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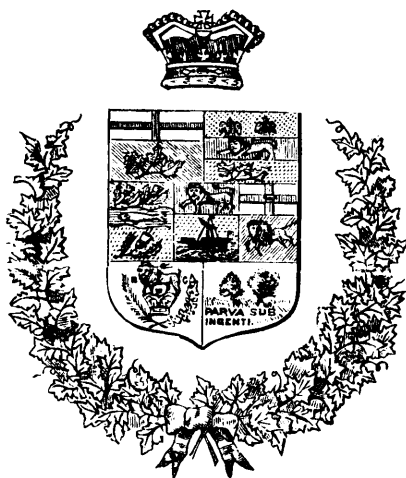
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INVENTIONS PATENTED.

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. 33,253. Combined Knapsack and Shoulder Strap Bag. (*Havresac et sac à bretelles combinés.*)

John T. Dwyer, Montreal, Que., 30th December, 1889; 5 years.

Claim.—1st. In a shoulder strap bag or knapsack, the combination, with the bag proper having turn-over cover, of the outside horizontal strengthening ribs B, D and E, for the purposes set forth. 2nd. In a shoulder strap bag or knapsack, the combination, with the bag proper provided with strengthening ribs, of suspending straps attached at rib E of cover flap, and passing first upwards through the bottom rib B, and then downwards over front and through bottom rib D, and then upwards over back and through top rib D to connection or slinging point. 3rd. The combination, with the bag proper, of the gusset piece J, with extension J' sewn on one side to the cover flap, and having stiffener K attached to it on the opposite or front side above the line of the fold.

No. 33,254. Belt for the Transmission of Power. (*Courroie pour la transmission du mouvement.*)

Peter Ryan, (assignee of Frederick C. Ihde), Toronto, Ont., 2nd January, 1890; 5 years.

Claim.—An endless belt for the transmission of power, composed of closely-wound coiled wire A, with its ends connected together by a coupling B, having screwed ends to fit the interior of the coil forming an even and smooth connection between the ends, substantially as and for the purpose specified.

No. 33,255. Car Roof. (*Toiture de char.*)

The Le Gros Building and Car Roofing Company, (assignee of Alfred P. LeGros), Louisville, Ky., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The combination, substantially as herein described, of the rabbeted roof boards, a cover, as E, for said boards, fitted into the rabbet, and a protection cover, as F, applied to the rabbet over combination, with rabbeted roof boards, of painted canvas folded and fitted into the rabbets, and a metallic cover fitted on top of the said painted canvas in the rabbet, substantially as shown and described. 3rd. In a car roof, the combination, with rabbeted roof boards, of painted canvas folded and fitted into the rabbets, a metallic cover fitted on top of the said painted canvas extending over the sides of the said metallic combination, with rabbeted roof boards, of painted canvas folded and fitted into the rabbets, a metallic cover fitted on top of the said painted canvas in the rabbet, surface boards extending over the surface boards, the sides of the metallic cover, and nails passing through the said surface boards, the sides of the metallic cover, the canvas strip and shown and described.

No. 33,256. Clamp. (*Serre-joint.*)

John F. Roblin and Gilbert Jones, Belleville, Ont., 2nd January, 1890; 5 years.

Claim.—1st. The combination of the eccentric and lever *g* with the friction gripe *c* and the sliding block *k*, substantially as and for the purpose hereinbefore set forth. 2nd. The manner in which the two blocks are worked on the rod *a* being connected by *k*, and moving set forth. 3rd. The combination of the gripe with the eccentric and lever.

No. 33,257. Two Wheeled Vehicle.

(*Voiture à deux roues.*)

Judson W. Breed, (assignee of John W. Leek), Cincinnati, Ohio, U.S., 2nd January, 1890; 5 years.

Claim.—1st. In combination with a two wheeled vehicle, the lever 4 pivoted at one end to the thills, the opposite end engaging with the spring, and the body suspended upon the lever between its spring and fulcrum, substantially as specified. 2nd. In a two wheeled vehicle, the combination of the lever 4 pivoted to the thills, the spring 6 attached to said lever forward of the pivot, the links 8 adjustably engaged with notches 9 on the forward end of said lever, and the body attached to the lower end of said links, substantially as specified.

No. 33,258. Combined Pulverizer, Seeder and Harrow. (*Brise-motte, semoir et herse combinés.*)

John P. Higgins, Casper M. Dull and Mark M. Lucy, (assignees of Francis B. Kendall), Monmouth, Ill., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The combination, with the frame and the harrow-frame, of the operating lever journaled on the frame and formed with the rearwardly-extending arm and right-angled portion *j'*, the U-shaped piece on the harrow-frame provided with a plurality of holes K, and the links pivotally connected at one end with said piece and adjustable vertically, and at the other end formed with an eye *n* to receive the end of the portion *j'*, substantially as and for the purpose specified.

No. 33,259. Hydrant. (*Borne-fontaine.*)

Thomas S. McElhose and Christian Kohlhaas, Paterson, N.J., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a hydrant, the combination, with a valve-chamber, of a longitudinally movable pipe extending through said valve chamber, an inlet for water communicating with said valve chamber, a valve on said movable pipe arranged within said valve-chamber and adapted to open and close communication between said valve chamber and said movable pipe, a second valve also on said movable pipe and below the valve chamber, a waste water chamber below the valve-chamber into which said movable pipe extends, and an outlet passage for the waste water below said movable pipe closed by said second-named valve when the first-named valve is opened, and opened when said first-named valve is closed, substantially as and for the purpose specified.

No. 33,260. Dog Attachment for Log Cars, Waggons, etc. (*Pose des clameaux aux wagons, chars, etc., à billots.*)

Robert J. Thompson, John B. White, Grandin, Mo., and Richard W. Wright, Boston, Mass., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The combination, with the bed of a vehicle, of a dog pivoted thereto, an operating lever, and a link pivotally connecting the said lever and dog, substantially as shown and described. 2nd. The combination, with the bed of vehicle, of a dog pivoted thereto, an operating lever, and a link pivoted to the said dog, and attached to the said lever by means of a rule joint, substantially as shown and described. 3rd. The combination, with the bolster or cross beam of a log carrier or holder, of dogs pivoted thereto, a push bar pivoted to the said dogs, and an operating lever connected to the push bar, substantially as specified. 4th. The combination, with the bolster or cross beam of a log carrier or holder, of dogs pivoted thereto, push bar pivoted to said dogs, an operating lever connected with said push bar, and means, substantially as shown and described, for locking bar, and means, substantially as and for the purpose specified. 5th. The combination, with the bolster or cross beam of a log carrier or holder, of dogs pivoted thereto, a push bar pivoted to the said dogs, toggle levers pivoted to the said push bars, and an operating lever connect-

ed with the said toggle levers, substantially as shown and described. 6th. The combination, with the bolster or cross beam of a log carrier or holder, of dogs pivoted near the upper ends of said beam, push bars connected at one end of said dogs, toggle levers connected at their outer ends to the said push bars, and an operating lever connected with the pivotal ends of the said toggle levers, substantially as and for the purpose described. 7th. The combination, with the bolster or cross beam of a log carrier or holder, of dogs pivoted near the opposite ends of said beam, push bars connected to the said dogs, toggle levers connected at their outer ends with the push bars, an operating lever connected with the pivotal ends of the toggle levers, and means, substantially as shown, for locking the said lever, substantially as shown and described. 8th. The combination, with the front and rear bolsters or cross beams of a log carrier, of dogs pivoted near the outer ends of said bolsters, push bars connected at one end to said dogs, toggle levers connected at their outer ends with the inner ends of the push bars, a longitudinal bar pivotally connected to the front and rear set of toggle levers, an operating lever connected with the said longitudinal bar, and means, substantially as shown, for locking the operating lever in position, substantially as and for the purpose described. 9th. The combination, with the bolsters or cross beams of a log carrier or holder, of dogs pivoted to the said bolsters or cross beams, push bars pivoted to the said dogs, toggle levers pivoted to the push bars, an operating bar engaging the toggle levers of each bolster, an operating lever connected with the operating bar, and a lock lever adapted to engage the said operating bar, substantially as shown and described. 10th. The combination, with the bolsters or cross beams of a log carrier or holder, of dogs pivoted thereto, a push bar pivoted to the said dogs, an apertured jacket inclosing said push bars, toggle levers pivoted to the push bars and to one another, one of which toggles is projected to form a lever handle, locking pins adapted to enter the apertures of the jacket, a locking bar and a link connecting the said locking bar, and the toggle levers, all combined for operation substantially as shown and described. 11th. The combination, with the bolster or cross beams of a log carrier or holder, of dogs pivoted thereto, a push bar pivoted to the said dogs, an apertured jacket inclosing said push bars, toggle levers pivoted to the push bars and to one another, one of which toggles is projected to form a lever handle, locking pins adapted to enter the apertures of the jacket, a locking bar, and the toggle levers, a hook secured to the bolster adapted to receive the locking bar, and shoulders formed upon the outer face of two opposed toggles, all combined for operation substantially as shown and described. 12th. The combination, with the bolster or cross beam of a log carrier or holder, or other vehicle, of a dog pivoted thereto extending above the same, an elbow lever, a link pivoted to the dog and connected to one member of said lever by a rule joint, and means, substantially as shown and described, for manipulating the lever, as and for the purpose specified.

No. 33,261. Heel Trimming Machine.

(Machine à finir les talons.)

Isaac P. F. Edmonds, trustee, (assignee of Frank N. Ethridge), Lynn, Mass., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a heel trimming machine, the combination, with the cutters *e* having grooves on their inner surfaces arranged at right angles with the axis of rotation of the cutter head, of an expandible two-part holder having one section rigidly secured to a shaft, and the other section adapted to be expanded crosswise of said grooves and thereby engage the sides thereof, and the screw located within said sections bearing against the inner end of the expandible section so as to force the same outward, substantially as set forth. 2nd. In a heel trimming machine, the combination of the shaft *a*, the holder composed of the stationary section 2 secured to said shaft, and the adjustable section 3 fitted to said former section, said section having curved and dovetailed ends, the screw bearing against the inner end of said adjustable section and forcing the same outward, and the cutters having in their surfaces dovetail grooves or seats to receive the ends of said sections, as set forth. 3rd. In a heel trimming machine, the combination of the shaft *a*, the holder section 2 having the sleeve *f* attached to the shaft and provided with the recess 7, the adjustable holder section 3 formed to enter said recess, the bolt *e* engaged, as described, with the shaft, and formed to bear against the adjustable section, and the cutters having internal seats or grooves formed to engage the holder sections, as set forth. 4th. In a heel trimming machine, the combination, with the rotary cutter, of an arm or support arranged in front of the axis of the cutter, a rest pivoted at its inner end to said support, and arranged to stand at right angles with the axis of the cutter as a support for the side of the heel, said rest being adapted by its pivotal connection to swing out of place and thereby avoid the shank of a boot or shoe sole, and a spring whereby said rest is normally held in a position at right angles with the axis of the cutter, and permitted to yield and swing from said position, as set forth. 5th. In a heel trimming machine, the combination, with the cutter head, of the top lift rest, the sleeve *a* supporting said rest and adapted to slide on a fixed bearing, and the screw *p* journalled in a lug on said bearing and engaged with a tapered socket in a lug on the sleeve *a*, as set forth. 6th. In a heel trimming machine, the combination, with the cutter head and the rand trimmer, of the exhaust fan blower, the trunk or flue connected with the blower and having an enlarged mouth provided with a forwardly projecting lip, and arranged adjacent the cutter head, the hood *p* and the pipe *C* connecting said hood with the blower casing, substantially as set forth. 7th. In a heel trimming machine, the combination, with the exhaust fan blower, of the hood *p* having the slotted arm *p*, the connecting said hood and blower, substantially as set forth. 8th. The combination of the cutter shaft *a* having the friction wheel *E*, the rand trimmer shaft *g* having the friction wheel *B*, the intermediate friction wheel *F*, and means for adjusting said intermediate wheel, the wheels *D*, *B*, as set forth. 9th. The combination, with the shafts *a*, *g*, and their grooved friction wheels *E*, *D*, of the intermediate friction wheel *F*, the yoke *H* supporting the journals of said wheel,

the nut *J* engaged with a screw threaded portion of said yoke, and a fixed support for said nut, all arranged and operating substantially as described. 10th. In a heel trimming machine, the rand trimmer composed of the cylindrical head *k* having pins *k*, the rand trimmer having segmental flanges *l* formed to fit the head, and the knives having orifices *l* to receive the pins *k*, said orifices exceeding the pins in number, the flange *l* secured to the head as a means of keeping the knives in engagement with the pins, and the circular guard *m* detachably secured to the shaft of the trimmer and serving to hold the rand trimmer on said shaft, as set forth. 11th. In a heel trimming machine, the combination, with the cutter head, of the counter guard having an arm *e*, and shank *e*, the clamping sleeve *d* receiving said shank, and having an arm *e*, the plate *d* having slots therein, the slide *e*, the screws *e* secured in said slide, the fixed screw *e* and the nut on said screw engaging said arm *e*, substantially as set forth.

No. 33,262. Device for Unwinding Spool Thread from Bobbins. (Appareil pour bobiner le fil.)

James Wylie and Ralph Allan, Toronto, Ont., 2nd January, 1890; 5 years.

Claim.—In combination with a sewing machine, an automatic spool thread unwinder, composed of the following parts, a bobbin *A*, with spool thread *B*, an upright spindle *C*, with eyelet *c*, and flanged ferrule or journal box *e*, an arm *e*, with eyelet *e*, a spiral spring *e*, with adjusting knob *e*, the whole arranged and combined and operating substantially as set forth.

No. 33,263. Lamp Carrier for Miners' Hats. (Porte-lampe pour les chapeaux des mineurs.)

(Porte-lampe pour les chapeaux des mineurs.)

Charles H. Hobson, Mt. Carmel, Penn., U. S., 2nd January, 1890; 5 years.

Claim.—1st. A lamp carrier, consisting of a base plate, having a longitudinal slot and a holder pivoted within said slot and adapted to receive the lamp, and having its front edges diverging to bear against the lamp body, as set forth. 2nd. A lamp carrier, consisting of a base plate, provided with a slot, a holder pivoted in the slot and consisting of a plate doubled on itself, and having its front edges diverging so as to extend partially around the body of the lamp, and the block *B* secured within the holder, said block being adapted to be engaged by the hook on the lamp, as set forth. 3rd. A lamp holder, consisting of a plate doubled on itself and having its edges diverging and adapted to pass on opposite sides of the lamp body, and a block secured between the branches of the plate, and adapted to be engaged by a hook on the lamp-body, as set forth. 4th. A lamp carrier, consisting of a base plate and a holder pivoted thereto, and having its front edges diverging to bear against the lamp body, as set forth.

No. 33,264. Collar Stay for Woollen Shirts. (Renfort de col de chemise de flanelle.)

(Renfort de col de chemise de flanelle.)

Frederick R. Whitecomb and Harry B. Baker, Minneapolis, Minn., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a shirt, the combination, with the shirt band, of a soft woollen collar connected to said band, and a stiff fabric secured to the under face of the collar, with its edge adjacent to the shirt band, curved, as shown, and lying back from the juncture of the collar to the band, to leave the juncture between the collar and band soft and pliable, and to support the collar and hold the band distended, substantially as and for the purposes set forth. 2nd. In a shirt, the combination, with the shirt band and collar formed of a soft woollen fabric, of a collar support composed of a stiff fabric secured to the underside of the collar back from its edges, so as to leave a flexible margin between the edge of the support and the edge of the collar, substantially as and for the purpose set forth.

No. 33,265. Grading and Ditching Machine. (Machine à réglage et fossoyage.)

(Machine à réglage et fossoyage.)

Frederick C. Austin (assignee of Morton G. Bunnell), Chicago, Ill., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a grading and ditching machine, the combination, with the draft and balance bar arranged transversely to the line of draft, and pivotally supported at one end of the plough beam hinge connected to and balanced upon the free end of said draft, and balance bar to which latter the draft is applied intermediate of its pivotally-supported end and its connection with the plough beam, the plough beam being provided with a plough and suspended substantially as hereinbefore set forth, and the connection between the combined draft and balance bar, and the plough beam being adjacent to the plough with the beam extending forward from said point of connection to balance the beam and plough as a whole upon the end of said bar, substantially as described. 2nd. In a grading and ditching machine, the combination, with the suspended plough beam carrying a plough, of the draft and balance bar *G* hinged to the plough beam intermediate of the ends of the latter, and having its end that is hinged to the plough beam widened, substantially as and for the purpose described. 3rd. In a grading and ditching machine, the combination, with the suspended plough beam carrying a plough, of the draft and balance bar hinged at one end of the plough beam in advance of the plough, and the bar *g* connecting the plough beam with the draft and balance bar, and having at one end a hinged connection with one of said members, and at its opposite end having an adjustable connection with the remaining member, substantially as described. 4th. In a grading and ditching machine, the elevating conveyer, comprising a couple of frame sections which are hinged together by an extensible point, substantially as and for

the purpose set forth. 5th. In a grading and ditching machine, the combination, with an endless conveyor belt, of a sectional elevating conveyor frame, and rods *d* having sliding connections with one frame section, substantially as described. 6th. In a grading and ditching machine, the combination, with the extensible elevating conveyor frame, of an adjusting device placed under the control of an attendant standing upon the machine and adapted for extending as and for the purpose set forth. 7th. In a grading and ditching machine, the combination, substantially as hereinbefore set forth, for respectively elevating conveyor and a couple of belt rolls therefor, respectively arranged at opposite ends of an elevator involving a sliding connection between a support for the driving roll at the upper end of the elevator, and the idler roll at the lower end of said elevator, of a belt tightener adapted for adjusting the distance between said rolls in order to vary the tension of the elevating conveyor, and comprising in its connection a suitable cord or chain winding device arranged within reach of an attendant upon the machine, whereby he may at will and while the machine is in operation tighten or slacken the endless elevating conveyor, substantially as and for the purpose set forth. 8th. In a grading and ditching machine, the combination, substantially as hereinbefore set forth, with the elevating conveyor of the curved guides engaged by the elevating conveyor intermediate of the ends of the latter, whereby, in raising and lowering said elevating conveyor at the middle end thrust may be avoided, substantially as and for the purpose set forth. 9th. In a grading and ditching machine, the combination, substantially as hereinbefore set forth, with the jointed elevating conveyor, of the guides attached to the body frame of the machine, and rollers carried by the elevating conveyor at its joint and engaging said guides, substantially as set forth. 10th. In a grading and ditching machine, the combination, substantially as hereinbefore set forth, of the elevating conveyor, curved guides engaged by the elevating conveyor, and a raising and lowering device for raising and lowering the elevating conveyor at its middle portion, for the purpose described. 11th. In a grading and ditching machine, the combination, with the jointed elevating conveyor, having an extensible joint, of the guides engaged by rollers that are carried by the elevating conveyor adjacent to its joint, substantially as set forth. 12th. In a grading and ditching machine, the combination, with the plough beam carrying a varying the height of raising and lowering cords or chains respectively for the raising and lowering device constructed with the two long winding shafts extending through a shorter hollow winding shaft, the two clutch glands respectively upon the long winding shaft and the shorter hollow winding shaft, and the shifting hand wheel provided with oppositely disposed clutch glands and arranged between and for the purpose described. 13th. In a grading and ditching machine, the combination, with the suspended elevator, of a set of horizontally arranged winding shafts for the cords or chains by which the elevator is suspended, and a corresponding set of vertically arranged hand-wheel shafts and gear connected with said winding shafts, substantially as and for the purpose described. 14th. In a grading and ditching machine, a conveyor to carry off soil that has entered between the leaves of the elevator belt. 15th. The combination, substantially as hereinbefore set forth, with the elevator belt said roll, and a conveyor for carrying off the soil thus removed by the scraper. 16th. The combination, substantially as hereinbefore set forth, with the elevator belt and roll *R*, of the conveyor and gear. The combination, substantially as hereinbefore set forth, with the elevator belt and roll *R*, of the scraper *S*, conveyor *T*, and a plate forming in conjunction with the scraper, a trough along which said conveyor travels.

No. 33,266. Electric Railway Signal.

(Signal électrique de chemin de fer.)

William F. Z. Desant (co-inventor with Horace Hayden, Jr.), New York, N.Y., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a system of block signals for railways, the combination of a main battery located at one end of a block section in a circuit including one coil of a switching magnet at the home station, and one coil of an additional switching magnet at a distant station, with a local battery also located at the home station having circuit connections, as described, with the armature lever of the switching magnet, and a local circuit extending into the cab of the engine, including a magnet, the armature of which controls an alarm, substantially as described. 2nd. In a system of block signals for railways, the combination of a series of batteries, one for each block section, each of which includes in its circuit one coil of a switching magnet at the home station, and an additional coil of a switching magnet at the next station in the rear, with a local battery at each station, and circuit connections, as described, for closing a circuit through an alarm apparatus in the cab of the engineer, substantially as described. 3rd. In a system of block signals, the combination of each block, having two independent coils, switching circuits running to the adjoining advance and rear blocks, and including the separate coils of said magnets, a local battery at each block, including in its circuit the armature of the switching magnet, the insulated ends of two adjoining rails and an alarm circuit on the cab, substantially as described. 4th. In a system of block signals for railways, the combination of the following elements: a main or switching battery switching magnets, one of said magnets being near the battery and the other at the next block to the rear, a local battery at each block, including in its circuit the armature of the switching magnet, a circling magnet located on the engine and included in a local circuit, substantially as described. 5th. In a system of block signals, the combination of two batteries located at each block, one of which includes circuits and switching magnets located at the home and rear ends of the block, for manipulating the circuit relations of an alarm

located on the engine, while the second includes in its circuits the armature of the switching magnet, the adjoining ends of two insulated rails of the track, an alarm magnet located on the engine and included in a local circuit, substantially as described. 6th. In a system of block signals for railways, the combination of two circuits for each block connected to a single line of insulated rails, one of said circuits including a battery and one portion of the coils of two switching magnets located at each end of the block, while the other includes a second battery, the armature lever of the first-named magnet, the adjoining ends of two insulated rails, an alarm magnet located on the engine and included in a local circuit, substantially as described. 7th. In a system of block signals for railways, the combination of the following elements: a single line of rails separated into block sections by insulation, a single battery for each section including in its circuit the insulated ends of the rails, and one coil of an additional magnet at the distant end of the block, a tilting armature lever for each magnet adapted to tilt to the right or left, according to which half of the magnet is energized, a local circuit including each tilting armature lever, and a separate battery with circuit connections, as described, running to the insulated ends of two adjoining rails and a circuit on the engine including an alarm magnet, whereby the engineer is warned in the event of danger in advance, substantially as described.

No. 33,267. Pocket Fastener. (Agrafepoche.)

Bedford Woodsford, Chelsea, Eng., 2nd January, 1890; 5 years.

