher A, a perforated case formed with a handle E and having a fire-proof absorbent filling, substantially as and for the purpose set forth.

No. 29,190. Furniture Side Spring.

(Resort de côté de sommier.)

Samuel K. Butterfield, Swanton, Verm., U. S., 19th May, 1888; 5 years.

Claim.—1st. A side spring to connect the spiral springs used in furniture, consisting of a simple piece of wire bent to form the loops b, b, and l, by which three of the spiral springs may be held in position, substantially as herein shown and described. 2nd. The combination of the spiral spring commonly used in furniture construction, with a side spring having the central loop a, intermediate loops b, b, main branches d crossing each other, and having the loops c, c formed in them near their ends, substantially as shown and for the purpose set forth.

No. 29,191. Art or Process of Producing Uncolored or Colored Photographic Impressions. (Mode ou procédé de production des impressions photographiques en taille douce ou colorées.)

John J. E. Mayall, Southwick, Eng., 19th May, 1888; 5 years.

Claim.—1st. The process of producing uncoloured photographic impressions, consisting of a bath to first soak the paper in, composed of gelatine and lactate of iron, a bath to float the paper on, composed of albumen, chloride of sodium, bromide of potassium, glacial acetic acid, and a derivative of silicic acid, a sensitizing bath, composed of nitrate of silver, nitrate of soda and free ammonia, the means for rendering the film slightly alkaline, consisting of fumigating the paper in an atmosphere of ammonia, and a weak solution of sulphuric acid to soak the print in, to expel all traces of the hypo-sulphite, in about the proportions stated and as described. 2nd. The process of producing colored photographic impressions, consisting of a bath to first soak the paper in, composed of gelatine and lactate of iron, a bath to float the paper on, composed of albumen, chloride of sodium, bromide of potassium, glacial acetic acid, a derivative of silicic acid, and coloring matter previously dissolved in a mixture of alcohol and moonin, a sensitizing bath, composed of nitrate of silver, nitrate of soda and free ammonia, the means for rendering the film slightly alkaline, consisting of fumigating the paper in an atmosphere of ammonia, a weak solution of sulphuric acid to soak the print in to expel all traces of the hypo-sulphite, attaching the print in a moist state on a sheet of glass or skeleton frame, face uppermost, and, when dry, dabbing on coloring matter, previously prepared with phenoic acid, silicate of potash and silicate of potash in alcohol, the means for rendering the paper impervious to moisture, consisting of the application of white wax, paraffin or camphor to front and back of the paper, the means for setting the color, consisting of an atmosphere charged with a weak alcoholic solution of salicylic acid, derivative of silicic acid, or a preparation of fluorine, dissolved in alcohol sprayed over the pictures, and afterwards applying finely powdered soluble glass, and the means for finishing the picture, consisting of a plate of glass coated with collodion, mixed with salicylic acid, and, when dry, re-coated with gelatine and salicylic acid, moistening the print with a mixture of hydro-carbon and salicylic acid, laying the print upon the prepared surface of the glass face downwards, well pressed down and allowed to dry in a warm atmosphere, all substantially as hereinbefore described. 3rd. In the process of producing photographic impressions, the means for preparing the paper, consisting of the combination of a bath to first soak the paper in, composed of gelatine and lactate of iron, and a bath to float the paper on, composed of albumen chloride of sodium, bromide of potassium, glacial acetic acid and a derivative of silicic acid or hydrocarbon, in about the proportions stated.

No. 29,192. Suspender Buckle.

(Boucle de bretelle.)

Albert F. R. Arndt, Detroit, Mich., U.S., 19th May, 1888; 5 years.

Claim.—1st. As a new article of manufacture, a buckle struck of sheet metal in one piece, as described, and consisting of three parallel transverse bars, connected at their ends by longitudinal bars bent in planes at right angles to the transverse bars of a loop, integrally formed with one of the outer transverse bars, and serrations or teeth formed integrally upon the transverse bar at the other end, substantially as described. 2nd. The combination, in a suspender buckle, of the frame struck up in one piece, as described, and consisting of the bars A, B, C, connected at their ends by the bars D, E, to form two slots a, b, the loop f formed on the bar C, the teeth G formed on the bar A and the hooked wire spring loop H, all substantially as described.

No. 29,193. Combined Extension Ladder and Hose Carriage. (Voiture à échelle à rallonge et à boyaux.)

Charles B. Schumaun, South Norwalk, Conn., U. S., 19th May, 1888; 5 years.

Claim.—1st. The frame work and ladder carrier, in combination with a lifting lever pivoted to the frame work, whose forward end bears against the ladder carrier at a distance from its pivotal point, a rope 10 attached to the rear end of said lever, and a winding drum for the rope, whereby, when said rope is wound, the rear end of the lifting lever is drawn down and the forward end raised, thereby lifting the ladder carrier. 2nd. The ladder carrier, the pivoted lifting

lover and rope 10, in combination with a winding drum for said rope, and a pawl and ratchet to prevent backward movement of the drum. 3rd. The combination, with the ladder carrier, the lifting lever rope 10 and the winding drum, of castings 3, to which the ladder carrier is attached, and which are provided with racks 2, and winding pinions engaging said racks, whereby the ladder carrier may be raised to any desired position. 4th. The combination, with the ladder carrier, the lifting lever, rope 10, the winding drum and roller 11, of castings 3 to which the ladder carrier is attached, and which are provided with racks 22 and winding pinions engaging said racks. 5th. The combination, with the ladder carrier, the lifting lever, rope 10 and the winding drum of castings 3, to which the ladder carrier is attached, and which are provided with racks 22, winding pinions engaging said racks and pawls and ratchets, whereby backward movement of the ladder carrier is prevented. 6th. The combination, with castings 3, having racks, winding pinions engaging said racks, the ladder carrier secured to the castings, and lifting mechanism, substantially as described, of slides 23 and 24, winding drum 25, ropes extending from said drums, passing over pulleys and connected to the rear end of slide 23, and ropes 32, one end of each of which is connected to the ladder carrier, passes thence over a pulley on slide 23, and is connected to the rear end of slide 24, whereby, when ropes 29 are wound, said slides are extended. 7th. The combination, with the ladder carrier and slides 23 and 24, of winding drums 25 and ropes 29 and 32, substantially as described. 8th. The combination, with castings 3, lifting mechanism, substantially as described, and brace 7, of slides 23 and 24, ropes 29 and 32, and winding drums 25. 9th. Shaft 4, castings 3 rigidly attached thereto, and the ladder carrier secured to the castings, in combination with slides 23 and 24, ropes 29 and 32 for extending said slides, shaft 26 carrying winding drums 25 for ropes 29, and a hose reel journalled on shaft 26. 10th. The ladder carrier slides 23 and 24, and rungs 42 at the outer end of slide 24, in combination with ropes 29 and 32 and winding drums 25. 11th. The ladder carrier slides 23 and 24, and rungs 42 on slide 24, in combination with a hose reel journalled at the lower end of the ladder carrier, the hose and nozzle, and a catch 44 for securing the latter to the rungs. 12th. The ladder carrier and slides 23 and 24, in combination with sprocket wheel 63 journalled at the outer end of slide 24, sprocket wheels 70 journalled at the inner end of the ladder carrier, and a flexible ladder carried by said sprocket wheels. 13th. The combination, with the ladder carrier and slides 23 and 24, of sprocket wheels 65 and 70, a flexible ladder and a rope 76 connected to the outer end of the ladder, as and for the purpose set forth. 14th. The herein described jointed ladder, consisting of parts 56 having hooks, and parts 57 having rings, both of said parts having eyes at their other ends, rungs 61 over the opposite ends of which the loops of a part 56 and a part 57 are passed, and screws engaging the ends of said rungs, whereby the parts are held in place. 15th. The combination, with the ladder carrier and sprocket wheels 65 and 70, of an endless ladder, consisting of rungs 61, and alternate parts 56 and 57, provided with hooks and rings, so that a double ladder of any desired length passing over said sprocket wheels may be formed by adding or removing links and connecting the opposite ends. 16th. The combination, with the ladder carrier and the table upon which it is journalled, of a shaft 46 to which the table is rigidly secured, gear 53 upon said shaft, and a pinion engaging said gear, whereby the table may be rotated to place the ladder carrier in any desired position. 17th. The table shaft 46, gear wheel 53 and supporting wheel 50, in combination with pinion 54 and rollers 61, against which the supporting wheel bears. 18th. The table shaft 46 and gear 53, in combination with housing 45, rollers 47, upon which the table rests, and rollers 48 carried by the table which bear against the outer side of the housing. 19th. The housing having rollers 47 and 51, in combination with shaft 46 carrying the table, and having gear wheel 53, and supporting wheel 50 engaging rollers 51, and a pinion 54 engaging the gear wheel. 20th. The combination, with the ladder carrier and slides 23 and 24, of dovetails 37 on the ladder carrier and slide 23, and grooves in both slides having rollers 38, which engage the dovetails, and ropes 29 and 32, arranged as described, whereby the slides are extended. 21st. The combination, with the ladder carrier having cross pieces 26, of the hose reel and hose, and longitudinal strips 39 secured to the cross pieces by which the hose is supported. 22nd. The combination, with the ladder carrier slides 23 and 24 and ropes 29 and 32, by which they are extended, of sprocket wheels 65 and 70, pawls and ratchets to hold wheels 65 against backward movement, and a flexible ladder carried by said sprocket wheels, whereby, when sprocket wheels 70 are turned backward, the ladder may be drawn inward to return the slides to their normal position. 23rd. The ladder carrier and slides 23 and 24, in combination with sprocket wheels at the outer end of slide 24, sprocket wheels at the inner end of the ladder carrier, a continuous chain carried by said sprocket wheels, and friction pulleys 71 and straps 72, whereby the movement of the chain is controlled when used as a fire-escape. 24th. The ladder carrier slides 23 and 24 and ropes 29 and 32, in combination with sprocket wheels 65 and 70, an endless ladder passing over said sprocket wheels, a pawl and ratchet to prevent backward movement, friction pulleys upon the shaft of wheels 70, straps engaging said pulleys, and levers to operate the straps to control the movement of the ladder. 25th. The ladder carrier, slides and sprocket wheels, in combination with an endless ladder carried by the sprocket wheels, braces 79 and 81, and rollers 77 and 82. 26th. The combination, with the table, ladder carrier and slides, of turning mechanism, substantially as described, arms 87 pivoted to the frame-work, and a vertical brace 88 engaging the outer ends of arms 87, whereby the machine is prevented from upsetting when the slides are thrown out. 27th. The combination, with the table, ladder carrier, and slides, of an endless ladder, sprocket wheels by which it is carried, pawls and ratchets for preventing backward movement, friction pulleys and straps for controlling the forward movement, and pulleys 77 and 82 for guiding the ladder. 28th. The combination, with the table, ladder carrier slides and endless ladder, of brace 79 secured to the table and carrying sliding bearings 80, brace 81 engaging said block, and a roller 82 carried by sliding bearings 83 upon said brace over which the ladder passes, substantially as described. 29th. The combination, with the table, ladder carrier and slides, of an endless ladder and a brace 35 for supporting the parts in use. 30th. The ladder carrier, rack, pinion and lifting lever for raising it, the slides having rollers 38, and the sprocket wheels, in

combination with an endless ladder carried by the sprocket wheels, and pawls, ratchets and friction straps, whereby its movement is controlled when used as a fire-escape. 31st. Shaft 46 and the table carried thereby, in combination with a pinion and gear for turning the table, and the ladder carrier, slides and endless ladder carried thereby. 32nd. The ladder carrier, slides and endless ladder, in combination with castings 3 to which the ladder carrier is attached, and which is provided with racks 22, and lifting lever 9, rope 10 and pinion 21, whereby the ladder carrier may be raised to any desired position. 33rd. The table, ladder carrier, slides and ladder, in combination with the lifting lever, rope 10, and racks and pinions for raising the ladder, and a pinion and gear for rotating the table, substantially as described. 34th. Shaft 4, the ladder carrier, slides and ladder, in combination with lifting lever rope 10, winding drum 13, a pawl and ratchet to prevent backward movement of said drum, racks 22 on shaft 4, pinions engaging them, and racks and pinions to hold said shaft against backward movement. 35th. The table, and a rack and pinion for turning it, and the ladder carrier journalled on said table, in combination with a lifting lever and rope, and racks and pinions for raising the ladder carrier, substantially as described.

No. 29,194. Anchor. (*Ancre*.)

Charles E. Best, Jordan, N.Y., U.S., 19th May, 1883, 5 years.

Claim.—1st. An anchor composed of a hollow shank, a head on one end of said shank, flukes pivoted on said head and adapted to swing forward, and a bolt sliding in the shank and through the head, and adapted to lock the flukes in their distended position, as specified. 2nd. In an anchor, the combination of a hollow shank, a head secured to one end of said shank, and having a channel extending through it in line with the shank, flukes hinged on the head to swing forward thereon, and provided with heel extensions, a bolt sliding in the channel of the head, and adapted to enter between the ends of the aforesaid heel extensions, a spring in the shank forcing the bolt outward, and a cord or wire connected to the bolt for withdrawing the same from between the heel extensions of the flukes substantially as described and shown. 3rd. The combination of the shank A, screw-threaded at its ends, and provided with the stop o, the cap B screwed onto one end of the shank, and provided with the bale b and eye e, the head C screwed onto the opposite end of the shank, and provided with the channel h, ears d, d, d, and shoulders t, t, t, the flukes f, f, f, hinged on said ears and provided with heel extensions s, s, s, the bolt i, provided with the head l, the spiral spring n interposed between the stop o and bolt head l, and the cord or wire u connected to the inner end of the bolt, and extended through the eye e of the cap, all constructed and combined substantially as described and shown.

No. 29,195. Portable Caisson. (*Caisson portatif*.)

Henry P. Kirkham, Brooklyn, N.Y., U.S., 19th May, 1883, 5 years.

Claim.—1st. In a caisson consisting of three water-tight compartments, separated by water-tight partitions, provided with windows and tubular flexible arm sections, which terminate in mittens or gloves, whereby an operator may make repairs, as and for the purpose described. 2nd. In a subaqueous caisson, flexible tubular and gloved arm sections fixed permanently to the caisson, combined with a window located and constructed to permit the operator to guide his arms in said tubular sections, as and for the purpose described. 3rd. In combination in a subaqueous caisson, a middle compartment of less length, than the compartment on each side of the same, whereby a space E without a bottom is formed, which enables the caisson to straddle a projecting object, as and for the purpose described. 4th. In combination, a subaqueous caisson, constructed with convex and concave sides, with the means hereinbefore described for operating said caisson, as and for the purpose described. 5th. A subaqueous caisson constructed with a concave or recessed side to receive within it such projecting part, or parts, as need repairs, and bring the same within reach of the operator in the caisson, substantially as and for the purpose described.

No. 29,196. Colour Printing Machine.

(*Machine d'impression en couleurs*.)

Dunbar D. Muter, John G. Meiggs and Lloyd S. Baxendale, London, (assignees of William Conisbee and Thomas S. Conisbee, Lambeth.) Eng., 19th May, 1883, 5 years.

Claim.—1st. In a colour printing machine, a table for supporting a colour block, in combination with means for automatically adjusting same, to compensate for consumption and consequent reduction in thickness of said block. 2nd. In a colour printing machine, the combination of a table for supporting a colour block, a cylinder adapted to roll in contact with, and to remove colour from a colour block on said table, and means for adjusting said table in relation to said cylinder, to compensate for consumption and consequent reduction in thickness of said colour block. 3rd. In a colour printing machine, the combination of a table for carrying a colour block that is consumed during printing, a cylinder for carrying material to be printed, and a transfer cylinder for transferring to said material colour from said colour block. 4th. In a colour printing machine, the combination of a table for carrying a colour block that is consumed during printing, means substantially as herein described for automatically adjusting the height of said table, to compensate for consumption and consequent reduction in thickness of the colour block, a transfer cylinder arranged to roll in contact with the colour block, and remove colour therefrom, and a cylinder for carrying material to be printed and press the same in contact with said transfer cylinder, for the purposes set forth. 5th. In a colour printing machine, the combination of a table for supporting a colour block, means substantially as herein described, for automatically adjusting the height of said table, a second table for carrying a key block or a second colour block, a transfer cylinder adapted to roll in contact with said first mentioned colour block, and also with said key block, or with said second colour block, and to remove colour therefrom, and a cylinder for carrying the material to be printed in contact with said transfer cylinder so as to receive colour therefrom, for the pur-

poses set forth. 6th. In a colour printing machine, the combination of a table for supporting a colour block, means substantially as herein described, for automatically adjusting its height, a table for carrying a key block, means substantially as described, for reciprocating said tables, mechanism for inking said key block, a transfer cylinder arranged to roll in contact with said colour block, and with said key block, and remove colour and ink respectively therefrom, and a cylinder for carrying the material to be printed in contact with said transfer cylinder, substantially as herein described. 7th. In a colour printing machine, the combination, with a table for carrying a colour block, means for reciprocating said table, a transfer cylinder arranged to roll in contact with said cylinder, and a cylinder for carrying the material to be printed, of stop and brake mechanism, substantially as herein described, for keeping the cylinder that carries the material to be printed stationary during rotary motion of said transfer cylinder in one direction, substantially as herein described for the purposes set forth. 8th. In a colour printing machine, the combination, with a box or coffin 6-7, and means, substantially as herein described, for reciprocating the same, of one or more tables, such as 9, each adapted to carry a colour block, and mechanism, substantially as herein described and shown in the drawings, for automatically adjusting the height of said table and colour block during printing, for the purposes set forth. 9th. In a colour printing machine, the combination of a double box or coffin 6-7 adapted to carry one or two colour blocks, or a colour block and a key block, means, substantially as herein described, for reciprocating said box or coffin, means, substantially as herein described, for automatically adjusting the height of said colour block, or blocks, a transfer cylinder 25 operated from said box or coffin, and adapted to roll in contact with said colour block or blocks, or with said colour block and key block, and a cylinder 31 adapted to carry the material to be printed and to be operated in one direction only from said transfer cylinder, all substantially as herein described for the purposes set forth.

No. 29,197. Lawn Mower. (*Faucheuse de pelouse.*)

Henry Watermolen, (assignee of John F. Watermolen), Green Bay, Wis., U.S., 19th May, 1888, 5 years.

Claim.—1st. In a lawn mower, the chambered plate K formed with the hollow side extension K¹ forming the bearings for the shaft L, and formed with the partition *a* in which one end of the counter-shaft N¹ takes a bearing, in combination with the chambered plate J² secured to the plate K, and both placed loosely upon the sleeve *c* of the clutch block C, substantially as described. 2nd. In a lawn mower, the side piece J¹ formed with the dish extension J², and the housing K formed with the extension K¹ and partition *a*, and secured to the dish extension, and said dish extension and housing being apertured for passage of the axle, and serving to support and include the driving-gearing, substantially as herein shown and described. 3rd. In a lawn mower, the combination of the axle, a sleeve therein provided with the gear M, the cutting mechanism, the counter shaft geared with the axle, the crank shaft geared with the counter shaft, and the gearing support formed of the sections rigidly united, one section being formed with the extension K¹ having the partition *a* for one of the journals of the counter-shaft, the whole being loosely mounted on the sleeve of the axle, and inclosing the gears N, N¹, O, P, substantially as herein shown and described.

No. 29,198. Combination Lock.

(*Serrure à combinaison*)

Heber C. Griffin, Franklin Falls, and Edward H. Sturtevant, Franklin, N.H., U.S., 19th May, 1888, 5 years.

Claim.—1st. In a combination lock, the combination, with a rotary arbor, the fast and loose tumblers carried thereby, and having the radial slots, and a sliding locking bolt, of a rotary index provided with a notched periphery and fixed to and rotating with the arbor, and arranged thereon to one side of the tumblers, and out of the path of the locking bolt, and a vibrating detent normally in contact with the notched periphery of the index, to impart a slight shock thereto, and to the arbor to be plainly felt by the operator, substantially as described and for the purpose set forth. 2nd. In a combination lock, the combination of the operating arbor, a longitudinally movable knob attached thereon, and a spring for holding said movable member in its normal position. 3rd. In a combination lock, a rotary arbor, the fast and loose tumblers thereon, having the radial slots, and a sliding bolt, in combination with a rotary notched index carried by the shaft, and arranged thereon out of the path of the locking bolt, and a vibrating detent comprising the coiled spring, the arm extending outwardly from the spring, and the lip at the free end of the arm, and normally in contact with the notched periphery of the index, substantially as described and for the purpose set forth. 4th. In a combination lock, the lock housing having a lug or stop piece located on one side, near the operating arbor, the said arbor, a knob or handle piece for rotating the same, capable of longitudinal movement thereon, and provided with a slot adapted to engage the said stop lug of the lock housing, and a suitable spring, whereby said movable knob is held normally clear of the said stop lug, all combined with the rotary tumblers, the notched index and the spring detent, and operating substantially for the purpose set forth.

No. 29,199. Artificial Production of Ice.

(*Production artificielle de la glace*)

Joseph Major, Valleyfield, Que., 22nd May, 1888, 5 years.

Claim.—A freezing mixture of broken or granulated ice, chloride of sodium and alum, in the manner and proportions described for the purpose set forth.

No. 29,200. Appliance for Breaking Loose or Splitting all Kinds of Minerals. (*Machine à concasser ou fendre toute espèce de minéraux.*)

Enoch Mould, White Barr, near Newcastle, Eng., 22nd May, 1888, 5 years.

Claim.—1st. In bore holes of mine cuttings, the application and use of wedges *d, d*, capable of being driven in lateral directions by other wedges *e, e*, such last mentioned wedges receiving longitudinal motion *b, b* means of screws *g, g*, upon which the wedges *e, e* are threaded, substantially as and for the purpose described. 2nd. In appliances for breaking down minerals, as aforesaid, the application and use of hydraulic power to drive the wedges, substantially as hereinbefore described.

No. 29,201. Paper Bag. (*Sac de papier.*)

William A. Lorenz, Hartford, Conn., U.S., 22nd May, 1888, 5 years.

Claim.—A paper bag, the sides of which are inwardly tucked, and the mouth of which is provided with the inwardly pointing triangular folds *E*, and the downwardly directed cross-fold *F*, all substantially as described.

No. 29,202. Paper Bag. (*Sac de papier.*)

William A. Lorenz, Hartford, Conn., U.S., 22nd May, 1888, 5 years.

Claim.—A paper bag, the mouth of which is provided with the outwardly pointing triangular folds *E*, and the downwardly directed cross fold *F*, all substantially as described.

No. 29,203. Potato Digger.

(*Scarificateur à patates.*)

James Leo, Danbury, Iowa, U.S., 22nd May, 1888, 5 years.

Claim.—1st. The combination, in a potato digger, of the plough having the inclined mould-board *J*, the rotating shaft *Y* arranged at the rear end of the mould-board, and having the fingers *A¹*, for the purpose set forth, and the downwardly inclined independent screen bars trailed in rear of the machine, having their upper ends pivoted and on which the potatoes are thrown by the fingers *A¹*, as described and shown. 2nd. The combination, in a potato digger, of the plough or scoop, the rotating shaft *Y* arranged at the rear end thereof, and having the fingers *A¹*, the transverse bar arranged in rear of the said shaft, and the independent screen bars having the front ends pivoted to the said transverse bar, the lower ends of said bars being adapted to drag on the ground, substantially as specified. 3rd. The combination, in a potato digger, of the plow beams, the standards *L, K* depending therefrom, the landside plates *G* attached to the lower ends of said standards, the braces *L, M*, arranged transversely between, connecting and extending upward above the said landside plates, and the inclined mould-board attached to the front ends of the landside plates, and having its rear portion supported upon and secured to the braces *L, M*, substantially as described. 4th. The combination, in a potato digger of the plough, the driving shaft *O* arranged under the mould-board, the peripheral spurs *R*, the shaft *U* arranged under the mould-board, having the gear wheel *X* at one end and provided with the sprocket wheel connected to a similar sprocket wheel on the shaft *U* by a sprocket chain, the shaft *Y* arranged at the rear end of the mould-board, and having the arms of the fingers *A¹*, and the pinion attached to the shaft *Y*, and meshing with the wheel *X*, the transverse bar in rear of shaft *Y* and the independent screen bars or fingers having their upper ends pivoted to the said bar and their lower ends trailing on the ground, substantially as described.

No. 29,204. Cigar Rolling Machine.

(*Machine à rouler les cigares.*)

Oscar Hammerstein, New York, N.Y., U.S., 22nd May, 1888, 5 years.

Claim.—1st. In a cigar rolling machine, the point receiving thimble *D*, constructed with the movable portion *d*, substantially as and for the purpose herein shown and described. 2nd. In a cigar rolling machine, the point receiving thimble *D*, constructed with the movable portion *d*, having knife *h* attached thereto, substantially as and for the purpose herein shown and described. 3rd. The combination of the sliding shaft *I*, with the swivelled sleeve *M*, with the pivoted block *o* which it carries, the pivoted finger *J* carried by the block *o*, and with the forming rolls *C, E*, and *F*, substantially as for the purpose herein shown and described. 4th. The combination of the wrapper table *B*, of a cigar rolling machine, with the independently movable plate *L* placed on top of said table, substantially as and for the purpose herein shown and described. 5th. The sectional thimble *D*, combined with two movable knives, as described. 6th. The sectional thimble *D*, having movable part *d* combined with the eccentric *e¹* for reciprocating the part *d*, substantially as described. 7th. The sectional thimble *D*, having movable part *d*, combined with the lever *a¹*, link *b¹*, eccentric *e¹*, shaft *f¹*, and means, substantially as described, for turning said shaft *f¹*, as specified. 8th. The combination, with the thimble *D*, having movable part *d*, of the lever *a¹*, link *b¹*, eccentric *e¹*, shaft *f¹*, clutch *g¹*, *h¹*, shaft *i¹* and sliding shaft *i¹* geared to the shaft *i¹*, substantially as described. 9th. The combination of the thimble *D*, having movable part *d* and lever *a¹*, with the sliding shaft *I*, rod *n¹* and cam *o¹* on the rod *n¹*, substantially as described.

No. 29,205. Potato Digger and Separator Combined. (*Scarificateur et trieur à patates.*)

Isaac W. Hoover, Avory, Ohio, U.S., 23rd May, 1888, 5 years.

Claim.—1st. The journal box *W*, the sprocket wheel keyed to the shaft *S*, and flanged sleeve *b* extending from the said sprocket wheel and inclosing the journal box, in combination with a potato digger, as and for the purpose substantially as described. 2nd. In a combination with a potato digger, the screens *d* and *e* extending from the head *r*, one above the other, the upper screens arranged to curve around and discharge the refuse at the side of the machine, and the lower one having its side rods higher from the ground than the central rods, forming a convexity in the upper line or face of the screens *e*, to cause a central discharge therefrom, substantially as and for the purpose set forth. 3rd. The combination, with a potato digger, of the

screens *d, e*, arranged with the screens *d*, curved around to the side of the machine, and the lower screen *e* having the rods extending longitudinally with the central one thereof in proximity to the ground and the side ones gradually rising therefrom to form a converging screen from the sides to the centre, co-operating in connection with vibrating screen frame and rakers *f, g*, by the means and in the manner substantially as and for the purpose set forth. 4th. In combination with a potato digger and separator, of a pawl and a ratchet mechanism, in connection with the lever *h* link *r* and standard *q*, arranged to operate in conjunction with the hinged separator frame, and screen frame *n* having screens *e*, essentially as and for the purpose set forth. 5th. The truck, *l* having a jointed connection with the frame of the machine, by means of the lever *G* with the brace arms *E*, and pawl and ratchet attached to the said lever and frame, and having mechanism for raising and lowering the scoop to and from the ground, in combination with the potato digger and separator, substantially as and for the purpose described.