Claim.—1st. In a pocket fastener, the combination, with the spring band *A*, *A'* and the plate *D'* secured behind the back part *A*, and carrying the spring finger *D*, of the tongue *C* fixed to a bowed plate *B*, secured to the front part *A'* of the spring band and of the spring *B* acting between the bowed plate *A'*, and the part *A'* of the spring band, and operating to keep the tongue *C* within the space formed by and between the two parts *A'* and *A''*, and so keep the orifice of the fastener clear of all projections when the fastener is open, substantially as set forth. 2nd. In a pocket fastener, the combination, with the spring band *A*, *A'*, of the bowed plate *A''*, secured to the front part *A'* of the band, the spring *B* adapted to keep the two parts *A* and *A''* apart, the tongue *C* mounted on the bowed plate and adapted to pass through suitable holes in the parts *A* and *A'* and engage with the spring finger *D*, the plate *D'* carrying the said spring finger, and the projection *d* and spring *d'* for operating and controlling the said finger, substantially as set forth.

No. 33,268. Corset. (Corset.)

Hannah M. Vermilyea, Toronto, Ont., 2nd January, 1890; 5 years.

Claim.—1st. A corset, having vertically-placed open coiled flattened springs, arranged as substitutes for flat steels or whale-bones, as now used, substantially as and for the purpose specified. 2nd. A corset, having a back-piece *A* provided with flat perforated steels *B* and laced to the front quarters *C*, as indicated, the said front quarters having inserted into them vertically-arranged, open coiled flattened springs *D*, substantially as shown and described. 3rd. A corset, composed of a back piece *A* and two front quarters *C*, shaped so that the joints between the back piece and two front quarters *C* shall extend from a point immediately behind the hip bone to a point between the shoulder blade and arm, substantially as and for the purpose specified. 4th. A corset, having bust-gores *E*, shaped, as shown, to extend above the breasts to connect with the shoulder-straps *F*, each gore *E* having a spring *G* inserted into it, substantially as shown and for the purpose described. 5th. A busk steel *H*, reinforced by a steel *I* secured at either end to the said busk steel by the rivets *J*, substantially as and for the purpose specified. 6th. An abdominal supporter *K*, stiffened by vertically-placed coiled springs *D*, and provided with elastic sections *M*, the said supporter being buckled to the back-piece *A* by the buckles *b*, and provided with adjusting laces *L* and belt *N*, arranged substantially as and for the purpose specified. 7th. The combination, with a woman's bust, of a corset having distended bust-gores, substantially as and for the purpose specified. 8th. The combination, with a distended abdomen of the abdominal supporter *K*, arranged to elastically support the distended abdomen, substantially as and for the purpose specified.

No. 33,269. Corset. (Corset.)

Catharine A. Griswold, New York, N. Y., U. S., 2nd January, 1890; 5 years.

Claim.—1st. A corset, provided with the described edgewise bent stays or stiffeners, extending one or more from an edge of the corset to, and with their apices located at the waist line, together with stays or stiffeners extending from the opposite edge of the corset to said apices of the bent stiffeners, as described. 2nd. A corset, provided with the described edgewise bent stays or stiffeners, extending one or more from an edge of the corset to, and with their apices located at the waist line, together with rectilinear stays or stiffeners extending from the opposite edge of the corset to said apices of the bent edgewise bent stays or stiffeners, and with their apices located at and bottom edges of the corset to, and with their apices located alternately at the waist line, as described. 4th. A corset, provided with the described edgewise bent stays or stiffeners extending one or more from the top and bottom edges of the corset to and with their apices overlapping at the waist line of the corset, as described. 5th. A corset, provided one or more from the top or bottom edges, or both, of the corset to the waist line, together with short stays *D*, one or more extending across the waist line alongside the apices of the bent stays, as described. 6th. A corset, provided with the described edgewise bent stays or stiffeners extending one or more from the top and bottom edges of the corset towards the waist line, with stays *D*² located between the opposed apices of said bent stays at said waist line, as described. 7th. A corset, provided with edgewise bent stays or stiffeners, having a widened apex portion *E*, and extending one or more from an edge of the corset to and with their widened apex por-

tion located at the waist line, as described. 8th. A corset, provided with edgewise bent stays, having the widened ends E', and extending one or more from an edge of the corset to, and with their apices at the waist line, and their said widened ends at the corset edge, as described. 9th. A corset stay, composed of crimped wire and having structurally on edgewise bend upon itself, constituting an apex e and limbs e'.

No. 33,270. System of Transportation.

(Mode de transportation)

Benjamin S. Henning, New York, N. Y., U. S., 2nd January, 1890; 5 years.

Claim.—1st. A track level along its main portion and inclined upward toward each station, for the purpose set forth. 2nd. The within described system of transportation, the same consisting in a track inclined at both ends and provided with elevating appliances for engaging with the travelling cars, substantially as set forth. 3rd. A railway system provided with tracks inclined at both ends to impart an impetus to trains by gravity, and with positive motor devices in proximity to the inclined ends arranged to be engaged by the cars as they pass up the inclines, substantially as and for the purpose set forth. 4th. The within described system of transportation, consisting of a track inclined to impart an initial movement to cars by gravity, and provided at the opposite end with a positively driven elevating apparatus arranged to engage with the cars while in motion, substantially as set forth. 5th. The combination of a track inclined at both ends to impart an initial movement to cars by gravity and a cable motor at each end, and a grip upon the cars arranged to engage the travelling cable, substantially as set forth. 6th. The combination, with the tunnel inclined at opposite ends of railway tracks, and motor appliances at each end arranged to propel cars carried thereby by gravity from the opposite side, substantially as described. 7th. The combination of a track, having opposite inclined ends, a cable motor at each end, and a car provided with a grip arranged to engage said cable as it approaches the same from the midway position of the track, substantially as set forth. 8th. The combination, in a railway car, of a frame or casing supported by the wheels and one or more sections or cages pivoted within said frame and provided with seats, substantially as set forth. 9th. The combination, in a railway car, of a frame supporting one or more sections or cages containing seats, and brake device for retarding the movements of the sections, substantially as set forth. 10th. The combination, in a railway car adapted to a horizontal and inclined track, of suspended seats, substantially as set forth. 11th. The combination of a railway track and cable motor, and a car provided with an automatic grip arranged to engage the motor cable when the latter travels faster than the car, substantially as set forth. 12th. The combination, with the body of a railway car having side door openings, of a series of sliding doors connected together, substantially as set forth. 13th. The combination of a track and inclines constructed to propel the cars for a portion of the distance by gravity and momentum, of an electric motor on one of the cars, and an electric generator in connection with the terminal portion of the track. 14th. The combination, with a track terminating in an incline at each end, and with cars adapted thereto, of an electric generator in electric connection with the rails of the inclined portion of the track, and a car provided with an electric motor and constructed to receive the current from said rails, substantially as set forth. 15th. The combination, with a tunnel having inclined approaches, of a track, an electric generator connected with the inclined part of the track, a car having a motor and adapted to receive the current from the rails and provided with a switch for controlling the circuit through the motor, substantially as set forth.

No. 33,271. Magic Lantern.

(Lanterne magique.)

Edward T. Potter, Newport, R. I., U. S., 2nd January, 1890; 5 years.

Claim.—1st. As a new article of manufacture, a magic lantern slide, consisting of a continuous flexible strip or band of transparent or translucent material, having views, figures, or text portrayed thereon. 2nd. A continuous flexible band or strip for magic lanterns, having figures or text formed by perforations through the band or strip, as set forth. 3rd. The combination, with a magic lantern, of reels or spools carrying a continuous band or strip of flexible transparent or translucent material upon which the views or figures are portrayed, the reels being placed in position to direct the band through the lantern, whereby an enlarged image will be projected by the lantern, and a motor for drawing the band through the lantern from one reel to the other, as set forth.

No. 33,272. Process of Making Phonogram Blanks.

(Procédé de fabrication des blancs de phonogrammes.)

Thomas A. Edison, Llewellyn Park, N. J., U. S., 2nd January, 1890; 5 years.

Claim.—1st. The process of finishing the wax recording surfaces of phonogram blanks, consisting in cutting such surfaces with heated cutting tools, substantially as set forth. 2nd. The process of finishing cylindrical phonogram blanks, made entirely of wax, consisting in cutting such blanks, both externally and internally, with heated cutting tools, substantially as set forth. 3rd. The process of making cylindrical phonogram blanks entirely of wax, consisting in first, moulding the hollow blanks, and then, cutting the blanks, both externally and internally by heated cutting tools, substantially as set forth. 4th. A revolving reamer, having cutting knives or edges and provided with means for heating it, substantially as set forth. 5th. A revolving reamer, having cutting knives or edges, and made hollow, in combination with pipe connections for introducing a heating medium into the hollow reamer, substantially as set forth. 6th. The

combination, with a revolving shaft B and reamer C made hollow, of a stationary pipe E and the box F, substantially as set forth. 7th. The combination, with a revolving mandrel, of a heated cutting-tool mounted on such mandrel, substantially as set forth. 8th. The combination, with a turning mandrel, of a moving box having pipe connections for supplying it with a heating medium, a knife mounted upon such box, and a handle for moving the box toward and away from the mandrel, substantially as set forth. 9th. The combination, with a turning mandrel, of a pivoted box, pipe connections for supplying it with a heating medium, a handle swinging said box so as to move the knife toward and away from the mandrel, substantially as set forth. 10th. The combination, with a revolving mandrel, of a pivoted box, pipe connections for supplying a heating medium to the box, a knife mounted on the box, a handle swinging said box so as to move the knife toward the mandrel, and a spring turning the box in the opposite direction to move the knife away from the mandrel, substantially as set forth. 11th. The combination, with a turning mandrel, of a pivoted box carrying a knife and having pipe connections for supplying it with a heating medium, a handle swinging the box so as to move the knife toward the mandrel, and an adjustable stop limiting the forward movement of the knife, substantially as set forth. 12th. The combination, with a turning mandrel C, of a swinging box D carrying a knife E, and having pipe connections F, G, the arm H, the cam K turned by handle L, the spring I and the adjustable stop J, substantially as set forth.

No. 33,273. Method of Preparing Phonograph Recording Surfaces.

(Procédé de préparation des surfaces d'impression des phonogrammes.)

Thomas A. Edison, Llewellyn Park, N. J., U. S., 2nd January, 1890; 5 years.

Claim.—1st. The method of preparing phonograph recording surfaces, consisting in turning off such surfaces by a tool having a cutting edge acting obliquely to the track of record, substantially as set forth. 2nd. The method of preparing phonograph recording surfaces of wax or a wax composition, consisting in turning off such surfaces by a tool having a cutting edge acting obliquely to the track of record, substantially as set forth.

No. 33,274. Phonograph Recorder.

(Enregistreur de phonographe.)

Thomas A. Edison, Llewellyn Park, N. J., U. S., 2nd January, 1890; 5 years.

Claim.—1st. In phonograph recorders, the combination, with the diaphragm, of the recording point connected therewith, and a non-resilient retarding device for overcoming the momentum of the diaphragm and attached parts by constantly retarding the movement in both directions, substantially as set forth. 2nd. In phonograph recorders, the combination, with the diaphragm, of the recording point attached thereto, a lever or arm by which said recording point is carried, and a non-resilient returning device for overcoming the momentum of the diaphragm and attached parts by constantly retarding the movement in both directions, substantially as set forth. 3rd. In phonograph recorders, the combination, with the diaphragm, of the recording point connected thereto, and a pivoted lever carrying such recording point and having one or more friction bearings, substantially as set forth. 4th. In phonograph recorders, the combination, with the diaphragm, of the recording point connected thereto, a pivoted lever carrying said recording point, and a spring producing friction at the bearings of the lever and taking up the lost motion, substantially as set forth. 5th. In phonograph recorders, the combination with the diaphragm, of the recording point connected thereto, a pivoted lever carrying the recording point and adjustable spring friction exerted upon said lever, substantially as set forth. 6th. In phonograph recorders, the combination, with the diaphragm, of the recording point, a lever or arm carrying each recording point and a positive connection between the recording point and the diaphragm, such connection being constructed to yield in the direction of the length of the carrying lever, substantially as set forth. 7th. In phonograph recorders, the combination, with the diaphragm, of the pivoted lever carrying the recording point, and the link connecting such lever with the diaphragm and pivoted at both ends, substantially as set forth.

No. 33,275. Art of Recording and Reproducing Sounds.

(Art d'enregistrer et de reproduire les sons.)

Thomas A. Edison, Llewellyn Park, N. J., U. S., 2nd January, 1890; 5 years.

Claim.—1st. The improvement in the art of recording sounds for reproduction, consisting in impressing a suitable recording surface with waves corresponding with the sound waves, but made abrupt at one end, substantially as set forth. 2nd. The improvement in the art of recording sounds for reproduction, consisting in impressing a suitable recording surface with waves corresponding with the sound waves, but made abrupt at the last end of the waves, substantially as set forth. 3rd. The improvement in the art of recording sounds for reproduction, consisting in vibrating an indenting point correspondingly with the sound waves, but oblique to the relative line of movement of the recording surface, whereby the recorded waves will be more abrupt at one end than at the other, substantially as set forth. 4th. The improvement in the art of recording sounds for reproduction, consisting in vibrating an indenting point correspondingly with the sound waves, but oblique to the relative line of movement of the recording surface, the oblique movement being such that the indenting point moves forward against the movement of the recording surface and backward with such movement, whereby the re-

B¹ meshing with the gears A, A¹, and eccentrically arranged projection c on the adjacent sides of the wheels B, B¹, keys k, H having lugs of different lengths and adapted to turn between the wheels B, B¹, stops for supporting said wheels in their normal position, the springs for restoring the wheels from their actuated position to their normal position, substantially as described and shown. 11th. In combination with the type wheels, shaft arm k¹ extending from said shaft and carrying the platen L, the shank k² projecting from the shaft, the lever k hinged on the shaft and sustained normally resting on the same, and key H provided with a lug l¹ adapted to engage the lever k, substantially as set forth. 12th. In combination with the type wheel, the spring actuated paper winder L, the feed roller m, the ratchet wheel n secured to the shaft and said feed roller, roller m¹ held automatically in proximity to the feed roller, the shaft h having projections from it, the arms h¹ and h¹¹, and shank i, the platen l carried on the arm h¹, the push bar e extending from the arm h¹¹, pawls o¹ on said rod engaging the ratchet wheel n, the lever K hinged on the shank i, the weight J connected to said lever, and the key H provided with a lug l¹ adapted to engage the lever K. 13th. In combination with the type wheels, the oscillatory arm h¹, platen I carried on said arm, the tension spool J, the winding spool J¹, ratchet wheel k attached to the shaft of the winding spool, the ink ribbon P running from the spool J to a spool J¹, the pawl P attached to the arm h¹ and imparting motion to the ratchet wheel, the dog P¹¹ for preventing a retrograde movement of the ratchet wheel, substantially as described.

No. 32,283. Churn. (*Moulin à beurre.*)

J. Alfred Bertrand, Ste. Philomène, Qué., 2nd January, 1890; 5 years.

Résumé.—1o. Les roues d'engrenage de la grandeur donnée ayant leurs axes appliquées horizontalement, et grâce au prolongement extérieur de celui de la petite roue pouvant recevoir la manivelle, et tel que on a décrit plus haut. 2o. Le bloc D D pouvant se mouvoir de haut en bas, comme il a été décrit ci-dessus en la Fig. 1. 3o. Le brasseur non en tant que composé de croix et de valves, mais en tant que les croix ne sont que juxtaposées, c'est-à-dire que les bras ne sont pas hantés, et en tant que les valves ne sont pas à égale distance du centre, la différence étant justement la largeur d'une valve, et tel que décrit ci-dessus.

No. 33,284. Boot. (*Botte.*)

Henry L. Benson, San Antonio, Texas, U. S., 2nd January, 1890; 5 years.

Claim.—1st. The herein described combined counter stiffener and shank for boots or shoes, comprising two strips pivoted together and having the side and rear arms bent up to form the stiffener, and the straight front arm extended to form the shank, substantially as set forth. 2nd. In combination with a boot or shoe, a combined counter stiffener and shank, composed of two strips pivoted together, forming a cross-shaped plate, the side and rear arms of which are bent up to form the stiffener, and having their horizontal portion perforated, and a straight front arm extended to form the shank, substantially as set forth. 3rd. In combination, a boot or shoe having out-turned side seams, coil springs provided at the outside of the upper and adjacent said seams, strips for inclosing said seams and springs, and combined counter-stiffener and shank comprising two strips pivoted together, forming a cross-shaped plate, the side and rear arms of which are bent up to form the stiffener and the straight arms extended to form the shank, substantially as set forth. 4th. The herein described improvements in boots or shoes, consisting of the combined counter stiffener and shank having four arms extending from a common centre, the side arms being upturned, the upper having outwardly turned seams, coil springs provided at the outside of the upper and adjacent said seams, and strips for inclosing said seams and springs, substantially as and for the purpose set forth.

No. 33,285. Roofing and Siding.

(*Toiture et revêtement.*)

William L. Earing, Morristown, N. Y., U. S., 2nd January, 1890; 5 years.

Claim.—1st. The combination, with the studding or rafters E, E, of the boards B and the intervening strips A having a projecting weather face overlapping the exterior face of the boards, and severally matched together and nailed to the studding or rafter to allow of free contraction and expansion at the joints, as set forth. 2nd. The combination, with the studding or rafters E, of the grooved strips A and intervening rabbeted boards B, of less thickness, matched together and severally nailed, as described, whereby each piece is free to contract and expand, and the projecting face of the strips overlaps the exterior surface of the boards to keep the joints tight during such contraction and expansion, as set forth.

No. 33,286. Vehicle Axle. (*Essieu de voiture.*)

William H. Wright, Buffalo, N. Y., U. S., 2nd January, 1890; 5 years.

Claim.—1st. As an improved article of manufacture, a vehicle axle having a collar C, the periphery of which is octagonal in shape, a hub J having an inner band formed with the externally screw-threaded rim D¹ and recesses J¹, a swivel nut D engaging said annular rim D¹, and the box F, having the flange F¹ and notched lugs g, as and for the purpose set forth. 2nd. In vehicle axles, the outer hub band having the screw-threaded rim O provided with the web P, the glass disk M, provided with the depression m¹ and the cushion N in said depression, as and for the object stated.

No. 33,287. Station and Street Indicator.

(*Indicateur de station et de rue.*)

Olive P. Hurford, Chicago, Ill., U. S., 2nd January, 1890; 5 years.

Claim.—In a station and street indicator, the combination, with a

supporting frame, having a pair of opposing socket plates at each end, and a pair of rollers having pintled castings at their ends fitting in said sockets and connected by chains carrying a series of hangers castings having ratchet teeth on its circumference, of an operating lever journalled on the hub of one of the socket plates between it and the end of the casting, and carrying a pivoted pawl in engagement with said ratchet teeth, a spring connected to one end of said pawl and to the supporting frame, and a rod, wire chain or cord connected to the other end of said lever, substantially as described and for the purpose set forth.

No. 33,288. Leather Gaiter and Shoe Upper.

(*Guêtre et oreille de soulier de cuir.*)

Robert Harwood, London, Ont., 2nd January, 1890; 5 years.

Claim.—1st. The shape of the gaiter and the shapes of its parts, the shapes of the back part of the shoe upper and the shapes of its parts, but not of the vamp or front part of the shoe upper, as set forth. 2nd. The combination of the gaiter and shoe upper to form a gaiter shoe lacing on the inside, as shown and described.

No. 33,289. Vehicle Axle. (*Essieu de voiture.*)

William H. Wright, Buffalo, N. Y., U. S., 2nd January, 1890; 5 years.

Claim.—1st. In vehicle axles, a tubular body having centrally an oil chamber and filling passage for the same, a plug Q inserted in said chamber and provided with a longitudinal passage R in its lowest side, a chamber B in front of said plug closed on its end by an absorbent material, and an axle box closed on its end, whereby the lubricant passes from said central chamber through said passage into the front chamber and through the absorbent material to the axle box, as and for the purpose stated. 2nd. The combination, with the tubular axle, of the shrunk on collar I having the laterally projecting lugs K and encircling flange P, the box E having the flange F and screw-threaded portion e, the collar C abutting against said collar I, the swivel nut D and the flange F, with the bolts f, as set forth.

No. 33,290. Automatic Fire Extinguishing Sprinkler and Alarm Apparatus used in Conjunction therewith.

(*Arrosoir-extincteur automatique d'incendie avec appareil d'alarme.*)

William Mayall and Thomas Thomasson, Mossley, Eng., 2nd January, 1890; 5 years.

Claim.—1st. In an automatic sprinkler, the combination of the annu-chamber or expansion ring d with the outlet nozzle e carrying the valve seating e¹ secured rigidly in position, substantially as and for the purposes hereinbefore described. 2nd. In the construction of automatic sprinklers, the employment of a length of corrugated metal tubing h, substantially as and for the purposes hereinbefore described. 3rd. The use and application to the water supply pipes of automatic sprinklers of an expansion chamber, substantially as and for the purposes hereinbefore described. 4th. In the construction of alarm valves to be used in conjunction with automatic sprinklers, or other fire extinguishing apparatus, the employment of orifices o in the valve seating n, and of a hole m in the valve or its seating, substantially as and for the purposes hereinbefore described. 5th. The improved construction and arrangement of alarm valve having a hollow cross bar A, valve seating e and valve D formed upon the spindle of the main valve E, substantially as and for the purposes hereinbefore described and illustrated in Figs. 7 and 7a of the accompanying drawing. 6th. The improved steam whistle apparatus, operated by a disc valve x, substantially as and for the purposes hereinbefore described. 7th. The use and application to sluice or stop valves employed in conjunction with an installation of automatic sprinklers, of a small alarm valve G mounted and operated substantially as and for the purposes hereinbefore set forth.

No. 33,291. Shoe. (*Soulier.*)

Mary A. Damer, East Saginaw, Mich., U. S. (assignee of William Damer, Toronto, Ont.), 2nd January, 1890; 5 years.

Claim.—In a new article of manufacture for the use of the shoe and kindred trades, shiving patterns or plates composed of metal, or any other suitable substance or substances, and formed in the shape of the different parts of the various forms of shoes, and having increased thicknesses or relief of the height and shape desirable, substantially as shown and described and for the purposes specified.

No. 33,292. Manufacture of Portland Cement. (*Fabrication du ciment de Portland.*)

William H. E. Bravender, Napanee Mills, Ont., 2nd January, 1890; 5 years.

Claim.—1st. The process of manufacturing portland cement, consisting of mixing marl clay and sawdust, in the proportions specified, to a plastic mass forming said mass in blocks, drying said block and calcining said blocks under a white heat, substantially as set forth. 2nd. In the process of manufacturing portland cement, the addition of sawdust to the ingredients forming a plastic mass, in the proportion specified, substantially as set forth.

No. 33,293. Machinery for the Prevention of Accidents. (*Machinerie pour empêcher les accidents.*)

William E. Hobbs, Southport, Eng., 2nd August, 1890; 5 years.