No. 29,206. Artificial Stone or Cement.

(*Pierre ou ciment artificiel.*)

Isaac Lichtentag, New Orleans, La., and Edward E. Richard, Mobile, Ala., U.S., 23th May, 1883; 5 years.

Claim.—The herein described composition of matter for the purpose specified, consisting of saccharine, air slacked lime (common or hydraulic), sand and water, in the proportion specified.

No. 29,207. Railway Track Cleaner.

(*Grattoir de voie de chemin de fer.*)

Thomas Temple, Fredericton, N.S., 26th May, 1883; 5 years.

Claim.—A railway track cleaner consisting of an arm *A* having toothed sectional plates *E*, secured thereto by bolts *a*, as set forth.

No. 29,208. Steam Tricycle. (*Tricycle à vapeur.*)

Lucius D. Copeland, Camden, N.J., U.S., 23th May, 1883; 5 years.

Claim.—1st. In a steam tricycle, the combination, with the backbone or tubular frame-piece *A*, boiler *F* and engine *G*, of pipes passing through said backbone or tubular frame-piece, and exhaust discharging into the latter, whereby said backbone or frame-piece forms a heater for the water and oil, substantially as shown and described. 2nd. In a steam tricycle or riding vehicle, the combination, with its engine and feed water tank, of a pipe *m*, which conveys the engine exhaust to such tank, said pipe entering at or near the top of said tank, passing around by the side of the latter, and discharging near the top or above the surface of the feed water, substantially as described. 3rd. In a steam tricycle or riding vehicle, the combination, with the engine valve, eccentric, and brake thereof, of intermediate connections between said eccentric and the brake lever, whereby, when the brake is put on and thrown off, the eccentric will be moved to vary the cut-off, substantially as shown and described. 4th. In a steam tricycle or riding vehicle, a tubular frame forming a receptacle for oil or liquid fuel, for a burner for a steam boiler on said vehicle, substantially as shown and described.

No. 28,209. Steam Engine. (*Machine à vapeur.*)

Lucius D. Copeland, Camden, N.J., U.S., 23th May, 1883; 5 years.

Claim.—1st. The combination, with an engine, of a casing comprising a tubular part which incloses the piston rod and forms a guide for the piston cross-head, another tubular part which incloses the valve rod and forms a guide for the valve cross-head, and the part which incloses the crank shaft and forms bearings therefor, said three parts being communicating and separable, substantially as shown and described. 2nd. The combination, with an engine, of an inclosing casing comprising the separable parts *I, K, L* and *M*, substantially as shown and described.

No. 29,210. Steam Boiler. (*Chaudière à vapeur.*)

Lucius D. Copeland, Camden, N.J., U.S., 23th May, 1883; 5 years.

Claim.—1st. The combination, with the main cylinders *A* and *B*, and conical joining section *C*, of the multiple cylinders *D, E*, etc., located in said main cylinder *A*, and having fire-tubes and drop water-legs or pendant tubes, which extend down into said main cylinder *B*, the latter forming a fire or heating chamber, substantially as shown and described. 2nd. In a steam boiler or generator, the combination, with a surrounding casing, of a central cylinder and other cylinders surrounding it, each of said surrounding cylinders having fire flues and drop water tubes, and having steam and water connections with the central cylinder, the latter having fire flues and a steam exit, substantially as shown and described. 3rd. In a steam boiler or generator, the combination, with an encasing shell, of multiple cylinders located in one section or half thereof, and having water-legs or pipes extending into the other section or half, said cylinders being arranged with one in the centre, and the others surrounding and communicating with it, said cylinders having fire tubes, substantially as described.

No. 29,211. Fire-Escape. (*Sauveteur d'incendie.*)

William Bruce, Wellsville, N.Y., U.S., 23th May, 1883; 5 years.

Claim.—1st. In a fire-escape, the combination of the window pulleys, the endless rope, the two baskets secured thereto on opposite sides, and the ground pulleys secured to a suitable support. 2nd. In a fire-escape, the combination of the window pulleys having the end hooks, the eyes secured at the window, the lower pulley frame having the grooved end pulleys and the end brakes or drags, and adapted to be secured to a suitable support, and the endless rope having two baskets secured to it on opposite sides, substantially as set forth. 3rd. In a fire-escape, the combination of the window pulleys having the end hooks, the eyes secured at the window, the lower pulley frame having the grooved end pulleys, the eyes at the rear ends of its end

blocks, and end brakes or drags, the stationary frame having the curved rack, the movable frame hinged at its lower end upon the stationary frame, and having the front eyes near its upper ends, the lever, the connecting rods and the endless rope having two baskets secured to it on opposite sides, substantially as set forth. 4th. In a fire-escape, the combination of the window pulleys having the end hooks, the iron bar having the eyes, the lower pulley frame having the grooved end pulleys, the eyes at the rear end of its end blocks, and the end brakes or drags having the small grooved wheels journalled in their inner ends, the stationary frame having the curved rack, the movable frame hinged upon the stationary frame and having the front eyes near its upper end, the lever, the connecting rods hinged at their ends, and the endless rope having the two baskets secured to it on opposite sides, substantially as set forth. 5th. In a fire-escape, the combination of the window pulleys, the endless rope having the two baskets secured upon it on opposite sides, the lower pulley frame having the grooved end pulleys, and the eyes at the rear ends of its end blocks, the stationary frame having the curved rack, the hinged frame having the front eyes, and a ratchet lever, and connecting rods, substantially as set forth.

No. 29,212. Fire-Escape. (*Sauveteur d'incendie.*)

William Bruce, Wellsville, N.Y., U.S., 23th May, 1883; 5 years.

Claim.—1st. In a fire-escape, the combination with the escape basket, of the automatic gripping device consisting of four pieces or forks pivoted together at their meeting ends by toggle connections or joints, and having its two upper jaws pivoted together where they cross each other, and their meeting edges above this upper pivot toothed or serrated, one of the jaws being longer than the other and provided with a hooked or curved end. 2nd. The combination of the escape basket or chair, the automatic gripping device, one of the upper jaws of said gripping device being provided with a shoulder or lug, and the spring catch secured to one of the upper jaws of the gripping device, and having its free bent end adapted to engage the shoulder or lug on the opposite jaw. 3rd. In a fire-escape, the combination, with the escape basket consisting of the side and back ropes, and bottom or base-piece, of the front rope-guard having the snap-hooks on the ends thereof, adapted to engage rings or eyes in the side ropes of said basket. 4th. The combination of the adjustable cross-bar having central eye, the pulley block provided with a hook adapted to engage said central eye, the inclined endless rope, the escape basket or chair, the street frame provided with inclined standards or uprights having U-shaped grooves in their upper ends, and the axle or shaft carrying a deeply grooved wheel rigidly secured thereto, said axle having its ends resting in the U-shaped grooves of the inclined uprights. 5th. The combination of the adjustable cross-bar having central eye, the pulley block provided with a hook adapted to engage said central eye, the inclined endless rope, the escape basket or chair, the street frame provided with inclined standards or uprights having U-shaped grooves in their upper ends, the axle or shaft carrying a deeply grooved wheel rigidly secured thereto, and having its ends grooved, said grooves adapted to fit in the U-shaped grooves of the slanting uprights or standards. 6th. The combination of the adjustable cross-bar having central eye, the pulley block provided with a hook adapted to engage said central eye, the inclined endless rope, the escape basket or chair, the street frame provided with inclined standards or uprights having U-shaped grooves in their upper ends, the axle or shaft carrying a deeply grooved wheel rigidly secured thereto, said groove being provided with corrugations. 7th. In a fire-escape of the described class, the combination of the lower frame having a shaft carrying a deeply grooved wheel mounted thereon, the curved frictional band having one end suitably secured to said frame, and the shoe or treadle connected to the lower end of said curved friction band and having its other end hinged to the base of the frame. 8th. In a fire-escape of the described class, the combination of the lower frame, the shaft carrying a deeply grooved wheel mounted thereon, and provided with a metallic unad groove between the wheel and one end of the slanting uprights of the frame, the curved friction band having one end suitably secured to said frame, and adapted to pass over and in said metallic lined groove, and the shoe or treadle connected to the lower end of said curved friction band and having its other end hinged to the base of the frame.

No. 29,213. Fire-Escape. (*Sauveteur d'incendie.*)

William Bruce, Wellsville, N.Y., U.S., 23th May, 1883; 5 years.

Claim.—1st. The combination, of the upright or standard provided with a hook, and pulley blocks secured thereto, the short beam spiked or otherwise secured to the ground, and provided with a hook or eye, a pulley block and a roller, the stationary rope having one end secured to the hook in the standard, and the other end secured to the eye or staple in the short beam, the escape basket or car provided with a pulley block, the sheave or pulley thereof sliding upon the stationary inclined rope, said pulley block being provided with a hook or eye, the operating rope passing over the sheaves or pulleys arranged within the pulley blocks secured to the upright or standard, one end of said rope being attached to the hook or eye in the pulley block of the basket, and the other end passing through a pulley upon the short beam, and thence over a roller upon said beam, and the projecting shed or cover, substantially as and for the purpose shown and set forth. 2nd. The combination of the window casing or frame, provided on opposite sides with screw eyes, the cross-bar having bent ends, the inclined beam provided with a hook and pulley blocks, the eye bolts passing through said inclined beam, and having their ends screw threaded so as to receive locking-nuts, the street frame or beam provided with a hook or eye, a pulley block and a roller, the stationary rope, the escape basket or car provided with a pulley block, said block having an eye or hook, and the operating rope, substantially as and for the purpose shown and set forth.

No. 29,214. Combination Stove.

(*Poêle à combinaison.*)

James H. Horrick, London, Ont., 23th May, 1883; 5 years

Claim.—1st. The curved front oven plate *C* in combination with a

stove, substantially as and for the purpose set forth. 2nd. The draft openings E in combination with a stove, substantially as and for the purpose set forth. 3rd. A damper D formed with openings *d*, in combination with a plate B formed with openings *b*, substantially as and for the purposes set forth. 4th. An agitator J, in combination with a curved front oven plate C, substantially as and for the purpose set forth. 5th. The combination of the curved front oven plate C, plate B, damper D, fire-pot A, grate G, agitator J, grate F, ash pan H, openings E, oven door L, basting door K, and oven L, substantially as and for the purpose set forth.

No. 29,215. Washing Machine.
(*Machine à blanchir.*)

Nelson D. Fairchild, DuBois, Penn., U.S., 23th May, 1888; 5 years.
Claim.—1st. The combination, with a washing machine tank A and a revolving cylinder B, provided with devices adapted to hold the clothes upon the cylinder, of the yielding bed in sections C placed transversely to the cylinder, each hinged to a separate pivoted bar Ci, the hinged pressure board D, the tension springs *d*, one of which is placed between each section of the bed and the pressure board, and the tension cam E arranged to regulate the tension upon the sections of the bed, substantially as and for the purpose described. 2nd. The combination, with the revolving cylinder B, provided with a longitudinal slot *e*, of the hinged plate *b*, bar *c* pivoted to said plate cam bar *c*, and cam strip *d* for retaining the clothes in the slot of the cylinder, as set forth.

No. 29,216. Metallic Ceiling. (*Plafond métallique.*)

William R. Kinnear, Columbus, Ohio, U. S., 23th May, 1888; 5 years.
Claim.—1st. In a metallic ceiling, such as described, the combination of separate panels, provided upon two adjoining sides with folded edges C and flanges D, and upon the opposite sides with the hooked edges F, the said panels locked together, substantially as described. 2nd. In a metallic ceiling, such as described, the combination of separate panels, provided upon two adjoining sides with the folded edges C and flanges D, and upon the opposite sides with the hooked edges F, the corners of the said panels cut away to receive the drops G, and the said drops provided with flanges F adapted to rest upon the folded edges C of the said panels, substantially as described. 3rd. In a metallic ceiling, such as described, the combination of separate panels, provided upon two adjoining sides with the folded edges C and flanges D, and upon the opposite sides with the hooked edges F, and a cornice provided upon opposite sides of the said paneling with edges corresponding to the edges C and F respectively, substantially as described. 4th. In a metallic ceiling, such as described, the combination of separate panels, provided upon the sides with the shoulders B and flanges C, the said flanges adapted to receive a line of nails, and strips of moulding suspended between the said panels, and provided with the channels E adapted to fit over the shoulders B of the said panels, substantially as described. 5th. In a metallic ceiling, such as described, the combination of separate panels, provided upon the sides with the shoulders B and flanges C, the said flanges adapted to receive a line of nails, strips of moulding suspended between the said panels, and provided with channels E adapted to fit over the shoulders B of the said panels, and the ornamental drops G provided with the channels H adapted to fit over the shoulders B of the said panels, substantially as described. 6th. In a metallic ceiling, such as described, the combination of the cornice O, provided with the flange P and channel S, the frieze Y and the beading T, said bead provided with the channel W and flanges U and V, substantially as described.

No. 29,217. Shield and Blade of Shovel and Spade. (*Douille et pélastre de pelle et de bêche.*)

George H. Gordon, Sherbrooke, Que., 23th May, 1888; 5 years.
Claim.—The combination of the shields B and D with the blade A of shovels or spades, substantially as and for the purposes hereinbefore set forth.

No. 29,218. Elevated Railway.
(*Chemin de fer élevé.*)

Joseph St. Martin, Montréal Qué., 23th May, 1888; 5 years.
Résumé.—Un chemin de fer élevé pour le service des voyageurs et des marchandises dont la construction serait composée de poteaux A, munis des traverses B, C, des cables D, D₁, et suspensoirs F, F₁, de la voie E, a rails D, D₁, et traverses G, H, en combinaison avec la voiture L, la poulie H, et le cable moteur I, le tout de quo ci-dessus décrit et pour les fins sus mentionnées.

No. 29,219. Air Inlet for Sewers, Traps and Drains. (*Ventouse pour égouts, trappes et drains.*)

Erna S. McClellan, Patterson, N.J., U.S., 23th May, 1888; 5 years.
Claim.—1st. The combination, with the inverted cup-shaped air valve, of the hollow case having an opening in the bottom thereof for the admission of the air valve, a movable open hollow thimble within and below the inverted cup-shaped air valve, a stem upon the air valve, and a guide or guides for the same, and mercury in the annular trough around the thimble, substantially as set forth. 2nd. The combination, with the inverted cup-shaped air valve, of a case with an opening on the under side, through which the air valve is introduced, a separate open thimble within the air valve, a ring follower for securing the thimble to the case, and mercury in the annular trough around the thimble, and into which the lower edges of the air valve pass, and the guide wings to aid in retaining the air valve in position as it rises or falls, substantially as specified. 3rd. The combination, with the inverted cup-shaped air valve, of a case having an annular mercury trough, into which the edges of the air valve dip, an open thimble forming an air inlet opening through the case and

below the valve, and a supply cup outside the case with a hole through which the mercury is introduced into the trough and a plug for the supply cup, substantially as set forth.

No. 29,220. Gate. (*Barrière.*)

Curtis Wilson, Cordoba, Can., U.S., 23th May, 1888; 5 years.
Claim.—The combination of the sill, the two pairs of double inclined parallel rails, provided with terminal hooks secured thereon, one at each end, the foot rollers travelling on said rails and having annular flanges, which rest between and against the inner sides thereof, and the gate with its rear guide frame, the bottom rails of which rest on the flanges of the rollers, and are provided with a track iron passing between said flanges, all substantially as specified.

No. 29,221. Fence. (*Clôture.*)

John Lovitt, Granton, Ont., 23th May, 1888; 5 years.
Claim.—The combination of wires *f, f, f*, and the stakes E, E, and the posts K, substantially as and for the purpose hereinbefore set forth.

No. 29,222. Beefsteak Pounding Machine.
(*Machine à préparer le bœuf.*)

Louis Duchemin, Ste Anne d'Yamachicho, Que., 23th May, 1888; 5 years.
Résumé.—Je réclame comme mon invention l'emploi de cylindres en bois ou en métal, icis quo décrits dans la présente spécification pour les fins y mentionnées.

No. 29,223. Sewing Machine.
(*Machine à coudre.*)

Edward Kohler and Morris Lachman, London, Eng., 23th May, 1888; 5 years.
Claim.—1st. The loose rotating hook or looper A, consisting of an open ring, one end of which is pointed to take the loop of the needle thread, while the other end is forked to open out the loop, such hook or looper passing endwise through the loop of the needle thread, retaining the loop until opened out and presented to the descending needle to be entered by it, and then releasing the loop, whereby the liability of making, missed stitches in single thread chain stitching is effectually removed. 2nd. In sewing machines, provided with a horizontal driving shaft below the table and fitted with a suitable driver, the loose looper A supported in a circular race B and working in combination with a rec procating eye-pointed needle F, for producing chain stitches with a single thread.

No. 29,224. Combination Lock.
(*Serrure à combinaison.*)

John Bergman, Galveston, Texas, U.S., 23th May, 1888; 5 years.
Claim.—1st. The combination of the knob spindle, the inner sleeve secured thereto, and having the spindle movable longitudinally thereon, the sign disk or dial loose on the outer end of the spindle, and adjustably secured to the knob, the loose tumblers and ring, and the sign tumbler rigid with the inner end of the inner sleeve and adjustably secured to the ring, substantially as described. 2nd. The combination of the door, the bolts, the central disk, the arms connecting the bolts thereto, the pivoted detent arms, the links connecting the same to the central disk and the knob spindle on opposite sides of the central disk, and having the tumblers provided with notches adapted to be engaged by the detent arms to lock the central disk, substantially as described. 3rd. The combination of the door, having the rigid outer sleeve, the inner sleeve therein, the knob spindle secured to the inner sleeve and movable longitudinally therein, the sign disk loose on the outer end of the spindle, and having the series of openings, the knob having the stud to engage one of said openings, and tumblers and ring loose on the outer sleeve, and the sign tumblers rigid on the inner end of the inner sleeve and adjustably secured to the ring, substantially as described. 4th. The combination of the door, having the rigid outer sleeve, the knob spindle, the tumblers loose on the rigid sleeve, the washers between the tumblers and rigid with the said sleeve, the ring loose on the sleeve, and the sign tumbler revoluble with the spindle, said tumblers and ring having the studs adapted to engage each other and thereby cause the tumblers to turn when the spindle is rotated, substantially as specified. 5th. The combination of the bolts X₁, the disk D₂, the arms connecting the bolts to the disk, the detents L₂ having lugs M₂, the links N₂ connecting said detents to the disks, and the combination locks having the notched tumblers adapted to be engaged by the lugs M₂, for the purpose set forth, substantially as described. 6th. In combination with the rigid sleeve D, the inner sleeve II swivelled thereon, the knob spindle movable longitudinally in the sleeve II and independent thereof, but also having a connection with the inner sleeve, whereby said inner sleeve is rotated, the sign tumbler U₁, revoluble with the sleeve II, and the tumblers mounted on the outer sleeve D and adapted to be turned by the sign tumblers U₁, as set forth. 7th. In combination with the rigid sleeve D, the inner sleeve II swivelled thereon, the knob spindle movable longitudinally in the sleeve II and independent thereof, but also having a connection with the inner sleeve, whereby said inner sleeve is rotated, the sign tumblers U₁ revoluble with the sleeve II, and the tumblers mounted on the outer sleeve D and adapted to be turned by the sign tumblers U₁, and the sign disk or dial U loose on the spindle and adjustably secured to the knob, the sign disk being adjusted to correspond with the sign tumbler. 8th. In combination with the outer rigid sleeve D, the tumblers and washers thereon, said washers being rigidly fitted to the sleeve, and the tumblers being in engagement with one another, the ring R₂ in engagement with the tumblers, the inner swivelled sleeve II, the sign tumbler U₁ rigidly fixed to the sleeve II, the adjustable connection between the tumbler U₁ and the ring R₂, knob spindle movable longitudinally within the inner sleeve, and also adapted to turn the latter, and the sign disk U loose on the knob

spindle, and having an adjustable connection therewith, the adjustable connection between the disk U, and the knob spindle corresponding with the adjustable connection between the ring R, and the sign tumbler U, as set forth.

No. 29,225. Vehicle Spring. (*Resort de voiture.*)

John W. Sullivan, Brighton, N.Y., U.S., 28th May, 1888, 5 years.

Claim.—In combination with the body and side bars, the bars C, C, pivoted to the underside of the body lengthwise thereof, the coil springs a, a, each terminating with the eye c at one end, by which it is rigidly secured to one of the bars, and terminating at the opposite end with the arm b, and eye e on the end of said arm, the bolt d adjustably connected to the body and having its lower ends connected to the arms b, b, and levers D, D, rigidly secured to the bars C, C, and hung on the side bars, substantially as described and shown.

No. 29,226. Car-Coupling. (*Attelage de chars.*)

Newton S. Solcer, Brockville, Ill., U.S., 29th May, 1888, 5 years.

Claim.—The combination, with a draw-head provided with the side link, seats provided with coupling pins, and the centre seat having the buffer disc, the buffer rod and its encircling spring, of the pivoted coupling bar having the arrow head, the transverse shaft and the levers at each shaft, and the levers at each end of the latter, substantially as specified.

No. 29,227. Vehicle Axle. (*Essieu de voiture*)

Targe G. Mandt, Stroughton, Wis., U.S., 28th May, 1888, 5 years.

Claim.—The combination of the plain metal axle having the screw threads on its ends extending back of the outer ends of the skains, the thimble skains formed with the transverse aperture or apertures, and having their bores of greater diameter than that of the axle spindle on which they fit, and the metal filling between the spindle and the skain, a portion of it engaging with the portion of the screws for the bent end of the axle, and another portion being in said aperture, substantially as set forth.

No. 29,228. Check Protector. (*Protecteur de cheque.*)

Wilson I. Best, Boston, Mass., U.S., 28th May, 1888, 5 years.

Claim.—The check or other document A combined with the transparent strip B, gummed on the underside and attached at one of its ends to the check body, and adapted to be pasted over the part to be protected on the document, substantially as set forth and described.

No. 29,229. Potato-Digger. (*Scarificateur à patates.*)

Josiah P. McLaren, Cardigan Bridge, P. E. I., 23th May, 1888; 5 years.

Claim.—1st. In a potato-digger, the combination of a framework, supporting wheels, one of which is provided with a broad rim having interlively pivoted transverse plates, a shovel, mechanism operated by the supporting wheels, for forcing the potatoes from shovel into said rim, and means for operating said plates and delivering the potatoes from said rim into a receptacle therefor, substantially as set forth. 2nd. In a potato-digger, the combination of a framework, supporting wheels, one of which is of larger diameter than the other, and provided with a broad rim, a shovel, mechanism operated by said wheels for delivering the potatoes from said shovel into said rim, pivoted transverse plates within said rim for carrying the potatoes above the axis of said wheel, cranks on said plates adapted to engage a cam-bar by which said plates are operated, and screens for receiving the potatoes from said plates, substantially as described. 3rd. In a potato-digger, the combination of a framework, two supporting wheels journaled by separate shafts in said frame, one of said wheels being of larger diameter than the other, and adapted to receive the potatoes, a shovel pivoted to the shaft of the smaller supporting wheel, means for adjusting said shovel, a vertical shaft journaled in a lug on said main shaft, a flanged wheel on said vertical shaft for forcing the potatoes from said shovel into said large supporting wheel, pivoted transverse plates within said large wheel, cranks on the pivots of said plates, cam-bars on said frame for engaging said cranks and operating said plates, screens for receiving and delivering the potatoes from said wheel, and means for shaking or oscillating said screens, substantially as set forth. 4th. In a potato-digger, the combination of the framework A, the shaft b journaled in said framework, and carrying the wheel C and gear h, the shovel B journaled on the shaft b, the vertical shaft p provided with the gear 20, and flanged wheel 18, the shaft f in said frame, the wheel D on said shaft, provided with the plates 25 having the cranks 26, the cam-bars 41 and 45, adapted to engage said cranks, and the screens 50 and 51 for receiving the potatoes from said plates, substantially as specified. 5th. In a potato-digger, the combination of the frame A, the shaft b journaled in said frame and provided with the gear h, and wheel C, the vertical shaft p having the gear 20 and flanged wheel 18, the shovel B pivoted to the shaft b, means for adjusting said shovel, the shaft f, the wheel D on said shaft, the plates 25 pivoted on said wheel and provided with the cranks 26, the cam bars 41 and 45 for operating said plates, the screens 50 and 51 for receiving the potatoes from said plates, the shaft 52 provided with the cam fork 56, and connected by gears, with the gear h for oscillating said screens, and the box 60 having an inclined bottom and sliding side for receiving and delivering the potatoes, substantially as set forth.

No. 29,230. Baling Press. (*Presse d'empaquetage.*)

William C. Ellis, Rising Sun, Ind., U.S., 28th May, 1888, 5 years.

Claim.—The combination, in a baling press, with the grooved still a, and tongued sill a, forming the casing A, of the baling chamber C, the gangway F having approaches f interposed between said casing and chamber, the grooved reciprocating beam B extending from casing A into chamber C, below said gangway, and carrying a follower, the

blocks H, H, tongued plate I, the anti-friction rollers L, L, journaled in said plate I and beam B, and the eccentric wheel J journaled in the case between plate I and beam B and acting on said anti-friction rollers, substantially as set forth.

No. 29,231. Power Indicator. (*Indicateur de la force.*)

Emory Nixon, Toronto, Ont., 28th May, 1883, 5 years.

Claim.—1st. A power indicator composed of three pulleys of about equal diameter, the first being the driven pulley from the factory pulley and is loose on the shaft, the second pulley having two driving bolts, one of them projecting sidewise and between two arms of the first pulley from which it receives its motion, the other bolt projecting from the other side and going behind the outer end of a journaled arm in the third pulley, which bears upon the rear end of a cam, resorption spring secured on the circumference of the said third pulley, the vibrations of which spring being utilized to operate by means of racks and pinions, a pointer and scale denoting the pressure in lbs. on the surface of the first driven pulley, substantially as shown and described. 2nd. In a power indicator composed of three pulleys of about the same diameter, the pulleys A and a, loose in the shaft B, the pulley a, rigidly secured to the shaft B, the bolts a and b in pulley a, the journaled arm a' in pulley a, and compression spring a, on the circumference thereof, the combination of the rack a', pinion a', spindle a, lower pinion a', and rack with tongue a', as shown and described. 3rd. The combination, with the rack and tongue a', the sliding thimble a', sliding frame a', sliding pointer a', the stationary thimble D, with groove d and scale d', substantially as shown and described.

No. 29,232. Suspender. (*Bretelle.*)

Theodore D. Day, Elizabeth, N.J., U.S., 28th May, 1888, 5 years.

Claim.—1st. The combination, in a suspender, of two buckle frames through which the respective straps pass, and a connection between said buckle frames permanently uniting them together, and the prongs or tongues E applied to one of such frames, substantially as specified. 2nd. The combination, with the suspender straps A and B, of the buckle frames C, D, and the prongs or tongues E applied to one of such frames, and an eyelet hingo G, passing through the sheet metal of the buckle frames and uniting them together, but allowing one frame to be turned or swung upon the other, substantially as set forth.

No. 29,233. Tobacco Cutter. (*Hache-tabac.*)

Aubrey M. Whitney, Providence, and Wesley C. Cook, Woonsocket, R.I., U.S., 29th May, 1888; 5 years.

Claim.—1st. The combination of a rotary cutter disk, provided with one or more blades, the hopper arranged within the field of said blades, the plunger or pressor working within said hopper, means for rotating said disk, substantially as described. 2nd. The combination, with the standard provided with the horizontal bearing and the shaft journaled therein, and having mounted thereon the hand wheel and bevel gear, of the rotary cutter disk, armed with one or more blades and borne upon a shaft journaled in the horizontal arm carried upon the standard, and said shaft having the bevel gear fixed thereon and meshing with the other bevel gear, all substantially as described. 3rd. The combination, with the rotary cutter, armed with one or more blades and operated indirectly by the hand wheel, substantially as set forth, of the hopper superposed above the cutter and borne by the neck fixed upon the head of the standard, substantially as described. 4th. The combination, with the cutter disk and the superposed hopper, all operated substantially as described, of the catch pan or funnel below said cutter, and the cover above said cutter, substantially as and for the purpose described. 5th. The combination, with the standard 5, provided with the bearing 8, having the shaft 10, carrying the hand wheel 11 and the bevel gear 12, and the arm 14 fixed to the standard of the rotary cutter disk, provided with the shaft 17 journaled in the arm 14, and carrying the bevel gear 20, substantially as and for the purpose described. 6th. The combination, with the standard 5, provided with the base 6 and the bearing 8, and the arm 14, and the neck 30, carrying the hopper 31 with its plunger 43, said bearing 8 having the shaft therein, which carries the hand wheel 11 and bevel gear 12, of the rotary cutter disk 21, provided with the shaft 17, journaled in arm 14, and provided with the bevel gear 20, meshing with gear 12, and of the pan 37 and cover 34, all substantially as and for the purpose described.

No. 29,234. Adjustable Supporting of Telephone Transmitters. (*Support mobile de transmetteur de téléphone.*)

The Bell Telephone Company (assignee of Charles W. Brown), Montreal, Que., 29th May, 1888; 5 years.

Claim.—In supports for telephone transmitters, the combination, with a base, of the vertical rod R, having groove r, carried in bearings projecting from said base, the metal casting A, carrying transmitter and having extension A', cast in one with it, provided with a sleeve S, to fit and slide on said rod R, and means for securing said sleeve at desired height, as set forth.

No. 29,235. Machine for the Extraction of Gold and Silver from their Ores by Means of Electricity, Mercury, Cyanide of Potassium and other Agents. (*Machine à extraire l'or et l'argent de leurs minerais au moyen de l'électricité, du mercure, cyanure de potassium et autres agents.*)

Charles M. Dobson, George A. Shaw and Richard Caddick, Toronto, Ont., 29th May, 1888, 5 years.

Claim.—1st. In a machine for treating ores containing gold and silver, the sliding anodes M, M, M, in combination with the cathode on the inclined table B, having the receptacles e, e, e, substantially as described and for the purpose specified. 2nd. In a machine for treating ores containing gold and silver, the receptacle F and distributing pipe H, in combination with the sliding anodes M, M, M, and the cathode having the receptacles e, e, e, substantially as described and for the purpose specified. 3rd. In a machine for treating ores containing gold or silver, the tank wherein the division for ore is behind that containing water, and has a channel passing under the water to convey the ore to the inclined table B, substantially as described and for the purpose hereinbefore set forth.

No. 29,236. Lasting Machine for Boots and Shoes. (*Machine à enformer les chaussures.*)

The Shoe Lasting Machine Company, New York, N. Y. (assignee of Frank Chase, Boston, Mass.), U.S., 29th May, 1888; 5 years.

Claim.—1st. The combination, with the wiper slides, of equalizing levers and connecting rods pivoted at one end to said slides, and at the other end to said levers, under the arrangement and for operation substantially as hereinbefore set forth. 2nd. The combination, with the wiper slides, of the connecting rods a, levers b, c and the lever d, substantially as and for the purposes hereinbefore set forth. 3rd. The combination of two opposed sets of wiper slides, mechanism for advancing each set, and an actuating shaft for said mechanism, capable of endwise movement in its bearings, all substantially as and for the purposes hereinbefore set forth. 4th. The combination of the two opposed sets of wiper slides, the two systems of connecting rods and equalizing levers, one for each set, a motor shaft common to both systems, capable of endwise movement in its bearings, and means, substantially as described, whereby each system is connected to, and actuated by, said shaft, the combination being and acting substantially as hereinbefore set forth.

No. 29,237. Machine for Preparing and Jointing Staves for Casks and Barrels. (*Machine à préparer et assembler les douelles des tonneaux et des barils.*)

Samuel Wright, Glasgow, Scotland, 29th May, 1888; 5 years.

Claim.—1st. In a machine for the preparing or jointing of staves Z, for the manufacture of casks or barrels, the fitting of cutter heads E, F and cutters e, e, so as to form and joint the staves Z, with tongues and grooves on their opposite edges, substantially as herein described and shown. 2nd. In a machine for the preparing or jointing of staves for the manufacture of casks or barrels, the fitting of concave saws D, mounted on horizontal spindles D₁ in adjustable slides or frames D₁, D₂, on each side of the horizontal traversing pattern T and stave Z, for roughly shaping and breadthoning the staves Z, substantially as herein described. 3rd. In a machine for the preparing and jointing of staves, for the manufacture of casks or barrels, the fitting of saws D on each side of the traversing pattern T and staves Z, for roughly shaping and breadthoning the staves, in combination with cutting tools e, e, to joint the staves, either plain or with tongues and grooves, all substantially as herein described and shown. 4th. In a machine for the preparing and jointing of staves for the manufacture of casks or barrels, the fitting immediately under the stave Z of a traversing pattern or template T, of the same contour on its edges as the stave to be jointed, and actuated by horizontal rotating feed rollers C, C₁, C₂, acting on the top of the staves Z, substantially as and for the purposes herein described and shown. 5th. In a machine for the preparing or jointing of staves for the manufacture of casks or barrels, the fitting of a traversing pattern or template T, of the same contour, on its edges, as the stave Z, to be jointed with a T or equivalent feather or projection b on its under plate or surface, to slide and be guided in a groove or slot at B formed in a horizontal stationary table B, substantially as and for the purposes herein described and shown. 6th. In a machine for the preparing and jointing of staves for the manufacture of casks or barrels, the combination of a traversing pattern T, with the stave Z, over it, traversed on a grooved table B, B₁, and actuated by rollers C, C₁, C₂, so as to be roughly dressed on their opposite edges by saws and saw spindles D, D₁, in adjustable frames D₁, D₂, and plain, jointed or tongued and groove-jointed by boss heads E, F and cutters e, e, on vertical spindles F₁ and finally hollowed out on top by cutters k, and spindles K, K₁, carried in adjustable frames K₁, K₂, all substantially as herein described and shown.

No. 29,238. Cabinet Shoe Case.

(*Montre à marchandises.*)

Charles Baum, Washington, D.C., U.S., 29th May, 1888; 5 years.

Claim.—1st. A cabinet for displaying merchandise, consisting of a series of horizontally sliding open top compartments, arranged in tiers, the compartments of each upper tier being successively shorter in length than the next underlying one, in combination with upright partitions dividing the compartments of each tier, said partitions being cut away at their front edges in successive steps equal to the length of the respective compartments, when extended upon cleats attached to the side surfaces of the partitions, as and for the purpose intended, substantially as described. 2nd. A cabinet for displaying merchandise, provided with parallel transverse divisional partitions B, cut away at the front into steps having obliquely inclined risers b rigidly attached to the floor and back wall of a casing, said partitions provided on their side surfaces with horizontal cleats b₁, in combination with open top compartments C, having closed backs provided with lateral flanges b₂, that limit the forward progression of said compartments between said partitions, substantially as described. 3rd. The combination in a device for exhibiting merchandise, of the following elements: A show case A, having transparent top sides and front, and rigid bottom and back frame, a series of transverse parallel partitions B, firmly adjusted to the back and floor of the case, each of said partitions being cut away forwardly into a series of steps, cleats b₁ extending horizontally along the sides

of the partitions, tiers of a sliding open top compartment C arranged to be moved forward and backward along the several tracks formed by said cleats, each tier of said compartments being successively shorter in length than the next underlying compartments, all arranged as described, whereby, when said compartments are introduced their full length forwardly between the partitions B, the front panels b₂ will be in line with the respective adjacent risers b of the steps of the partitions, substantially as described.

No. 29,239. Water Closet. (*Latrine à l'eau.*)

William Price, Montreal, Que., 29th May, 1888; 5 years.

Claim.—1st. In the construction of a water closet, the combination of the casing F, pipe C, C₁, arranged to connect, as described, with the general street sewer, branch pipe H, valve U, seat N, pipes I and K, by which the rain water from the roof and waste water are brought into the casing, the whole substantially as described. 2nd. In the construction of a water closet, the combination of the casing E, elbow C₁, pipe C, trap C₂, pipes H, I and K, valve U, valve-seat N, grating S, handle P and seat L, the whole substantially as described. 3rd. In the construction of a water closet, the combination of the casing F, pipe connection to street sewer C, C₁, C₂, pipes I and K, whereby the waste water and rain water are brought into the casing, the whole substantially as described.

No. 29,240. Jib Hank. (*Bague de foc.*)

Thomas O. Jameson, New York, N.Y., U.S., 30th May, 1888; 5 years.

Claim.—1st. A hank, constructed substantially as herein shown and described, in two semi-annular parts hinged to each other at one end, having opposing disks integral with their other ends, one disk provided with an integral grooved pin adapted to pass through the opposing disk, which disk is provided with a central interior recess, and a spring actuated dog adapted to enter the groove of said pin, substantially as shown and described. 2nd. A hank, consisting of two semi-annular parts, hinged to each other at one end, provided with opposing disks F, F₁, the disk F₁ having attached thereto an inwardly projecting pin G, having a shoulder b and annular groove b₂, and tapering extremity, the disk F₁ being provided with a transverse aperture a, an interior longitudinal recess d and a spring actuated dog d₁ adapted to slide in said recess and engage the groove in the disk pin G, substantially as shown and described and for the purpose herein set forth. 3rd. The combination, with a sail and the stay for said sail, of the hank E formed in two semi-annular parts hinged to each other at one end, having opposing disks F, F₁, integral with their other ends, the disk F₁ being provided with an integral grooved pin G, adapted to pass through the opposing disk F, which disk is provided with a central interior recess e, and a spring actuated dog d₁ adapted to enter the groove in said pin, substantially as shown and described.

No. 29,241. Electrical Pumping Apparatus.

(*Appareil électrique pour pomper.*)

Moses A. Michales, Allegheny, and Albert Michales, Pittsburgh, Penn., U.S., 30th May, 1888; 5 years.

Claim.—A pumping apparatus having, in combination, a stationary dynamo electric generator, and a portable pump provided with an electric motor detachable from the pump, substantially as set forth.

No. 29,242. Steam Trap. (*Trappe de vapeur.*)

William Wilson and James Sparrow, Valleysfield, Que., 30th May, 1888; 5 years.

Claim.—1st. In a steam trap, the combination of the following elements: a water cylinder, having inlet and outlet, with valve chamber and valve, a scale beam suspended from a frame and from end of which the cylinder is hung, a counterpoise carried on and slid along such beam, and connections between the scale beam and the outlet valve, all as and for the purposes set forth. 2nd. The combination of frame A, having slot A₁, scale beam B, and adjusting device for same, cylinder C hung from such beam, and valve chamber containing valve attached thereto, rod J and adjustable arm J₁, for connecting it with rock shaft H, and adjusting screw or working through top of chamber, all as herein set forth and for the purpose described.

No. 29,243. Process of Manufacturing the Oxides of readily Oxydizable Metals for Paints and other Purposes. (*Procédé de fabrication des oxydes de métaux facilement oxydables pour la préparation des couleurs et autres fins.*)

Arthur C. Bradley, Brooklyn, N.Y., U.S., 30th May, 1888; 15 years.

Claim.—1st. The manufacture of metallic oxides from comminuted metal, substantially as before set forth. 2nd. The process, substantially as before set forth, of manufacturing an oxide of a metal, which consists in exposing the metal in a comminuted condition to the action of an enclosed current of air, heated to a temperature sufficient to burn the metal. 3rd. The process, substantially as before set forth, of manufacturing the oxide of a metal, which consists, first, in exposing the metal in a comminuted condition to an enclosed current of air heated to a temperature sufficient to burn the metal, and second, in collecting the dust oxide from said current.

No. 29,244. Machine for Polishing, Compressing, Rounding and Pointing Tooth Picks. (*Machine à fabriquer les cure-dents.*)

Charles C. Freeman, Dixfield, Me., U.S., 30th May, 1888; 5 years.

Claim.—1st. The machine for polishing, rounding, compressing and

pointing tooth-picks, consisting of the cylinder A, the apron C made of the segments c, c, c, adjustable by the set screws D, D, D, the pulley E, the shaft G, the frame B and the table F. 2nd. In a machine for rounding, compressing, polishing and pointing tooth picks, the cylinder A and the apron C, in combination with the table F and a suitable opposing surface for compressing the tooth picks fed into the machine. 3rd. In a machine for rounding, compressing, polishing and pointing tooth picks, the cylinder A having a concave periphery and furnished with the elastic band a. 4th. In a machine for rounding, compressing, polishing and pointing tooth picks, the apron C formed of the segments c, c, c, and made concave upon its inner surface, and furnished with the elastic band d, in combination with a suitable table from which the tooth picks are fed, and a suitable revolving and opposed surface, by means of which the tooth picks are compressed.

No. 29,245. Machine for Forming Sheet Metal by Electro-Deposition.
(*Machine à façonner les feuilles de métal par l'électro-déposition.*)

Elisha Emerson, Providence, R.I., U.S., 30th May, 1888, 5 years.

Claim.—In an apparatus for forming sheet metal by electro-deposition, the combination of the containing vat, an inflexible permanent initial cathode of cylindrical shape having a surface to which the deposit will not adhere and suitably supported in the vat, and mechanism for rotating it in said vat, substantially as set forth.

No. 29,246. Drug Mixing Machine.
(*Machine à composer les drogues*)

Marcenus J. Jones, Cleveland, Ohio, U.S., 30th May, 1888, 5 years.

Claim.—1st. In a drug or powder mixing machine, a main receptacle having a discharge slot in its bottom, and a sieve and a cut-off plate located therein, in combination with revolving paddles having a curved or spiral form adapted to rub over said sieve as they revolve, substantially as described. 2nd. The combination, in a drug mixing and pulverizing machine, of a main receptacle having a discharge slot in its bottom, and a sieve and a cut-off plate located in said discharge slot, with revolving paddles having a spiral or curved form operating over said sieve, every alternate paddle of which curves in the same direction, substantially as set forth, said paddles being provided on their outer edges with an elastic yielding substance, all arranged and adapted to operate substantially as described. 3rd. In a drug mixing machine, a main receptacle provided with a discharge slot in its bottom, a sieve located in said discharge slot, and a cut-off plate removably located directly beneath said sieve so as to prevent the ingredients from passing through the sieve before they are thoroughly mixed, in combination with the paddle revolving in said receptacle, substantially as described. 4th. In a drug mixing and pulverizing machine, a main receptacle having a sieve located in its bottom, and a cut-off plate located beneath said sieve, in combination with curved revolving paddles, each paddle of which curves in an opposite direction to the adjoining ones, and one of said paddles being provided on its outer edge with a brush, and the remaining paddles being provided on their outer edges with some yielding elastic substance, said brush and yielding substance being adapted to rub the ingredients being mixed over the face of, and through the apertures in, said sieve, for the purpose and in the manner substantially as described.

No. 29,247. Mechanical Movement.
(*Transmission du mouvement.*)

August C. Arneson, Clark's Grovo, Minn., U.S., 30th May, 1888; 5 years.

Claim.—1st. In a mechanical movement, the combination, with a ring having internal and beveled teeth, of a bevelled toothed wheel in the said ring, a tumbling rod and a pinion on the end of the tumbling rod engaging the said ring, and toothed wheel, substantially as herein shown and described. 2nd. In a mechanical movement, the combination of the internally toothed ring B, the spur wheel E, the pinion F and the tumbling rod G, the toothed ring B, the wheel E and pinion F being provided with rolling contact surfaces b, substantially as shown and described.

No. 29,248. Stove Pipe. (*Tuyau de poêle.*)

Henry S. Clarke, Petrolia, Ont., 30th May, 1888; 5 years.

Claim.—The slotted key and cams, substantially as and for the purpose hereinbefore set forth.

No. 29,249. Shoe Lace Fastening.
(*Agrafe de soulier.*)

Henry B. Ten Eyck, Johnstown, N.Y., U.S., 30th May, 1888; 5 years.

Claim.—1st. As an article of manufacture, a lace fastener consisting of two rigid plates centrally connected, and a ridge, or ridges, projecting from the inner faces of said plates between the centre and edges of the same, the distance between the ridge, or ridges, and the opposing plate being just sufficient for the passage of a single lace at the point of the introduction of the same with a greater space within the ridges, substantially as described. 2nd. As an article of manufacture, a lace fastener consisting of two rigid plates centrally connected, said plates being each provided on its inner faces with a ridge, or ridges, extending between the centre and edges thereof, the distance between the said ridge of the opposing plates being just sufficient for the passage of a single lace, at the point of the introduction of the same, with a greater space within the ridges, substantially as described.

No. 29,250. Churn. (*Baratte.*)

Osgood Hilton, San Francisco, Cal., U.S., 30th May, 1888; 5 years.

Claim.—1st. The gear I J and K and dashers described, composed

of the dasher posts D and E, and dasher blades F, and dasher rod G, in combination with the churn body described, by means of the gear frame H, shaft M and crank N, constructed and operated as set forth. 2nd. In combination with the churn described, the air tube C connected with the half of the lid B, all constructed and operated as described.

No. 29,251. Steam and Hot Water Radiator.
(*Calorifère à vapeur et à eau.*)

Ezra F. Landis, Lancaster, Penn., U.S., 30th May, 1888, 5 years.

Claim.—1st. In a steam radiator, the combination of sections having their joint faces provided with V-shaped grooves arranged concentrically and adapted to become interlocked with a bolt uniting said sections and wholly inclosed therein, substantially as and for the purpose described. 2nd. In a steam radiator, the combination of sections having their joint faces provided with concentric grooves, a steam sealing plate between said faces and diagonally arranged in the bottom of said sections, and a bolt uniting said sections and wholly inclosed therein, whereby leakage, if any, is retained within the radiator, substantially as and for the purpose described. 3rd. In a radiator, the combination, of sections having their joint faces provided with concentric grooves, with a bolt passing through said joint faces and wholly inclosed within the radiator, the end loops being provided with openings at the top, and suitable caps E, substantially as and for the purpose described. 4th. In a steam radiator, the combination of sections having their joint faces provided with concentric grooves and between said faces, washers provided with steam sealing and water-sealing plates, and a bolt, substantially as and for the purpose described. 5th. In a radiator, the combination of sections having their joint faces with central openings in said faces, and a bolt passing through said sections and wholly inclosed within said sections, whereby leakage, if any, is retained with the radiator, substantially as and for the purpose described.

No. 29,252. Adjustable Spout for Grain, Coal, etc. (*Tréme mobile pour les grains, le charbon, etc.*)

Thomas W. Emory, Minneapolis, Minn., U.S., 30th May, 1888; 5 years.

Claim.—A spout composed of a series of lengths B, fitting into each other, and flexibly connected together by the links C, its upper end being connected to the hopper A, so that it will swivel thereon, substantially as and for the purpose specified.

No. 29,253. Telephone. (*Téléphone.*)

Lemuel Mollett, Newton, Mass., U.S., 30th May, 1888; 5 years.

Claim.—1st. In a telephone instrument, a shell or case having a chamber a, a diaphragm and a wire or connection joined directly to the said diaphragm, combined with a series of vibrators in said chamber, substantially as described. 2nd. In a telephone instrument, a shell or case having a mouth-piece b, a diaphragm c, combined with one or more vibrators within said shell or case, substantially as and for the purpose specified. 3rd. The combination, with a transmitting and receiving instrument, each composed of a shell or case having a chamber, and provided with a diaphragm, and with vibrators within said chambers of a wire or connection joined to the diaphragms of said instruments, substantially as described.

No. 29,254. Mechanical Toy.

(*Jouet mécanique.*)

James W. Hale, Newburyport, Vt., U.S., 30th May, 1888; 5 years.

Claim.—In a mechanical toy, the combination of the spring D and foot-pieces C and B, having engaging spurs, with the cord N, said cord being secured at one end to the rear foot-piece B, thence passing freely through a loop or eyelet secured to the forward foot-piece C, and thence back under the foot-piece B, substantially as described, and for the purpose set forth.

No. 29,255. Woven Wire Mattress.

(*Sommier en fil de fer tissé.*)

Charles A. Hart, Toronto, Ont., 30th May, 1888; 5 years.

Claim.—The metal strips A and A rivotted together, one strip being on the top side, and the other strip on the bottom side of the mattress, in combination with spiral springs resting on a cross-bar of the bed, and connected to the bottom strip on the mattress by buttons fixed to, and projecting from the bottom strip, substantially as and for the purpose specified.

No. 29,256. Manufacture of Boots and Shoes.

(*Fabrication des chaussures.*)

Honoré Métayer, Louis Chevalier and Fabien Rivard, Montreal, Que., 30th May, 1888; 5 years.

Claim.—1st. As a new article of manufacture, a boot or shoe having its counter or heel stiffener formed of a piece integral with the upper, substantially as described. 2nd. The combination, in a boot or shoe, of the upper A, and counter B, formed of a single piece with the upper, having its edges joined in the sole so as to form the insole, substantially as herein shown and described.

No. 29,257. Process of, and Apparatus for Manufacturing Gas. (*Procédé et appareil de production du gaz.*)

Arthur G. Meeze, Redhill, Eng., 30th May, 1888; 5 years.

Claim.—1st. The process of manufacturing gas, which consists in

first injecting steam and hydrocarbon fluid into a heated chamber or retort, and therein thoroughly mixing the vapour with steam, and highly heating the mixture, then heating hydrogen, or water gas, and mixing it while hot with the heated mixture of oil, vapours and steam, and causing decomposition and recombination by passing the mixture by direct impact in contact with numerous heated deflecting surfaces till it is converted into a fixed gas. 2nd. The process of manufacturing gas, which consists in injecting steam and hydrocarbon fluid in regulated quantities into a heated chamber or retort, and therein thoroughly mixing the vapour with steam and highly heating the mixture, admitting a regulated quantity of hydrogen or water gas into a retort, heating it and mixing it while hot with the highly heated mixture of oil, vapours and steam, and causing decomposition and recombination by passing the mixture by direct impact, in contact with numerous heated deflecting surfaces till it is converted into a fixed gas. 3rd. In combination with a retort, an ingression pipe, or smaller internal retort, extending from the front end of the outer retort, a steam and oil injector connecting with such internal retort, a gas supply pipe connecting with the rear end, and a gas eduction pipe connecting with the front end of the outer retort, for the purpose described. 4th. In combination with a retort, an ingression pipe, or smaller internal retort, extending inward from its front, a steam and oil injector connecting with such internal retort, a series of deflecting and impact devices arranged in the outer retort and supporting the inner retort, a pipe for supplying water gas connecting with the rear end, and a gas eduction pipe connecting with the front end of the outer retort, for the purpose described. 5th. In combination with a retort, a steam superheating coil, a steam and oil injector connecting with the coil and discharging into the retort, a series of deflecting and impact devices arranged in the retort, a gas supply pipe and a gas take-off pipe connecting with opposite ends of the retort, for the purpose described. 6th. In combination with a retort, a gas supply pipe connecting with its rear end, a gas eduction pipe leading from its front end, an ingression pipe, or small internal retort, extending inward from its front end, a steam and oil injector connecting with such ingression pipe, and deflecting and impact devices placed in the outer retort around the ingression pipe, and between its discharge end and the rear end of the retort, whereby the inflowing gas is first heated in contact with such devices, and then combined and fixed with the heated steam and oil vapours flowing from the ingression pipe, as described.

No. 29,258. Vehicle Spring. (*Ressort de voiture.*)

Charles P. Mance and Edwin J. Palmer, Kalamazoo, Mich., U.S., 30th May, 1888, 5 years.

Claim.—A vehicle spring composed of two semi-elliptical members having the ends of the upper member hinged to the ends of the lower member on the underside of the latter, said lower member being horizontally straight in plan view and for attachment to the axle, and the upper member being bowed edgewise from the lower member forming a portion to sustain the vehicle body, substantially as set forth.

No. 29,259. Jet Apparatus for Feeding Water Boilers. (*Injecteur pour alimenter l'eau les chaudières à vapeur.*)

William R. Park, Taunton, Mass., U.S., 30th May, 1888; 5 years.

Claim.—1st. In combination, nozzle D, tubes *d*, *d*¹, water chamber *a*, nozzle F, tubes *f*, *f*¹, *f*², with openings *f*₃, and overflow G, the openings *f*₃ connecting the combining tube of nozzle F with the overflow, all substantially as described. 2nd. In combination, nozzle D, tubes *f*, *f*¹, *f*², with openings *d*², water chamber *a*, nozzle F, tubes *f*, *f*¹, *f*², with openings *f*₃, and overflow G, the opening *d*² connecting the combining tube *d*, of nozzle D, with the water supply, and the openings *f*₃ connecting the combining tube *f*, *f*¹, of nozzle F, with the overflow, all substantially as described.

No. 29,260. Metallic Shingle. (*Bardeau métallique.*)

Edgar E. Barker, Junction, Kan., U.S., 30th May, 1888; 5 years.

Claim.—1st. The roofing plate or metallic shingle having a hook-shaped edge *a*, extending its entire length on one side, and a hook-shaped edge *b* of smaller diameter on its other side, extending only a part of its length and formed of double thickness with a nailing flange *c*, substantially as and for the purpose described. 2nd. The roofing plate or metallic shingle having a hook-shaped edge *a*, extending its entire length on one side, and a hook-shaped edge *b* on the other side of smaller diameter, extending a part of its length and of double thickness with nailing flange *c*, and the curled lip or flange *d* extending from the bottom of hooked edge *b* to the lower end of the shingle, substantially as and for the purpose described.