Claim.—1st. Rod or feeler a, in juxtaposition with the ropes and in communication with the stop valve, as represented in Fig. 1, sub-

the quadrant arm, substantially as described, whereby said arm is caused to act in unison with the action of the cop-builder mechanism. 10th. The combination, with the carrier having cop-builder mechanism mounted thereon, and the quadrant arm that governs the action of the winding chain, of an adjustable inclined guide-way supported and hinged upon said carrier, a movable brake, and slide block for raising and depressing the free end of said guide-way, a quadrant operator that receives movement from said guide-way, connections for transmitting motion from the quadrant operator to the quadrant arm, and means, substantially as described, for adjusting the inclination of said guide-way simultaneously with the adjustment of the cop-builder plate, for the purposes set forth. 11th. The combination, with the cop-builder plate 17, the adjustable guide-way 32, its support 33, and the slide block 34, of the adjusting shaft provided with a screw-thread 15 for adjusting said cop-builder plate, and a screw-thread 16 for adjusting the slide block, and the rod 35 connected at one end with the cop-builder plate, and its other end extending through an opening in said slide-block screw-threaded and provided with adjusting nuts, substantially as and for the purpose set forth. 12th. The combination, with the adjusting screw shaft mounted on the carrier, and the actuating gear for reciprocating said carrier, of the loose sheave 25, the interchangeable ratchet wheel 27 keyed on the shaft, the pawl 26 pivoted on said sheave, the chain 23 attached to said sheave, the swinging arm 24 pivoted to a stationary support, with its movable end attached to said chain, a counter weight 30, and the sheave 31 connected with said carrier for imparting intermittent rotative action to said shaft, substantially as set forth. 13th. The adjustable inclined guide 32, its supporting brace 33, and slide block 34, in combination with a movable carrier 10, an adjusting shaft having screw-thread 16 engaging said slide block, the quadrant operator 38 having a shoe 36 that works on said guide, the quadrant arm 41 carrying a sheave 41, connections for transmitting motion to said arm from the quadrant operator, and means for imparting to said carrier and guide backward and forward movement, substantially as set forth. 14th. The quadrant arm 40 having an upwardly extending end 42 to which the end of the winding chain is attached, in combination with the cylinder winding drum, winding chain 44, guide sheave 41, roll beam D, sheave 42, quadrant operator 38, operator connections 39, and means for actuating said quadrant operator, substantially as and for the purpose set forth. 15th. The adjustable supporting brace 33, and slide block 34 adapted to move past the centre or vertical plane of the hinging axis of said brace, in combination with the reciprocating carrier 10, inclined bar 32, quadrant operator 38 actuated by said inclined bar, and the adjusting screw 16 mounted in bearings on the reciprocating carrier for shifting said slide block and support, substantially as set forth. 16th. The inclined guide-way 32, having an oil-well 37 formed in the lower end thereof, and the bearing shoe on the end of the quadrant operator adapted to dip into the oil-well, in combination with the quadrant operator, the movable carrier wherein said guide-way is supported, and means, substantially as set forth, for imparting motion thereto. 17th. In combination with the reciprocating carrier having the cop-builder and quadrant operator mechanisms mounted thereon, and a bearing boss on its lower side, of the support or pillow block 8 provided with a bearing surface on which said boss slides, a depression or channel at the ends thereof, and an upwardly extending lip or flange surrounding said bearing surface, substantially as and for the purpose set forth. 18th. In combination, with the roll beam D, winding chain 44, and cop-builder arm X, the swing lever 46 carrying a pulley 47 that engages said chain, a ratcheted actuating bar 48 connected with said lever, a lifting lever 50 for raising and depressing the ratcheted end of said actuating bar, a connection 51 from said lifting lever to the cop-builder arm, and a lug or detent 49 connected with the roll beam that engages the ratcheted end of said actuating bar and imparts movement thereon, for the purpose set forth. 19th. The spring bar 52 in combination with the cop-builder arm X, faller locking mechanism, roll beam D having the detent 49, take-up actuating bar, lifting lever 50 and connecting chain 51, substantially as and for the purpose set forth. 20th. The combination, with the roll beam D, the chains D² and sprocket wheels B¹ for moving the same, the back shaft B, of a scroll or disk M fixed on said shaft and carrying a stud 62, a counterbalanced lever mounted upon a screw-threaded hub fixed on said shaft adjacent to the disk, and provided with a stud 61 for engagement with said stud 62, an operating connection 57 attached to the arm of said lever, and means for imparting motion thereto, for the purpose set forth. 21st. The combination, substantially as described, of the back shaft B, the scroll or disk M fixed thereon and carrying the stud 62, the counterbalanced lever 58 carrying the pin 61, the worm wheel 54 carrying a crank, and connection 57 for operating said lever, a swinging bracket wherein said worm wheel is mounted having a spring arm 55, the cam shaft I provided with a cam that engages said arm, and a worm screw 56, and shaft for operating said worm wheel, for the purposes set forth. 22nd. The combination, with the quadrant arm, its chain, and the winding drum on the cylinder shaft in a spinning machine, of a frictional belt acting on said drum in opposition to the draft of the chain with force sufficient for winding the chain thereon when slack, but whose force is easily overcome by the draft of the chain operating mechanism in action when winding up the yarn, substantially as set forth. 23rd. The combination, with the winding chain 44, winding drum C², and auxiliary shaft Q, of the friction belt 71, its pulley 70, and the counterweighted lever 72 carrying a tightening pulley 73 that is pressed against said belt by the counterweight to give friction on the winding drum for winding up the quadrant chain, substantially as set forth. 24th. The combination, substantially as described, of the faller-lock, escapement lever, and roll beam, of the trip bar on said escapement lever L, and having the lug or stud 78 near its forward end, the upright lever 80, its upper end at position to engage the counter-faller f¹, of a lever 85, one end of which is connected with the counter-faller by a cord or chain 87, and its opposite end when at backward position, substantially as and for the purpose set forth. 26th. The combination, with the movable roll beam, the indic-

tor clock, and indicator operating mechanism mounted thereon, of a guide-way a over which the roll beam travels provided with a depression having the inclined surface 98 formed thereon, and the pawl actuating bar 97 arranged to drop into said depression and receive movement from said incline as the roll beam passes over the same, substantially as set forth.

No. 33,290. Car Coupling. (*Attelage de chars.*)

Erastus N. Jones and Thomas McAvity, St. John, N.B., 2nd January, 1890; 5 years.

Claim.—1st. The draw bar A having a horizontal slot at the exterior end, a curved fluke C pivoted therein, a chain M, and weight L attached to one arm of the fluke and arranged to keep the other end or arm normally projected to couple, and a chain attached to the fluke to pull against, and by manual force overcome the resistance of the weight in uncoupling, as set forth. 2nd. The fluke C having a horizontal slot, and pin hole for receiving a link Q, and pin V, as set forth.

No. 33,300. Grating and Slicing Device.

(*Machine à râper et hacher.*)

Adolph H. Richter, (assignee of John Distelhorst), Burlington, Iowa, U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a device of the character herein described, a support provided with a laterally extended arm, in combination with a revolving cutting plate, the said arm on one side of said cutting plate forming a scraper, and on the other side a hopper support, substantially as set forth. 2nd. The support 9 provided with a shaft bearing, and a laterally extended scraper, in combination with a hopper supported on said laterally extended scraper in such manner as to form an acute angle of approximate juncture therewith, and to provide an unobstructed space between scraper and hopper, and a cutting plate mounted to revolve vertically between the hopper and scraper, substantially as set forth. 3rd. The support 9 provided with screw clamp 10, shaft bearing 11, and combined hopper supporting piece and scraper 12, 13, in combination with hopper 14, cutting plate 15, and shaft 18, the cutting plate secured to shaft 18, and arranged to revolve vertically between the hopper and scraper, substantially as set forth.

No. 33,301. Tongue Support. (*Support de timon.*)

Crawford R. Canterbury, Brownwood, Texas, U.S., 2nd January, 1890; 5 years.

Claim.—The herein described tongue-support having the side-arms F, comprising sections f, f, connected at their adjacent ends by the spring coils P, the hooks K on the rear ends of the said arms, the lateral transverse arms G comprising the sections g, g, connected at their adjacent ends by the spring coils p, the standards H on the inner ends of the arms G, and the supporting chain L connecting the upper ends of the said standards and passing under the tongue, substantially as specified.

No. 33,302. Frame for School Slates and the like. (*Câdre pour les ardoises d'écoles et les objets similaires.*)

John B. Heighinton and William Heighinton, Toronto, Ont., 2nd January, 1890; 5 years.

Claim.—1st. A frame composed of rubber or other analogous substance, having a channel formed in its inner face to engage the edge of the slate over which said frame is drawn to contract and fit, substantially as and for the purpose set forth. 2nd. A frame for school slates and the like, composed of rubber or other analogous substance, having a channel formed in its inner face to engage the edge of a slate over which said frame is drawn to contract and fit, and having a series of loops formed on its surface, substantially as and for the purpose set forth. 3rd. In a multiple school slate, the frames A composed of rubber or other analogous material, having a groove for the reception of the edges of the slate B connected by hinge of the same material, and locked by means of a clasp D, substantially as and for the purpose set forth. 4th. In combination with the ordinary wooden slate frame, the outer elastic frame of rubber, or other analogous substance formed with a channel in its inner face to engage the outside edge of said wooden frame suitably formed to fit said channel, substantially as and for the purpose set forth.

No. 33,303. Water Heater. (*Réchauffeur d'eau.*)

Julius C. Eaton, Lyndon, Vt., U.S., 2nd January, 1890; 5 years.

Claim.—In an apparatus for heating water for stock, a heater composed of a single iron or metal shell, having a slightly elevated shallow conical bottom, and means whereby water may circulate below it, and provided with a suitable top having an opening for introducing fuel, and an hinged cover for same, a draft tube connecting with the interior of said shell at a point just above said shallow conical bottom, and a suitable smoke pipe and spark arrester attached thereto, all constructed substantially in the manner and for the purpose set forth.

No. 33,304. Wash Boiler.

(*Chaudière de buanderie.*)

John T. McCaffrey, Red Bud, Ill., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a wash boiler, the combination of the perforated plate C, tubes b and d, steam chamber D provided with a supplemental bottom, and the tapering arms E having nibs e, substantially as shown and described. 2nd. In a wash boiler, the combination of a perforated plate, a steam chamber having tapering arms, and a supplemental bottom dividing the passage to said arms, and tubes connecting said perforated plate, and steam chamber, substantially as shown and described.

No. 33,305. Machine for Finishing Caster Rollers. (*Machine à finir les roulettes des meubles.*)

Robert B. Codling, Bristol, Conn., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The combination of a pair of holding jaws, the leveling plunger, and an opposing face for confining the work under lateral pressure when about to be grasped by the jaws, and mechanism for operating said plunger, substantially as described and for the purpose specified. 2nd. The holding jaws having holding faces, and arranged to move for bringing said faces to and from each other, and a weight or spring for holding the jaws together when gripping the work and thereby determining the pressure of the jaws upon the work, substantially as described and for the purpose specified. 3rd. The combination of the holding jaws I, H, the cams K and m acting respectively upon the jaws I and H to force them forward, and a pressing device for throwing the jaws I toward the cam, and another pressing device for throwing the jaw H toward the jaw I, and the cams, substantially as described and for the purpose specified. 4th. The combination of a lathe spindle or spindles, the holding jaws I, H, the cams K, m, acting respectively first on the jaw I, and then on the jaw H, and pressing devices for returning said jaws, substantially as described and for the purpose specified.

No. 33,306. Drum Stove. (*Poêle sourd.*)

Isaac Pelky, Chesterville, Ont., 2nd January, 1890; 5 years.

Claim.—1st. In a drum stove, the hot air pipes D arranged substantially as shown and for the purpose set forth. 2nd. In a drum stove, the combination of the drum A, and smoke pipe B, with the hot air pipes D, and conducting pipe E, substantially as shown and described. 3rd. The combination, in a drum stove, of the drum A, smoke pipe B, and hot air pipes D, with the cheek plate C, and valve F, with their stems G and H, and the plates J, with their holes I, all substantially as herein shown and described.

No. 33,307. Fastening for Stove Pipes.

(*Agrafe pour les tuyaux de poêles.*)

Charles P. Elliott, West Liberty, Iowa, U.S., 2nd January, 1890; 5 years.

Claim.—1st. A fastening for the meeting edges of stove pipes comprising a plate or clasp having vertical flanges, a plate arranged to slide vertically in said flanges and provided with a diagonal slot, and an arm extending into a slot in the rear side of the plate or clasp, and having an inclined flange engaging the diagonally slotted vertically sliding plate, substantially as set forth. 2nd. In a fastening for the meeting edges of stove pipes, the combination of the vertically flanged plate or clasp having a slot on its rear side, a vertically sliding diagonally slotted plate, and an arm having a diagonal double fold or flange, engaging the opposite sides of the slot in the vertically sliding diagonally slotted plate, substantially as set forth. 3rd. The combination of a stove pipe having a meeting edge provided with a double fold forming a groove facing, and adapted to receive the opposite plain meeting edge, a clasp or plate secured to one of said meeting edges and provided with vertical flanges and with a slot on its rear side, a vertically sliding diagonally slotted plate mounted in said flanged clasp, and an arm secured to, and extending from the other meeting edge, and having a diagonal double fold or flange at its outer end engaging the opposite sides of the slot in the diagonally slotted vertically sliding plate, substantially as and for the purpose herein set forth.

No. 33,308. Boiler. (*Chaudière.*)

John F. Gray, Worcester, Mass., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The combination of a furnace casing, a main boiler therein, a supplemental arch-shaped boiler disposed within said casing beneath the front portion of said main boiler, one or more circulating tubes connecting the main boiler with the arch-shaped boiler, a combustion chamber within the arch of the supplemental boiler beneath the rear portion of the main boiler, a flue space surrounding said oven and opening into the combustion chamber, and tending from the top of the supplemental boiler to the top of the casing, a main boiler therein, a supplemental arch-shaped boiler disposed within said casing beneath the front portion of said main boiler, one or more circulating tubes connecting the main boiler with the arch-shaped boiler, a combustion chamber within the arch of the supplemental boiler beneath the rear portion of the main boiler, a flue space surrounding said oven and opening into the combustion chamber, and tending from the top of the supplemental boiler to the top of the casing, and tubular flues within the sides of the main boiler, and the casing, and tubular flues within said main boiler, substantially as set forth. 3rd. The combination of a furnace casing, a main boiler therein, a supplemental arch-shaped boiler disposed within said casing beneath the front portion of said main boiler, one or more circulating tubes connecting the main boiler with the arch-shaped boiler, a combustion chamber within the arch of the supplemental boiler beneath the rear portion of the main boiler, a flue space surrounding said oven, and opening into the combustion chamber, tending from the top of the supplemental boiler to the top of the oven, and a bridge-wall at the rear of the combustion chamber forming a part of the descending flue at the front of the oven, substantially as set forth.

No. 33,309. Combined Band Cutter and Feeder. (*Coupe-hart et alimentateur combinés.*)

Adolphus J. Wirtz, Henry J. C. Richter and Charles H. Wirtz, Grand Harbor, N.D., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In combination with a feeder frame and platform, a series of teeth Q¹ extending in the same general direction with the platform, vertically adjustable supports for said teeth, and means for securing the supports rigidly in position. 2nd. In combination with a feeder frame and platform, a series of teeth Q¹ extending in the same general direction with the platform, a rocking frame in which said teeth are mounted, vertically adjustable supports for the rocking frame, and means for securing the supports rigidly in position. 3rd. In combination with a feeder frame and platform, a series of teeth Q¹ extending in the same general direction with the platform, a rocking frame in which said teeth are carried, a shield R secured to the rocking frame, and means for securing the rocking frame in its adjusted positions, all substantially as shown. 4th. In combination with a feeder frame and platform, a series of teeth Q¹ extending in the same general direction with the platform, a shield, as R, a rocking frame by which said teeth and shield are carried, vertically-adjustable supports for said rocking frame, and means for locking the supports and rocking frame in position. 5th. In combination with a feeder frame and platform, a cross-bar Q and supports for the same, teeth Q¹ projecting from one side of the bar, and a shield R projecting from the opposite side, said shield and teeth being substantially parallel with the platform. 6th. In combination with a feeder frame, provided with eyes N, a series of teeth Q¹, notched uprights supporting the teeth and engaging the eyes and pawls P, all substantially as shown. 7th. In combination with a feeder frame I and its platform J, links pivotally supporting the lower end of the platform, a rock-shaft L¹ and an elbow lever secured to the rock shaft and connected with the upper end of the platform, all substantially as shown, whereby the upper end of said platform has an up and down and backward and forward movement, while the lower end has only a swinging movement. 8th. In a combined band cutter and feeder, the combination, with a frame I having a feeder, of a frame A in which the cutters are mounted, detachably connected with the frame I, and a series of rake fingers mounted upon the feeder frame and having their supports pivotally connected with the frame A, whereby the machine is adapted to be folded into compact form. 9th. In a machine, substantially as shown, the combination, with frame A and apron B, of the centre board E¹, the rotatable disk in line with the centre board and forming a continuation thereof, and the cutting disks on both sides of the said centre board, all substantially as shown. 10th. In combination with frame A and apron B, cutting disks G, teeth U extending in the same general direction with the apron between the disks and terminating at the delivery end of the apron, a frame I provided with a platform J and a shield R carried by said frame I and extending up to the ends of teeth U. 11th. In combination with frame I, a platform J mounted therein and provided with bars J¹, J¹¹, extending lengthwise thereof, a press rake or shield R extending across the frame directly above the platform, and means, substantially as shown, for imparting an upward and forward and downward and backward motion to the platform. 12th. In combination with frame I, a platform J mounted therein and provided with a series of longitudinal bars, means for imparting motion to the platform, and a shield, as R, directly above the bars, all substantially as shown. 13th. In combination with frame I, a platform J provided on its upper face with a series of notched bars, separated from one another and extending lengthwise of the platform, a shield R extending across the frame at the receiving end, and means for imparting motion to the platform. 14th. In combination with frame I, a platform J provided on its upper face with notched bars K, higher at the receiving end than at the delivery end and separated to form channels, as shown, means for imparting an upward and forward and downward and backward movement to the receiving end of the platform, and a press rake or shield R extending across the frame above the receiving end of the platform. 15th. In combination with base board plates or bars J¹, J¹¹, increasing in height, and intermediate plates or bars J¹, J¹, decreasing in height toward the delivery end, all substantially as shown. 16th. In combination with base board plates or bars J¹, J¹, applied to the upper face thereof, and having their upper edges parallel with the base board throughout a portion of their length, and decreasing in height from the termination of said parallel portion toward the delivery end. 17th. In combination with base board plates or bars J¹, decreasing in height toward the delivery end and notched on their upper edge, and plates J¹¹ increasing in height toward the delivery end and notched on their upper edge. 18th. In combination with base board plates or bars J¹ and J¹¹, the former decreasing in height toward the delivery end of the platform, and ribs J⁴ secured to the inner faces of the plates J¹¹ at approximately right angles to the board. 19th. In combination with base board plates or bars J¹¹, applied thereto, and ribs or flanges secured to the inner face of each bar or plate, and projecting outwardly therefrom.

No. 33,310. Decorating Watches or other Metallic Surfaces. (*Ornementation des montres ou autres surfaces métalliques.*)

Leon Favre, New York, N.Y., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The process of applying carbon prints to metallic surfaces, which consists in dimming the surface of the metal, applying faces, which consists in applying an adhesive, such as collodion, applying the metal surface an adhesive, and washing off or removing the carbon print to the adhesive, and washing off or removing the carbon paper and foreign matter, so as to leave the print adhering to the bon paper and foreign matter so as to wash the print adhering to the metal, substantially as described. 2nd. The process of applying metallic surfaces, which consists in enameling the carbon prints to metallic surfaces, which consists in enameling the surface of the metal, applying to the enameled surface an adhesive, such as collodion, applying the carbon print to the adhesive and such as washing off or removing the carbon paper and foreign matter, so as to leave the print adhering to the enameled surface, substantially as described.

No. 33,311. Spool Holder. (*Porte bobine.*)

Sebern A. Cooney, New York, N.Y., U.S., 2nd January, 1890; 5 years.

Claim.—A spool holder, constructed of a single piece of spring metal, and having its upper end bent into a hook *a*, and provided below the hook with a coil, and having the approximately parallel legs *a*², leaving the coil upon opposite sides, and provided with bends or shoulders *a*² to limit the upward movement of the spool, and stops *a*² formed by bending the ends to prevent the spool slipping off the holder, substantially as described.

No. 33,312. Stub Identification Receipt Blank. (*Blanc de quittance avec souche d'identification.*)

Thomas S. Quincey, Chicago, Ill., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The herein described stub identification receipt blanks, comprising, in combination, permanent stubs and detachably connected coupons, each bearing matter complementary of the other, whereby one may be identified by the other, and composed of stiff paper, whereby the coupons are adapted for transmission through the mail, said coupons having space upon one side to receive an address and the necessary postage, and a space on the reverse side for the reception of the communication, substantially as described and for the purpose set forth. 2nd. The herein described stub identification receipt blanks, comprising a series of sheets bound together to form a book, and each sheet composed of a permanent stub and a coupon detachably connected thereto, the stub and coupon each bearing matter complementary of the other, whereby one may be identified by the other, and made of stiff paper, whereby the coupon is adapted for transmission through the mail, and having a space upon one side to receive an address and the necessary postage, and a space on its reverse side for the reception of the communication, substantially as described and for the purpose set forth.

No. 33,313. Acid Saccharification of Amylaceous Substances. (*Saccharification acide des substances amylacées.*)

Albert H. J. Bergé, Brussels, Belgium, 2nd January, 1890; 5 years.

Claim.—A process for the saccharification of any amyloseous substances, which consists in treating them in a closed vessel at the required temperature, with sulphurous acid or other acids or acid salts, and submitting them to a pressure of several atmospheres by means of an inert gas or gases pumped into the said vessel, so as to hold the material in the vessel absolutely from contact with outer or atmospheric air or oxygen, substantially as and for the purposes set forth.

No. 33,314. Bottle Stopper Holder.(*Arrête-bouchon de bouteille.*)

Josias J. Sands, Merton, Wis., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The combination, with the walls of a vessel orifice, having internal shoulders and with a stopper in the orifice, of a flexible metal holding bar inserted over the stopper and engaged at its ends with the said shoulders, the said metal holding bar having a central arch or U-shaped bend, substantially as described. 2nd. In combination with a vessel, the orifice of which is provided with opposite shoulders and with a stopper in said orifice, of a flexible metal holding bar *C*, having a central arch in which is formed a slot running lengthwise of the holding bar, substantially as described.

No. 33,315. Process for Cutting Stone.(*Procédé pour tailler la pierre.*)

Emmanuel Forster, New York, N. Y., U. S., 2nd January, 1890; 5 years.

Claim.—The process of dressing or cutting stone, herein described, which consists in feeding the stone to the reciprocating tool in the direction of the cutting stroke of the said reciprocating cutting tool, substantially as specified.

No. 33,316. Apparatus for Heating and Drying Barrels or Casks. (*Appareil pour faire chauffer et sécher les futailles*)

James M. Chambers, St. Louis, Mo., U. S., 2nd January, 1890; 5 years.

Claim.—In apparatus for heating and drying barrels, the combination of the heater *a*, cylinder or drum *b*, having openings *b*¹ near its lower end and forming annular space *c*, outer drum or casing *d* having openings *d*¹ near its upper end and forming annular space *e*, said drums being carried by framing *f*, with the platform *h* for carrying the barrel *a*, and means for raising and lowering said platform, substantially as and for the purpose hereinbefore set forth.

No. 33,317. Method and Apparatus for Converting Alternating into Direct Currents. (*Mode et appareil de conversion des courants alternatifs en courants directs.*)

Nikola Tesla, New York, N.Y., U.S., 2nd January, 1890; 5 years.

Claim.—1st. The method herein set forth, of obtaining direct from alternating currents, which consists in developing or producing in resistance to the current impulses of one direction, whereby the said currents or waves of current will be diverted or directed through another branch. 2nd. The method of obtaining direct from alternat-

ing currents, which consists in dividing the path of an alternating current into branches and developing in one of said branches either permanently or periodically an electrical force or active resistance, counter to or opposing the currents or current waves of one sign, and in the other branch a force counter to or opposing the currents or current waves of opposite sign, as set forth. 3rd. The method of obtaining direct from alternating currents, which consists in dividing the path of the alternating current into branches, establishing fields of force and leading the said branches through said fields of force, in substantially the manner set forth, whereby electro-motive forces of one direction will be produced therein. 4th. The combination of the branches of a divided circuit-carrying alternating currents, of devices including in or connected with the said branches, and capable of developing or exerting an active opposition or electro-motive force counter to the current waves of one direction or sign, as herein set forth.

No. 33,318. Blank for Making Armatures. (*Ebauche pour faire les armures.*)

Warren S. Belding, Chicago, Ill., U. S., 2nd January, 1890; 5 years.

Claim.—1st. A sheet blank constituting a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other end, substantially as shown and described. 2nd. A sheet blank constituting a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other end, and having formed in each of said poles a hole *A* for receiving pins or bolts for affording ventilation and reducing the mass of the pole, substantially as shown and described. 3rd. A blank forming part of a circle and having equidistant poles with extensions *C* of equal dimensions, said poles being located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other end, substantially as shown and described. 4th. A blank forming part of a circle and having equidistant poles with extensions *C* of equal dimensions, and said extensions provided with holes *C*¹, whereby ventilation is afforded and the mass of said pole is diminished, substantially as shown and described. 5th. A sheet blank constituting a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other, and each of said poles provided with an outward extension *C*, substantially as shown and described. 6th. A sheet blank constituting a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other, and each of said poles being provided with an outward extension *C* and each such extension having formed in it a hole *C*¹, substantially as shown and described. 7th. A sheet blank constituting a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other end, and having formed in each of said poles a hole *A*, and each of said poles having an outward extension, and each of said outward extensions being provided with a hole *C*¹, substantially as and for the purposes hereinbefore set forth.

No. 33,319. Car Coupling. (*Attelage de chars.*)

Charles H. Grambs, Dalton, and Henry Frey, Scranton, Penn., U.S., 2nd January, 1890; 5 years.

Claim.—1st. In a car-coupling, the combination, with the draw-head having the central cavity and the spring pressed link-holding jaws, of a step on the upper jaw, and a corresponding step on the pin engaging therewith to hold the pin elevated, substantially as described. 2nd. In a car-coupling, the combination, with the draw-head having the central cavity and the jaws sliding therein, of the inclined step on said jaws, and a step on the pin engaging therewith to hold the pin elevated, substantially as described. 3rd. In a car-coupling, the combination, with the draw-head having the central cavity, of the link-holding jaws sliding therein having the spring between their rear ends, and the springs on the outside of such ends for holding the jaws in position and permitting a movement in either direction, substantially as described. 4th. In a car-coupling, the combination, with the draw-head having the central cavity, of the link-holding jaws sliding therein and resting one upon the other, and having the cut-out portions and projections, as described, whereby the link engages both jaws simultaneously to push them back, as set forth. 5th. In a car-coupling, the combination of the draw-head having the central cavity, with the link-holding jaws sliding therein having the spring between their rear ends, and the springs on the outside of such ends for holding said jaws resting against the other and having the cut-out portions and projections, as described, whereby the link engages both jaws simultaneously to press them back, as set forth. 6th. In a car-coupling, the combination, with the draw-head and the spring-pressed pin-supporting jaw, of the rotary block connected to said pin adapted to raise or lower the same, and the weighted lever connected to said block for causing its rotation in a direction to lower the pin, substantially as described. 7th. In a car-coupling the combination, with the draw-head, of the rotary block having the pin connected thereto by the loose link and the stops for limiting the rotation of said block, substantially as described. 8th. In a car-coupling, the combination, with the draw-head of the rotary block having the pin connected thereto, the stops for limiting the forward rotation of the block and the lock for preventing its rotation in the opposite direction, substantially as described. 9th. In a car-coupling, the combination, with the draw-head, the rotary block having the

bination, with the diaphragm of a cutting-tool, recording-point connected with the diaphragm, and a non-resilient constantly-acting retarding device for retarding the movement of such point in both directions, substantially as set forth. 6th. In a phonograph-recorder, the combination, with the diaphragm of a cutting-tool, recording-point connected with the diaphragm, a lever carrying such point, and a positive connection between the point and the diaphragm, which connection is constructed to yield in the direction of the length of the lever, substantially as set forth.

No. 33,324. Clothes Line. (*Ligne d'étendage.*)

Joseph N. Brown, Farwell, Mich., U.S., Charles O'Heron, St. Thomas, and Maggie Lewis, Simcoe, Ont., 2nd January, 1890; 5 years.

Claim.—The combination, in a metal "clothes line," of the links or sections A and B, and the clamp C, substantially as and for the purpose hereinbefore set forth.

No. 33,325. Rotary Engine. (*Machine rotatoire.*)

Sidney King, Bruce Mines, Ont., (assignee of Julius M. Farmer, Milwaukee, Wis., U.S.) 2nd January, 1890; 5 years.

Claim.—1st. The combination, in a rotary engine, of a rotating disk, provided with steam ducts leading to cylinders thereon, of a movable block provided with steam ducts registering with the ducts in the disk, and a spring bearing against the movable block, whereby it is held closely but yieldingly to the hub of the disk, substantially as described. 2nd. In a rotary engine, the combination of a disk C provided with steam ducts leading from the outer surface of its hub to steam cylinders thereon, and a shaft B fixed in the disk of a block P about the shaft, which block is provided with induction and ejection ducts registering with the ducts in the disk, and is connected with the live steam supply, and a spring about the shaft bearing against a collar thereon and holding the block P up to its work, substantially as described. 3rd. In a rotary engine, the combination, with a disk fixed on the shaft having bearings in a supporting frame, and cylinders secured at a distance apart to the disk, of a hub supported and rotating on an independent fixed support, which hub is connected by arms to the several cylinders, thereby staying and supporting them in position, substantially as described. 4th. The combination, with a disk C fixed on a shaft B having its bearings in a standard A¹, and steam cylinders D, D, D¹, D², fixed on the face of the disk C, in combination with a hub H having its bearings on a fixed head G, and provided with radial arms H¹, H², secured to the cylinders D and D¹, substantially as described. 5th. In a rotary engine having a rotating disk, and steam cylinders fixed thereto in sets opposite to each other, and piston rods crossing each other provided with intermediate cross-heads, a cross-head guide adjustable in a fixed support, and carrying blocks located in the slots of the cross-heads and adapted to guide the cross-heads in their movements, substantially as described. 6th. In combination with the slotted cross-heads E and F¹ having a common point of cross movement opposite each other, of bevelled blocks L and L¹ fitted to corresponding bevelled walls, of the slots in the cross-heads, a bolt I, and a sleeve I¹ carrying thereon the blocks L and L¹ respectively, and adjustable in a fixed support G, substantially as described. 7th. In a rotary engine, the combination, with a disk provided with steam ducts affixed thereto, of a block provided with steam ducts having segmental ports located in front of the line of rotation of the ducts in the hub of the disk, with which hub the block otherwise a steam-tight joint, whereby steam is taken and exhausted intermittently and the expansion of the steam between the time of its reception in the cylinder and its discharge therefrom is provided for, substantially as described.

No. 33,326. Weather Strip. (*Bourrelet de porte.*)

Frederick J. Hughes and John F. McLeay, Watford, Ont., 2nd January, 1890; 5 years.

Claim.—The combination of the bar C having slots E, E¹, formed therein, packing D, securing devices G, spring H, stud I, and cover J, substantially as shown and described and for the purpose specified.

No. 33,327. Cuspidor. (*Crachoir.*)

George S. MacKenzie and Albert J. Bayless, Chicago, Ill., (assignees of Daniel H. Murphy, Hartford, Conn., U.S.) 2nd January, 1890; 5 years.

Claim.—1st. As an improved article of manufacture, a cuspidor formed of paper having a base a, shield b, and a flexible cover c joining the base and shield with flexible seams at the joints, substantially as specified. 2nd. As an improved article of manufacture, a cuspidor formed of paper having a base a, shield b, and a cover c joining the base and shield with flexible seams at the joints, said cover being slitted to render it flexible, substantially as specified. 3rd. In combination in a cuspidor, a shell s, with an overturned top, and an inward projecting flange below the top, and an inner receptacle having a base a, a shield b, and a flexible cover c joining the base and shield, substantially as specified.

No. 33,328. Vapor Burner.

(*Foyer à hydrocarbures.*)

Frank P. Crosby, Chicago, Ill., U.S., 3rd January, 1890; 5 years.

Claim.—1st. In a vapor burner, the combination of a supply pipe, one or more jet orifice pipes having one or more jet orifices, one or more mixing tubes arranged over the jet orifice or orifices, and unenclosed at the upper end underneath the spreading plate, and said spreading plate, whereby an intense flame is generated under and spread by said plate causing the latter to become intensely heated,

the supply pipe being located on top of the spreading plate very near thereto, but separated therefrom by a slight interval, whereby the presence of the intensely heated spreading plate reliably heats the supply pipe, and the interval between said spreading plate and supply pipe prevents overheating of the latter, substantially as set forth. 2nd. In a vapor burner, the combination of a supply pipe, one or more jet orifice pipes having one or more jet orifices, one or more mixing tubes arranged over the jet orifice or orifices and unenclosed at the upper end and a spreading plate located above the mixing tube or tubes, one of said last-mentioned parts being supported and movable up and down on a standard which is fixed with respect to the other, substantially as set forth. 3rd. In a vapor burner, the combination of a supply pipe, one or more jet orifice pipes having one or more jet orifices, one or more mixing tubes arranged over the jet orifice or orifices, a spreading plate located above the mixing tube or tubes, and a drip pan located below the jet orifice pipe or pipes substantially parallel and opposite to the spreading plate, a slight space being left between the jet orifice pipe or pipes and the drip pan, whereby the heated currents generated at the under surface of the spreading plate are reflected back and forth between the spreading plate and the drip pan, and circulated between such pan and the jet orifice pipes, substantially as set forth. 4th. In a vapor burner, the combination of a supply pipe, one or more jet orifice pipes having one or more jet orifices, one or more mixing tubes arranged over the jet orifice or orifices, a spreading plate located above the mixing tube or tubes, and a drip pan located below the jet orifice pipe or pipes substantially parallel and opposite to the spreading plate, the drip pan having an upwardly projecting flange or rim to guard the jet orifice pipe or pipes from laterally cooling currents, substantially as set forth.

No. 33,329. Adjustable Lamp Hanger.

(*Suspension de lampe à poulies.*)

William F. Bradner, Denver, Col., U.S., 3rd January, 1890; 5 years.

Claim.—1st. A suspending device for lamps, etc., consisting of a cord or cable, and a differential pulley, windlass or drum of approximate weight to the object to be suspended interposed in the length of the cord, with the cord extending from the small periphery to the supporting point above, and from the large periphery to the lamp below, substantially as described. 2nd. A suspending device for lamps, etc., consisting of a flexible cable with electrical conductors therein, a differential pulley and case of approximate weight to the object to be suspended with the cable wound, as described, on both peripheries of the pulley, and extending from the smaller periphery to the supporting fixture above, and with the cable extending from the larger periphery to the lamp below, to balance the same in any adjustment, substantially as and for the purpose described. 3rd. The combination, in a lamp hanger, of a flexible cable, a differential pulley arranged in the length of the cable, and having two peripheries of different diameters, the smaller one being arranged partly within the plane of the larger one, and the cable being wrapped around the two peripheries, and the ends extending in approximate alignment, in a lamp hanger, of a flexible cable, 4th. The combination, in the length of the latter and having a differential pulley thereon, as described, and an enclosing case made in two halves forming hangers for the pulley, and nipples or thimbles for connecting the two sections of case, substantially as and for the purpose described. 5th. The combination, in a lamp hanger, of a flexible cable, a differential pulley arranged in the length of the latter, and having the cable wound thereon, as described, and an enclosing case having two halves joining together on the line of the cable, and provided with thimbles forming both inlets for the cable, and connections for the two sections of the case, substantially as described. 6th. The combination, in a lamp hanger, of a flexible cable, a differential pulley arranged in the length of the cable, and having two peripheries of different diameters lying approximately in the same plane, with an opening a for passing the cable from one pulley to the other, and an enclosing case, substantially as shown and described. 7th. In a lamp hanger, the combination of a suspending cord or cable, and a differential pulley interposed in the length of the cord, and provided with pockets or recesses for shot or other weighty material to balance the lamp, substantially as shown and described. 8th. In a lamp hanger, the combination of a suspending cord or cable, a differential pulley interposed in the length of the cord, an enclosing case forming bearings for the pulley, and pockets for the reception of shot or weighty material to balance the lamp, substantially as shown and described.

No. 33,330. Mould for Making Paper Hay Caps. (*Moule pour faire les couvertures du foin en papier.*)

John A. Symmes, Concord, N.H., U.S., 3rd January, 1890; 5 years.

Claim.—The combination of the radially corrugated concavo-convex circular mould A, having an outwardly turned flange A¹ around the rim, and the exterior jacket D of greater concavity than the convexity of the mould, and having an outwardly turned flange D¹, corresponding to the flange A¹ and provided with an inlet F¹, and an outlet F², said mould and jacket bolted together through the flanges, substantially as set forth.

No. 33,331. Combined Window or Door and Screen. (*Fenêtre ou porte et écran combinés.*)

Hiram P. Smith, Lockport, N.Y., U.S., 3rd January, 1890; 5 years.

Claim.—1st. The combination, with a window or door frame, of a removable sash grooved as described, and a screen or glass located in such sash, as set forth. 2nd. The combination, with a window or door frame formed with a supporting ledge, of a grooved sash, and a glass or screen located in such sash, as set forth. 3rd. The combination, with frame A provided with dowel b, of grooved sash B provided with socket c, and a glass or screen located in such sash, as set forth.

No. 33,332. Churn. (*Baratte.*)

Hermon G. Ellsworth, Lockport, N.Y., U.S., 3rd January, 1890; 5 years.

Claim.—1st. The combination, with standards A, and arms B, B' pivoted thereto, of churn C, as set forth. 2nd. A churn consisting of a series of staves, in combination, with bands D formed with flanges a, and screw-threaded bolts b, as set forth.

No. 33,333. Insulator. (*Isoloir.*)

William M. Davis, East Weymouth, Mass., U.S., 3rd January, 1890; 5 years.

Claim.—1st. The combination, with an insulator, of a bridle made to form a loop, and a shield mounted in the loop and adapted for connection with the opposite sides thereof, substantially as specified. 2nd. The combination, with an insulator, of a bridle made to form a loop, and a shield of semicircular form mounted in the loop and having its opposite ends formed to engage with the opposite sides of the loop, substantially as specified. 3rd. The combination, with an insulator, of a bridle consisting of two strands, the terminals of one being twisted around the other strand, and the terminals of the other strand being bent to engage with each other, and the two strands being oppositely bent intermediate their ends to form a loop, and a shield-plate mounted in the loop and provided with opposite hook ends for the engagement with the opposite portions of the loop, substantially as specified. 4th. A bridle for insulators made of wire in two strands, the strands being oppositely bent intermediate their ends to form a loop, and the shield-plate provided with opposite hook ends to engage the opposite portions of the loop, as set forth.

No. 33,334. Machine for Cutting and Punching Metals. (*Machine à tailler et percer les métaux.*)

Julius H. Sanders, Lone Elm, Kan., U. S., 3rd January, 1890; 5 years.

Claim.—1st. The combination of the side bars, the oscillating bar pivoted between the same and provided with grooves in its sides, the levers having their lower ends secured in said grooves, the cog wheels, the pitman having its rear end pivoted between the ends of the levers and its front end pivoted to one of the cog wheels, and means for operating the said wheels, as set forth. 2nd. The combination of the side bars, one of which is provided with a knife at its rear end, and the other one having a hollow offset at its front end, the oscillating bar pivoted between the said side bars and having a knife at its rear end, the die carrier connected to the front end of the oscillating bar and playing in the hollow offset of the side bar, mechanism for operating the oscillating bar, as set forth.

No. 33,335. Knife Cleaner.

(*Nettoyeur de coutellerie.*)

Joseph Thompson, Decoto, Cal., U.S., 3rd January, 1890; 5 years.

Claim.—In a knife cleaner, the combination, with a box 10 formed with a slot or aperture a at one end, of a rubber strip 14 located in the bottom of the box, an apertured strip 15 arranged above the strip 14, longitudinal strips 16 and 16a, arranged above the apertured strip 15, cut away at suitable points along their adjacent edges, blocks carried by the strips 16 and 16a, and springs carried by the blocks and arranged to bear against the box lid, substantially as described.

No. 33,336. Combined Latch and Lock.

(*Loquet-serrure.*)

Theodore Martin, Wallaceburg, Ont., 3rd January, 1890; 5 years.

Claim.—1st. In a combined latch and lock, the combination of the casing A having the lugs a', a¹¹, the latch bolt B having the beveled shouldered head b, and recessed, forked and hooked end b¹¹, b¹² straddling the spindle hub, the spindle hub C having facings c journalled in the casing, and fingers c' bearing on the spring D pressing on the shoulder of the latch head, substantially as set forth. 2nd. In a combined latch and lock, the casing A having the keyhole a¹, the latch bolt B having shouldered head b and forked end b¹¹, b¹² straddling the spindle hub, the spindle hub C having facings c journalled in the casing, and fingers c' bearing against the lugs b¹¹ and the night key H projecting through the casing immediately at the rear of the shoulder of the latch head, substantially as set forth. 3rd. In a combined latch and lock, the combination of the casing A having the posts a', lugs a¹, a², a³ and slot a⁴, the slide E having the finger e, notch e¹, edge e¹¹, lug e² and slot e³, the tumbler F having the eye f, lug f¹ and edge f¹¹, substantially as set forth. 4th. In a combined latch and lock, the combination of the casing A having posts a', lugs a¹, a², a³ and keyhole a⁴, notch a⁵ and slot a⁶, the tumbler F having eye f, lug f¹, edge f¹¹ and edge f¹², and the block G having eye g, lug g¹, substantially as set forth. 5th. In a combined latch and lock, the combination of the casing A having the posts a', lugs a¹, a², a³, a⁴ and keyhole a⁵, spindle hub C with arms c', shouldered head b and forked end b¹¹, b¹², spindle hub C with arms c', spring D, slide E having finger e, e¹, notch e¹, edge e¹¹, lug e² and slot e³, and tumbler F, substantially as set forth.

No. 33,337. Saw Filing Machine.

(*Machine à limer les scies.*)

James H. Green, Albina, Oregon, U.S., 4th January, 1890; 5 years.

Claim.—As an improvement in saw filing devices, the frame, a shaft 4 mounted permanently in bearings and having a pinion at one end, a longitudinally movable shaft 14 mounted in a line with

the axis of the permanent shaft, a laterally extending bracket, and a counter shaft 7 having a crank at its outer end, and a pinion at its inner end meshing with the pinion upon the permanent shaft of a screw-shaped or cylindrical spirally-threaded file 2, mounted detachably between the permanent and the adjustable shafts, substantially as and for the purpose set forth.

No. 33,338. Gate. (*Barrière.*)

John H. Bradford, Lebanon, Ky., U.S., 4th January, 1890; 5 years.

Claim.—1st. The combination, with the horizontally swinging gate and its pivot post, of the anchor bar D pivoted at one side of the pivot post, and the anchor D' attached to the free end of said bar and projecting downward so as to hold the gate closed or open, a rod E which connects the gate and anchor bar, and means for swinging the head of the latter past the pivot post in the arc of a circle from right to left and reversely, as shown, for opening and closing the gate, as specified. 2nd. The combination, with a gate, levers pivoted at each side of the same, and a spacing bar connecting the extremities of the levers, of a pivotal anchor bar, an anchor hinged to said bar, a chain or rod connection between the extremities of the anchor bar and the spacing bar, a connecting rod hinged to the anchor bar and gate, and a hook secured to the anchor adapted to engage the connecting rod, substantially as shown and described.

No. 33,339. Compression Plug Valve.

(*Soupape conique de compression.*)

William Smith, London, Ont., 4th January, 1890; 5 years.

Claim.—1st. The valve E formed of rubber or other suitable compressible material, in combination with the stem D, either or both of which are tapered and secured and held together, as described for the purpose set forth. 2nd. The valve E and stem D secured and held together, as described, in combination with the hydrant or device A, having partition A² and chamber or passage F therein, as and for the purpose set forth. 3rd. The valve E and stem D, provided with handle D' held and secured together, as described, in combination with the hydrant or device A, having a partition A² and chamber or passage F, and the perforations G formed therein, the discharge spout C and the tube B, substantially as and for the purpose set forth.

No. 33,340. Automatic Floating Apparatus which Inflates Automatically when Immersed in Water.

(*Appareil de flottage automatique qui se gonfle lorsqu'il est immergé.*)

Carlo Frattini, Rome, Italy, 4th January, 1890; 5 years.

Claim.—1st. The hermetic enclosure, in one or several communicating receptacles, of two substances which possess the quality to develop gas at their mere contact, these substances being kept separate by an exterior clamp, which is loosened in an automatic manner or by any other pressing device, which is loosened by the hand or by the arrangement of cocks or the like in the passages between the compartments of the receptacle, substantially as hereinbefore described and set forth. 2nd. A clamp provided with a ring formed of two metallic parts and a band of blotting paper, or of any other matter, the consistency of which is rapidly destroyed by its immersion in water, substantially as and for the purpose hereinbefore described and set forth.

No. 33,341. Table. (*Table.*)

Joseph Cornell, Potsdam, N.Y., U.S., 4th January, 1890; 5 years.

Claim.—1st. In a knock-down table, the combination, with the cross bars D having recesses in their outer sides, of the leg clamping bars having recesses G in their inner sides, the screws and nuts for clamping the parts and holding the table legs, as shown and described, and the removable legs having the tenons H fitting in the recesses G, substantially as set forth. 2nd. In a table, the combination, with cross bars D formed with the side recesses, of the clamping bars formed with the registering side recesses and adapted to be movably secured at the recessed sides of the bars D, substantially as set forth. 3rd. In a table, the combination, with the cross bars D formed with the side recesses, of the clamping bars formed with the registering side recesses and movably secured by screws to the recessed sides of the bars D, substantially as set forth. 4th. In a table, the combination, with the cross bars D formed with the side recesses, of the clamping bars formed with the registering side recesses, the screws and the thumb nuts, substantially as set forth.