**GERTIFICATES OF THE PAYMENT OF FEES FOR FURTHER TERMS HAVE BEEN ATTACHED TO
THE FOLLOWING PATENTS,**

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| <p>1115. C. W. HIGLY, 2nd 5 years of No. 16,789, from the 4th day of May, 1888. Improvements on Bustles, 1st May, 1888.</p> <p>1116. J. CONNELL, 2nd 5 years of No. 16,785, from the 4th day of May, 1888. Improvements on Hoop Machines. 1st May, 1888.</p> <p>1117. E. APPLGATE (assignee), 2nd 5 years of No. 16,779, from the 4th day of May, 1888. Improvements on devices for Waking Persons from Sleep, 2nd May, 1888.</p> <p>1118. P. LORD, J. B. VINET, A. S. VINET, 2nd 5 years of No. 16,823, from the 5th day of May, 1888. Improvements in Universal Joints, 3rd May, 1888.</p> <p>1119. W. BURROW, C. STEWART, J. MILNE (assignees), 3rd 5 years of No. 8,833, from the 27th day of May, 1888. Improvement on Stoves. 4th May, 1888.</p> <p>1120. J. MILNE, 3rd 5 years of No. 8,785, from the 13th day of May, 1888. Improvements on Stop Cock Boxes for Water and Gas Pipes, 4th May, 1888.</p> <p>1121. LA F. COLLINS, 2nd 5 years of No. 16,807, from the 5th day of May, 1888. Improvements on Car Shunters, 4th May, 1888.</p> <p>1122. D. A. McDONEL and A. McVITTIE, 2nd 5 years of No. 16,780, from the 4th day of May, 1888. Improvements on Brushes, 4th May, 1888.</p> <p>1123. F. PAYZANT, 2nd 5 years of No. 17,050, from the 21st day of June, 1888. Improvements on Machines for Extracting Oil from Fish Livers and Fish Blubbers, 7th May, 1888.</p> <p>1124. J. MUIRHEAD, JR., 3rd 5 years of No. 8,769, from the 13th day of May, 1888. Improvements on Electric Telegraphs and on Apparatus Connected Therewith, 8th May, 1888.</p> <p>1125. J. MUIRHEAD, JR., and H. A. TAYLOR, 3rd 5 years of No. 8,822, from the 22nd day of May, 1888. Improvements on Electric Telegraphs and on Apparatus Connected Therewith, 8th May, 1888.</p> <p>1126. J. O. and W. S. WISNER and E. L. GOULD, 2nd 5 years of No. 16,864, from the 14th day of May, 1888. Improvements on Spring Hoes, 12th May, 1888.</p> <p>1127. V P. TRAVERS, 2nd 5 years of No. 17,069, from the 22nd day of June, 1888. Improvements on Hammocks and Method of Making the Body of the Same, 12th May, 1888.</p> | <p>1128. H. W. ATWATER, 2nd 5 years of No. 18,046, from the 10th day of November, 1888. Improvements on Wronches, 14th of May, 1888.</p> <p>1129. THE SOUTH BEND IRON WORKS (assignee) 2nd 5 years of No. 17,519, from the 18th day of August, 1888. Improvements on Ploughs, 15th May, 1888.</p> <p>1130. THE HART EMERY WHEEL CO. (assignee), 2nd 5 years of No. 16,877, from the 25rd day of May, 1888. Improvements in Polishing and Buffing Wheels, 21st May, 1888.</p> <p>1131. T. LEVI, 2nd 5 years of No. 16,995, from the 18th day of June, 1888. Improvements for use in the Canning of Fish, Meats, Fruits and other Things, 25th May, 1888.</p> <p>1132. THE ROYAL ELECTRIC CO. (assignee), 2nd 5 years of No. 16,911, from the 14th day of June, 1888. Improvements on System of Electric Distribution, 25th May, 1888.</p> <p>1133. THE ROYAL ELECTRIC CO. (assignee), 2nd 5 years of No. 16,954, from the 16th day of June, 1888. Improvements on Electric Lamps, 25th May, 1888.</p> <p>1134. THE ROYAL ELECTRIC CO. (assignee), 2nd 5 years of No. 17,075, from the 22nd day of June, 1888. Improvements on Electric Arc Lamps, 25th May, 1888.</p> <p>1135. THE ROYAL ELECTRIC CO. (assignee), 2nd 5 years of No. 17,397, from the 26th day of July, 1888. Improvements on Electric Arc Lamps, 25th May, 1888.</p> <p>1136. THE ROYAL ELECTRIC CO. (assignee) 2nd 5 years of No. 17,393, from the 26th day of July, 1888. Improvements on Electric Arc Lamp Cut Outs, 25th May, 1888.</p> <p>1137. L. WALKUP, 2nd 5 years of No. 17,066, from the 22nd day of June, 1888. Improvement in Pigment Distributors, 25th May, 1888.</p> <p>1138. F. W. RICHARDSON, 2nd 5 years of No. 16,939, from the 16th day of June, 1888. Improvements on Balanced Slide Valves, 30th May, 1888.</p> <p>1139. W. D. GRAY, 2nd and 3rd 5 years of No. 16,950, from the 16th day of June, 1888. Improvements on Methods of and Plates for Testing Roller Mills, 30th May, 1888.</p> <p>1140. W. D. GRAY, 2nd and 3rd 5 years of No. 17,020, from the 21st day of June, 1888. Improvements on Machines for the Gradual Reducton of Grain, 30th May, 1888.</p> |
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MAY LIST OF TRADE MARKS.

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

3148. JOHN CORBETT, of Stoke Prior Salt Works, near Bromsgrove, Worcestershire, also trading as WESTON & WESTALL, of 115 Lower Thames Street, London, England. Salt. 3rd May, 1888.
3149. JOHN CORBETT, of Stoke Prior Salt Works, near Bromsgrove, Worcestershire, also trading as WESTON & WESTALL, of 115 Lower Thames Street, London, England. Salt. 3rd May, 1888.
3150. BURROW, STEWART & MILNE, of Hamilton, Ont. Stoves and Ranges, 4th May, 1888.
3151. HAZEN MORSE, of International Bridge, Co. of Welland, Ont. Chemical Preparation for Beautifying and Preserving the Complexion, known as "Laird's Bloom of Youth or Liquid Pearl." 5th May, 1888.
3152. KINNEY TOBACCO COMPANY, of New York, U.S.A. Manufactured Tobacco and particularly Cigarettes. 7th May, 1888.
3153. KINNEY TOBACCO COMPANY, of New York, U.S.A. Manufactured Tobacco, and particularly Cigarettes. 7th May, 1888.
3154. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Quebec. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3155. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Que. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3156. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Que. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3157. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Que. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3158. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Que. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3159. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Que. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3160. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Que. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3161. MRS. D. RITCHIE, widow of David Ritchie, of Montreal, Que. Cut Tobacco, Cigarettes and Cigars. 7th May, 1888.
3162. DONALD WILLIAM DICKSON, of London, England. General Trade Mark. 8th May, 1888.
3163. REVERE RUBBER COMPANY, of Boston, Mass., U.S.A. Patented Compound of Rubber, Plumbago, Brass Filings and other Substances applicable to Packing Joints of Steam. 8th May, 1888.
3164. THOMAS HUBBUCK & SON, of 24 Lime Street, London, England. Oils. 11th May, 1888.
3165. THOMAS HUBBUCK & SON, of 24 Lime Street, London, England. Paints. 11th May, 1888.
3166. THOMAS HUBBUCK & SON, of 24 Lime Street, London, England. Paints. 11th May, 1888.
3167. THOMAS HUBBUCK & SON, of 24 Lime Street London, England. Chemical Substances used in Manufactures, etc. 11th May, 1888.
3168. B. L. NOWELL & CO., of Montreal, Que. Fertilizers. 11th May, 1888.
3169. THOMAS HUBBUCK & SON, of 24 Lime Street, London, England. Chemical Substances used in Manufactures, etc. 11th May, 1888.
3170. THOMAS HUBBUCK & SON, of 24 Lime Street, London, England. Chemical Substances used in Manufactures, etc. 11th May, 1888.
3171. ALBERT E. TURNER, of Montreal, Que. Boots and Shoes. 15th May, 1888.
3172. CHARLES H. SAGAR, of Auburn, County of Cayuga, New York, U.S.A. General Trade Mark. 15th May, 1888.
3173. ELIZAH WILLIAM BARNETT, of London, England, but domiciled in Cognac, France, and there doing business under the firm name and style of BARNETT & FILS. Brandies. 16th May, 1888.
3174. ELIZAH WILLIAM BARNETT, of London, England, but domiciled in Cognac, France, and there doing business under the firm name and style of BARNETT & FILS. Brandies. 16th May, 1888.
3175. JOHN UNDERWOOD & CO., of Toronto, Ont. Inks. 17th May, 1888.
3176. PIERRE HEMOND & FILS, of Montreal, Que. Boots and Shoes. 21st May, 1888.
3177. WILLIAM ROBERT ASHURST, of Farningham, County of Kent, England, Chemical Mixture or Medicine for Human Use. 21st May, 1888.

3178. TLOMAS ADAMS, Jr., of Brooklyn, New York, U.S.A. Chewing Gum. 22nd May, 1888.
3179. LAKE OF THE WOODS MILLING CO. of the Township of Keowatin, District of Thunder Bay, Ont. Grain, Feed, Flour and the Offal of Wheat from Flour Mills. 22nd May, 1888.
3180. LYMAN, SONS and COMPANY, of Montreal, Que. General Trade Mark. 26th May, 1888.
3181. CHRISTIE, BROWN & CO., of Toronto, Ont. Biscuits. 29th May, 1888.
3182. VEUVE HEIDSIECK & CO. Successeurs de Heidsieck & Co., of Reims, Franco. Wine. 29th May, 1888.
3183. VEUVE HEIDSIECK & CO. Successeurs de Heidsieck & CO., of Reims, Franco. Wine. 29th May, 1888.
3184. VEUVE HEIDSIECK & CO. Successeurs de Heidsieck & Co., of Reims, Franco. Wine. 29th May, 1888.
3185. VEUVE HEIDSIECK & CO. Successeurs de Heidsieck & Co., of Reims, Franco. Wine. 29th May, 1888.
3186. VEUVE HEIDSIECK & CO. Successeurs de Heidsieck & Co., of Reims, Franco. Wine. 29th May, 1888.
3187. VEUVE HEIDSIECK & CO., Successeurs de Heidsieck & Co., of Reims, Franco. Wine. 29th May, 1888.
3188. NAPOLEON AUDETTE, of Ottawa, Ont. Compound for Cleansing the Scalp and Promoting the Growth of the Hair. 30th May, 1888.
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4247. **THE ABBEY MURDER**, by Joseph Hatton, (book). William Bryce, Toronto, Ont., 2nd May, 1888.
4248. **RING O' BELLS POLKA**. By Caroline Lowthian. The Anglo-Canadian Music Publishers' Association (Ld.), London, England. 4th May, 1888.
4249. **M-O-N-E-Y**. Words and Music by C. A. PAGE. The Anglo-Canadian Music Publishers' Association, (Ld.), London, England. 5th May, 1888.
4250. **MEDAILLER DU CANADA ou CANADIAN COIN CABINET**, par Joseph LeRoux, M.D., (livro). Joseph LeRoux, M.D., Montreal, Que. 7 Mai, 1888.
4251. **A WOMAN'S FACE**, by Florence Warden, (book). William Bryce, Toronto, Ont. 7th May, 1888.
4252. **THE LAUNDRY LIST AND ADVERTISER FOR CANADA**, (book). Thomas Philip Powell, Montreal, Que. 7th May, 1888.
4253. **McPHILLIPS' ALPHABETICAL AND BUSINESS DIRECTORY OF THE DISTRICT OF SASKATCHEWAN, N.W.T.**, together with Brief Historical Sketches of Prince Albert, Battleford, and Other Settlements in the District, 1888. Henry T. McPhillips, Prince Albert, N.W.T. 7th May, 1888.
4254. **CHART OF THE TEN COMMANDMENTS**. James Bain & Son, Toronto, Ont. 11th May, 1888.
4255. **THE ROYAL ARCANUM REGISTER OF ONTARIO**, (book), Frank G. Morley and Harry English, Toronto, Ont. 11th May, 1888.
4256. **MARTIN'S TENANTS' RENT BOOK**. Henry Stanford Martin, Toronto, Ont. 11th May, 1888.
4257. **CRADLED IN A STORM**. By Theodore A. Sharp, (book). William Bryce, Toronto, Ont. 12th May, 1888.
4258. **A ROMANCE OF TORONTO**, by Mrs. Annie G. Savigny, (book). Annie Gregg Savigny, Toronto, Ont. 12th May, 1888.
4259. **LITHOGRAPH OF THE NEW PARLIAMENT BUILDINGS, TORONTO**. William Bryce, Toronto, Ont. 12th May, 1888.
4260. **THE MECHANICS' LIEN ACT**, being the revised Statute of Ontario (1887), Chapter 126, with Annotations and Additional Forms of Proceedings thereunder. George Smith Holmsted, Toronto, Ont. 14th May, 1888.
4261. **SEMI-MONTHLY BULLETIN OF THE INTERNATIONAL STOCK EXCHANGE**, (chart). Dolph McGregor and J. Hodgson Pierce, Courtright, Ont. 15th May, 1888.
4262. **A GLORIOUS GALLOP**, by Mrs. Edward Kennard, (book). The National Publishing Company, Toronto, Ont. 15th May, 1888.
4263. **THE DEVIL'S DIE**, by Grant Allon, (book). The National Publishing Company, Toronto, Ont. 16th May, 1888.
4264. **THE PLASTERERS' READY RECKONER AND BUILDERS' GUIDE**, by Joseph McClelland, (book). Joseph McClelland, Owen Sound, Ont., 16th May, 1888.
4265. **SURRENDER OF POUNDMAKER TO GENERAL MIDDLETON AT BATTLEFORD, N.W.T.**, on the 26th May, 1885. (Painting). Robt. Wm. Rutherford, Que. 16th May, 1888.
4266. **BRYCE'S NEW INDEX MAP OF TORONTO**. William Bryce, Toronto, Ont. 16th May, 1888.
4267. **THE ARGONAUTS OF NORTH LIBERTY**, by Bret Harto, (book). William Bryce, Toronto, Ont. 16th May, 1888.
4268. **THE MINERALS AND GEOLOGY OF CENTRAL CANADA**, comprising the provinces of Ontario and Quebec, by E. J. Chapman Ph. D., L.L.D., (book). The Copp, Clark Company, (Ld.), Toronto, Ont. 17th May, 1888.
4269. **VIRGIL'S ÆNEID**. Book V. Edited with Introductory Notices, Notes and Complete Vocabulary, by John Henderson, M.A. The Copp, Clark Company, (Ld.), Toronto, Ont. 17th May, 1888.
4270. **MARK TWAIN'S LIBRARY OF HUMOUR**, (book). Andrew Chatto, London, England. 17th May, 1888.
4271. **A REVIEW OF F. W. MACDONALD'S LIFE OF WM. MORLEY PUNSHON, L.L.D.**, by Rev. Hugh Johnston, M.A., B.D., with an introduction by Rev. Geo. Douglas, L.L.D. and an estimate of the Great Preacher's character and work in Chanda, by Hon. Senator Macdonald. Wm. Briggs, Toronto, Ont. 17th May, 1888.

4272. BUSTE DE CREMAZIE. P. M. A. Genest, Quebec. 17 Mai, 1888.
4273. A POPULAR HISTORY OF THE DOMINION OF CANADA. FROM THE DISCOVERY OF AMERICA TO THE PRESENT TIME. Revised and Extended Edition brought down to 1888, by William H. Withrow, D.D., F.R.S.C. William Briggs, Toronto, Ont., 18th May, 1888.
4274. MIRACLE GOLD. A Novel. by Richard Dowling. William Bryce, Toronto, Ont. 19th May, 1888.
4275. ROCK-A-BYE BABY. Valse on Effie Cummings. Popular Song by E. Corlett, Edmond Corlett, Toronto, Ont. 21st May, 1888.
4276. MOLLY'S STORY. Being a family history as related by a faithful servant. Edited by Frank Merryfield. William Bryce, Toronto, Ont. 21st May, 1888.
4277. LES EXPLOITS D'IBERVILLE, par Edmond Rousseau, (livre). C. Darveau, Quebec. 21 Mai, 1888.
4278. GEORGE MILWARD McDougALL. THE PIONEER, PATRIOT AND MISSIONARY. by John McDougall, with an introduction by Alex. Sutherland, D.D. William Briggs, Toronto, Ont. 22nd May, 1888.
4279. METHODISM AND ANGLICANISM IN THE LIGHT OF SCRIPTURE AND HISTORY. by Rev. F. G. Williams, with an introduction by Rev. W. I. Shaw, L.L.D. William Briggs, Toronto, Ont. 22nd May, 1888.
4280. THE SONG MY MOTHER SANG. Words by J. C. Jeffries. Music by Elena de Angelis Waters. Elena de Angelis Waters, Montreal, 22nd May, 1888.
4281. THE MIDNIGHT WATCH OF THE LATE ARCHBISHOP LYNCH. (Photograph). William Henry Whittlesey, Toronto. 23rd May, 1888.
4282. A SYSTEM FOR THE RAPID AND ACCURATE COMPUTATION OF QUANTITIES FOR ROADS, RAILWAYS, CANALS, AND OTHER WORKS, (book). Joseph Meadows, Toronto. 25th May, 1888.
4283. SINCLAIR'S CONSOLIDATED DIVISION COURT ACT, 1888. James Shaw Sinclair. Hamilton, 1888.
4284. INSURANCE PLANS OF BARRIE, BOWMANVILLE, FORT WILLIAM, GANANOQUE, MATTAWA, NORTH BAY, ORANGEVILLE, ORILLIA, PORT ARTHUR, RAT PORTAGE, in Ontario; and St. Johns, Joliette, in Quebec. Charles Edward Goad, Montreal, 25th May, 1888.
4285. PROCEEDINGS AND TRANSACTIONS OF THE ROYAL SOCIETY OF CANADA FOR THE YEAR 1887. Volume V. Dawson Brothers, for the Royal Society of Canada. 28th May, 1888.
4286. PHOTOGRAPH OF GEORGE FRANCIS TRAIN. (Marked A). William Ferguson, Malvern, Ont. 28th May, 1888.
4287. PHOTOGRAPH OF GEORGE FRANCIS TRAIN. (Marked B). William Ferguson, Malvern, Ont. 28th May, 1888.
4288. PHOTOGRAPH OF GEORGE FRANCIS TRAIN. (Marked C). William Ferguson, Malvern, Ont., 28th May, 1888.
4289. THE POLITICIAN, by T. W. P., (book). The Rose Publishing Company, Toronto, 29th May, 1888.
4290. THE AMERICAN SLANGIST. by Sherman Malcolm, (book). Sherman Malcolm. Blenheim, Ont. 29th May, 1888.
4291. A MANUAL OF DRAINAGE FOR FARMERS AND LAND OWNERS. Edward Wasell, Ingersoll, Ont. 29th May, 1888.
4292. YOUNG & BROWNLEE'S WINNIPEG DISTRICT MAP. Robert E. Young and James H. Brownlee, Winnipeg, Man. 29th May, 1888.
4293. THE HIGH SCHOOL GERMAN GRAMMAR, by W. H. van der Smisson, M.A., and W. H. Fraser, B.A. The Copp, Clark Company, (Ld.), Toronto, 29th May, 1888.
4294. BREEZIE LANGTON. A story of fifty-two to fifty-five, by Captain Hawley Smart. The National Publishing Co, Toronto. 30th May, 1888.

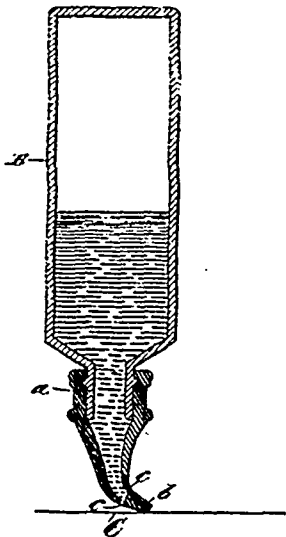
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CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

Vol. XVI.

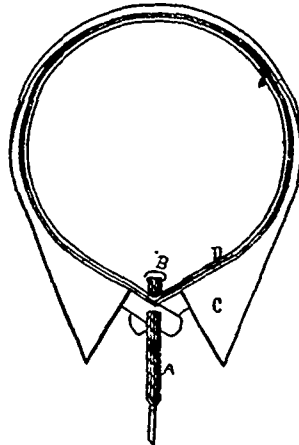
MAY, 1888.

No. 5.

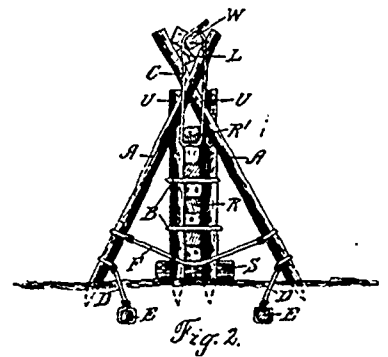


29038 Underwood's Tip for Mucilage, etc.

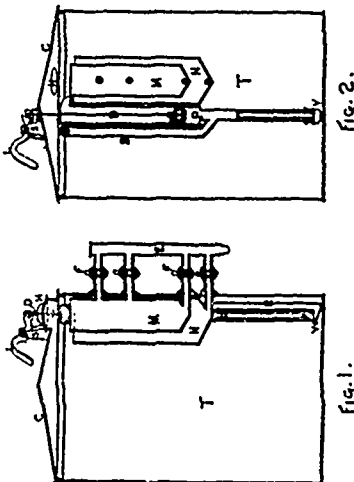
Fig. 1.



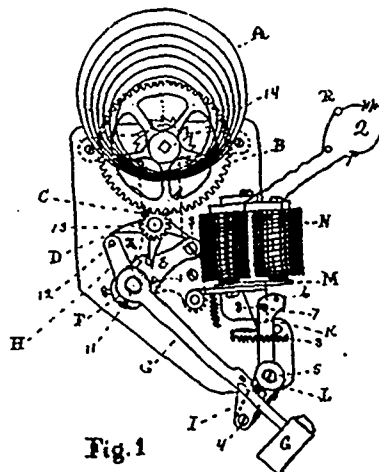
29039 Holden's Collar Button and Tie Fastener.



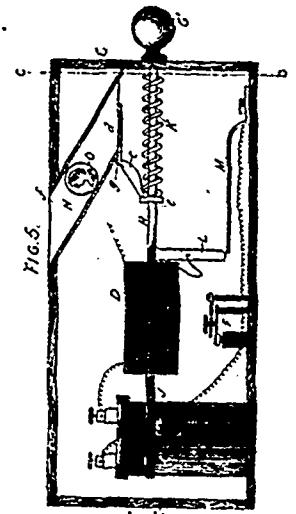
29040 Walker's Fenco.



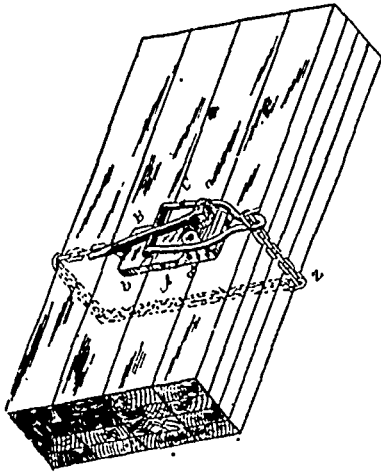
29241 Linck's Measuring Tank.



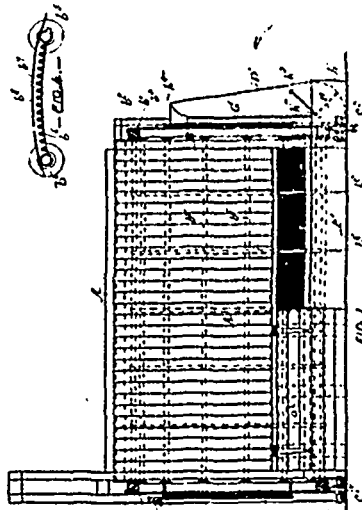
29042 Tirrell's Electro Mechanical Gong.



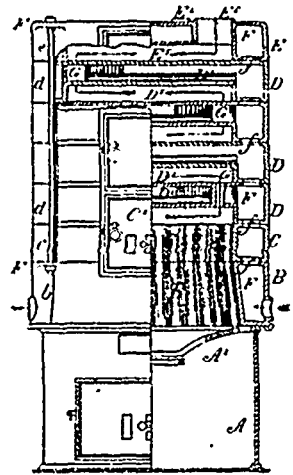
29043 Greenhill's Apparatus for Administering
Elixirs, &c.



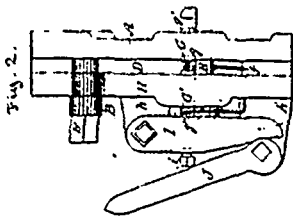
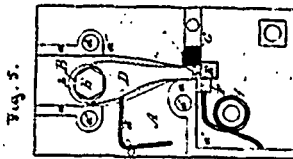
29044 Webster's Load Binding Device.



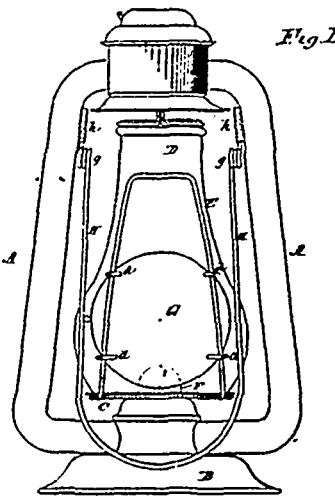
29045 Nelson & Bowen's Machine for Drying Wool



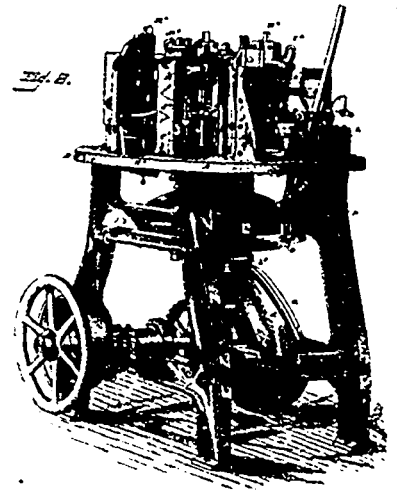
29046 Sellers' Hot Water Heater



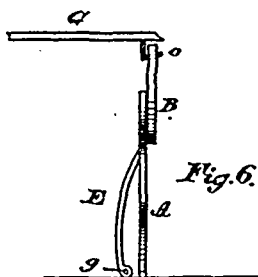
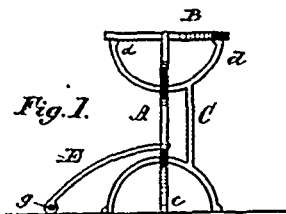
29047 House's Saw Swage.



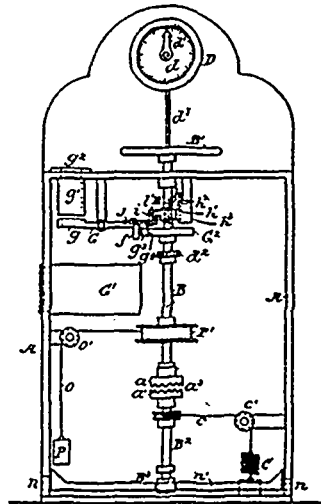
29048 Stone's Tubular Lantern.



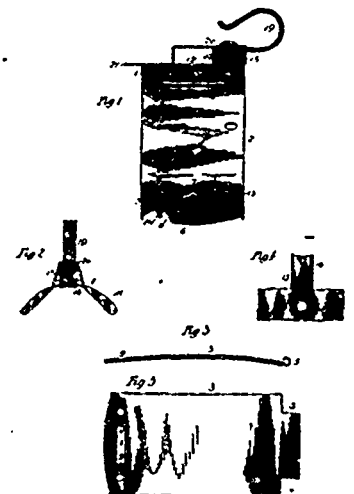
29049 Peters' Cartridge Loading Machine.