No. 33,342. Post Hole Auger.

(*Tarière à trou de pieu.*)

Dugald B. McCall, Yarrrelton, Texas, U.S., 4th January, 1890; 5 years.

Claim.—1st. In a post hole auger, the shank S forked and continued in the arms A, the latter having elbows a at their lower ends, in combination with the ring shaped band D, having a sharp lower edge and bolts passing through said band and arms and through edge and arms, substantially as described. 2nd. In a post hole auger, the shank S forked and continued in the arms A, the hole auger, the shank S forked and continued in the arms A, the ring shaped band D embracing the lower ends of said arms, and the rim shaped band D' outside of said band opposite said lower ends of the arms, bits B outside of said band together by bolts passing through registering holes in all of them, substantially as described. 3rd. In a post hole auger, the shank S forked and continued in the arms A, the hole auger, the shank S forked and continued in the arms A, the latter having lateral elbows a at their lower ends, the ring shaped band D embracing the lower ends of said arms and provided with upwardly projecting ears d, and the bits B, said arms, band and

ears and bitshaving two registering bolt holes, one above the other, bolts for securing all said parts together, said elbows and said band remote from said bits, having registering bolt holes and bolts for securing said parts together independently of said bits, substantially as described.

No. 33,343. Twine and Method of Making the same. (*Cordonnet et mode de le fabriquer.*)

William Deering and Co., Chicago, Ill. (assignees of Farmer R. Williams, Beloit, Wis.), U.S., 4th January, 1890; 5 years.

Claim.—1st. The paper twine or strand consisting of a paper strip coiled or folded and then twisted, substantially as described and shown. 2nd. The paper twine or strand consisting of a collapsed and twisted tube. 3rd. A paper twine consisting of a paper strip coiled or folded to present several thicknesses and then twisted. 4th. A twine consisting of a fibrous strand or cord and of a paper strand, such as herein described, united thereto by winding one upon the other.

No. 33,344. Apparatus for Evolving Chlorine. (*Appareil pour dégager le chlore.*)

The Eureka Chemical Company (assignees of John A. Just), Syracuse, N.Y., U.S., 4th January, 1890; 5 years.

Claim.—1st. In combination, a series of stills arranged in batteries, an acid supply, a system of distributing pipes E, a system of drain pipes G, a receiving receptacle G¹ and a system of gas pipes F, all connected and operating, substantially as and for the purpose set forth. 2nd. In combination, a drain system G, a receiving receptacle G¹, a series of traps I and a series of stills A, all connected and operating, substantially as and for the purpose set forth. 3rd. In combination, a series of stills arranged in batteries, an acid supply, a system of distributing pipes E, a drain pipe G, a receiving receptacle G¹, a series of traps I and a system of gas pipes F, all connected and operating, substantially as and for the purpose set forth. 4th. In combination, a still A, a siphon G, a drain system G and traps I, all connected and operating, substantially as and for the purpose set forth. 5th. In combination, a still A, a siphon G, a pair of shelves E, G², a pair of liquid containing vessels G³, G⁴, a connecting siphon pipe G⁵, a pipe between said liquid containing vessels and siphon G, and a shut-off P, all connected and operating, substantially as and for the purpose set forth. 6th. In combination, a pan or receptacle K, a furnace Kr, a condensing tower L, a pipe K between said tower L and receptacle K, and an acid receiving pipe k, all connected and operating, substantially as and for the purpose set forth.

No. 33,345. Method of Evolving Chlorine. (*Mode de dégager le chlore.*)

The Eureka Chemical Company (assignee of John A. Just), Syracuse, N.Y., U.S., 4th January, 1890; 5 years.

Claim.—1st. The herein described process of evolving chlorine from hydro-chloric acid, the same consisting in placing manganese dioxide in a generator, introducing nitric acid into said generator, and then introducing into said generator an amount of hydro-chloric acid in equivalent deficit of the manganese dioxide and nitric acid, and finally subjecting said generator to heat to evolve all the chlorine of the hydro-chloric acid, substantially as and for the purpose set forth. 2nd. The herein described process of evolving chlorine from hydro-chloric acid, the same consisting in placing manganese dioxide, nitric acid and hydrochloric acid into a generator, subjecting said generator to heat for evolving all the chlorine of the hydro-chloric acid, then subjecting the residue liquor to heat for decomposing the manganese nitrate, and thus forming manganese dioxide and nitrous vapors, and finally recovering the nitrous vapors, as nitric acid, substantially as and for the purpose specified. 3rd. The herein described process of evolving chlorine from hydrochloric acid, the same consisting in placing manganese dioxide, nitric acid and hydro-chloric acid in a generator, subjecting said generator to heat for evolving all the chlorine in the hydro-chloric acid, then subjecting the manganese nitrate liquor to the heat for decomposing the same and forming manganese dioxide and nitrous vapors, withdrawing said nitrous vapors into a condensing apparatus for recovering the same, as nitric acid, and supplying air to said condensing apparatus for aiding the recovery of the nitric acid, substantially as and for the purpose set forth.

No. 33,346. Nut Lock. (*Arrête-écrou.*)

Samuel H. Ray and Thomas C. Grace, St. Louis, Mo., U.S., 4th January, 1890; 5 years.

Claim.—1st. The combination, in a nut lock, of a full-threaded bolt, a nut having an eccentric key groove, and a bevelled edge, as at d and e, and a locking key or pin having a spring arm adapted to clasp the nut, substantially as and for the purposes specified. 2nd. A tempered steel locking key for nut locks, having a round locking section, a folded driving and drawing section, and a spring arm, all formed from a single piece of wire and shaped to clasp the nut, substantially as and for the purposes specified.

No. 33,347. Method of and Apparatus for "Forming" or Charging Plates for Electrical Accumulators. (*Mode et appareil de formation ou chargement des plaques des accumulateurs électriques.*)

The United Electric Improvement Company, Gloucester, N.J. (assignee of Stanley C. C. Currie, Philadelphia, Penn.), U.S., 4th January, 1890; 15 years.

Claim.—1st. The herein described method of forming elements of electrical accumulators, which consists in converting the plates into the peroxide state, while confined against expansion, substantially as

and for the purpose set forth. 2nd. The herein described method of forming elements of electrical accumulators, which consists in converting the plates into the peroxide state, while confined against expansion, substantially as and for the purposes set forth. 3rd. The herein described method of making plates or elements for electrical accumulators, which consists in reducing a metal to a soft spongy state, and then forming the same while confined against expansion, substantially as and for the purposes set forth. 4th. The herein described method of making plates or elements for electrical accumulators, which consists in condensing the mass constituting the body of the plate by the force exerted in the expansive action of the forming process itself, in contradistinction to external mechanical pressure, substantially as and for the purposes set forth. 5th. The combination of a plate of active matter, its rim and the detachable enclosing frame, substantially as and for the purposes set forth. 6th. The combination of the detachable enclosing frame, the plate of active material, its rim and tag extending beyond the enclosing frame, substantially as and for the purposes set forth. 7th. The combination of a plate of active material, its enclosing rim, the closely fitting detachable enclosing frame, and the electric circuit connections constituting it, an electrode, whereby the plate may be removed or inserted without affecting the electrical contacts of the elements, substantially as set forth. 8th. The combination of a series of compound negative elements, composed of plates of active material, with rims and enclosing frames, and interposed plain plates constituting the positive elements, substantially as and for the purposes set forth. 9th. The combination of compound negative plates, the positive plates and the interposed grooved and perforated insulating plates, substantially as and for the purposes set forth. 10th. The accumulator plate forming apparatus, consisting of the cell or tank containing a fluid, the elements or plates, the insulating plates, and the wedges for locking the removable parts in position, substantially as and for the purposes set forth.

No. 33,348. Method of Electrolytically Reducing Plates, composed of Metallic Salts to a Metallic State to form the Electrodes of Secondary or Storage Batteries. (*Art de réduire à l'état métallique par l'électrolyse les plaques composées de sels métalliques pour former les électrodes des batteries secondaires ou accumulateurs.*)

The United Electric Improvement Company, Gloucester, N.J. (assignee of Stanley C. C. Currie, Philadelphia, Penn.), U.S., 4th January, 1890; 15 years.

Claim.—1st. In the method of electrolytically reducing plates, composed of one or more salts of a metal or metals to a metallic state, mounting the plates to be reduced in contact with perforated metal plates or devices insulated from metal plates, substantially as and for the purposes set forth. 2nd. In the method of electrolytically reducing plates, composed of a salt or salts of a metal or metals to a metallic state, mounting in a fluid in contact with the faces or sides of the plates to be reduced, perforated metal plates, insulating plates interposed between said perforated plates and metal plates and causing the reduction of said plates composed of a metallic salt or salts, substantially as and for the purposes set forth. 3rd. The method of reducing crystallized plates to a metallic state, which consists in immersing in a fluid a system of perforated plates, in contact with the crystallized plates forming cathodes, and insulated from a system of metal plates forming the anodes, and then connecting said cathodes and anode with a generator, substantially as and for the purposes set forth. 4th. The method of electrolytically reducing crystallized plates to a metallic state, which consists in immersing in a fluid a system of perforated metal plates in contact with the crystallized plates and a system of metal plates insulated from said perforated opposing plates of similar material and then connecting the cathodes and anodes with a generator, substantially as and for the purposes set forth. 5th. The method of electrolytically reducing crystallized plates to a metallic state, which consists in immersing in a fluid a system of crystallized plates, having perforated metal plates in contact with the faces thereof, and perforated insulating plates interposed between said perforated metal plates and solid metal plates, and then causing the reduction of said crystallized plates, substantially as and for the purposes set forth. 6th. The method of electrolytically reducing crystallized plates to a metallic state, which consists in immersing in a fluid a system of crystallized plates in contact with perforated metal plates or devices, and with perforated insulating plates or devices interposed between said perforated metal plates, and a system of metal plates of the same or other material, and then causing said crystallized plates to be reduced to a metallic state, substantially as and for the purposes set forth. 7th. The method of electrolytically reducing plates composed of one or more salts of a metal or metals to a metallic state, which consists in immersing in a fluid the plates composed of one or more salts in contact with perforated metal plates, insulated from the metal plates, and then causing their reduction to a metallic state and eliminating extraneous matter therefrom, substantially as and for the purpose set forth.

No. 33,349. Flat Wooden Hoop. (*Cerceau de feuillard.*)

John F. Rich, Summertown, and Luther L. Frierson, Mount Pleasant, Tenn., U.S., 4th January, 1890; 5 years.

Claim.—1st. A flat wooden hoop, the overlapping ends whereof are provided with lapping notches, extending partly across the width of the hoop forming transverse edges, each of which has a chamfer upon its external face, substantially as described. 2nd. A wooden hoop, having its overlapping ends notched and provided upon one or both ends with one or more shoulders on the inner face of the hoop, said

shoulders engaging with oppositely formed shoulders near the end of the lapped portions and upon the outer faces thereof, said shoulders being so located that when engaged the transverse edges of the lapping notches are held out of contact or engagement with each other, substantially as described. 3rd. A wooden hoop, having the lapping notches 2, each provided with a chamfer 4 on its back or external face, and provided with transverse locking shoulders upon the inner face of said hoop, engaging with oppositely formed transverse shoulders upon the outer faces of the engaging ends, said shoulders being so located that the radial or bursting strain shall be substantially removed from the lapping notches 2, substantially as described. 4th. A wooden hoop for barrels, casks and similar purposes, the same having lapping notches 2, the wood being chamfered off upon the external faces of the lapping portions adjacent to said notches, said lapping portions being provided upon their inner faces with transverse shoulders extending entirely across the inner face of the hoop, and adapted to engage with opposite shoulders on the external face of the lapping ends, the latter being tapered to lie in the recesses 6 beyond the transverse shoulders, substantially as described. 5th. A flat wooden hoop, having lapping notches 2, the wood being bevelled or chamfered on the exterior faces 4, the lapping portions being provided with interior locking notches 5 and exterior notches 7, the wood of the extremities of the hoop being cut away to lie in the recesses 6 adjacent to the shoulders 5, and the wood of the outer faces of the lapping ends being removed adjacent to the exterior shoulders to permit the engagement thereof with the interior shoulders without increase of thickness, substantially as described. 6th. A wooden hoop, having notches 2, edges 3, interior shoulders 5, exterior shoulders 7, recessed and tapered extremities lying in said recesses, substantially as described. 7th. A wooden hoop, having notches 2, edges 3, interior shoulders 5, exterior shoulders 7, recesses 6 and extremities lying in said recesses, the engaging surfaces of said extremities and recesses being provided with a plurality of transverse notches or corrugations, substantially as described.

No. 33,350. Attachment for Telephones.

(*Interrupteur de téléphone.*)

George F. Newland and Marion E. Hyde, Detroit, Mich., U. S., 4th January, 1890; 5 years.

Claim.—1st. The combination, with a telephone signal bell, of a clutch or holder adapted to temporarily engage and hold the clapper when calling up the central office, or other distant party. 2nd. The combination, with a telephone signal bell, of a clutch or holder adapted to temporarily engage the bell clapper when making a call and a clutch for holding the same engaged, until intentionally disengaged. 3rd. The combination, with a telephone signal bell and its push button or push shaft, of a clutch or holder for temporarily engaging the clapper, said clutch also engaged with the push button or push shaft to be actuated by the act of pressing said button or shaft. 4th. The combination, with a telephone signal bell located on a hinged door, of a clutch or holder also located on said door and adapted to engage the clapper, said clutch constructed to engage the push button as the door is closed, whereby it may be operated by the act of pressing the button. 5th. The combination, with a telephone signal bell, of a temporary clutch or holder for engaging the clapper, and a spring for disengaging the same when released by the operator.

No. 33,351. Manufacture of Sewed Boots and Shoes. (*Fabrication des chaussures cousues.*)

George W. Willey, Athol, and Perley A. Stone, Haverhill, Mass., U. S., 4th January, 1890; 5 years.

Claim.—1st. The described process of making sewed boots or shoes, consisting in, first, lasting the upper directly to the last, then attaching the stay-welt to the upper and sewing the two together, then inserting the inner sole and securing it in place, and securing or sewing the outer sole to the stay-welt only, substantially as and for the purposes hereinbefore set forth. 2nd. The method of making welted boots and shoes, which consists in, first, lasting the upper directly to the last, then applying and securing the stay-welt to the upper while on the last, and subsequently removing the upper and stay-welt from the last and securing the outer sole to the stay-welt, substantially as and for the purposes hereinbefore set forth. 3rd. The described method of lasting the upper, consisting in lasting the shank of the upper by means of lasting-tacks to a shank-filling formed and applied to the last, substantially as described, and lasting the remaining portions of the upper to the last (without the inner sole) by means of draw-cords or strings, substantially as and for the purposes hereinbefore set forth. 4th. In the operation of lasting the upper to the last without an inner sole, the method of lasting the shank of the upper, which consists in, first, applying to the last a shank-filling of the character described, and then lasting the shank of the upper to said shank-filling by means of lasting-tacks, substantially as hereinbefore set forth. 5th. The improved method of making sewed boots and shoes, which consists in stitching through and through to the upper, either through the stay-welt or outer sole independently of the inner sole, as set forth.

No. 32,352. Lamp. (*Lampe.*)

Richard T. Barton, New Haven, Conn., U. S., 8th January, 1890; 5 years.

Claim.—1st. In an oil-burning lamp, the combination, with a vertically movable fount, of a stationary perforated wick-containing tube extending thereto, and means for raising the fount conformably with the exhaustion of the oil therefrom, substantially as described. 2nd. In an oil-burning lamp, the combination, with a removable cover or top having a filling-tube depending from it, a vertically movable fount into which the tube extends in every posi-

tion of the fount, and means for lifting the fount conformably with the exhaustion of oil therefrom, substantially as described. 3rd. In an oil burning lamp, the combination, with a removable cover or cap, of an indicator mounted therein, a vertically movable fount with which the indicator rises and falls, and means for raising the fount conformably with the exhaustion of oil from the fount, substantially as described. 4th. In an oil-burning lamp, the combination, with a removable top or cover, of a cap tube located upon the outer face thereof, and adapted to receive a filling cap, a filling-tube depending from a lower face of the top or cover in line with the said cap-tube, a vertically movable fount into which the filling-tube extends in every position of the exhaustion of oil from it, substantially conformably with the exhaustion of oil therefrom, the combination with a cover or top, of an upright tube secured thereto, an indicator composed of a rod having a button at its upper end mounted in the said tube, a vertically movable fount engaged by the lower end of the rod, and means for raising the fount conformably with the exhaustion of oil therefrom, substantially as described. 5th. In an oil-burning lamp, the combination, with a vertically movable fount, of a stationary wick-containing tube or cage adapted to admit air into its interior from the fount, an air passage for admitting a current of air into the fount, and means for raising the fount conformably with the exhaustion of oil therefrom, substantially as described. 6th. In an oil-burning lamp, the combination, with a vertically movable fount provided near its upper edge with an outwardly projecting bead, of a lining-cup with which the said bead engages to guide the fount, and means for raising the fount conformably with the exhaustion of oil therefrom, substantially as described. 7th. In an oil-burning lamp, the combination, with a vertically movable fount, of a stationary tube to co-operate with the tube of the fount in guiding the same, and a spring inclosed by the tubes for raising the fount conformably with the exhaustion of oil therefrom. 8th. In a lamp, the combination, with a bearing-ring shaped to form a shoulder upon its inner edge, and a curved lip upon its outer edge, of a lining cup having an outwardly projecting flange formed upon its upper edge, and resting upon the said shoulder of the ring, and a band having its upper edge inserted under the curved lip of the said ring, the said lip being closed down upon its outer face, substantially as described.

No. 33,353. Lock Nut, Bolt and Fastening, specially applicable to Rail and Tramway Joints. (*Arrête-écrou spécialement applicable aux joints des rails de chemins de fer et de tramways.*)

Alfred R. Pullin, Sydney, N.S.W., 8th January, 1890; 5 years.

Claim.—1st. The bolt with enlarged end near head and enlarged screw end, the shank or body being of smaller section fitting holes in rails or parts to be held together, substantially as herein described and explained. 2nd. The bolt with enlarged head end and enlarged screw end, and smaller shank with said enlarged ends flattened on two, or more sides, substantially as herein described and explained. 3rd. The modified construction of bolt in which the smaller shank or body, either circular or other section is of such comparatively small length that it forms a groove or recess, one, two, or more of which grooves or recesses may be placed within the length of the bolt, substantially as herein described and explained. 4th. The combination and arrangement, with shouldered or recessed bolts, as hereinbefore claimed, of a washer or equivalent to be inserted or taken over the end, or an enlarged end of the bolt and to take between the shoulder and the parts to be bolted, substantially as herein described and explained. 5th. The combination and arrangement, with the before described washers or equivalents, of lugs thereon, whether hinged or not, adapted to take against the sides of a nut or into recesses or notches upon a nut, and the combination, with said washers or equivalents, of lugs on the nuts, and recesses or notches in the washers, substantially as herein described and explained. 6th. The combination and arrangement of the mechanical parts and instrumentalities, substantially as herein respectively described and explained.

No. 33,354. Pump Standard. (*Corps de pompe.*)

George A. Dunn, Arkona, Ont., 8th January, 1890; 5 years.

Claim.—1st. A cased pump standard or head, with casing extending the full length of the head and secured thereto, with preserving material between the casing and head, substantially as described. 2nd. A pump standard or head with casing secured thereto, and covering the head only, from the top of the head to a short distance below the platform of the well with preserving material between the casing and head, substantially as described.

No. 33,355. Metal Post. (*Poteau métallique.*)

Osborn B. Hall, Malden, Mass., U. S., 8th January, 1890; 5 years.

Claim.—1st. A metal post formed of tubes or rods subdivided in its length into sections, and having the ends of the several tubes or rods of each group rigidly secured in the same coupling, substantially as specified. 2nd. A metal post formed of tubes or rods arranged in the groups, each group being but a fraction of the whole length of the post, the adjacent ends of the several tubes in each group being rigidly secured in the same coupling, and the axes of the several tubes being in a common plane, substantially as specified. 3rd. A metal post formed of tubes or rods arranged in groups, each group being but a fraction of the whole length of the post, the number of tubes in the groups upward diminishing, and the adjacent ends of the several tubes in each group being rigidly secured in the same

coupling, substantially as specified. 4th. A post formed with a suitable base, a column rising from the base and terminating with a head formed to receive a plurality of tubes or rods, and one or more sections above said head having each a plurality of tubes or rods, substantially as specified. 5th. A metal post having a suitable base, and subdivided into sections or lengths, the lower section being formed of one pillar or tube, and the other lengths being formed with a plurality of rods or tubes in each, said several lengths being coupled together, in manner substantially as specified. 6th. A metal post provided with a sheave or truck pivoted and arranged in manner substantially as specified, and a weight arranged in, and to be supported by the post and to co-act with the sheave, substantially as specified. 7th. In a metal post having a weight arranged therein, a differentiated pulley pivoted in the head of the post and arranged to receive the cross street wire upon the smaller section, and the weight supporting wire upon the larger section of said pulley, substantially as specified. 8th. In a metal post formed in sections, the combination of the vertical tubes of said sections, the couplings having undercut holes to receive the ends of said tubes, and a conical or tapering plug seated in said undercut hole forced into the ends of the tube when the latter is forced into said hole, substantially as specified.

No. 33,356. Process of Building Tunnels and Shafts. (*Mode de construction des tunnels et des puits.*)

Charles SooySmith and Edward L. Abbott, New York, N.Y., U.S., 8th January, 1890; 5 years.

Claim.—1st. The process herein described of excavating tunnels, shafts, and the like, consisting in first freezing the earth with a freezing chamber and removing part of the frozen earth, in then advancing the freezing chamber and freezing the earth around the chamber so advanced, and in freezing the walls of the excavation left behind the advanced freezing chamber and removing said frozen walls, substantially as described. 2nd. The process herein described of excavating tunnels, shafts, and the like, consisting in forming the excavation in the shape of a pyramid or cone, and freezing the earth at the apex of the cone by a freezing chamber, in then removing said frozen earth from around said chamber and advancing said chamber, in then freezing the walls of the excavation, and in then successively removing the frozen layer of earth around the excavation and advancing the freezing chamber into the earth, substantially as described. 3rd. The process herein described of excavating tunnels, shafts, or the like, consisting in, first freezing the earth by means of a freezing chamber, then removing a part of the frozen earth around said chamber, then applying cold again to the walls of the excavation and removing the earth so frozen, substantially as described.

No. 33,357. Feeding Apparatus for Printing Machines. (*Appareil d'alimentation des machines à imprimer.*)

Edward T. Cleathero, Brooklyn, and Joseph A. Nichols, Islington, Eng., 8th January, 1890; 5 years.