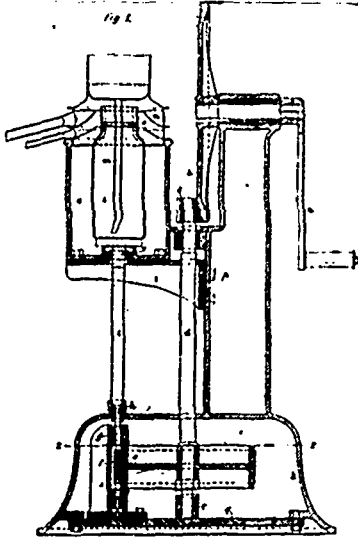
29050 Wilson's Folding Seat



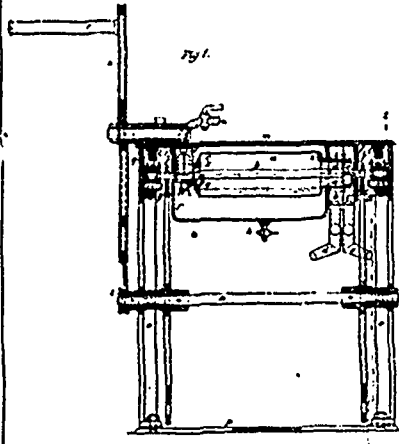
29051 Winch's Strength Testing Machine.



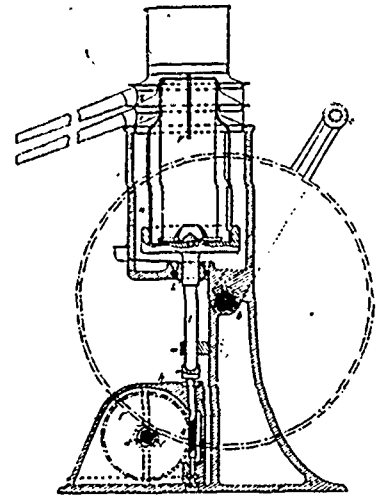
29052 Rehkopf's Pad Plate for Harness Saddles.



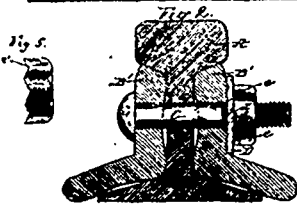
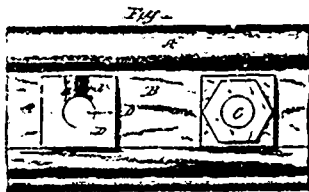
29053 De Laval's Apparatus for Supporting and Working Centrifugal Machines.



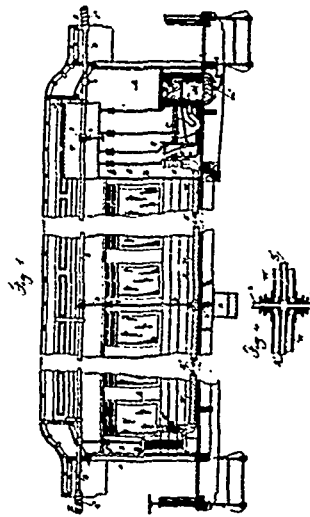
29754 De Laval's Hand Apparatus for Separating Substances of Different Gravities



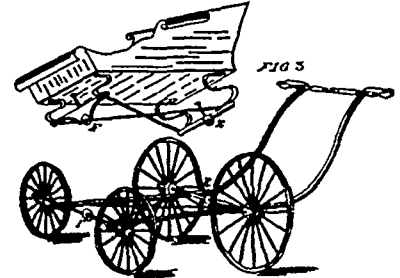
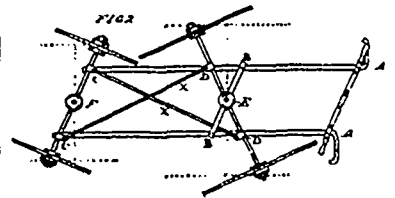
29055 De Laval's Apparatus for Supporting and working Centrifugal Machines



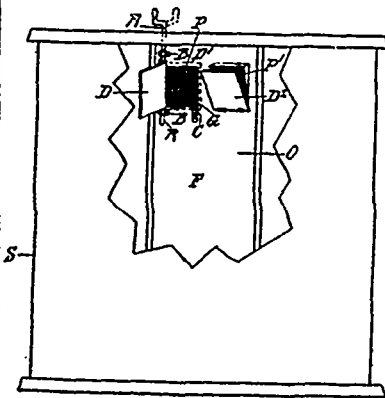
29056 Parks & Roquemore's Nut Lock.



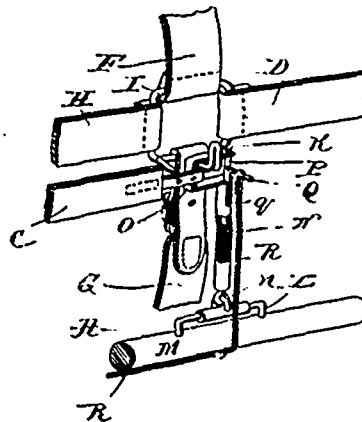
28057 Shackleton's Apparatus for Heating Ball-way Cars.



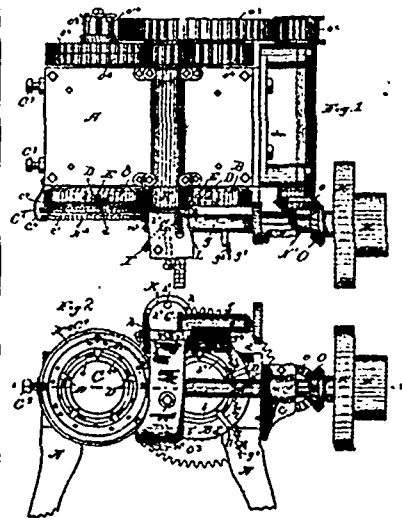
29058 Fax's Vehicle Gearbox.



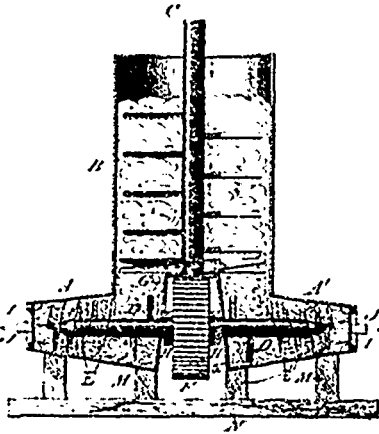
29059 Cox's Oven Odour Exhaust.



29060 Williams' Harness.



29061 Hill's Wire Nail Making Machine



29062 Emens' Brick Machine.

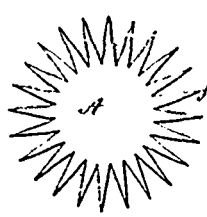


Fig. 1.

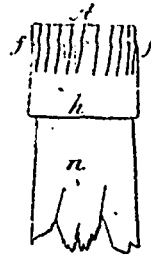


Fig. 2.

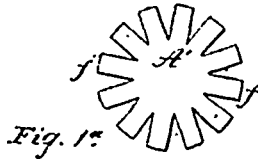
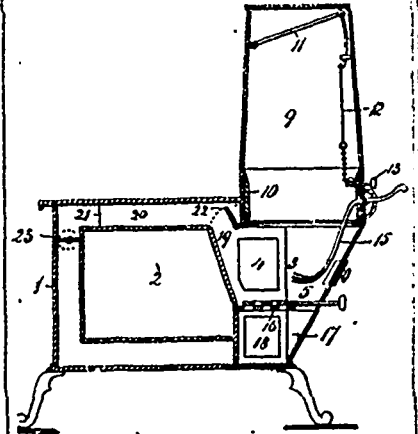
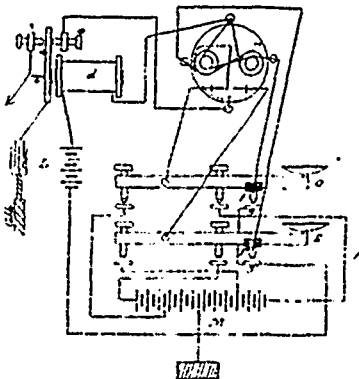


Fig. 1.



29063 McBride's Cooking Stove for Burning Straw, etc.



29069 Gott's Method of and Apparatus for Transmission Through Submarine Cables.

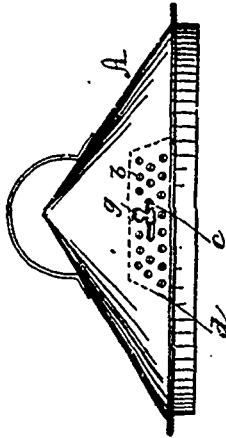
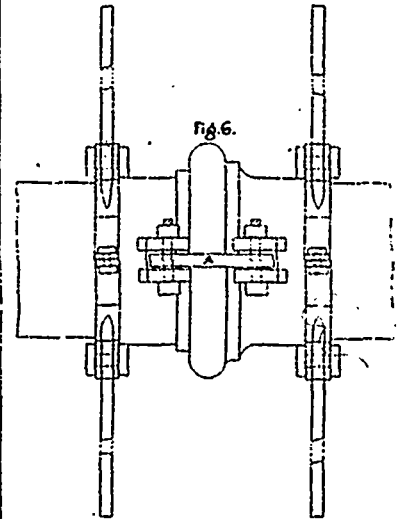
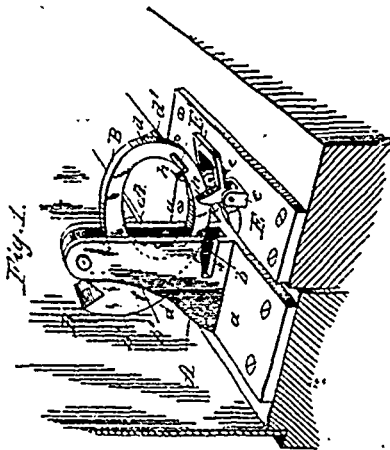


Fig. 1.

29070 Durand's Cover for Pots, etc



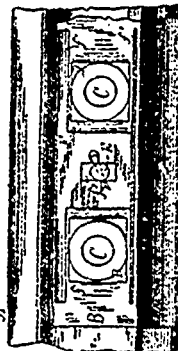
29071 Tiedemann's Flexible Water Pipe.



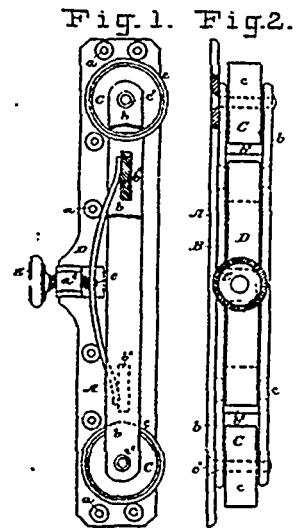
29072 Brown's Sash Fastener.



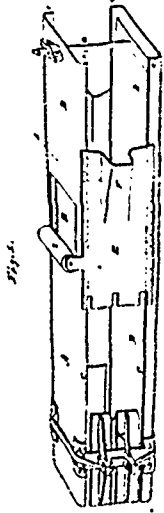
Fig. 1.



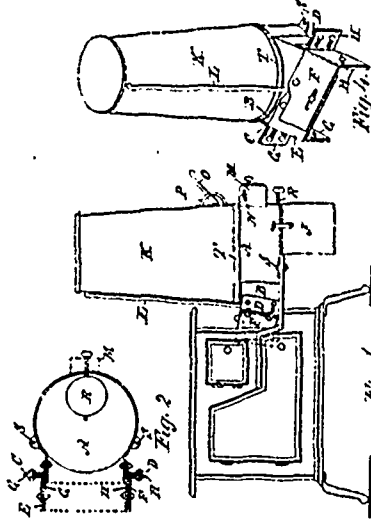
29073 Rolls' Nut Lock.



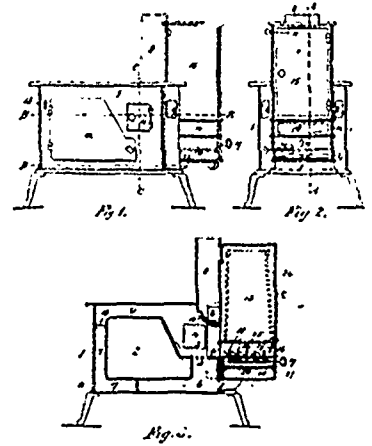
29074 Cook's Sash Supporter.



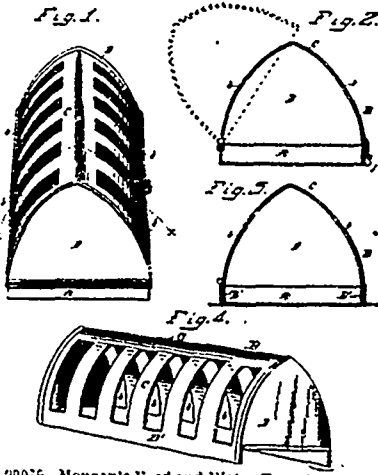
29075 Dederick's Baling Press.



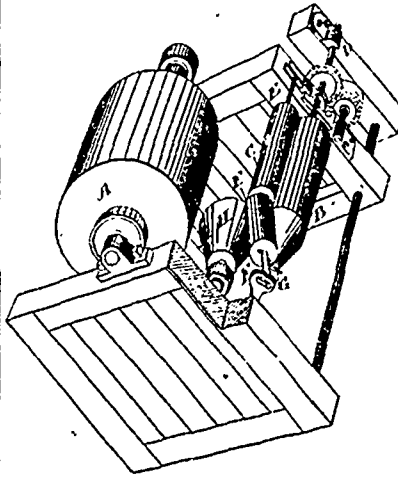
29076 McBride's Straw-burling Attachment for Stoves.



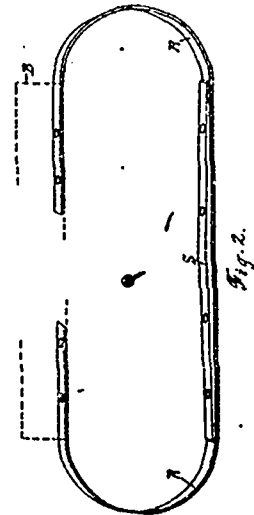
29077 McBride's Stove for Burning Straw, etc.



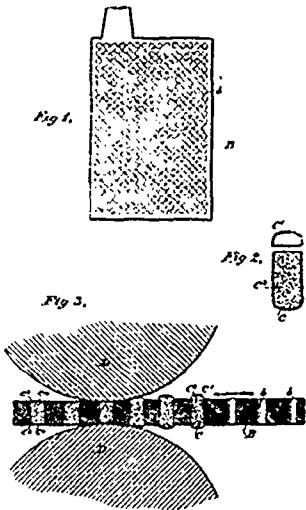
29078 Mouzon's Feed and Water Tray for Chickens.



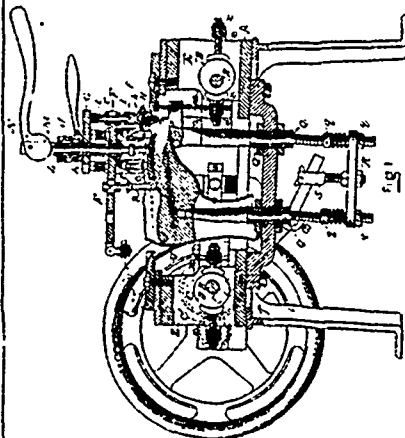
29079 Glasby's Felt Sock Machine.



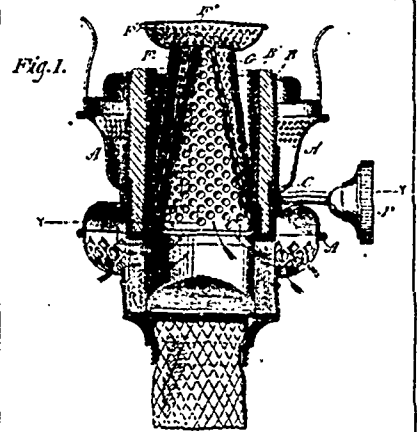
29080 Jones' Sleigh or Cutter Runner.



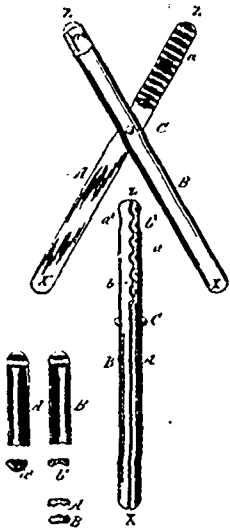
29081 Gibson's Storage Battery.



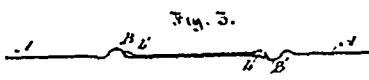
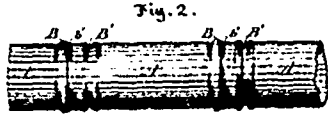
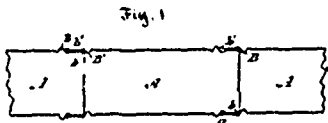
29082 Kelley's Lasting Machine.



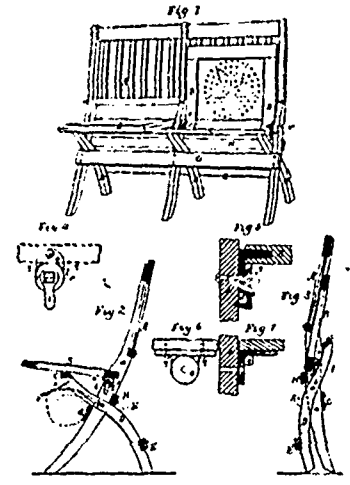
29083 Rhind's Argand Lamp



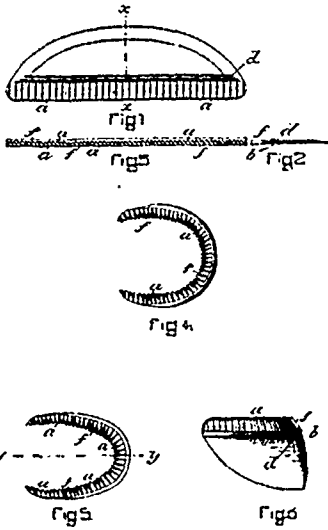
29084 Coss' Clothes Tongs.



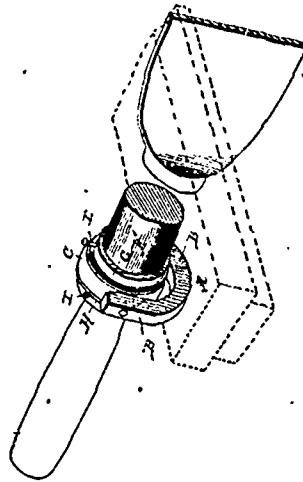
29085 House's Stove Pipe.



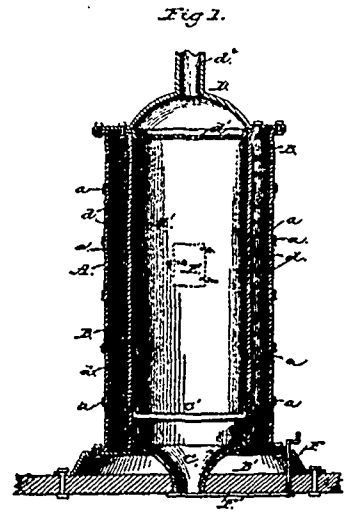
29086 Harwood's Folding Settee.



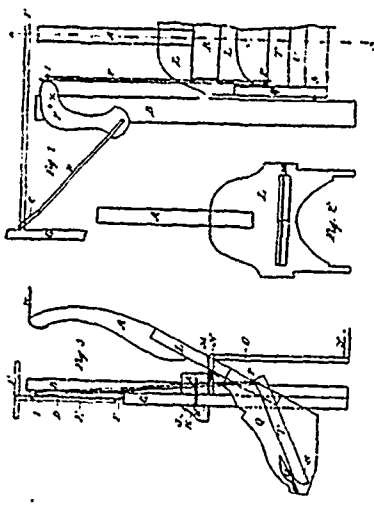
29087 Coté's Counter-Stiffening for Boots and Shoes.



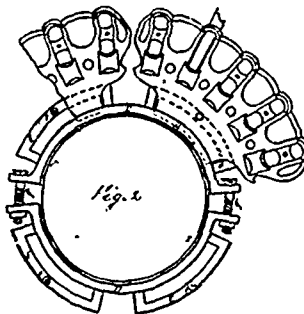
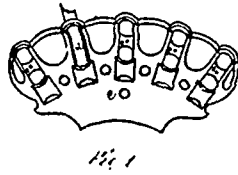
29088 Rice's Row Lock.



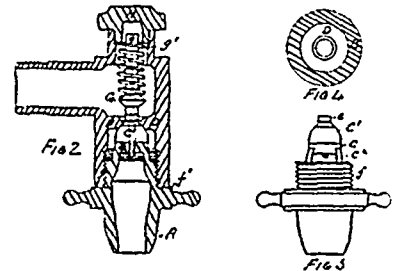
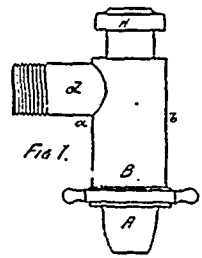
29089 Wardle's Car Heater.



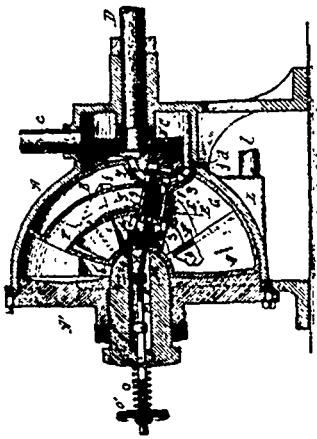
29090 Blackstone's Organ.



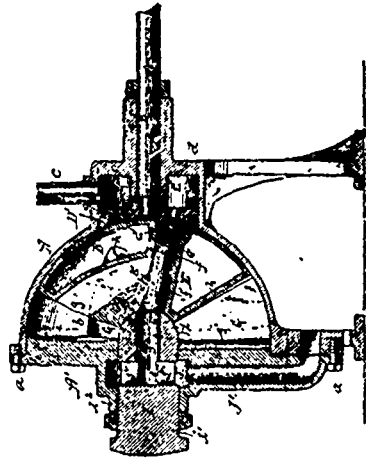
29091 Chappell's Clothes Dryer.



29093 Gill's Cock or Tap for Water Pipes.



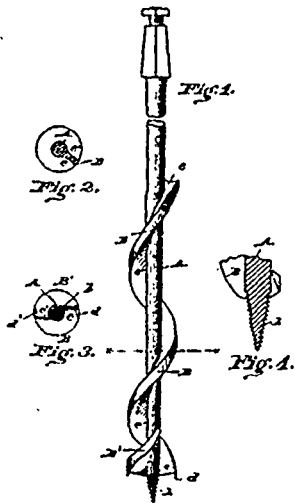
29094 Smith's Steam Engine.



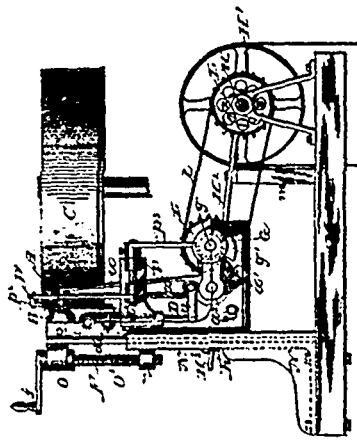
29095 Smith's Steam Engine.



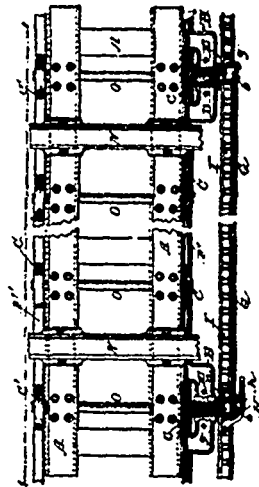
29096 Fisher & Rappold's Alarm Water Gauge.



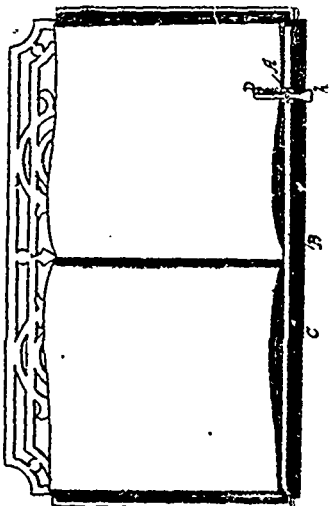
29097 Irwin's Auger Bit.



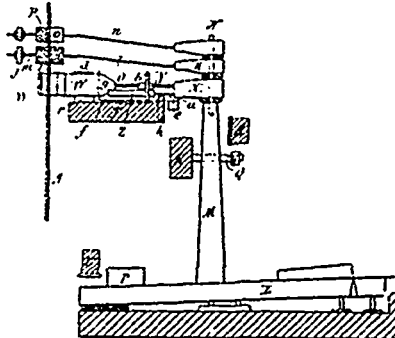
29098 Gowen's Saw Hammering Machine.



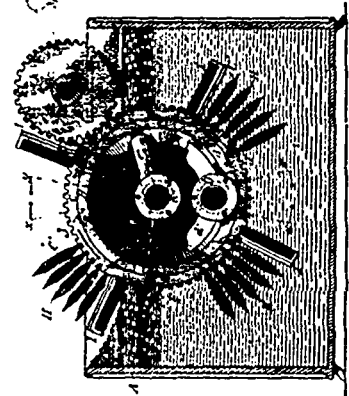
29099 Gowen's Sawmill Carriage.



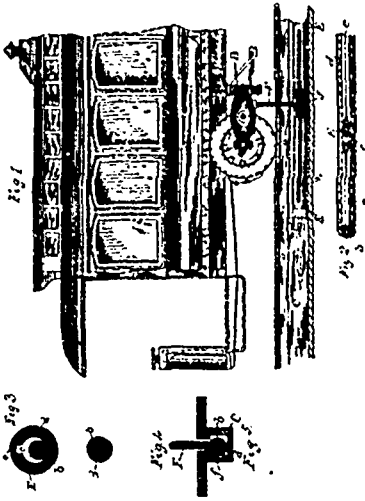
29100 Brown's Music and Book Holder.



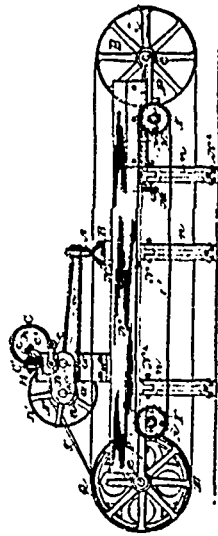
29101 Dietz's Harp.



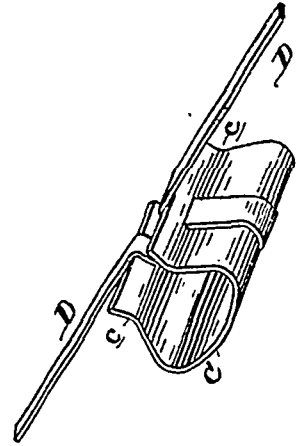
29102 Graemiger's Apparatus for Treating Yarn in Cops.



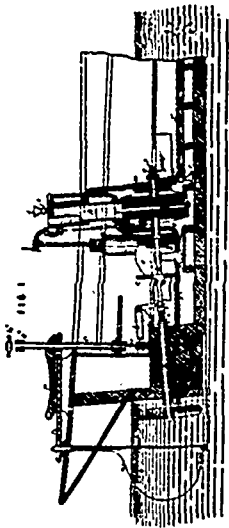
29103 Euphrat's Conduit for Electric Railways.