Claim.—1st. The paper feeding apparatus for printing machines, a vertically sliding partly balanced frame E carrying two or more discs L with caoutchouc peripheries, which are cut away at one point, said discs being made to rest with their circular periphery on the pile of paper to be fed into the machine, and receiving periodical rotary motion in accord with that of the feeding cylinder of the machine, arranged and operating substantially as herein described. 2nd. In paper feeding apparatus for printing machines, a vertically sliding partly balanced frame E carrying two or more feeding discs L, having flat faces L' and spring arms l operated by cams m, for supporting the frame E in the raised position when the flat faces of the discs are presented to the paper sheets at a distance therefrom, substantially as described. 3rd. In paper feeding apparatus for printing machines, a vertically sliding partly balanced frame E carrying two or more feeding discs L, having flat faces L' and receiving rotary motion first in one direction for fluffing the top sheet of paper, and then in the contrary direction for feeding the paper forward, substantially as herein described. 4th. In paper feeding apparatus for printing machines, a vertically sliding partly balanced frame E carrying two or more feeding discs L having flat faces L', said discs being rotated by the shaft P' first in one direction for fluffing the paper by means of gearing Q', R', S', T', and shaft K, and then in the contrary direction for feeding the paper forward, substantially as described. 5th. In paper feeding apparatus, the combination with the vertically sliding partly balanced frame E carrying the feeding discs L, of a bar carrying vertically sliding loose tongues, with beaks resting on the front edge of the paper pile, substantially as and for the purposes set forth. 6th. In paper feeding apparatus, the combination, with the vertically sliding partly balanced frame E, carrying the feeding discs L, of a vertically sliding bar pressing on the rear edge of the paper pile for preventing the second sheet of the pile from being drawn forward by the top sheet, substantially as described. 7th. In paper feeding apparatus, the combination, with the partly balanced frame E, carrying the feeding discs L, of a pivoted arm 2 bearing with its lower end upon the paper pile, and connected by an adjustable tap 3 to a lever 4, acted upon by a cam 6 on the shaft P, so as to allow the arm 2 to rest on the paper during the fluffing operation, but to keep it raised off the same during the feeding operation, substantially as herein described. 8th. In paper feeding apparatus, the combination with the vertically sliding partly balanced frame E, carrying the feeding discs L, of end supported upon the frame carrying the feeding device c', of guiding the sheets of paper correctly from the pile to the said feeding device c', substantially as herein described. 9th. In combination, with the vertically sliding partly balanced frame E carrying the feeding discs L, and guide plates a, f, the feed roller c, and discs c', table g, and travelling tapes h, for feeding the sheets of paper to the feed cylinder M of the printing machine, substantially as described. 10th. In combination, with the feeding roller c, discs c', table

g, and travelling tapes h, the guides S, S', rods s' and r connected to lever w, actuated by lever x', and stud x on feed cylinder M, so as to cause the plates a, s', to advance towards each other as the sheet of paper passes between them, substantially as and for the purposes described.

No. 33,358. Fruit Drier. (*Etuve à fruits.*)

James H. Bard, Oakland, Oregon, U.S., 8th January, 1890; 5 years.

Claim.—The improved fruit drier herein described and shown consisting of the casing C having an opening D in one side at its lower end, the boiler arranged within the casing out of contact with the sides of the same and provided with an inlet with conducting pipe E communicating with, and rising from the boiler, and equal in width thereto, the said pipe having the inclined sections F, and the straight sections R connecting the same, and having its upper end extending through the casing and provided with escape pipes G, the plates H connecting the alternate sections F with the opposite sides of the casing, the doors K in the front side of the casing, the braces L arranged in the centres of the sections F, the brace M in the centre of the boiler, the partition plates N having the brackets O, the brackets P, and the plate T having the brackets U, all arranged substantially as specified.

No. 33,359. Vending Apparatus.

(*Appareil de vente.*)

John A. Williams, Brooklyn, N.Y., U.S., 8th January, 1890; 5 years.

Claim.—1st. In a book-vending machine, a support D upon which the books rest, provided with an outwardly-curved guard K secured to its front face, in combination with means for ejecting a book from the support, substantially as shown. 2nd. In a book-vending machine, a support D upon which the books rest, in combination with a curved guard K secured thereto, a little below the top of the support to form a shoulder f. 3rd. In a machine for vending books, pamphlets, etc., the combination, with a frame A having plate B, and guides C, C, of the actuating slide embracing the plate upon its opposite faces, and a delivery slide. 4th. In a vending machine, the combination, with the plate B having a coin slot, of an actuating slide E embracing the plate on opposite faces, and provided with a coin slot in its lower arm to register with that in the plate, and a delivery slide, the said parts being so arranged that, when the operating slide is pulled outward, it will cover the slot in the plate. 5th. In a vending machine, the combination, with the plate B cut away as shown, of the U-shaped operating slide embracing opposite faces of the plate, and a delivery slide. 6th. In a vending machine, the combination, with the plate B having a coin slot, of an actuating slide E having two arms, one of said arms resting upon the upper face of the plate and serving as a handle, and serving also to cover the slot in the plate B when the machine is operated, and the other having a coin slot to normally register with that of the plate, and a delivery slide. 7th. In a vending machine, the combination, with a delivery slide, of an actuating slide adapted to hold a coin in position to engage the delivery slide, and an arm against which the coin is adapted to strike as the actuating slide is returned to position. 8th. In a vending machine, the combination, with the guides C, C, of the slides E and F, and a spring arm projecting outwardly from the inner face of one of the guides. 9th. In a vending machine, the combination, with a frame or support, of an actuating slide adapted to hold a coin, a delivery slide arranged in position to be engaged by the coin of the requisite size carried by the actuating slide, a yielding arm mounted in the frame or support, substantially as shown, whereby, as the actuating slide is drawn outward, the arm will be retracted or pushed aside, but when the slide is returned to position the arm will strike the coin and dislodge it. 10th. In an automatic vending machine in which the actuating and delivery slides are designed to be connected by a coin or similar device, the combination, with such slides, and a coin holder, of a fixed arm independent of the slides for dislodging the coin from its holder. 11th. In a vending machine, the combination, with the plate B, of a support D on the upper face thereof, a delivery slide adapted to eject the books or other articles from the upper face of the support, and a guard K projecting outward and upward from the front face of the support D, all substantially as shown. 12th. In a vending machine, the combination, of a plate B, a support D on the plate, for the articles to be sold, cut away on its rear edge, as shown, and a delivery slide adapted to enter the out-away portion of the support and eject the articles from the upper face of the latter.

No. 33,360. Vending Machine.

(*Machine de vente.*)

John A. Williams, Brooklyn, N.Y., U.S., 8th January, 1890; 5 years.

Claim.—1st. In a vending machine, the frame A for supporting the operative parts of the machine and comprising the plate B, the block C and guides D, D, the said frame being made of a single casting, all substantially as shown. 2nd. In combination with a supporting frame, having an upright back plate J, the delivery slide provided with an upright portion to strike against the plate and an actuating slide adapted to be connected with and disconnected from the delivery slide. 3rd. In combination with a supporting frame and a delivery slide carried thereby, a removable back plate J mounted in the frame. 4th. In combination with frame A grooved to receive the slides E and F, the upright back plate J seated in grooves in the frame, substantially as and for the purpose set forth. 5th. In combination with a supporting frame, the operating slide mounted therein and provided with a coin slot, studs carried by the frame and adapted to support the coin, a delivery slide and a lug on the delivery slide. 6th. In a vending machine, the combination, with a supporting frame provided with two studs projecting inwardly toward each other, of a slide located above the studs and provided with a coin slot, and a second slide located below the studs and provided with a lug or shoulder. 7th. In a vending machine, the combination, with the two slides E and F, of the intermediate studs independent of the slides adapted to support the coin at its side edge.

8th. In a vending machine, the combination, with the two slides E and F, of two intermediate coin-supporting studs, one of said studs being adjustable. 9th. In a vending machine, the combination, with the slide E, provided with a coin slot and with a rest or plate in rear thereof, of a slide F provided with a lug, and intermediate coin-supporting studs, independent of the slides. 10th. In a vending machine, the combination, with a frame having a block C, of a plate *k* having bent edges, and a delivery slide plate *l*, having its edges seated in the edges of the plate *k*. 11th. In a vending machine, the combination, with a frame having a block C, of an abrupt forwardly-projecting ledge or shoulder, as and for the purpose set forth.

No. 33,361. Joint for Carriage Tops, Props, Seat Rails and Bow Sockets.
(*Articulation pour les branches des capotes de voitures et autres.*)

George Gillies, Gananoque, Ont., 8th January, 1890; 5 years.

Claim.—1st. The pintle C, having a right-hand screw-thread at one end, and a left-hand screw-thread at the other end, and screwed into a threaded hole in the bow iron A and seat rail B, as set forth. 2nd. The pintle J, having at one end a screw entering the top braces E and I, and the other end provided with a notched flange *k*, and plate K secured to the bow, and having a pin *b* cut with a thread reversely to the screw, at the opposite end of the pintle J, and screwing into the screw-tapped end of the pintle, as set forth. 3rd. The arm D of the seat rail, having a screw-thread F, and the top brace screwing thereon, as set forth. 4th. The caps or bosses a, having a threaded hole, in combination with a pintle screwing therein, as set forth.

No. 33,362. Machine for Shaping Cores for Bow Sockets of Carriage Tops.
(*Machine à façonner les noyaux des douilles de capotes de voitures.*)

Henry Parker, Gananoque, Ont., 9th January, 1890; 5 years.

Claim.—1st. The combination, with the base 1, frames 2, 2, shafts pressure rollers 8, 9, and table 10, of the vertically rotating column tapping groove, a pusher 13 reciprocating on the table, and spring jaws 19, 19, provided with a horizontal compression roller in advance of the rollers 8, 9, as set forth. 2nd. The combination, with the interrupted periphery, an interrupted periphery, of the roller 8 having an sliding on a table 10 and reciprocated by rods 4, 14, drawn by bar 15 roller, near the compression rollers 8, 9, and a spring 21 pressing said wheel 5 and stand 26, as set forth. 3rd. The combination, with the cog saw mounted therein and reciprocated in one direction by a cam 29 whereby the saw will be withdrawn from the kerf after slitting the strip a limited distance, as set forth.

No. 33,363. Button Fastening.

(*Queue de bouton.*)

William R. Brock, Weedsport, N. Y., U. S., 9th January, 1890; 5 years.

Claim.—A button-fastening, consisting of a button mould having plane surface, a central opening and edge notches opposite each other, a tape or cord passed across said mould and in the notches, the face ends passed through the central opening to the rear face of the mould forming means of attachment, substantially as set forth.

No. 33,364. Union for Lead Pipes.

(*Raccord pour les tuyaux de plomb.*)

James McAllister, Englewood, Ill., U. S., 9th January, 1890; 5 years.

Claim.—1st. The sleeve, having an interior screw-thread F and chambered at one end, the inner edge of the chamber following the outer edge of the screw-thread until it cuts across it at right angles, leaving the screw-thread its full width throughout its entire length, excepting at the pointed end, the point at the end of the screw-thread terminating in the chamber, the point being at the inner edge of the screw-thread, and an opening G beneath which the cutting end of the screw-thread projects, substantially as and for the purposes specified. 2nd. In a union for lead pipes, the combination of the coupling sleeve N, provided with a right and left hand screw-thread and the space R, the sleeve D with its exterior screw-thread I and smooth exterior K, shoulder J and the sleeve E provided with the screw-thread L, substantially as and for the purposes specified.

No. 33,365. Gang Spoon Bait.

(*Cuiller d'appât multiple.*)

Henry Loftie, Syracuse, N. Y., U. S., 9th January, 1890; 5 years.

Claim.—1st. A spoon bait, consisting of draw wire, the stops thereon and multiple flyers rotating around the wire and decreasingly graduated in size towards each end from the centre, and decreasingly described. 2nd. In a spoon bait flyer, widened, rounded and bent at an angle to the body at its outer end, thence tapered to the inner end, and thence bent and perforated to receive the draw wire, in combination with a draw wire and a stop thereon, substantially as described. 3rd. In a spoon bait flyer, widened, rounded and bent the inner end, and there secured to a barrel fitting over the draw wire, in combination with the draw wire and stop thereon, substantially as described. 4th. A spoon bait, consisting of a draw wire, and stops upon the wire for each flyer.

No. 33,366. Apparatus for Inhaling Vapor for the Treatment of Throat and Lung Diseases.
(*Appareil pour aspirer la vapeur pour le traitement des maladies de la gorge et des poumons.*)

William S. Worthington, Winfield, N. Y., U. S., 9th January, 1890; 5 years.

Claim.—1st. In combination, the outer case D and interior casing E, provisions for introducing steam into one and air into the other, and the valve E', with provisions for operating it at will, for allowing and the valve E', with provisions for operating it at will, for allowing more or less steam to mingle with the air, as herein specified. 2nd. In combination, the outer case D and interior case E, with provisions for introducing steam into the innermost, and air into the outermost, and a valve E' for allowing steam to mingle with the air, and a set of independent inhaling tubes G, G, each having its proper controlling valve *g* arranged to allow many patients to be served at once, as herein specified. 3rd. In combination, the outer case D with valve D' for air induction, the inner case E, with pipe C, and cook *c* for steam induction, the valve E' for mixing steam and air, the inhaling pipes G for allowing several patients to be served at once, and the air-exit valve, lower case *j* arranged to allow a circulation of the air and steam, and the discharge of a portion to maintain the purity of the remainder, as herein specified. 4th. In an inhaling apparatus, the case D, with provisions, as the interior case E, and steam connections for heating and mixing steam with the air, the drip-pan I, drain pipes D' and E', and discharge pipe H, combined and arranged to serve, as herein specified.

No. 33,367. Armature Plate.

(*Plaque d'armure.*)

Warren S. Belding, Chicago, Ill., U. S., 9th January, 1890; 5 years.

Claim.—1st. A sheet metal armature plate, forming a portion of a circle, and having its ends provided with projections and with notches, as wide at their inner portions as the widest portion of said projections, and formed to interlock with the ends of a similar plate, substantially as and for the purpose set forth. 2nd. A sheet metal armature plate, forming a portion of a circle, and having its ends provided with projections and notches having parallel sides, and formed to interlock with the ends of a similar plate, substantially as and for the purpose set forth. 3rd. A sheet metal armature plate, forming a portion of a circle, and having its ends provided with projections and with notches as wide at their outer portions as the widest portion of said projections, both said projections and notches extending in a line passing through the centre of a circle, of which the plate forms a part, substantially as and for the purpose set forth. 4th. A sheet metal armature plate, forming a portion of a circle, and having its ends provided with projections and notches, each having its ends provided with projections and notches, the centre of parallel sides and extending in a line passing through the centre of the circle of which the plate forms a part, substantially as and for the purpose set forth. 5th. A sheet metal armature plate, forming a portion of a circle, and having its ends provided with projections and with notches as wide at their outer portions as the widest portion of said projections, one of each of said projections and notches extending toward the centre of the circle of which said plate forms a part, substantially as shown and described. 6th. A sheet metal armature plate, forming a portion of a circle, and having its ends provided with projections and notches, each having its ends provided with projections and notches extending toward the centre of the circle of which said plate forms a part, substantially as shown and described. 7th. A sheet metal armature plate, forming a portion of a circle and having polar extensions and with tensions, as wide at their outer portions as the widest portion of said notches, and having its ends provided with projections and notches extending toward the centre of the circle of which said plate forms a part, and the other of each of said notches and projections extending toward the centre of the circle, of which said plate forms a part, substantially as shown and described. 8th. A sheet metal armature plate, forming a portion of a circle and having polar extensions between the bobbin spaces and having its ends provided with one or more projections and notches, each having parallel sides, one of each of said notches and projections extending from, and the other of each of said notches and projections extending toward, the centre of the circle, of which said plate forms a part, substantially as shown and described. 9th. A sheet metal armature plate, forming a portion of a circle, and having polar extensions A³ and holes D between the bobbin spaces, and having its ends provided with one or more projections and notches, each having parallel sides, one of each of said projections and notches extending from, and the other of each of said projections and notches extending toward the centre of the circle, of which said plate forms a part, substantially as shown and described. 10th. A sheet metal armature plate, forming a portion of a circle and having its ends provided with projections and notches formed to interlock with the ends of a similar plate, and having holes D between the bobbin spaces, to form continuous holes through the sections for the reception of spider bolts, substantially as described. 11th. A sheet metal armature plate, forming a portion of a circle and having its ends provided with projections and notches formed to interlock with the ends of a similar plate, and having holes D between the bobbin spaces, and polar extensions A³ between said bobbin spaces, substantially as shown and described. 12th. A sheet metal armature plate, forming a part of a circle and having its ends provided with projections A³ and notches A² extending in a line passing through the centre of the circle, of which the plate forms a part, and having the bobbin spaces B and polar extensions A³ between said bobbin spaces, substantially as herein described. 13th. A sheet metal armature plate, forming a part of a circle, and having its ends provided with projections A³ and notches A² extending in a line passing through the centre of the circle, of which the plate forms a part, and having the bobbin spaces B and polar extensions A³, and holes D between said bobbin spaces, substantially as described.

No. 33,368. Armature for Electric Machines. (*Armure pour les machines électriques.*)

Warren S. Belding, Chicago, Ill., U.S., 9th January, 1890; 5 years.

Claim.—1st. In an armature for electric machines, the ring composed of the section A having the outer tongues B, B, provided with channels *b*, and the section A' provided with the inner tongues B', extending over the tongues B and provided with channels *b'* opposite the channels *b*, and keys C extending through the passage formed by the channels *b* and *b'*, substantially as shown and described. 2nd. In an armature for electric machines, the ring composed of the section A having the outer tongues B, B, provided with channels *b*, and the section A' provided with the inner tongues B' extending over the tongues B and provided with channels *b'* opposite the channels *b*, and keys extending through the passage formed by the channels *b* and *b'*, the ends of said keys being extended and threaded, and a spider or spiders being applied over said ends, and nuts being applied to said ends, to bind said spider or spiders to said ring, substantially as shown and described. 3rd. In an armature for electric machines, the ring composed of the section A having the outer tongues B, B, provided with channels *b*, and the section A' provided with the inner tongues B', extending over the tongues B, and provided with channels *b'* opposite the channels *b*, and keys extending through the passage formed by the channels *b* and *b'*, the ends of said keys being extended and threaded, and a spider or spiders extended over said ends, and nuts being applied to said ends to bind said spider or spiders to said ring, and bolts extending through said ring, and spider or spiders intermediate to the keys C, and nuts being applied to said bolts to bind said spider or spiders to said ring, substantially as shown and described. 4th. In an armature for electric machines, the ring composed of the section A, consisting of metallic plates and having the outer tongues B, B, provided with channels *b*, and the sections A', consisting of metallic plates, and provided with the inner tongues B' extending over the tongues B, and provided with channels *b'* opposite the channels *b*, and keys C extending through the passage formed by the channels *b* and *b'*, substantially as shown and described. 5th. In an armature for electric machines, the ring composed of the section A, consisting of metallic plates, and having the outer tongues B, B, provided with channels *b*, and the section A' consisting of metallic plates, and provided with the inner tongues B' extending over the tongues B, and provided with channels *b'* opposite the channels *b*, and keys extending through the passage formed by the channels *b* and *b'*, the ends of said keys being extended and threaded, and a spider or spiders being applied over said ends, and nuts being applied to said ends to bind said spider or spiders to said ring, substantially as shown and described. 6th. In an armature for electric machines, the ring composed of the section A consisting of metallic plates, and having the outer tongues B, B, provided with channels *b*, and the section A' consisting of metallic plates, and provided with the inner tongues B' extending over the tongues B, and provided with channels *b'* opposite the channels *b*, and keys extending through the passage formed by the channels *b* and *b'*, the ends of said keys being extended and threaded, and a spider or spiders extended over said ends, and nuts being applied to said ends to bind said spider or spiders to said ring, and bolts extending through said ring, and spider or spiders intermediate to the keys C, and nuts being applied to said bolts to bind said spider or spiders to said ring, substantially as shown and described.

No. 33,369. Armature. (*Armure.*)

Warren S. Belding, Chicago, Ill., U.S., 9th January, 1890; 5 years.

Claim.—1st. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with interlocking notches and projections, said notches being as wide at their outer portions as the widest portion of said projections, substantially as and for the purpose set forth. 2nd. In an armature, core sections meeting end-to-end and provided with interlocking notches, and projections having parallel sides, substantially as shown and described. 3rd. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with projections, and notches lying in a plane extending longitudinally through the axis of the ring, said notches being as wide at their outer portions as the widest portion of said projections, substantially as shown and described. 4th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with projections and notches lying in a plane extending longitudinally through the axis of said ring, said notches and projections having parallel sides, and said sections being divided into bobbin spaces, substantially as shown and described. 5th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with interlocking projections and notches, one of each extending in a direction out, and the other in a plane extending longitudinally through the axis of the ring, said notches and projections having parallel slides, substantially as shown and described. 6th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with interlocking projections and notches, and said sections having holes between the bobbin spaces for the reception of spider bolts, substantially as shown and described. 7th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with interlocking projections and notches, and said sections having polar extensions, and spider-bolt holes between the bobbin spaces, substantially as shown and described. 8th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with interlocking projections, and notches lying in a plane extending longitudinally through the axis of the ring, and said sections being divided into

bobbin spaces and having polar extensions and spider bolt-holes between said bobbin spaces, substantially as shown and described. 10th. In an armature, core sections meeting end-to-end and constituting the ring, the ends of said sections being provided with interlocking projections and notches, and said sections having holes between the bobbin spaces, spiders applied to the sides of said ring, and bolts extending through said spiders and holes between said bobbin spaces, substantially as shown and described. 11th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with projections and notches, lying in a plane extending longitudinally through the axis of the ring, and said sections having holes between the bobbin spaces, spiders applied to the sides of said ring, and bolts extending through said spiders, and the holes between said bobbin spaces, substantially as shown and described. 12th. In an armature, core sections meeting end-to-end and constituting the ring, the ends of said sections being provided with interlocking projections and notches, said notches being as wide at their outer portions as the widest portion of said projections, and said sections having holes between the bobbin spaces for the reception of spider bolts, substantially as shown and described. 13th. In an armature, core sections meeting end-to-end and constituting the ring, the ends of said sections being provided with interlocking projections and notches, said notches being as wide at their outer portions as the widest portion of said projections, and said sections having polar extensions and spider-bolt holes between the bobbin spaces, substantially as shown and described. 14th. In an armature, core sections meeting end-to-end and constituting the ring of the armature, and having their ends provided with projections and notches lying in a plane extending longitudinally through the axis of the ring, said notches being as wide at their outer portions as the widest portion of said projections, and said sections being divided into bobbin spaces, substantially as shown and described. 15th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with projections, and notches lying in a plane extending longitudinally through the axis of the ring, said projections and notches having parallel sides, and said sections being divided into bobbin spaces, and having polar extensions between said bobbin spaces, substantially as shown and described. 16th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with projections, and notches lying in a plane extending longitudinally through the axis of the ring, said notches being as wide as their outer portions as the widest portion of said projections, and said sections being divided into bobbin spaces, and having polar extensions, and spider-bolt holes between said bobbin spaces, substantially as shown and described. 17th. In an armature, core sections meeting end-to-end and constituting the ring, and having their ends provided with projections and notches having parallel sides, and one of each extending in one direction out, and the other in a plane extending longitudinally through the axis of the ring, said sections being divided into bobbin spaces, and having polar extensions and spider-bolt holes between said bobbin spaces, substantially as shown and described.