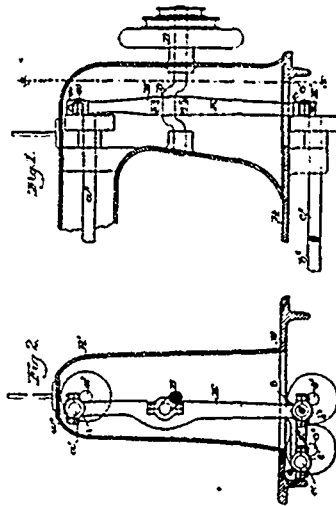
29104 Gowen's Saw Hammering Machine.



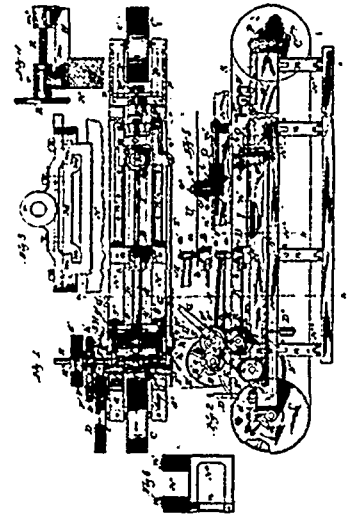
29105 Hamilton's Book Holder, etc.



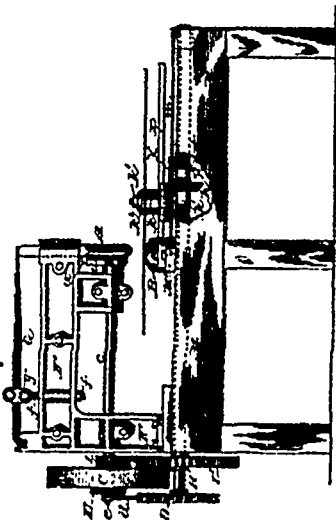
29106 Dairaler's Apparatus for Effecting Marine Propulsion.



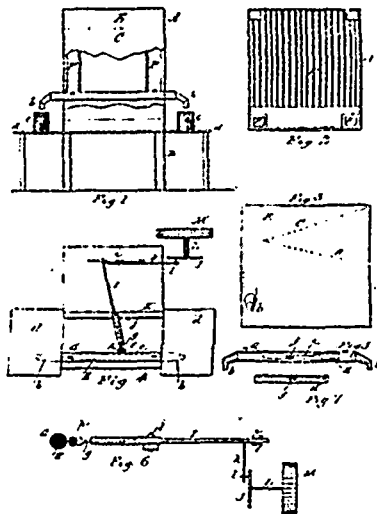
29107 Grout & Bower's Mechanical Movement.



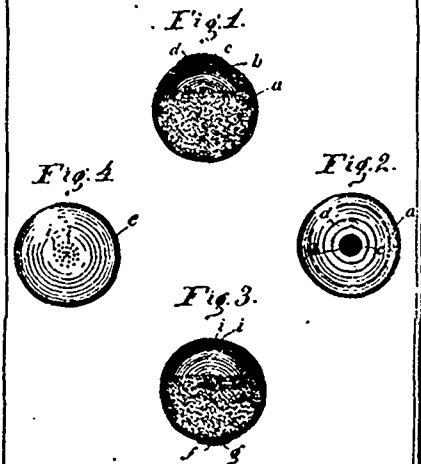
29108 Gowen's Saw Hammering Machine.



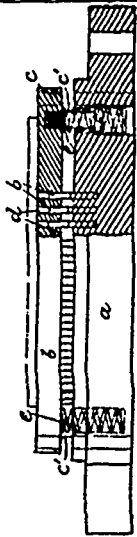
29109 Gowen's Saw Hammering Machine.



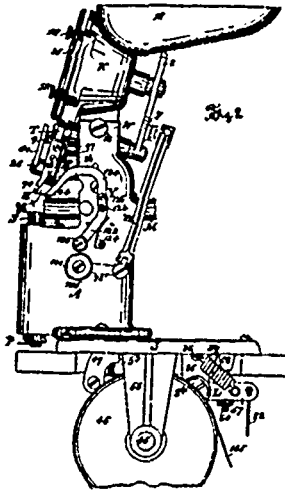
29110 Carpenter & Do Cow's Machine for Filling Fruit Cans, etc.



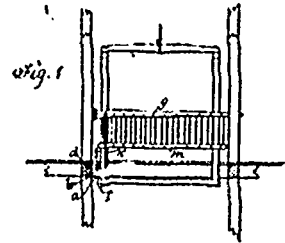
29111 Culbertson's Inhaler.



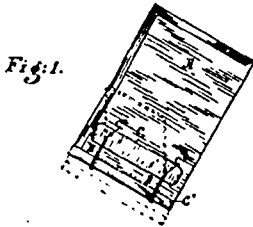
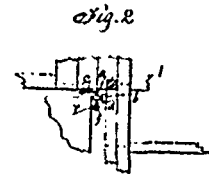
29112 Degret's Apparatus for Manufacturing Boots and Shoes.



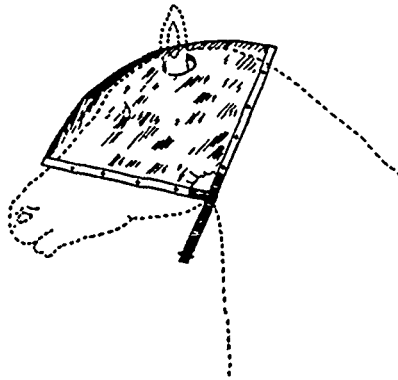
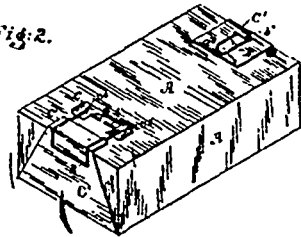
29113 Richards' Button Setting Machine.



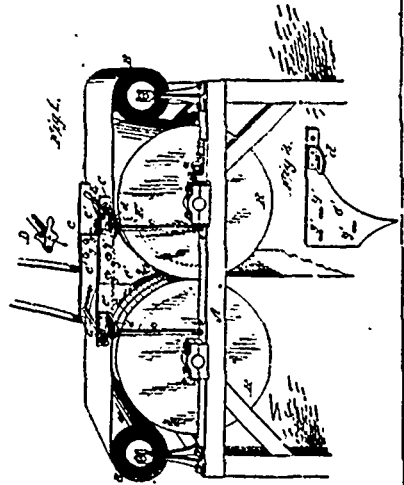
29114 Laden's Guard for Hatchway Elevators.



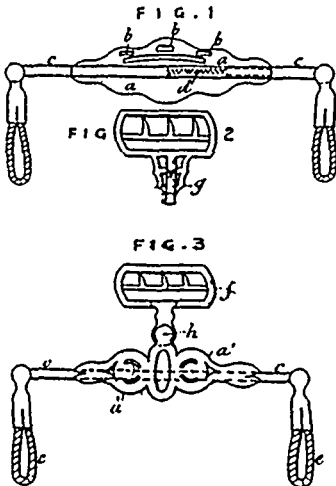
29115 Hubbard's Fastening for Envelopes, &c.



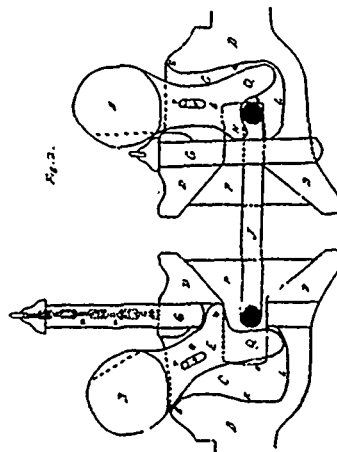
29116 Sullivan's Fire Protecting Hood for Horses



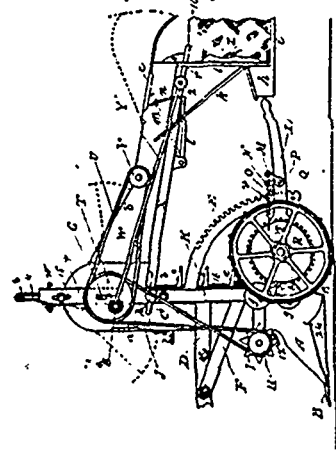
29117 Childs' Machine for Making Sheeting Paper.



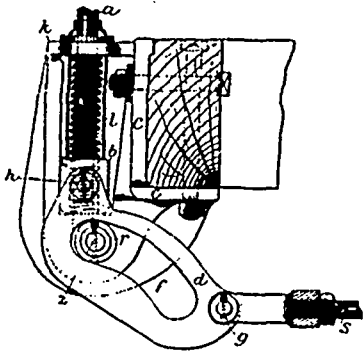
29118 Lewis' Trousers Suspender.



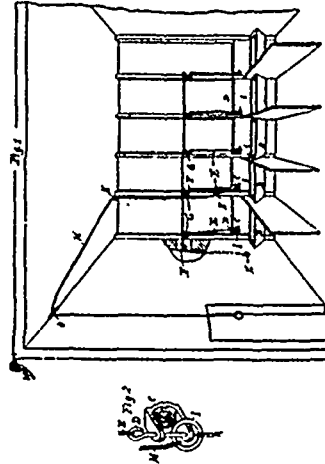
29119 Chisholm's Railway Car Coupler.



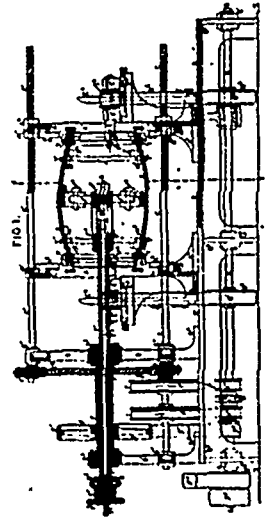
29120 Hall's Potato Harvester



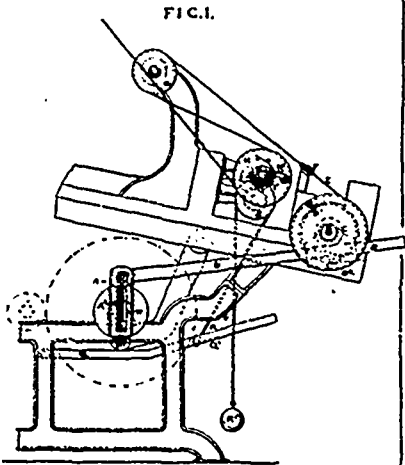
29121 Tentschert's Railway Brake, etc.



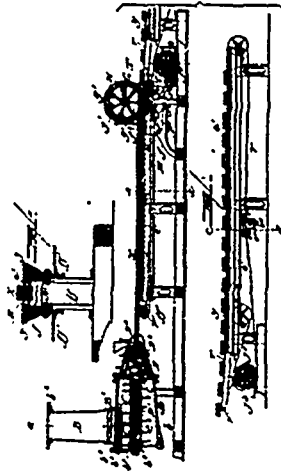
29122 Sullivan's Device for Releasing Horses in case of Fire.



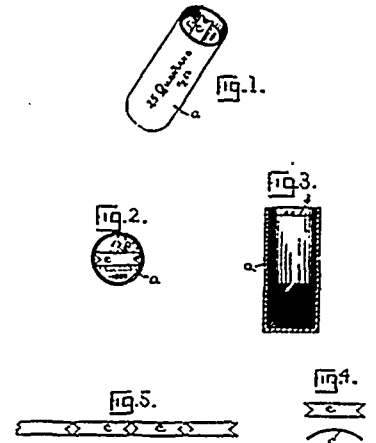
29123 Wright's Mechanism for Making Casks.



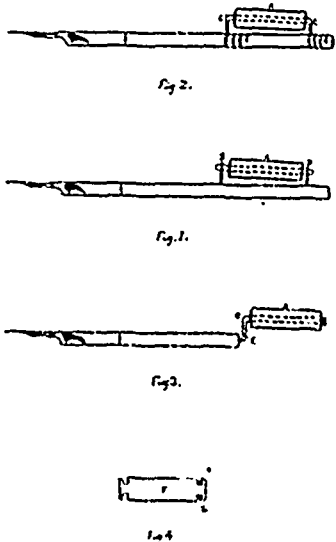
29124 Spear's Printing Machine, etc.



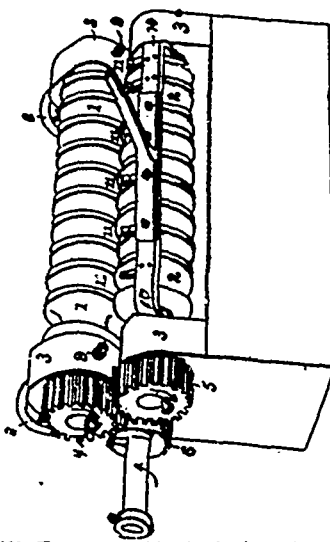
29125 Chambers' Brick Machine.



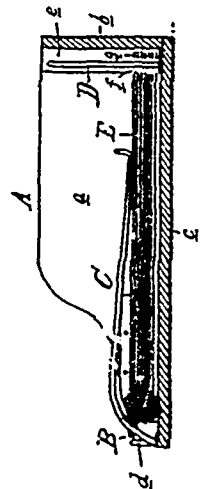
29126 Luce's Coin Holder.



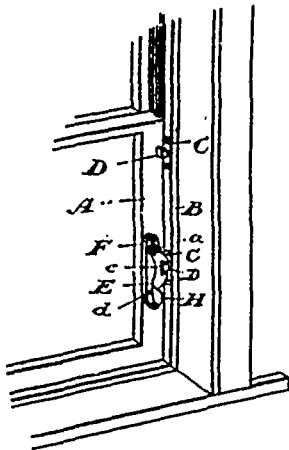
29127 Norton's Pen-Holder and Blotter.



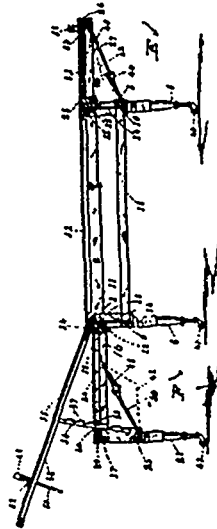
29128 Krumm's Machine for Straightening Round Rods, etc.



29129 Alderman's File Case.



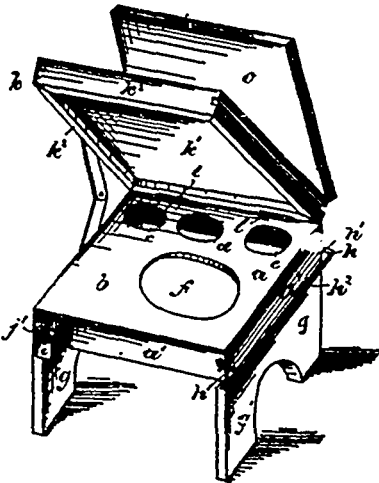
29132 Stauffer's Window Catch.



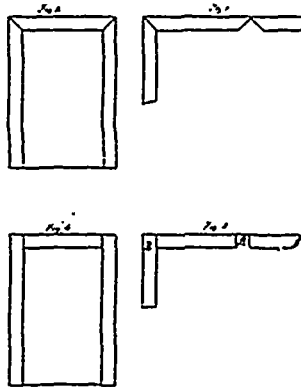
29133 Blood's Embalming Board.



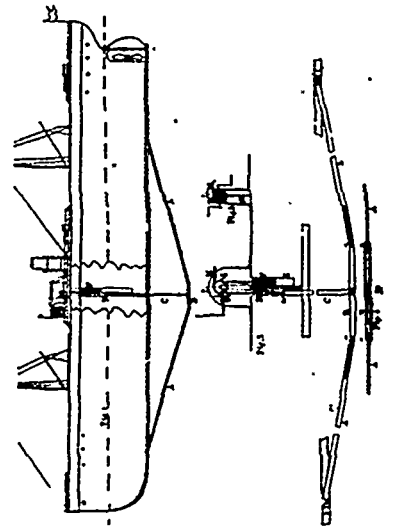
29134 Garrett's Child Carriage.



29135 Holt's Toilet Cabinet.



29136 Westman's Printers' Galleys.



29137 Marshall & White's Shoal Water Alarm.



FIG. 1.

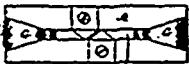


FIG. 2.



FIG. 4.



FIG. 3.



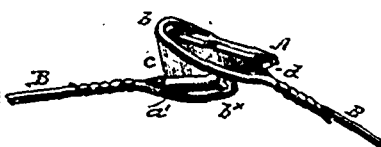
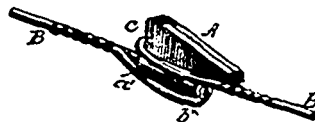
FIG. 5.



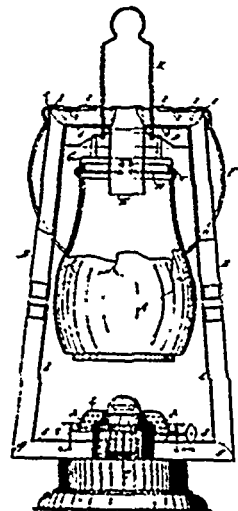
FIG. 6.

FIG. 7.

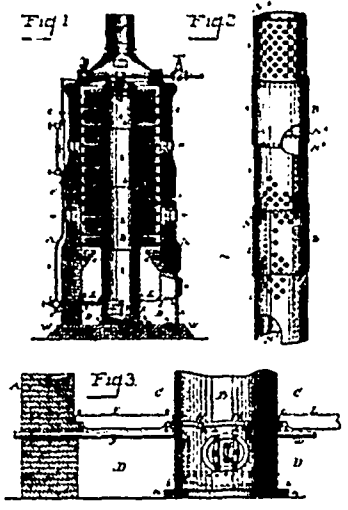
29138 Schlefer's Device for Detaching Buttons from Shoes.



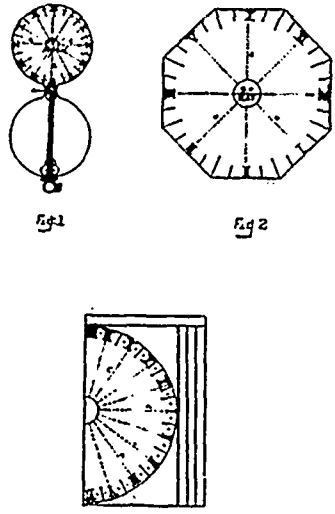
29139 Hewitt's Wire Balo Tie.



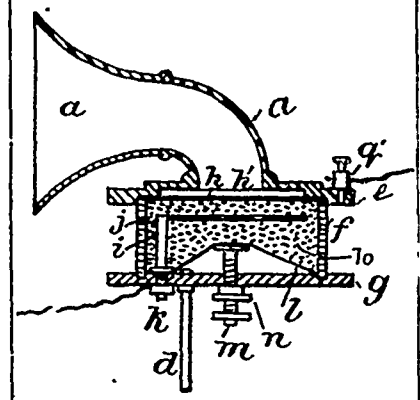
29140 Betta's Tubular Lantern.



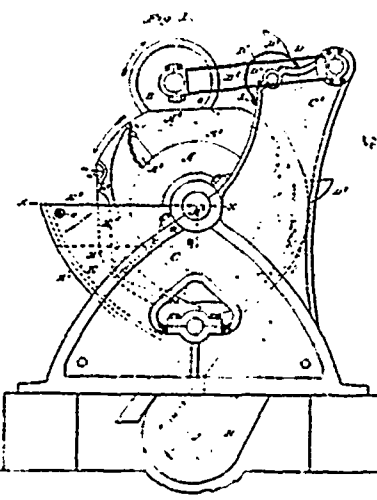
29141 Kennedy's Radial Tube Steam Boiler.



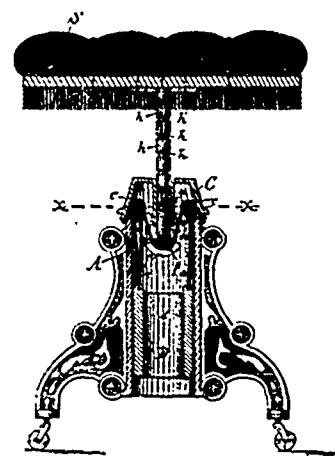
29142 Pontardawe's Tablet for Registering Appointments.



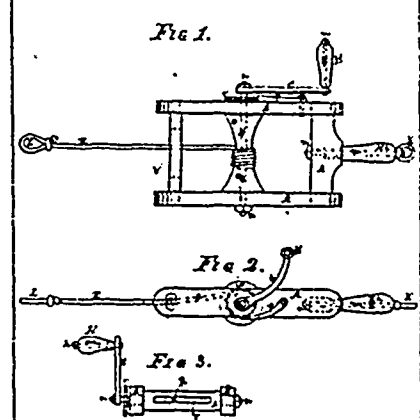
29143 Farnham's Telephone Transmitter.



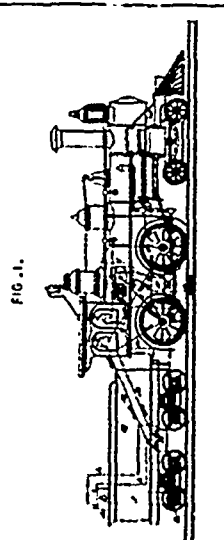
29144 Granger's Ore Crushing Machine.



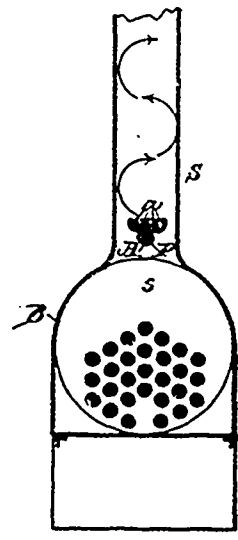
29145 Tripp's Adjustable Stool and Chair.



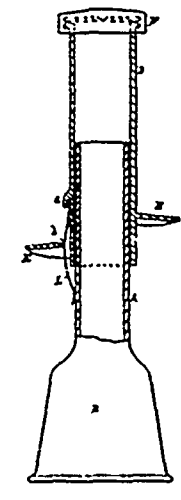
29146 Pitman's Machine for Tightening Clothes Lines.



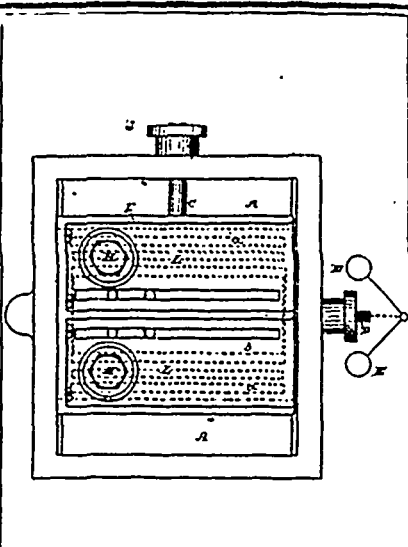
29147 Hies' Electric Traction Increasing System for Railways.



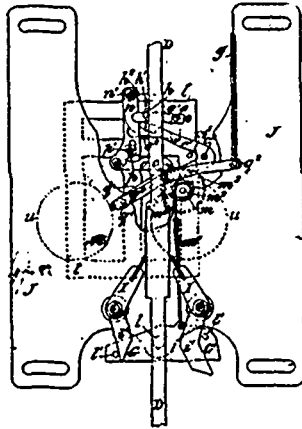
29148 Hoko's Spark Arrestor and Extinguisher.



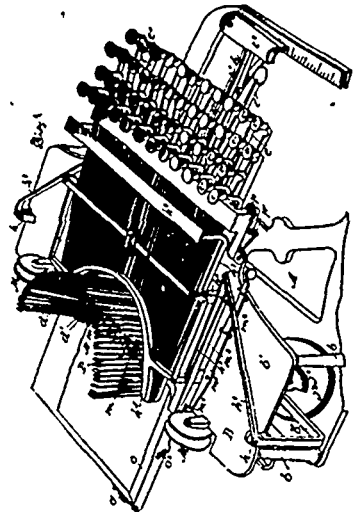
29149 Walker's Shut-Off Box.



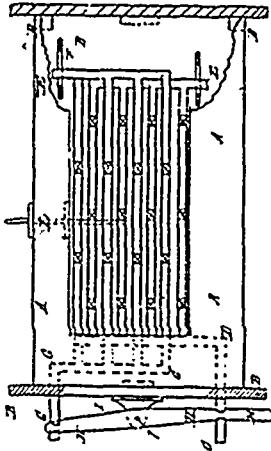
29150 Tonkin's Valve Mechanism.



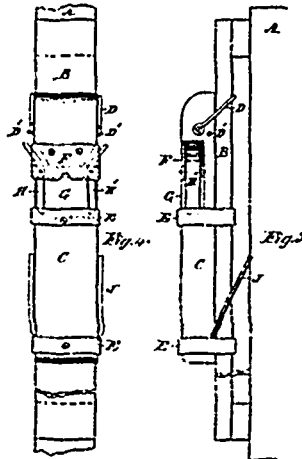
29151 Weber's Weighing Machine.



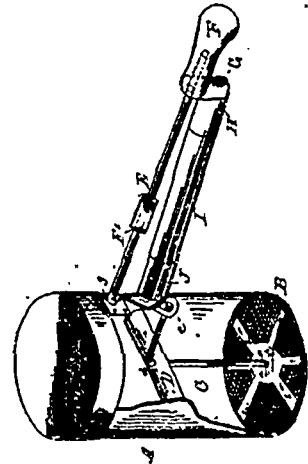
29152 Cash's Type Writing Machine.



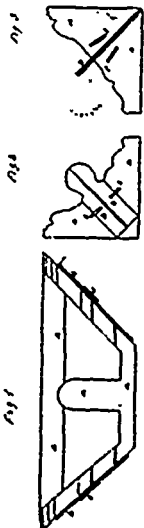
29153 Dolliver's Grate for Stoves, etc.



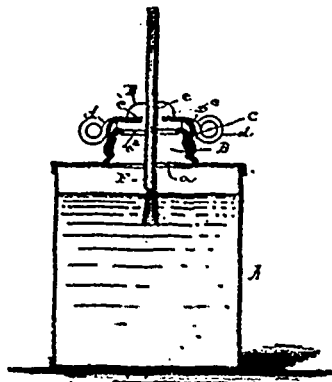
29154 Dyer's Gate Catch.



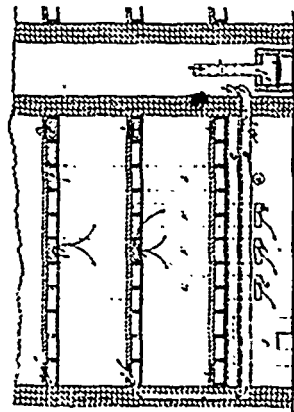
29155 Ingalls' Insect Destroyer.



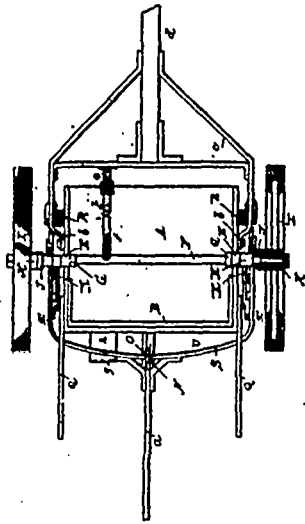
29156 Mould's Machine for Moulding or Running Cornices.



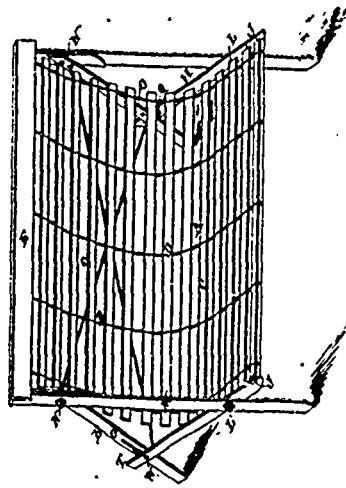
29157 Kirkpatrick's Package for Liquid Glue, etc.



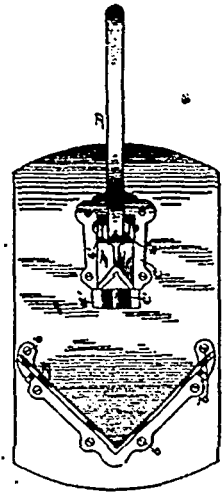
29158 Tilden's System of Ventilation.



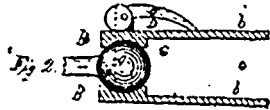
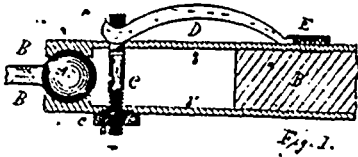
29159 Deovy's Wheeled Scraper.



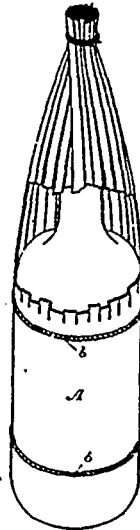
29160 Knott's Folding Chair



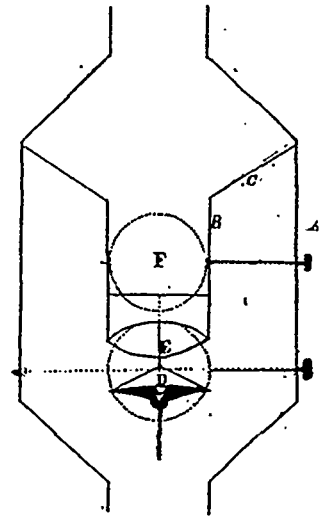
29161 Wakeman & Cracker's Machine for Constructing Boxes.



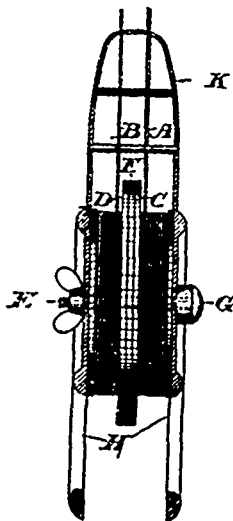
29162 Yale's Ball and Socket Joint.



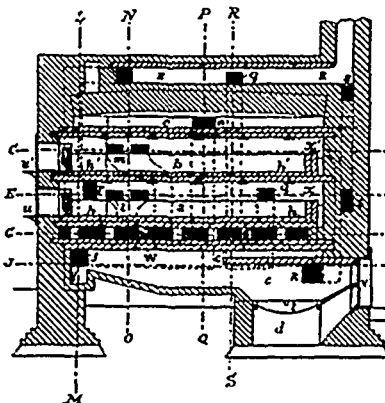
29163 White's Capsule for Packing Bottles.



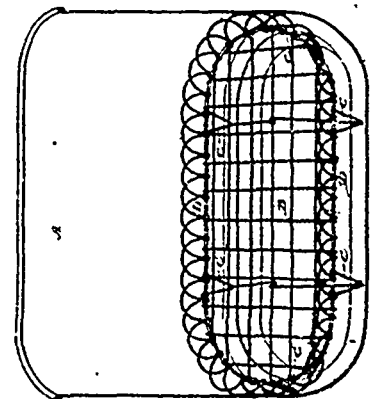
29164 Williams' Fire Arrester and Heat Retainer.



29165 Esson's Fire-Escapo.



29166 Baker's Bakers' Oven.



29167 Dill's Steam Clothes Washer.

FIG. I

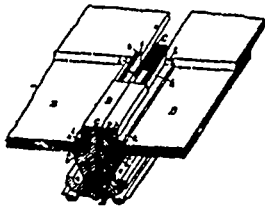
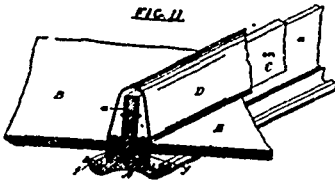


FIG. II



29168 Hellwell's Glazed Roof.

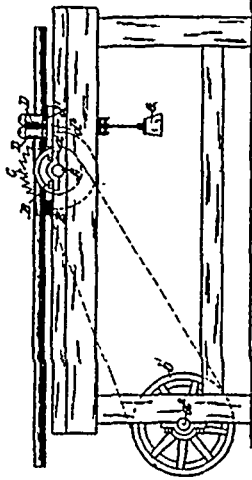
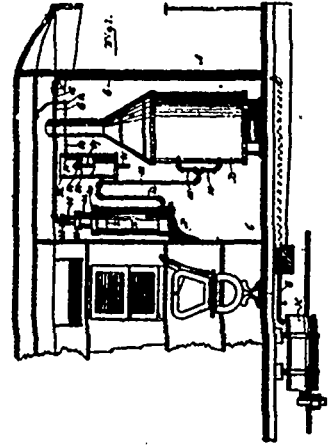
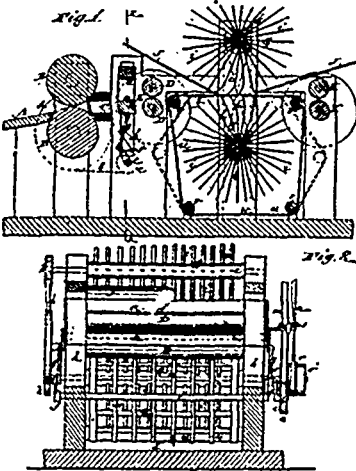


Fig. 2.

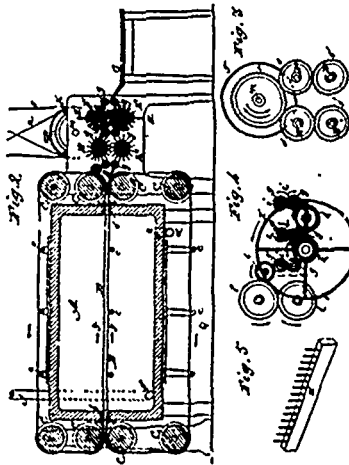
29169 Hockin's Hoop Machine.



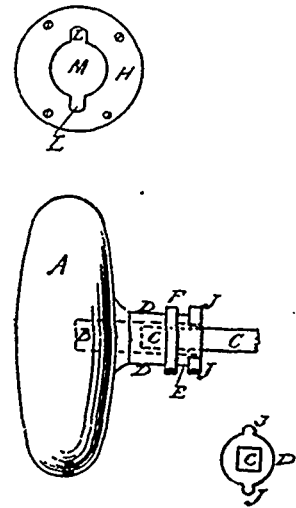
29170 Berry's Device for Extinguishing Fires.



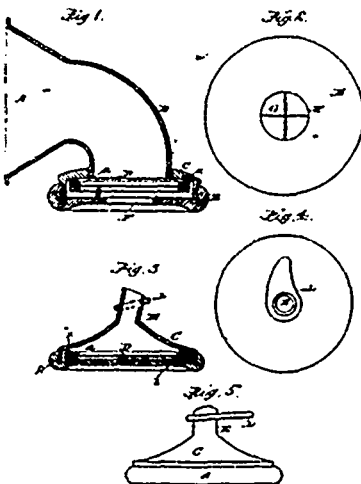
29171 Kauffman's Jute, etc, Stripping Machine.



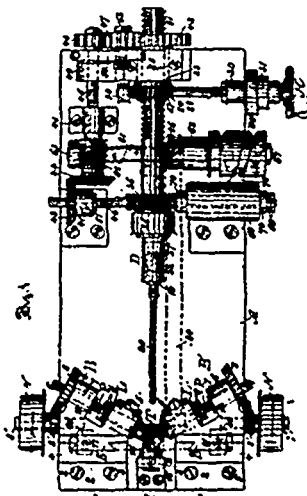
29172 Kauffman's Apparatus for Drying and Cleaning Rambo, etc.



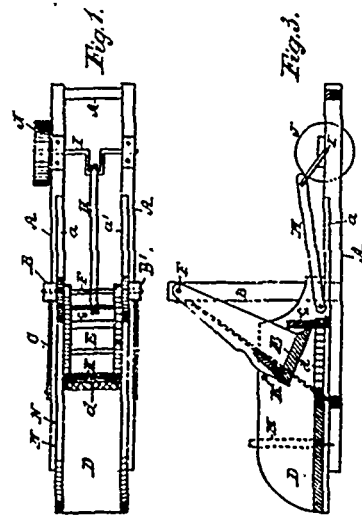
29173 Crawford's Door Knob.



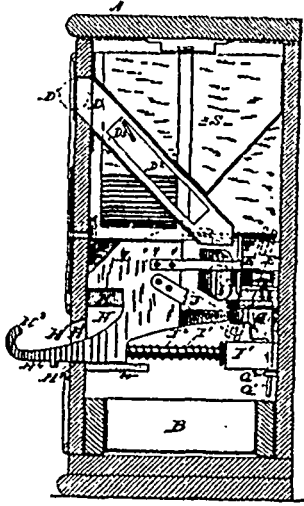
29174 Maloney's Auriphone.



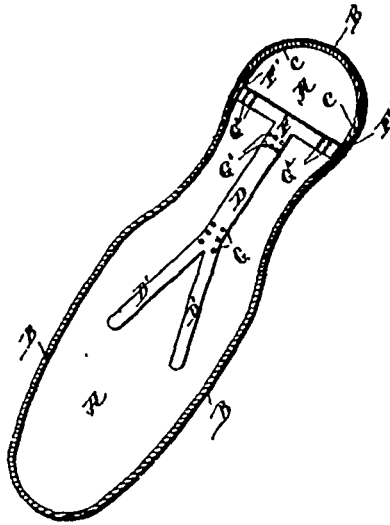
29175 Johnson's Twist Drill Milling Machine.



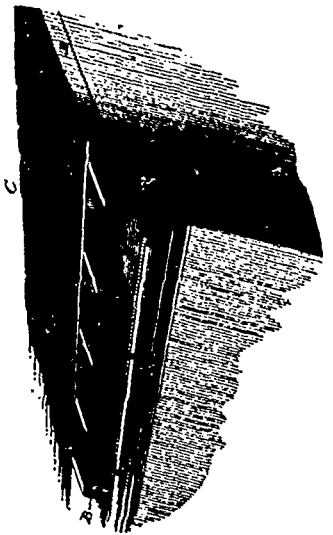
29176 Casswell's Card Mill.



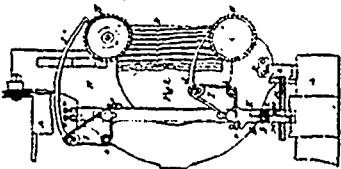
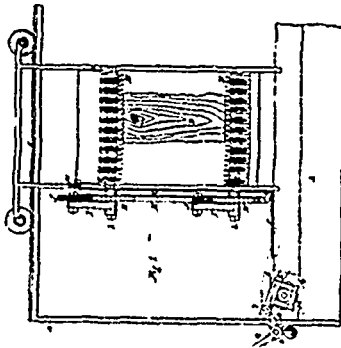
29177 O'Kelly's Device for Delivering Articles.



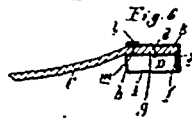
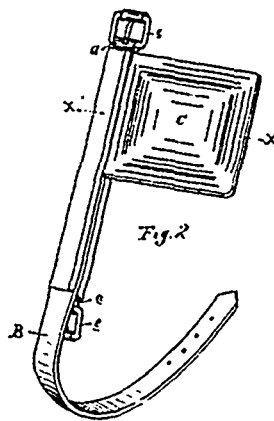
29178 Prouty's Supporter for Boots and Shoes.



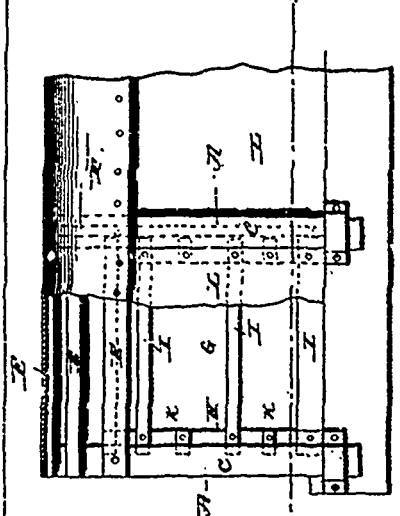
29179 Gavitt's Method of Protecting Roofs.



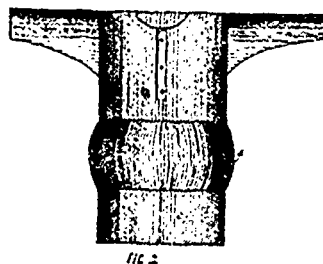
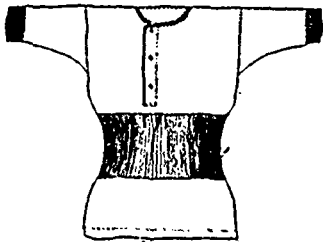
29180 Peel's Shingle Machine.



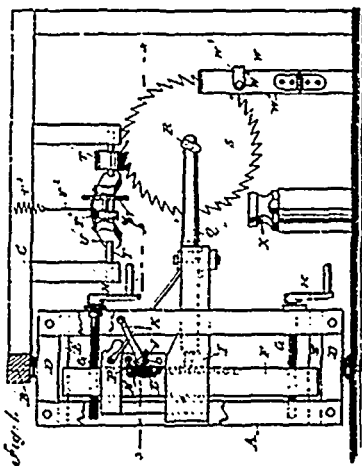
29181 Botsford's Metal Check Piece for Bridles.



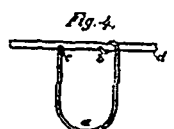
29182 McCurdy's Vehicle Top.



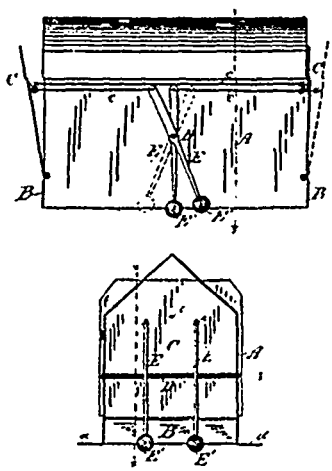
29183 Well's Knitted Under Vest.



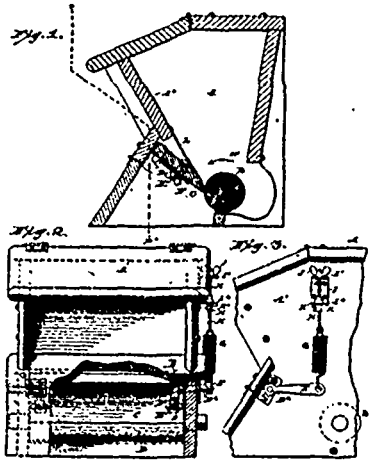
29184 Slater's Circular Saw-Holder.



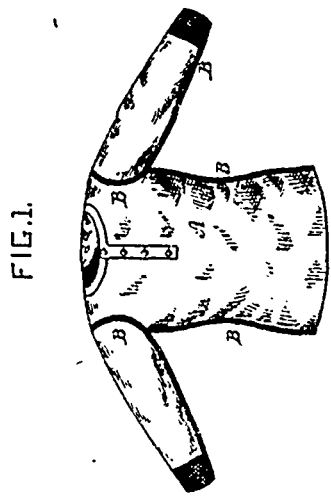
29185 Pheatt's Metallic Grapo Vine Tie.



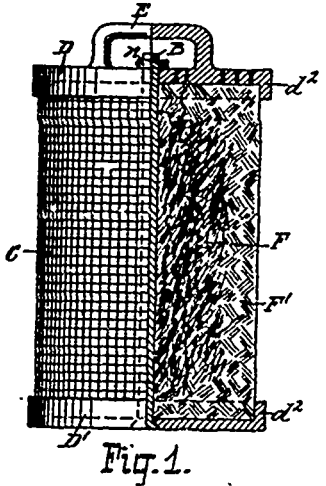
29185 Lee's Chimney Top.



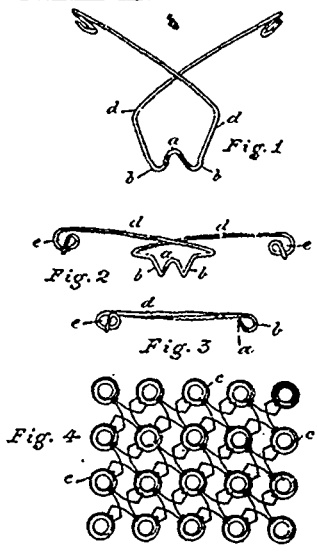
29187 Davidson's Feed Regulator for Roller Mills etc.



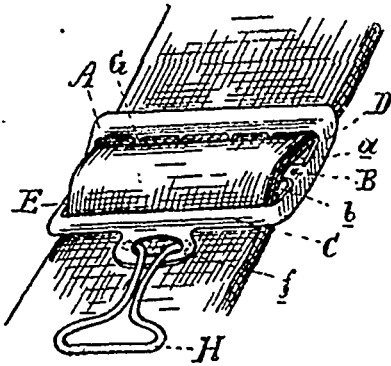
29188 Scriven's Under Garment.



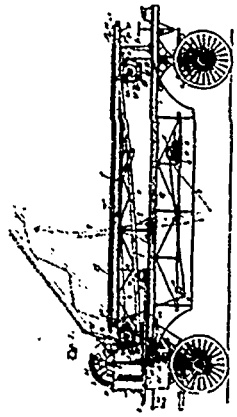
29189 Whiting's Fuel Cartridge.



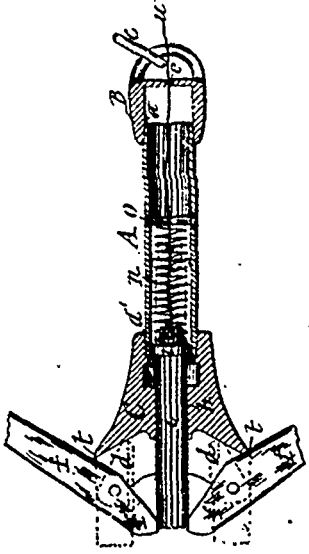
29190 Butterfield's Furniture Slide Spring.



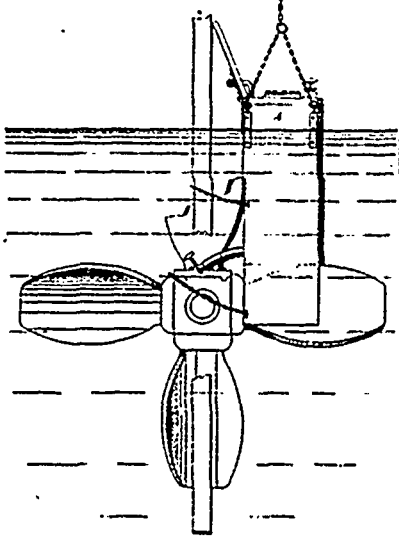
29192 Arndt's Suspender Buckle.



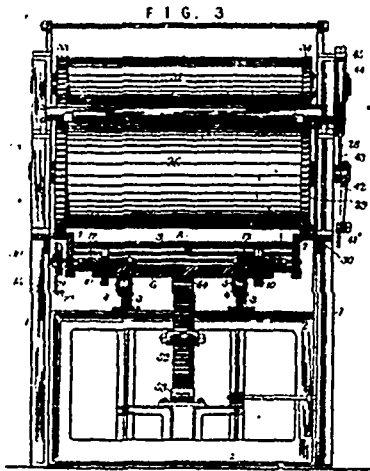
29193 Schumann's Ladder and Hose Carriage.



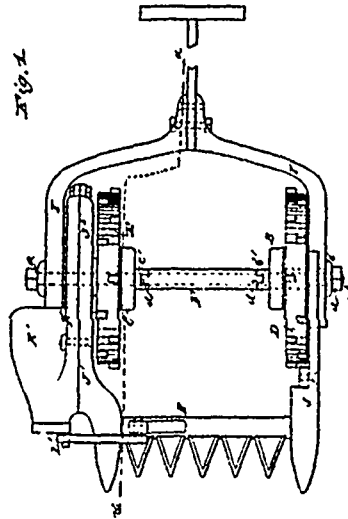
29194 Best's Anchor.



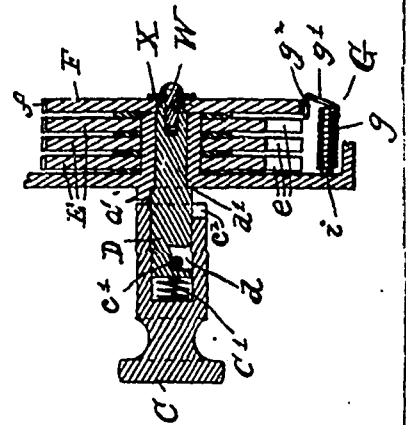
29195 Kirkham's Portable Caisson.



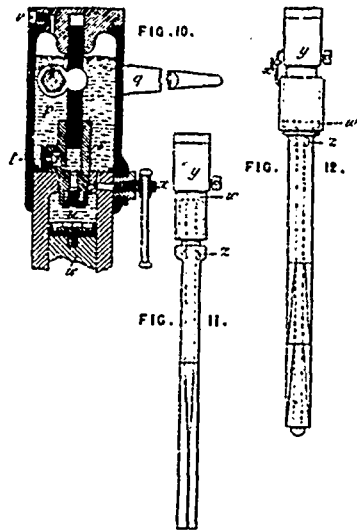
29196 Conisbee's Colour Printing Machine.



29197 Watermolen's Lawn Mower.



29198 Griffin's Combination Lock.



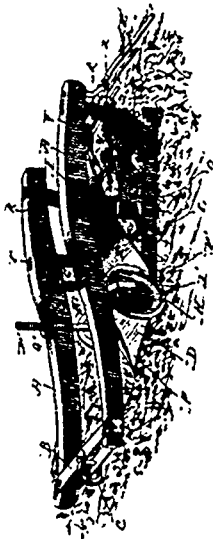
29200 Mould's Appliance for Breaking Minerals.



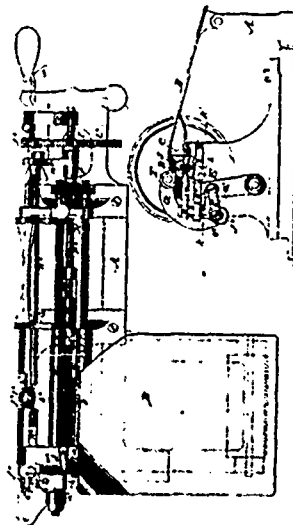
29201 Lorenz's Paper Bag.



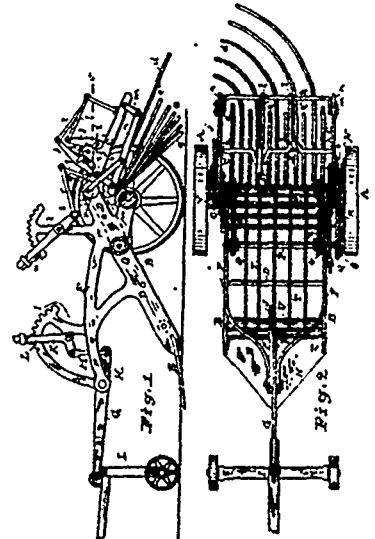
29202 Lorenz's Paper Bag.



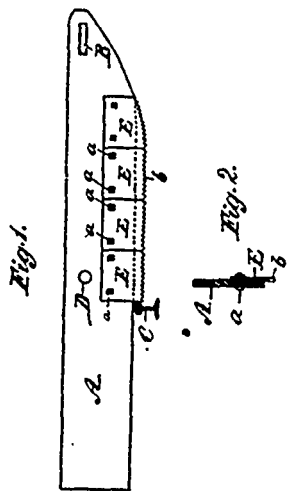
29203 Lee's Potato Digger.



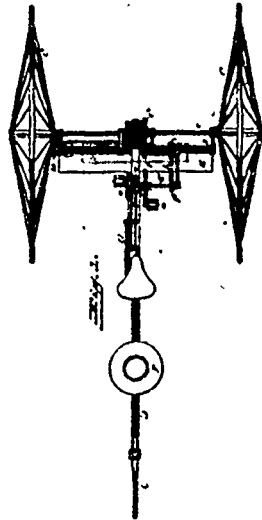
29204 Hammerstein's Cigar Rolling Machine.



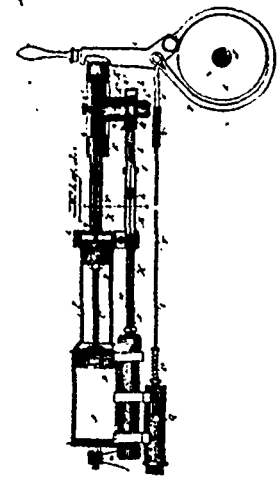
29205 Hoover's Potato Digger and Separator



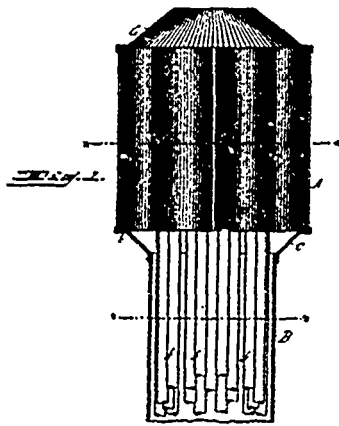
29207 Temple's Railway Track Cleaner.



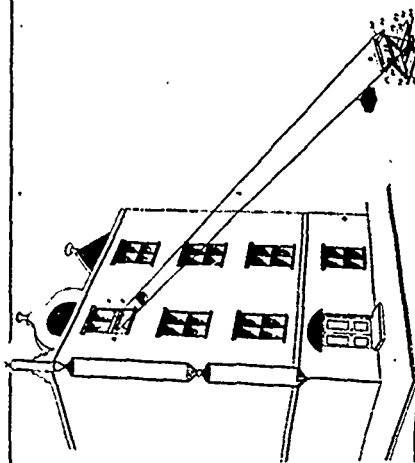
29208 Copeland's Steam Tricycle.



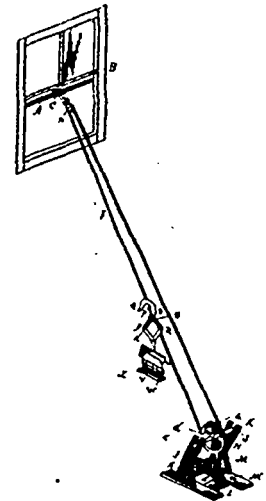
29209 Copeland's Steam Engine.



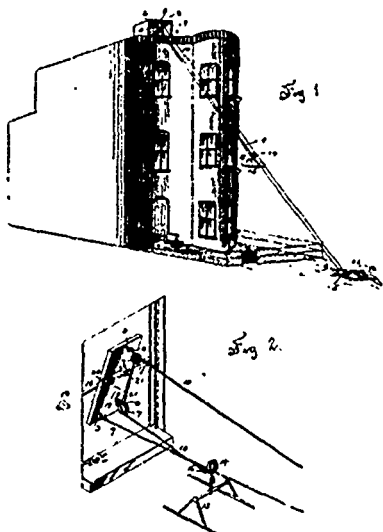
29210 Copeland's Steam Boiler.