No. 33,370. Armature for Dynamo Electric Machinery. (*Armure pour les machines dynamo électriques.*)

Warren S. Belding, Chicago, Ill., U.S., 9th January, 1890; 5 years.

Claim.—1st. A hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides, substantially as shown and described. 2nd. A hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides, said parts being divided transversely into segments, substantially as shown and described. 3rd. The combination, with a hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides, of one or more spiders having arms attached to said core, substantially as shown and described. 4th. The combination, with a hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides, of two spiders C, C, applied to each side of said core, and having their arms secured to the poles of said core, substantially as shown and described. 5th. The combination of a hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides, divided transversely into segments, of one or more spiders C, the meeting ends of said segments being secured to the adjacent spider arms, substantially as shown and described. 6th. A hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides and having the polar extensions A', substantially as shown and described. 7th. A hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides and having the hollow polar extensions A', substantially as shown and described. 8th. A hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides and having the polar extensions A', said parts A, A, being divided transversely into segments, substantially as and for the purposes herein set forth. 9th. A hollow cast-iron armature core composed of the annular parts A, A, hollowed at their meeting sides and having the polar extensions A', said parts A, A, being divided transversely through the middle of said polar extensions, substantially as shown and described.

No. 33,371. Clamp for Electric Motors.

(*Crampon pour les moteurs électriques.*)

Warren S. Belding, Chicago, Ill., U.S., 9th January, 1890; 5 years.

Claim.—1st. The combination, with an electric motor, of a rod D, extending through the lower portion of the frame of the motor, the ends of said rod projecting at each side of the frame, and a clamp F to engage the ends of said rod D, and a table, substantially as shown and described. 2nd. The combination, with an electric motor, having the field magnets A, A, and plates C, C, secured to said magnets, substantially as described, of a rod D extending horizontally through said plates, and a clamp F to engage said rod, and a table, substantially as shown and described.

No. 33,372. Lathe for Winding Armatures.*(Tour pour enrouler les armatures.)*

Warren S. Belding, Chicago, Ill., U. S., 9th January, 1890; 5 years.

Claim.—1st. In a lathe for winding the sections of armatures, the combination, with the shaft of such lathe, of a head D^2 having the oblique face d^2 , and means for clamping the armature sections to said head, substantially as shown and described. 2nd. In a lathe for winding the sections of armatures, the combination, with the shaft of such lathe, of a head D^2 having the oblique face d^2 , a clamping bar D^3 , and clamping posts D^4 joining said clamping bar to said head, substantially as shown and described. 3rd. In a lathe for winding armature sections, the combination, with the shaft of said lathe, of a chuck D consisting of a sleeve D^1 , head D^2 provided with the oblique face d^2 , clamping bar D^3 and clamping posts D^4 joining said clamping bar to said head, substantially as shown and described. 4th. In a lathe for winding armature sections, the combination, with the shaft of such lathe, of a head D^2 provided with the oblique face d^2 , clamping bar D^3 , and clamping posts D^4 consisting of screw bolts extending through the ends of said clamping bar and threaded into the ends of said head, substantially as shown and described.

No. 33,373. Electric Motor.*(Moteur électrique.)*

Warren S. Belding, Chicago, Ill., U. S., 9th January, 1890; 5 years.

Claim.—1st. An armature, divided into bobbin spaces and poles, of which poles has a hole extending into or through it, perpendicular to the plane of the armature, whereby the exposed surface of the pole remains relatively large, while its mass is relatively small, armature, divided into bobbin spaces and poles, which are respectively equidistant and of equal dimensions, said poles being provided with outward extensions, into or through which extend holes perpendicular to the plane of the armature, substantially as and for the purposes herein specified. 2nd. An armature, consisting of alternate metal and insulation blanks, and divided into bobbin spaces and poles, which are respectively equidistant and equal in dimensions, perpendicular to the plane of the armature, whereby the exposed surface of the pole remains relatively large, while its mass is relatively small, substantially as and for the purposes specified. 3rd. An armature, consisting of alternate metal and insulation blanks, and divided into bobbin spaces and poles, which are respectively equidistant and equal in dimensions, perpendicular to the plane of the armature, whereby the exposed surface of the pole remains relatively large, while its mass is relatively small, substantially as and for the purposes specified. 4th. An armature, divided into bobbin spaces and poles, which are respectively equidistant and of equal dimensions, said poles being provided with outward extensions, into or through which extend holes perpendicular to the plane of the armature, substantially as and for the purposes herein specified. 5th. An armature, composed of two or more each of which is a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other, and located unsymmetrically on said blank, so that there is a bobbin space at one end of said blank and a pole at the other end, substantially as and for the purposes herein specified. 6th. An armature, composed of two or more interlocking sections, each constituting a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other, and located unsymmetrically on said blank, so that there is a bobbin space at one end of said blank and a pole at the other end, and each such extension herein specified. 7th. An armature, composed of two or more interlocking sections, each of which is a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other, and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank, extension, substantially as and for the purposes herein specified. 8th. An armature, composed of two or more interlocking sections, each of which is a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other, and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other end, and each such extension herein specified. 9th. An armature, composed of two or more interlocking sections, each of which is a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other, and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other end, and each such extension herein specified. 10th. An armature, divided into bobbin spaces and poles, of which poles has a hole extending through it, perpendicular to the plane of the armature, bolts T extending through said holes and the spiders, and a shaft S extending through said spiders, substantially as described. 11th. The combination, with an armature having holes extending through the armature between the bobbin spaces B, B , of a shaft S , having bushings S^1 extending into said holes, and bolts T extending through said holes and bushings, and the arms of the spiders, substantially as and for the purpose specified. 12th. The combination, with an armature divided into bobbin spaces and poles, which are respectively equidistant and equal in dimensions, and having holes A and C extending through the armature between the bobbin spaces perpendicular to the plane of the armature, of a shaft S , a spider S^1 located on said shaft at each side of the armature, and bolts T , threaded into the opposite spider arm, substantially as and for the

purposes herein set forth. 13th. The combination, with an armature, having holes A and C extending through the armature, between the bobbin spaces B, B , of a shaft S , a spider S^1 located on said shaft at each side of the armature, and having bushings S^1 extending into said holes, and bolts T extending through one of the arms of said spider and the bushing thereon and through one of said holes, and threaded into the opposite bushing and spider arm, substantially as shown and described. 14th. The combination, with an armature, composed of two or more interlocking sections, said sections being composed of sheet blanks, each of which is a segment of a circle and divided into bobbin spaces and poles, which are respectively equal in dimensions and equidistant from each other, and located unsymmetrically on said blank, so that there is a bobbin space at one end of the blank and a pole at the other end, of spiders applied to the sides of said armature, and a shaft extending through the centre or axis of said armature and said spiders, substantially as shown and described.

No. 33,374. Coil Guard for Armatures.*(Garde bobine pour les armatures.)*

Warren S. Belding, Chicago, Ill., U. S., 9th January, 1890; 5 years.

Claim.—1st. In an armature, the combination, with the core, of coil guards applied to the ends of the core, said guards having lobes A^2, A^3 , and a web A^4 connecting said lobes, and a tongue or tongues A^1 for securing the guard to said core, substantially as described. 2nd. In an armature, the combination, with the core, of coil guards applied to the ends of the core, said guards having lobes A^2, A^3 , and a web A^4 connecting said lobes, and two tongues, one extending over the exterior of said core and the other over the interior of said core to secure said guard to said core, substantially as shown and described. 3rd. In an armature, the combination, with the core, of coil guards applied to the ends of the core, said guards having a web A^4 , and lobes A^2, A^3 extending outward from opposite sides of said web, and tongues A^1, A^2 , extending inward from the edges of the web, intermediate to the lobes A^2, A^3 , substantially as described. 4th. The combination, with an armature having the radial extensions C^1 , of coil guards applied to the ends of the core of said armature, opposite the spaces between said radial extensions, said guards having lobes A^2, A^3 , separated from each other a distance equal to the space between the radial extensions, a tongue A^1 extending into the spaces between said extensions, and a web A^4 connecting said lobes and tongues, substantially as described. 5th. In an armature, having a core composed of a series of sheet metal plates C^2 , applied to each other in planes at right angles to the axis of the armature, the combination, with such core, of coil guards applied to the ends of the core, said guards having lobes A^2, A^3 , and a web A^4 connecting said lobes, and a tongue or tongues extending from said web over said core, substantially as described. 6th. In an armature, the combination, with the core composed of the metal plates C^2 , of coil guards applied to the ends of the core, said guards having lobes A^2, A^3 , and tongues A^1, A^2 , and a web A^4 connecting said lobes and tongues, substantially as described. 7th. In an armature, the combination, with the core composed of the plates C^2 , of coil guards applied to the ends of the core, said guards having lobes A^2, A^3 , tongues A^1, A^2 , and a web A^4 connecting said lobes and tongues, and an insulation material E interposed between the core and said guards, or other suitable material, substantially as described. 8th. A blank of sheet metal, or other suitable material, such blank consisting of a web A^4 , and lobes A^2, A^3 extending outward from opposite sides of the web, and being extended beyond said web a distance substantially equal to their own width, and there being a space between said lobes equal to the width of the bobbin space to which the guard to be formed from such blank is to be applied, substantially as shown and described. 9th. A blank of sheet metal or other suitable material, such blank consisting of a web A^4 and lobes A^2, A^3 extending outward from opposite sides of the web, and being extended beyond said web a distance, substantially equal to their own width, and there being a space between said lobes equal to the width of the bobbin space, to which the guard to be formed from such blank is to be applied, and a tongue or tongues A^1 extending outward from said web, between the lobes A^2 , substantially as shown and described.

No. 33,375. Window Blind. (Jalousie.)

Allen P. Heidt and Joseph C. Devine, New York, N. Y., U. S., 9th January, 1890; 5 years.

Claim.—1st. A fastening device for slats, consisting of a metal strap d adapted to pass around the slat, laterally projecting pivotal ends e, e' , formed with said strap d , and a vertical bar c , having openings for receiving the ends e, e' , substantially as and for the purposes set forth. 2nd. A fastening device for slats, consisting of a metal strap d adapted to pass around the slat, half-round pivotal jaw ends e, e' upon the ends of said strap, which ends are of greater length than the width of the strap, and a vertical U-shaped bar c , having bearings c' adapted to receive the ends e, e' , substantially as and for the purposes set forth. 3rd. The combination, with the strap d adapted to pass around the slat, and having pivotal bearings f, f' , to pass into holes in the frame and cause a friction between the respective parts, so as to hold the slats in any desired position, substantially as set forth. 4th. A friction device for blind slats, consisting of a metal strap d to pass around the slat, pivotal jaw ends e, e' and pivotal bearings f, f' , substantially as and for the purposes set forth. 5th. The combination, with the blind slat b and the bar c , of the metal strap d to be passed around the slat, and having pivotal ends to be brought together to form a connection with the vertical bar where by a friction is caused at the pivot from the spring of the ends of the strap, substantially as specified. 6th. The combination, with the blind slat and the metal strap passing around the slat, having holes for pivotal ends, of a U-shaped vertical metallic bar, having holes for the reception of the pivotal ends of the strap, substantially as specified.

No. 33,376. Secondary or Storage Battery.*(Pile secondaire ou accumulateur.)*

The United Electric Improvement Company, Gloucester (assignee of Walter F. Smith, Philadelphia), Penn., U.S., 9th January, 1890; 5 years.

Claim.—1st. A battery plate or element, provided with a divided supporting frame, having loops, which connect the sections or segments of said frame with each other, substantially as and for the purposes set forth. 2nd. A battery element, composed of a series of plates, provided with vertical and transverse strips, and a peripheral divided rim, the sections of which are joined together by loops, substantially as and for the purpose set forth. 3rd. The combination, with a cell provided with an internal head or rim, an electrolyte and two systems of plates or elements with supporting frames, having divided peripheral rims connected together by loops, substantially as and for the purposes set forth. 4th. In combination, a battery element, composed of a series of small plates supported by a frame with a sectional or segmental rim, and loops uniting the sections or segments of said rim, substantially as and for the purposes set forth. 5th. In combination, two systems of battery elements, provided with sectional rims, loops uniting the sections of said rims with each other, a cell with a head or rim, and a fluid, substantially as and for the purposes set forth.

No. 33,377. Machinery for the Manufacture of Metallic Screws and Screw Bolts and other Metallic Articles having Screw Threads.*(Machinerie pour la fabrication des vis et boulons taraudés et autres articles métalliques à pas de vis.)*

John Sheldon, Birmingham, Eng., 9th January, 1890; 5 years.

Claim.—1st. In a screw cutting machine, the combination, with a rotary gripping spindle and jaws for holding and rotating the screw blank, of a pressing disk having an annular sharp edge rotating in contact with the rotating screw blank and moving in a line parallel to the axis of the rotating blank, so that the disk in its travel along the blank displaces portions thereof to constitute a screw thread, substantially as described. 2nd. In a screw cutting machine, the combination, with a gripping spindle and jaws rotating but immovable lengthwise for holding and rotating the screw blank, of the disk-carrying spindles inclined relatively to each other and arranged at opposite sides of the blank, the pressing disks mounted respectively on the spindles, and each having a sharp annular edge rotating in contact with the rotating blank, and means substantially as described, for slowly moving the disks and their shafts parallel to the axis of the rotating blank, so that the disks in their travel along the blank displaces portions thereof to constitute a screw thread, substantially as described. 3rd. In a screw cutting machine, the combination, with a rotating gripping spindle and jaws for holding and rotating a screw blank, of the disk-carrying spindles mounted in sleeves inclined relatively to each other at opposite sides of the blank, the pressing disks mounted respectively on the spindles, and means for closing the disks upon the rotating blank, causing the disks, spindles and sleeves to slowly move parallel to the axis of the blank, and opening the disks to release the blank when the thread is finished, substantially as described. 4th. In a screw cutting machine, the combination, with a rotating gripping spindle and jaws for holding and rotating a screw blank, of the disk-carrying spindles mounted in sleeves inclined relatively to each other at opposite sides of the blank, the pressing disks mounted respectively on the spindles and having annular sharp edges, a lengthwise movable shaft carrying the sleeves, means for moving said shaft back and forth for causing the disks to travel in a line parallel to the axis of the rotating blank, and means for closing the disks on the blank and opening them when the screw-thread is finished, substantially as described. 5th. In a screw cutting machine, the combination, with a rotating gripping spindle and jaws for holding and rotating a screw blank, of a pair of disk-carrying spindles located at opposite sides of the blank and inclined relatively to each other, the thread forming disks having annular sharp edges and mounted respectively on the spindles, mechanism for moving the spindles and disks parallel to the axis of the rotating blank, and means for closing the disks on the blank and imparting additional pressure to the disks on approaching the point end of the blank, substantially as described. 6th. In a screw cutting machine, the combination, with a gripping spindle and jaws for holding and rotating a screw blank, of a pair of disks having annular sharp edges rotating in contact with the rotating blank and moving in a line parallel to the axis of the blank, and means, substantially as described, for increasing the pressure of the disks on the blank as they approach the point end of the latter, substantially as described.

No. 33,378. Self-Binding Harvester.*(Moissonneuse-lieuse.)*

William J. Marshall, London, Ont., 9th January, 1890; 5 years.

Claim.—1st. The cam N, substantially as shown and described and for the purpose specified. 2nd. The combination of the compressor arm L and the frame M or other suitable support, one having a stud or arm L¹ and the other a cam N, substantially as and for the purpose set forth. 3rd. The compressor arm L and the frame M or other suitable support, one having a stud or arm L¹ and the other a cam N, the latter being formed with gates N¹, N² and springs o¹, o², substantially as and for the purpose set forth. 4th. The gear wheel A and clutch C, in combination with the shaft B, sleeve D formed with flange D¹, having the openings D² therein, dogs E, spring H, plate F having the eccentric openings F² therein and shoulder F¹, and lock arm G formed with a shoulder G¹, as and for the purpose set forth.

No. 33,379. Floral Letter and Design.*(Lettre et dessin en fleurs.)*

William C. Krick, Brooklyn, N. Y., U. S., 9th January, 1890; 5 years.

Claim.—A floral letter, figure or design for decorating purposes, consisting of the flowers a secured to the foundation piece A, which is formed to create the letter or figure desired and provided with the holes c, in combination with the picks e, all as herein described.

No. 33,380. Machine for Preparing Food, etc. (Machine à préparer les aliments, etc.)

Thos. B. Norgate and Alexander H. Milne, Victoria, B.C., 9th January, 1890; 5 years.

Claim.—1st. The combination of the various rollers R, R, with their axles C and D in connection with the block-washer l and handle l^m, also twist nuts p and brackets o, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the 3 finger and slot joints a, b, with the ear slot and screw a b c, in connection with the standards A, A, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the bars t, t, slide bearing g¹ and rubber buffer K, substantially as and for the purpose hereinbefore set forth. 4th. The combination of levers B containing slot h, with the axle e carrying the roller R and sliding in slot i together with the arc g and bolt e, substantially as and for the purpose hereinbefore set forth. 5th. The combination of rollers R, R, in connection with axles C and D and block-washer l, handle l^m, also twist nut p and bracket o, substantially as and for the purpose hereinbefore set forth. 6th. Fluting rollers only part of the length, the remaining part being smooth and of smaller diameter, substantially as and for the purpose hereinbefore set forth.

No. 33,381. Art of Making Pianos.*(Art de fabriquer les pianos.)*

Ludwig Barthelmes, Toronto, Ont., 9th January, 1890; 5 years.

Claim. 1st. In the construction of pianos, the process of first making the sounding board and uniting the sounding board and rest plank to the iron plate, then constructing the skeleton frame around the sounding board and iron plate, substantially as and for the purpose set forth. 2nd. In the construction of pianos, the process of first making the face of the sounding board, then glueing on the cross strips and counter bridges, then putting the sounding board frame on the face of the sounding board, and screwing the completed sounding board and wrest plank to the iron plate, and then constructing the skeleton frame around the sounding board and iron plate, substantially as and for the purposes set forth.

No. 33,382. Automatic Twine Holder.*(Porte-ficelle automatique.)*

William N. Candee, Buffalo, N. Y., U. S., 9th January, 1890; 5 years.

Claim.—1st. In an automatic twine holder, the combination of a holding case composed of two halves, each having surrounding ribs 17 and 18, a hole for the twine to pass out through and adapted to fit together so as to leave a surrounding groove 13 between the ribs 17 and 18, a perforated hook portion 14 at the top of the case, and a weighted portion below a frame in which the case is mounted so as to oscillate and by which it is suspended, and cross bars 21 and 22 at the lower portion of the frame, for the purpose described.

No. 33,383. Glass Furnace. (Four de verrerie.)

Asa G. Neville, Lazeraville, W. V., U. S., 9th January, 1890; 5 years.

Claim.—1st. In a glass furnace, the combination, with the pot having an ingress and an egress passage communicating with the interior thereof, of the breast-wall having two flues, which communicate with the said passages in the pot, the flue communicating with the ingress passage opening into the furnace-chamber, and the other flue communicating with the stack, substantially as described for the purpose specified. 2nd. In a glass furnace, the combination, with the pot having ingress and egress passages F and G respectively communicating with the interior of the pot, of the breast-wall having flues C and D which communicate with the passages F and G respectively, the flue C opening into the furnace-chamber and the stack, the flue D communicating with the stack, and the damper H in the flue C for compelling the flame to enter the pot, and the damper d in flue D for preventing the escape of heat, substantially as described. 3rd. The combination, with the pot having the passages F and G, and having blower passage a extending around the same and communicating with the pot near the terminus of the passage F, of the breast-wall having the flues C and D and the flue C communicating with the interior of the furnace, and the flue D communicating with the stack, substantially as described. 4th. In a glass furnace, the combination, with the pot having the passages F and G, and having the blower passage a, the breast-wall having flues C and D which communicate with the passages F and G, and having the air passages I, the flue C opening into the furnace-chamber, and the flue D communicating with the stack, and the dampers H and d, substantially as and for the purpose described.

No. 33,384. Car Axle Box. (Boîte à grasse.)

Francis B. H. Bomter, Chicago (administrator of the estate of Everett C. Hammond, Pullman), Ill., U. S., 9th January, 1890; 5 years.

Claim.—The combination, with the axle-box A, of a threaded tube F, a stem G and spring H, substantially as shown and described.

No. 33,385. Umbrella. (Parapluie.)

Richard E. Peters and William T. Green, Concord, N.H., U.S., 10th January, 1890; 5 years.

Claim.—1st. As a new article of manufacture, an umbrella-frame comprising ribs and stretchers or braces, a fixed-cap for carrying one end of the said ribs, and a suitable runner for carrying one end of the said braces, the same being connected at their proper places by ball and socket joints, substantially for the purpose set forth. 2nd. In an umbrella-frame, suitable ball and socket connections for the ribs and the braces, the ribs and their fixed support and the braces and runner, all substantially for the purpose specified.

No. 33,386. Electric Lamp Hanger.

(*Suspension de lampe électrique.*)

John Bucksey, Ottawa, Ont., 10th January, 1890; 5 years.

Claim.—1st. The use and application of the hollow arm B hinged to the post for the specific purpose as shown and described, substantially as and for the purpose hereinbefore set forth. 2nd. The use and application of the insulators F, D, in combination with the arm B, which renders it possible to lower the lamp to the foot of the post without undue slackening or tension of the electric wires, or necessity for disconnecting the lamp from the same, as shown and described, substantially as and for the purpose hereinbefore set forth.

No. 33,387. Knitting Machine.

(*Machine à tricoter.*)

The Wilcomb Knitting Machine Company, Jersey, N. J. (assignee of Frank Wilcomb, Providence, R.I.), U.S., 10th January, 1890; 5 years.