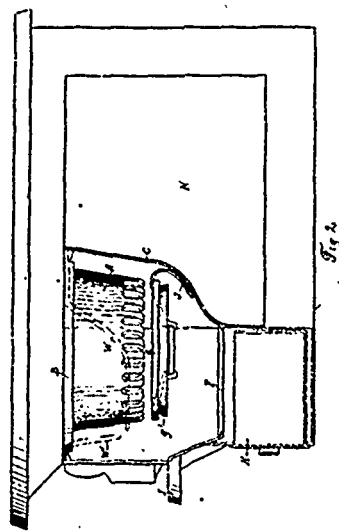
29211 Bruce's Fire-Escape.



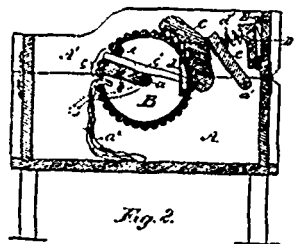
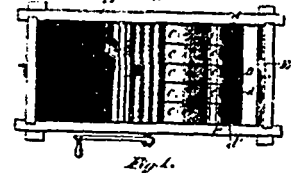
29212 Bruce's Fire-Escape.



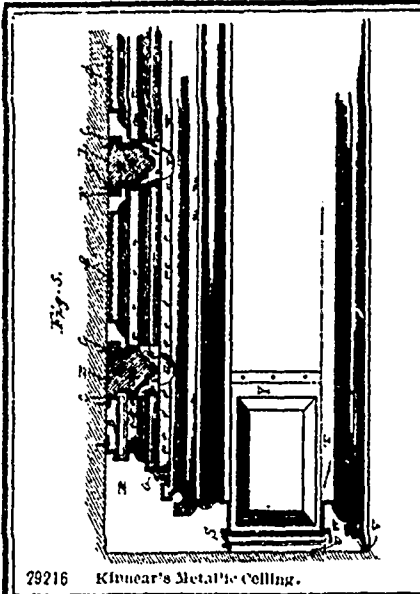
29213 Bruce's Fire-Escape



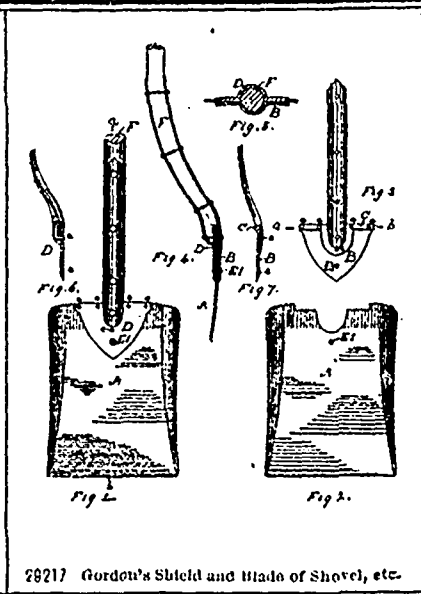
29214 Herrick's Stove.



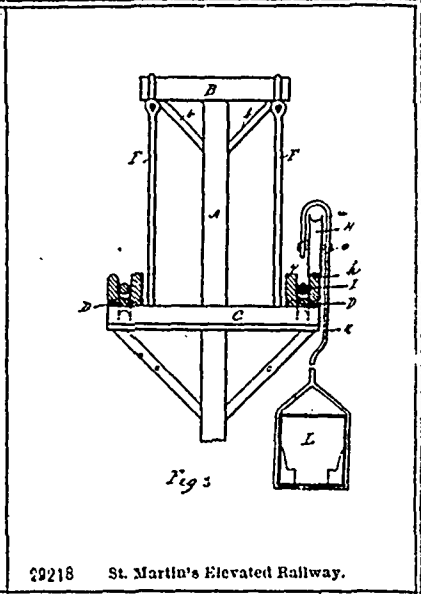
29215 Fairchild's Washing Machine.



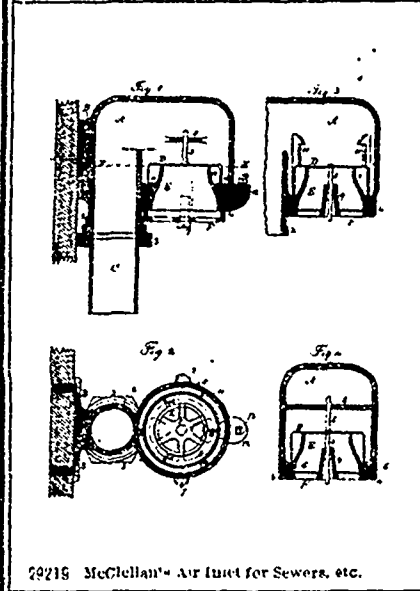
29216 Kinneer's Metallic Colling.



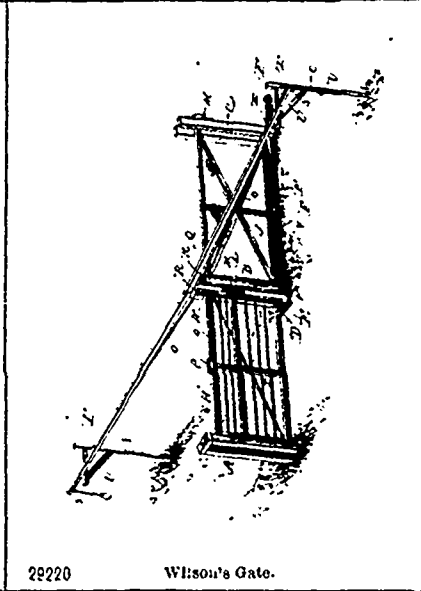
29217 Gordon's Shield and Blade of Shovel, etc.



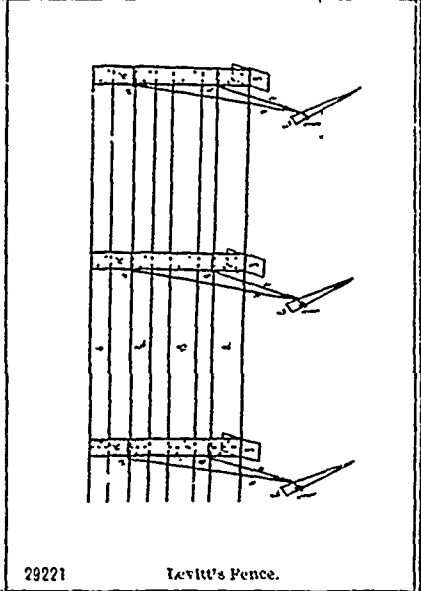
29218 St. Martin's Elevated Railway.



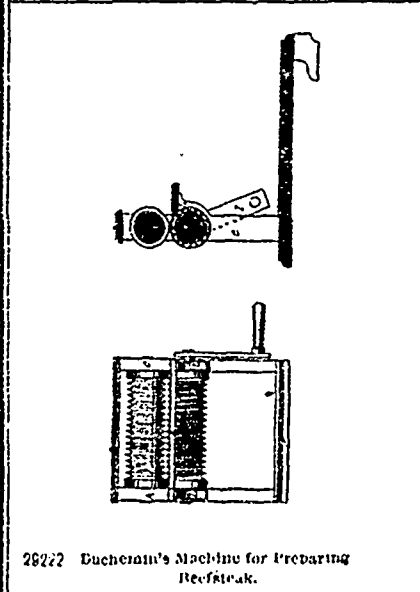
29219 McClellan's Air Inlet for Sewers, etc.



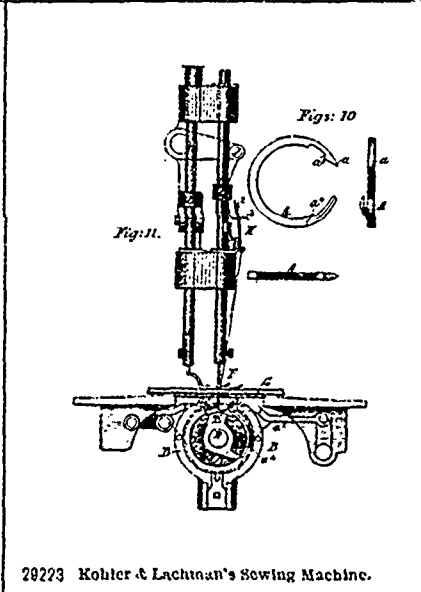
29220 Wilson's Gate.



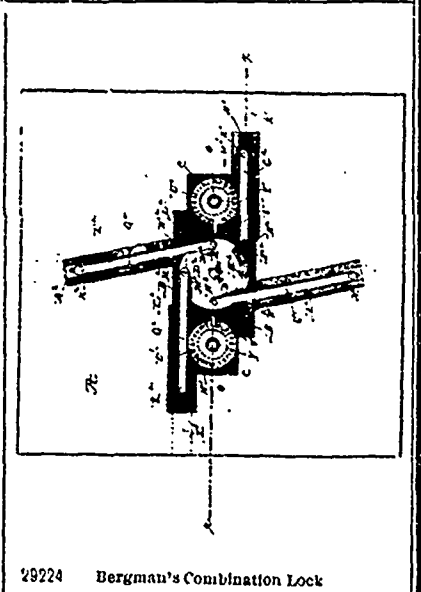
29221 Levitt's Fence.



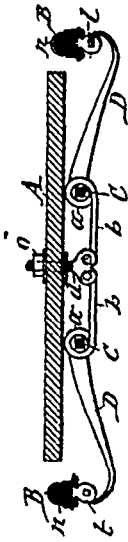
29222 Duchemin's Machine for Preparing Rectiferaak.



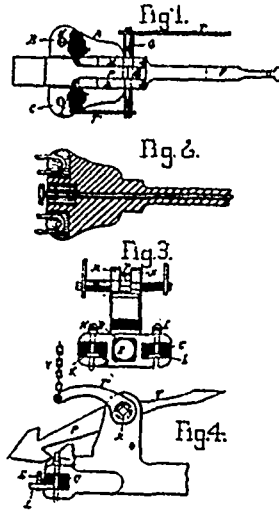
29223 Kohler & Lachnan's Sowing Machine.



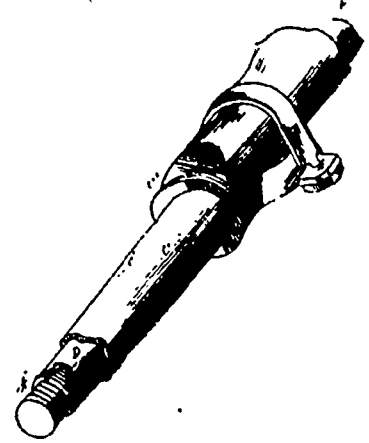
29224 Bergman's Combination Lock



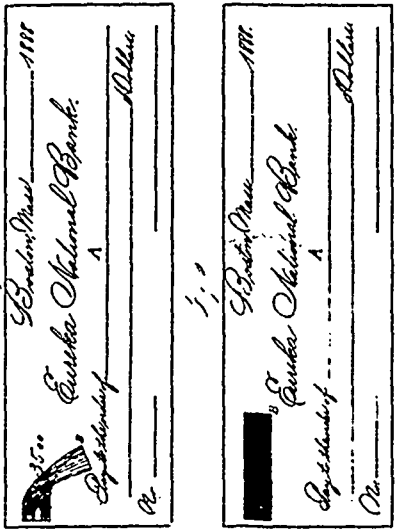
29225 Sullivan's Vehicle Spring.



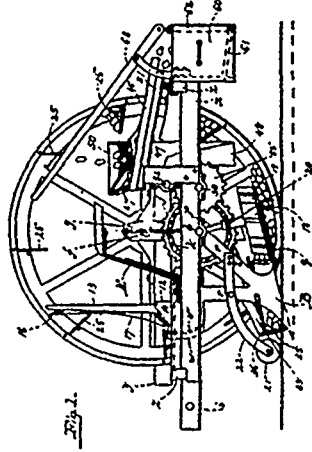
29226 Solcer's Car-Coupling.



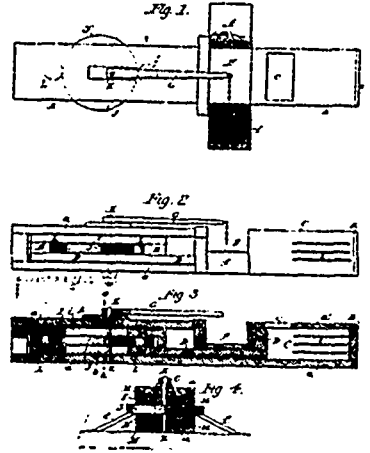
29227 Maud's Vehicle Axle



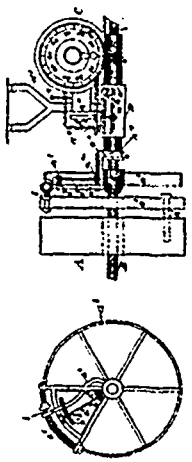
29228 Best's Check Protector.



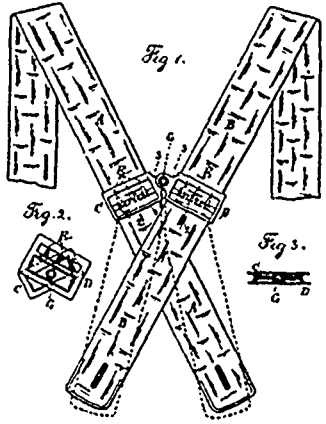
29229 McLaren's Potato-Digger.



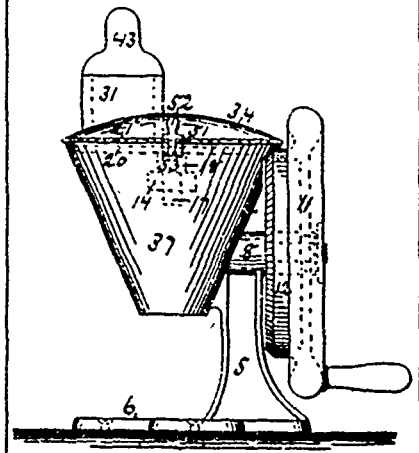
29230 Ellis' Baling Press.



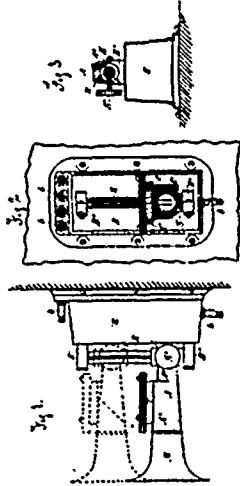
29231 Nixon's Power Indicator



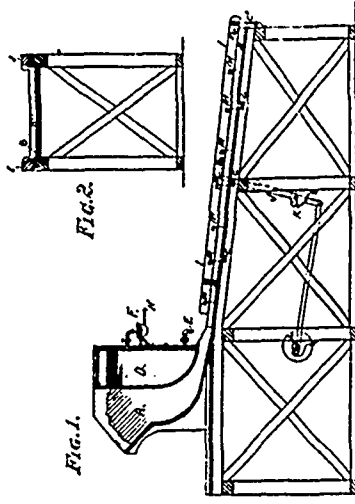
29232 Day's Suspender.



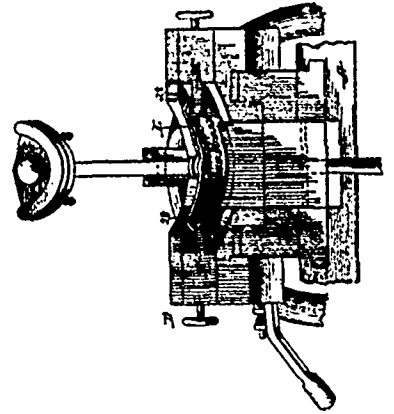
29233 Whitney's Tobacco Cutter



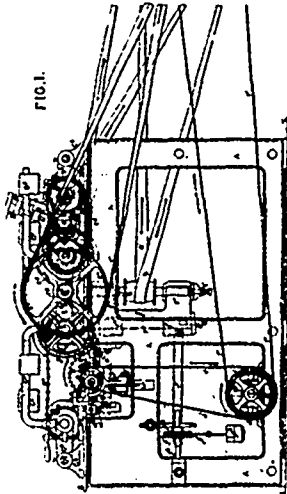
29234 Brown's Supporting of Telephone Transmitter.



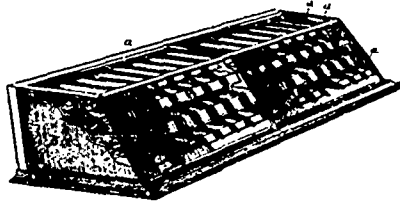
29235 Dobson's Machine for Extracting Gold and Silver.



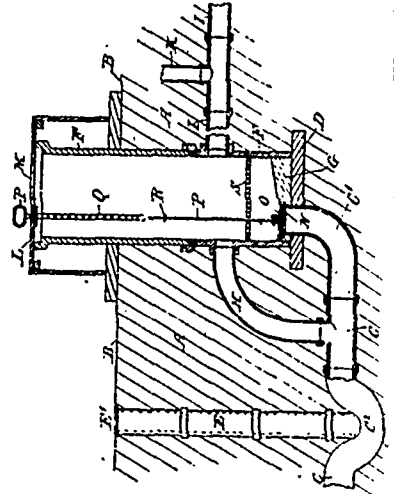
29236 Chaso's Lasting Machine.



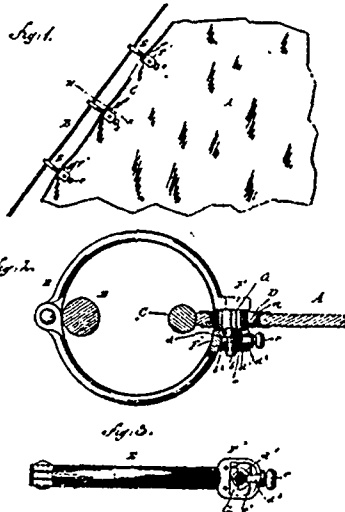
29237 Wright's Machine for Preparing and Jointing Staves.



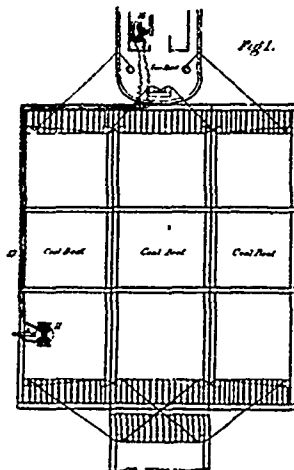
29238 Baum's Cabinet Show Case.



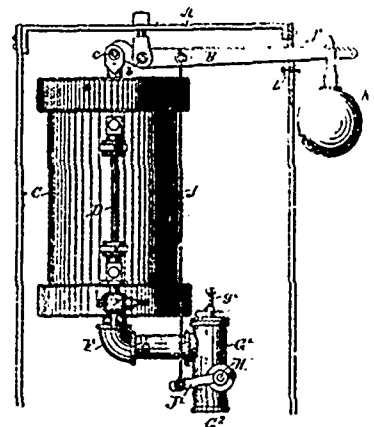
29239 Price's Water Closet.



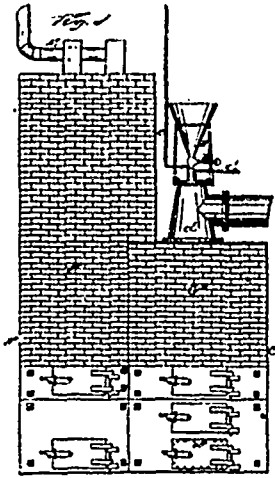
29240 Jameson's Rib Hank



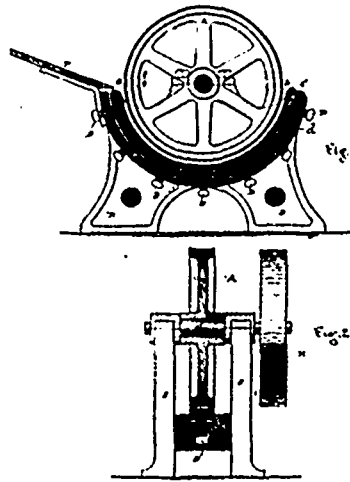
29241 Michales' Electrical Pumping Apparatus.



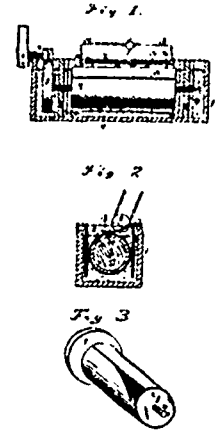
29242 Wilson & Sparrow's Steam Trap.



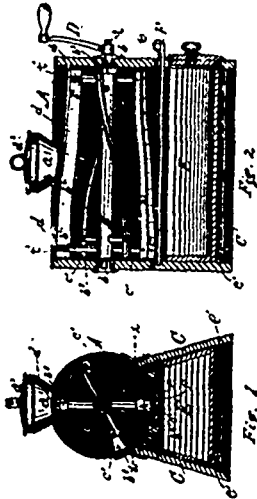
29243 Bradley's Manufacture of Oxides.



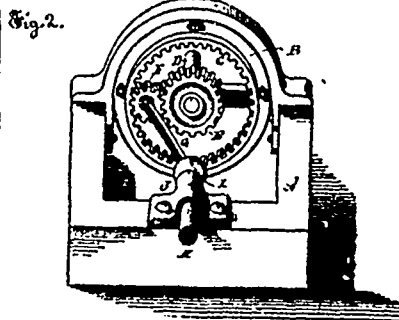
29244 Freeman's Machine for Making Tooth Picks.



29245 Emerson's Apparatus for Forming Sheet Metal.



29246 Jones' Drug Mixing Machine.



29247 Arneson's Mechanical Movement

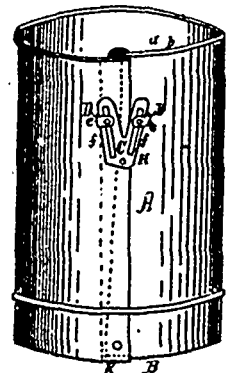
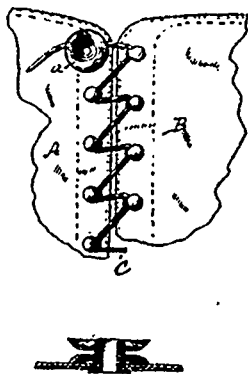
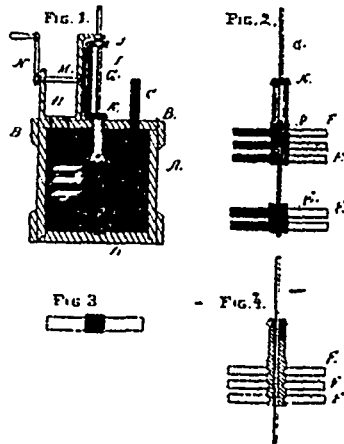


Fig. 1.

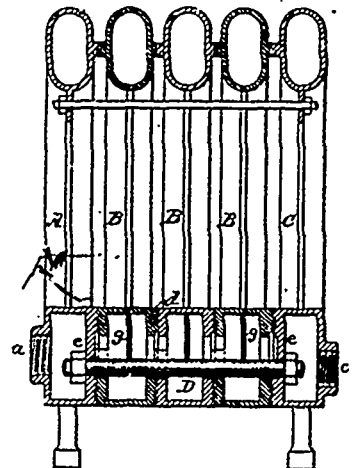
29248 Clarke's Stove Pipe.



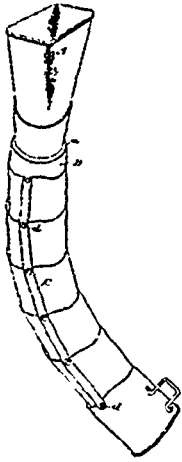
29249 Ten Eyck's Shoe Lace Fastening.



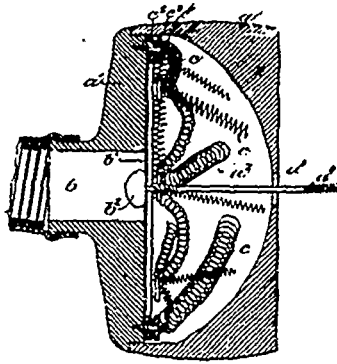
29250 Hilton's Churn.



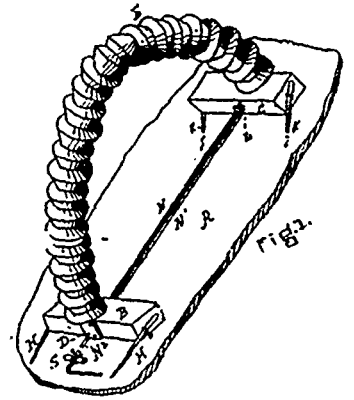
29251 Landis' Steam and Hot Water Radiator



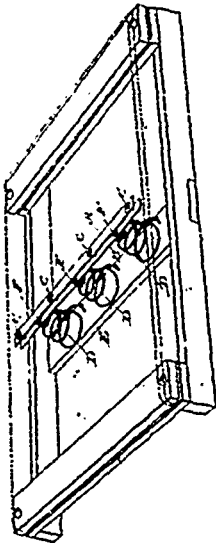
29252 Emery's Spout for Grain, etc.



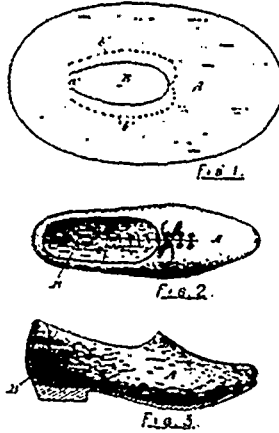
29253 Mellett's Telephone.



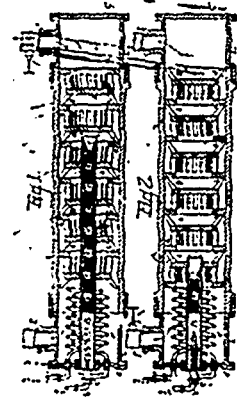
29254 Hale's Mechanical Toy.



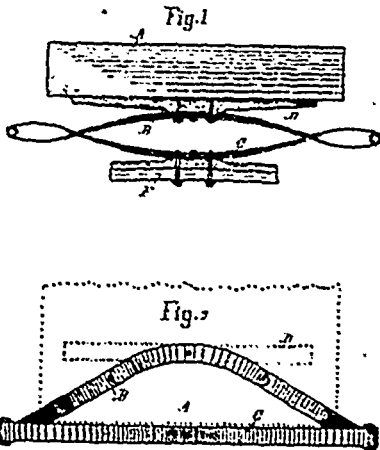
29255 Hart's Woven Wire Mattress.



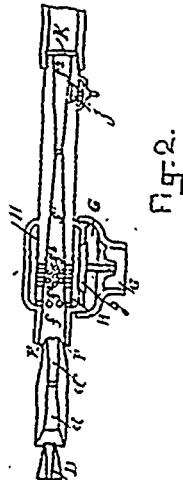
29256 Météyer's Boot and Shoe.



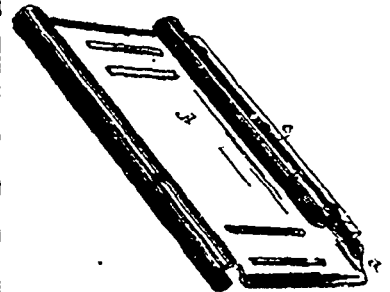
29257 Meeze's Apparatus for Manufacturing Gas.



29258 Manco & Palmer's Vehicle Spring.



29259 Parks' Jet Apparatus for Feeding Water Boilers.



29260 Barker's Metallic Sludge