Claim.—1st. In a straight knitting machine, the slide bars, the reciprocating operating bar ρ , and connections for said reciprocating bar D to the slide bars for reciprocating them. 2nd. In a straight knitting machine, the slide bars, the cross head, the pitman for moving the bar D and the connections to the slide bar, as the pinion, the gears C and racks b , or equivalent connections. 3rd. The bar D and cross head, with connections, and the multiplying mechanism comprising the pinions β^1, β^2 , the racks c^1, c^2 , and the racks on the D, and multiplying mechanism for moving said bar. 5th. In combination, the needles, the slide bars, driven from the main shaft, point block, and points thereon, and operating connections from the main shaft to the shifting cam plates and to the point blocks independent of the slide bars, substantially as described. 6th. The shifting cam plate R, having oblique or slanting movement provided with as to provide an unbroken continuation of the needle groove about 7th. In combination, the slide bar, a fixed part of the needle path, having the inclined edge, the inclined guides, the cam movable on its end adjacent to the fixed part of the needle path, also inclined, in different, but parallel, planes, substantially as described. 8th. In combination with a slide bar, a shifting cam plate for the transfer cam plate, for giving a varying movement thereto in advancing and retracting a main shaft, and operating connections to the eccentric slide bar, a shifting cam plate R, a main shaft, a shaft 38 operated shifting cam plate, carried by the slide bar and splined to the shaft 38. 10th. In combination with a slide bar, a shifting cam plate R, a pinion, connections between said pinion and plate, a rack for controlling the shifting operation. 11th. In combination with main shaft racks operated thereby, pattern mechanism for controlling the shifting of the pinion, and a locking catch, substantially as described. 12th. The mechanism for operating the shifting cam carried upon the slide bar, the shaft 38 in connection with said plate and with the eccentric, the shaft 38 having splined connections between said pinion and the shaft 38, a drum K, having a segmental out of engagement with the rack on ρ , for shifting the pinion into and the shifting lever L from the rack on the drum, means for operating for controlling said operation. 13th. In combination with the slide bar, a shifting cam plate for the transfer movement of the needles, detachable driving connections between said main shaft and shifting cam plate, whereby said plate may be operated automatically or in combination, the slide bars, the shifting cam plates, the pinions on driven from the main shaft, the drums, having racks thereon, said levers to the pinions for shifting the same, cam pieces on the main shaft for depressing the shifting rollers of levers 43, 44, a constantly operating lever N, in connection with the shifting rollers, a said cylinder N^2 , and a pattern mechanism for controlling the action of carriage Q^2 , upon which are located the transfer points, the said carriage Q^2 , which is driven from the main shaft. 16th. A point block carrying the transfer points, said block being moved transversely movement in the operation of fashioning. 17th. A point carriage Q^2 , main shaft, a point block carrying the transfer points given sliding movement by a rack q and gear q^1 , operated by a shaft R^1 also driven

from the main shaft, and lifting or tilting movement imparted to the block by arms r^1 , through a shaft R^3 , which is likewise driven from the main shaft. 18th. In combination with the point carriages on opposite sides of the machine, a threaded shaft for each carriage, said shafts being formed with zig-zag grooves, having cam faces, a main shaft with operating connections between said main shaft and the threaded shaft on each side of the machine, a pattern mechanism and operating connections from said pattern mechanism for controlling the action of the threaded shafts, stationary pins on the frame engaging with said grooves, the cam faces of one shaft being set reversely to the other, whereby one threaded shaft is rendered inoperative, and the carriage on the other advanced its full distance. 19th. In combination with the point carriages on opposite sides of the machine, a threaded shaft for each carriage, a main shaft, a shaft 91 operated from the main shaft, and a pattern mechanism controlling said operation, and a connection between the shaft 91 and the threaded shafts of the point carriages, substantially as described. 20th. In combination with the point carriages of the machine, a pair of threaded shafts for moving them laterally, a lever ρ^1 operated from the main shaft with suitable connections to both the threaded shafts, substantially as described. 21st. In combination with the point carriages, a pair of threaded shafts, a pair of reversely operating pawls, a ratchet wheel on said shaft 91, and means for operating the shaft 91, substantially as described. 22nd. In combination with the two rows of needles, a thread carrier h^1 , and connections, a thread guide and elongated operating bar h^2 , and connections therefrom to the thread guide with means for operating the bar h^2 , as shown. 23rd. A reversible thread guide adapted to be reversed automatically to feed the opposite row of needles by an elongated operating bar h^2 , adjustable stops, operating connections therefrom to the bar h^2 , and an arm 27 on the thread carrier in contact with, and moves the stops, causing the movement of the bar h^2 , and the reversal of the thread guide. 24th. In combination, the guide-ways, a thread carrier and guide, a detachable connection between said carrier and its driving mechanism, and a stop automatically movable arranged to operate upon said detachable connection, whereby the movement of said carrier may be arrested at the end of the row of active needles, as shown. 25th. In combination with the thread guide, the reversing mechanism extending from the thread guide to the main shaft operated independently of the thread guide's own movement. 26th. The movable stop for the carrier, operated automatically and equally with the stitch transferring devices, by mechanism, such as the screws 11-53 and the chain, as shown. 27th. Combined with the reversible thread carrier, the operating connection therefrom, and the movable cam piece T for operating said connection. 28th. A lifting bar for raising the empty needles to render them inoperative, as at R^4 , a screw shaft for operating said lifting bar, and operating connections from the screw shaft to the main bar, and operating connections from the screw shaft, transfer point shaft. 29th. In combination, two rows of needles, transfer point carriages, one on each side, screw shafts for moving the same, a needle lifting bar on each side of the machine, a threaded shaft for operating each bar, and means for operating all of said shafts simultaneously. 30th. In combination with the needles of a knitting machine, a pair of needle raising slides, as 3, 4, one arranged at each end of the row, each provided with a needle raising point, a slot to receive the inactive needles, and a bearing for holding the needles down, the slides being adapted to move to and from each other, as shown. 31st. In combination with the described needle-raising slides, a series of needle holding slides, having bearing surfaces to hold in down the needles, all the slides being loosely connected. 32nd. In combination with the movable slides, having bearing surfaces, the combination with the needle, a fixed bearing surface on the needle. 33rd. The needle raising and bearing slides 1, 2, 3, 4, constructed and arranged as shown. 34th. In combination, the constantly operating lever M^2, M^4, v, v^1 , operating connections from the main shaft controlled by said levers for actuating the needles and points, means for controlling said lever as actuating the needles and the primary pattern mechanism. 35th. In combination with the needles and transfer points, with operating mechanism therefor, a pattern device, as N^2 , for controlling the various operations of the needles and points through their respective mechanisms, and a primary pattern mechanism for determining the time of action and the setting in motion of the cylinder N^2 from the main shaft.

No. 33,388. Apparatus for the Manufacture of Hosiery. (Appareil pour la fabrication de la bonneterie.)

Davis, Moore & Co. (assignees of Edwin Newton and James Palmert) Leicester, Eng., 10th January, 1890; 5 years.

Claim.—1st. In an automatic knitting machine, the combination, with the cam ring for operating the yarn or web holders, of a splicing attachment, comprising jaws for alternately gripping and releasing the splicing thread, a cam and ratchet wheel for operating the said jaws fitted to rotate upon a stud fixed in the said cam ring, and adjustable bolts or stops for operating the ratchet wheel and cam in justable bolts or stops for operating, substantially as and for the purpose of the rotation of the said cam ring in an automatic knitting machine, the combination set forth. 2nd. In an automatic knitting machine, the combination, with the cam ring for operating the yarn or web holders, of a splicing attachment comprising jaws for alternately gripping and releasing the splicing thread, a feed lever for the splicing thread, a releasing the splicing thread, a feed lever with the movable jaw, a cam and spring connecting the said lever and jaw fitted to rotate upon a stud fixed in the said cam ring, and adjustable bolts or stops for imparting step-by-step rotation to the said ratchet-wheel and cam in the rotation of the said cam ring, substantially as and for the purposes set forth. 3rd. In an automatic knitting machine, the combination of the tubular thread guide adapted to conduct the main and splicing threads into the work, the jaws above the said thread guide for alternately gripping and releasing the said splicing thread, the feed lever for the splicing thread arranged to move to and from the said jaws, and means, substantially as above described, for operating the movable jaw and feed lever, substantially as and for the purposes set forth. 4th. In an automatic knitting

machine, the combination, with the gripping jaws, the feed lever and the cam and ratchet wheel for operating the same, of adjustable bolts or stops operated by wedge pieces on the pattern chain and by a retracting spring, whereby the said bolts or stops are moved into and out of the path of the said ratchet wheel, substantially as and for the purposes above specified. 5th. In an automatic knitting machine, the combination, with the adjustable bolts or stops for operating the ratchet wheel and cam in the rotation of the cam ring, of the semicircular or forked lever pivoted to the table and extending beneath the said bolts or stops, the sliding rod provided with the inclined surface adapted to act upon a corresponding inclined surface on the short arm of the said lever, a bell-cranked lever coupled to the said sliding rod, wedge pieces on the pattern chain for moving the said bell crank lever and sliding rod in one direction, and a spring for moving them in the reverse direction, substantially as and for the purposes set forth. 6th. The combination, with the cam ring C and the yarn carrier D, of the tubular thread guide c for conducting the main and splicing threads into the work, the jaws g, g^1 for alternately gripping and releasing the splicing thread, and means, substantially such as above described, for moving one of the said jaws to and from the other in the rotation of the said cam ring, substantially as and for the purpose set forth. 7th. The combination, with the cam ring C and the yarn carrier D, of the tubular thread guide c for conducting the main and splicing threads into the work, the jaws g, g^1 for alternately gripping and releasing the splicing thread, the feed lever h for the said splicing thread, and means, substantially as above described, for operating the movable jaw and the feed lever in the rotation of the said cam ring, substantially as and for the purposes set forth. 8th. The combination, with the cam ring C, the yarn carrier D, the jaws g, g^1 for alternately gripping and releasing the splicing thread, the feed lever h , and the spring a connecting the said lever with the movable jaw, of the cam m , the ratchet wheel k , the spring k^1 and the regulating nuts l , all arranged upon a pin or stud l fixed in the said cam ring, and adjustable bolts or stops j , which in the rotation of the said cam ring impart intermittent rotary motion to the said ratchet wheel and cam, substantially as and for the purposes set forth. 9th. The combination, with the adjustable bolts or stops j for imparting intermittent rotary motion to the ratchet wheel k , and cam m for operating the gripping jaws g, g^1 , and feed lever h , of the semi-circular or forked lever i pivoted at l and provided with the inclined surface F , the sliding rod s , provided with the inclined surface s^1 to act upon the said surface F of the lever i , the bell crank lever r , the connecting rod r^1 coupling the said bell crank lever to the sliding rod s , the slide piece e and the wedge piece q on the pattern chain F , for moving the sliding rod s in one direction, and a spring u for moving the said sliding rod in the reverse direction, substantially as and for the purposes set forth.

No. 33,389. Hose Nozzle. (*Lance à boyau.*)

Thomas McAvity & Sons (assignees of William McShane), Saint John, N.B., 10th January, 1890; 5 years.

Claim.—The combination of the inlet or hose section A, having within it bridge C the stem D, having one end secured to the middle of the bridge and extending from the outlet end of said section, and provided with a distributing base F and conical bearing E, and the outlet section B, having A, contracted throat H to close against said bearing, and a bell mouth discharge, said sections A, B screwing telescopically together, as and for the purpose set forth.

No. 33,390. Combined Bit and Scratch Gage. (*Vilbrequin à jauge graduée.*)

Herbert G. Smith and Charles M. Wright (assignees of Elmer E. Doe), Mount Tom, Mass., U.S., 10th January, 1890; 5 years.

Claim.—The combination, with the bit and the strip C formed with recess L at one end, ring E at the other end, and provided with the scale, as shown, of the casting F adjustable on said strip and adapted to hold said strip to the bit, and the piece L' at one end of said strip and formed with sharpened edges, and the set screw N passed through said piece L' into the strip C, substantially as and for the purpose specified.

No. 33,391. Galvanic Battery. (*Pile galvanique.*)

Oscar A. Enholm, New York, N. Y., U. S., 11th January, 1890; 5 years.

Claim.—1st. In a battery, the jar or receptacle A combined with a dense impervious partition that prevents one solution passing into the other, and that acts as a conductor between two solutions and resists the action of chemicals, substantially as described. 2nd. In a battery, the jar or receptacle A combined with an impervious dense carbon partition for separating two solutions and forming two compartments, and with the positive electrode in one compartment, and the negative electrode in the other compartment, substantially as described. 3rd. In a battery, the jar A having the dense impervious carbon partition B combined with the porous carbon cup E containing strong acid, substantially as described.

No. 33,392. Reed Organ. (*Orgue.*)

Charles W. Seaman, Woodstock, Ont., 11th January, 1890; 5 years.

Claim.—The opening of chamber A at B and C, substantially as and for the purpose hereinbefore set forth.

No. 33,393. Electro-Magnetic Transmitter.

(*Transmetteur électro-magnétique.*)

John T. Williams, Mount Vernon, N. Y., U. S., 11th January, 1890; 5 years.

Claim.—1st. The combination, with a series of helices placed at suitable distances apart, and with a tube, trough or track extending through said helices, of a flexible core or carriage which can freely pass through said helices, a series of independent circuit closers, one for each helix consisting of spring-tappets adapted to be actu-

ated by the core or carriage and contact-pieces, and the connections of the helices with a dynamo machine or other source of electricity, substantially as described. 2nd. The combination, with a series of helices placed at suitable distances apart, and with a tube, trough or track extending through said helices, and with a tube, trough consisting of two heads, and an intermediate flexible magnetizable material which can freely pass through said helices, a series of circuit-closers, one for each helix, detached from said carriage, and their connections with a dynamo machine or other source of electricity, said circuit-closers being actuated by the passing carriage and serving to close and break said circuits through the successive helices in the series, substantially as described. 3rd. The combination, with a series of helices placed at suitable distances apart, and with a suitable tube, trough or track extending through said helices, of a core or carriage which can freely pass through said helices, two or more anti-heating collars secured to said carriage, a series of circuit-closers, one for each helix, and the connections of said helices with a dynamo machine or other source of electricity, substantially as described. 4th. The combination, with a series of helices placed at suitable distances apart, and with a tube, trough or track extending through said helices, of a flexible core or carriage which can freely pass through said helices, two or more anti-heating collars secured to said carriage, a series of circuit-closers, one for each helix, and their connections with a dynamo machine or other source of electricity, substantially as described. 5th. The combination of a tube, trough or track helices placed at suitable distances apart thereupon, a circuit-closer for each helix, connections between the helices and a dynamo or other source of electricity, a traveling carriage which actuates the circuit-closers, and an electro-magnetic brake for stopping the carriage, substantially as described. 6th. The combination, with a tube, trough or track, of a magnetizable carriage, an electro-magnetic brake mounted on the tube, trough or track, a battery or other source of electricity having a circuit through the brake, and a circuit-closer connected with the brake for closing the circuit through the latter to stop the carriage, substantially as described. 7th. The combination, with a tube, trough or track, of a magnetizable traveling carriage and an electro-magnetic brake mounted on the tube, trough or track and disconnected from the carriage for stopping the latter, substantially as described. 8th. The combination, with a tube, trough or track, of a magnetizable traveling carriage, a tubular brake-helix, through which the tube, trough or track passes, a battery or other source of electricity having a circuit through the brake-helix, and a circuit-closer connected with the brake-helix for closing the circuit there through to stop the carriage, substantially as described. 9th. The combination of a tube, trough or track, a series of helices at suitable distances apart, a series of circuit-closers, one for each helix, connections between the helices and a dynamo machine or other source of electricity, a traveling carriage which operates the circuit-closers, and a laterally-movable carriage-supporting switch for diverting the carriage out of line with the main portion of the tube, trough or track, substantially as described. 10th. The combination of a tube, trough or track, a series of helices at suitable distances apart, a series of circuit-closers, one for each helix, connections between the helices and a dynamo machine or other source of electricity, a traveling carriage which operates the circuit-closers, an electro-magnetic brake for stopping the carriage, and a laterally-movable carriage-supporting switch for diverting the carriage out of line with the main portion of the tube, trough or track, substantially as described. 11th. The combination of a tube, trough or track, a series of helices at suitable distances, a series of circuit-closers, one for each helix, connections between the helices and a dynamo machine or other source of electricity, a traveling carriage movable through the helices and which operates the circuit-closers, and a carriage-supporting switch consisting of a movable section of the tube, trough or track, for moving the carriage out of line with the main portion of the tube, trough or track, substantially as described. 12th. The combination, with a tube, trough or track and carriage-inclining helices thereupon at suitable intervals, of a carriage consisting of two heads and a flexible magnetizable connection between the heads, substantially as described. 13th. The combination of a tube or track, electro-magnets, a traveling carriage impelled by the electro-magnets, an electro-magnetic brake mounted on the tube or track to stop the carriage, and a carriage-supporting switch-section movable into and out of line with the main portion of the tube or track, substantially as described. 14th. The combination, with a carriage (G) composed of two heads, and a magnetizable flexible connection between the heads of a helix (G¹) mounted on said flexible connection, a battery (G²) located in one of the carriage-heads, and connections between the battery and helix, substantially as described. 15th. The combination, with a tube, trough or track and with a magnetizable core or carriage adapted to move therein or thereon, by a brake-helix, a circuit-closer connected to the brake-helix and actuated by the moving carriage, a secondary electro-magnet for holding the circuit through the brake-helix closed, and the connections of the brake-helix and the secondary electro-magnet with a battery or other source of electricity, substantially as described. 16th. The combination, with a tube, trough or track and with a magnetizable core or carriage adapted to move therein or thereon, of the switch-frame K, the latch for locking the switch-frame, and the electro-magnet L, for opening the latch, substantially as described. 17th. The combination, with the carriage G, of anti-heating collars G¹, substantially as described. 18th. The combination, with the carriage G, of anti-heating collars G² and slots G³ in the said collars, substantially as described. 19th. The combination, with the brake-helix G², of the electro-magnet L² and the armature M², to maintain a circuit in the brake-helix G² until the connection is otherwise broken, substantially as described. 20th. The frame K₂ mounted on the rock-shaft R² and carrying the sections J₂, I₂, of the main tube or track, in combination with a brake-helix and a circuit-closer, substantially as and for the purpose described.

No. 33,394. Bags and their Manufacture. (*Sacs et fabrication des sacs.*)

Joseph L. Seymour, New York, N. Y., U. S., 11th January, 1890; 5 years.

Claim.—1st. As an improved article of manufacture, a flat rectangular bag made from woven fabric and having the closing seams arranged oblique to the axis of the bag. 2nd. As an improved article of manufacture, a flat rectangular bag made from woven fabric and having the warp and weft of the fabric arranged bias to the axis of the bag. 3rd. As an improved article of manufacture, a flat rectangular bag made from woven fabric and having the seams arranged along the selvages of the fabric and oblique to the axis of the bag. 4th. As an improved article of manufacture, a flat seamed rectangular bag made from woven fabric and having a raw bias edge about the mouth of the bag. 5th. As an improved article of manufacture, a bag made from textile material having a seamless bottom formed by a fold in the fabric extending bias of the material, and having its sides closed by seams oblique to the longitudinal axis of the bag.

No. 33,395. Combined Letter Sheet and Envelope. (*Papier à lettre faisant enveloppe.*)

James H. I. Munro, New Glasgow, N. S., 11th January, 1890; 5 years.

Claim.—1st. A letter sheet creased to make three uniform divisions when folded, the top and bottom divisions having a flap extending from the sides and end, and gummed reversely at opposite ends of the sheet, as set forth. 2nd. A letter sheet having a flap extending from the sides and ends, said flaps reversely gummed at opposite ends of the sheet, as set forth.

No. 33,396. Storage Battery. (*Accumulateur.*)

William Roberts, Toronto, Ont., 11th January, 1890; 5 years.

Claim.—1st. In a storage battery, a plate constructed with a series of openings and strips separating the openings having their inner sides inclined from about the centre to the respective edges in lines running at less than a right angle to the outer side of the plate, whereby a large active surface is afforded in thin plates, substantially as set forth. 2nd. In a storage battery, a plate formed with a series of openings and having strips between the openings, the outer sides of which are flat, and the inner sides oppositely beveled from the centre in line running at acute angles to the outer side, substantially as set forth. 3rd. In a storage battery, an electrode consisting of two plates suitably united face to face, said plates formed in beveled form oppositely to one another, the face of said strips angled to the plane of the centre to the edges in lines at less than a right angle to the plane of the outer side of the plate, and in contact at surface of the said plates is exposed to action, substantially as set forth. 4th. In storage batteries, a plate provided with openings extending through from side to side, and spurs projecting into said openings from about the edges thereof, substantially as set forth. 5th. In storage batteries, a plate formed with a series of openings with beveled sides extending into said openings, substantially as set forth. 6th. In storage batteries, an electrode consisting primarily of two plates having smooth outer surfaces, and a series of openings divided by strips, said strips formed on their inner sides with bevel faces extending from about the openings back to the centre of the strips, and projections on said strips extending into the said openings, substantially as set forth. 7th. In storage batteries, an electrode having two outer plates, one of which is formed with a lug along its edge bent to bear against the side of the other plate and serving to hold the two plates together, substantially as set forth. 8th. In storage batteries, an electrode consisting of separate outer plate to rest against, and lugs on one of said plates bearing against the opposite plate, substantially as set forth. 9th. In a storage battery, an electrode having one plate with ribs along its edges, and projections along said ribs to hold the other plate in position laterally, substantially as set forth. 10th. In a storage battery, having two uneven sides and a paste between said plates, substantially as set forth. 11th. In storage batteries, an electrode provided with screw-threaded holes through its sides, in combination with non-conducting material threaded and screwed into said holes, said pins extending laterally to bear against the adjacent plates on either side, substantially as set forth. 12th. In storage batteries, an electrode provided with sockets along its bottom, and pins of non-conducting material set in the said sockets and supporting said electrodes, substantially as set forth. 13th. In a storage battery, an electrode formed of plates having coincident openings, and strips between the openings having their faces inclined oppositely from about the centre of the strips, in combination with an intermediate plate having openings extending from side to side, substantially as set forth.

No. 33,397. Barrel. (*Baril.*)

Thomas L. Norman, West Point, Ga., U. S., 11th January, 1890; 5 years.

Claim.—1st. As an improved article of manufacture, a barrel or package formed of fabric and having its upper edge turned inward, separable and removable inner and outer rigid head sections between which said returned portion extends, and removable fastenings extending down through the outer head section and the returned portion into the inner head section, whereby connecting the outer and inner head sections together and to the returned portion, substantially as set forth. 2nd. As an improved article of manufacture, a barrel formed of fabric and having its upper edge turned inward, separable and removable inner and outer head sections between which said returned portion is clamped, and a hoop or band secured to said head sections and covering the joint between them, substantially as set forth. 3rd. In a barrel, the combination, with a fabric body having a head fixed thereto at one end, of an upper intermediate head and an upper outer head, a hoop or band secured to the upper outer head, and staples uniting the intermediate and

outer head and said body, substantially as shown and described. 4th. In a barrel, the combination, with a seamless fabric body, a head fixed thereto at one end, and an upper intermediate head upon which the upper edge of said body is folded, of an upper outer head united to the upper face of the intermediate head, a band or hoop attached to the upper outer head, and staples uniting the two upper heads and the body at its sides, substantially as shown and described.

No. 33,398. Pedal Cover for Reed Organs. (*Couvercle de pédale pour les orgues.*)

Walter S. Russell and John B. Mitchel, Bowmanville, Ont., 11th January, 1890; 5 years.

Claim.—The combination, with an organ case A having a pedal opening A, and a sliding pedal cover J adapted to close the organ over the pedals, the pedal cover J has rollers or pins at the upper ends that run in slot K, thereby leaving the bottom of cover free to run on the inclined bead I, said cover J being connected to arms C and H, cam E, rods F and P, cranks G, fall board B, as shown and described.

No. 33,399. Sheet Metal Pipe. (*Tuyau de métal en feuille.*)

Henry W. Simms, Bay, Mich., U. S., 11th January, 1890; 5 years.

Claim.—1st. The combination, with the outer pipe section having on opposite sides the portions *e* and *f*, raised outwardly and having grooves *c* and *d* beneath the said raised portions *e* and *f*, of the inner pipe section provided on the opposite sides of its connecting end portion with the raised portions *i* passing into the said grooves *c* and *d*, and having the raised bead *g* abutting against the end of the outer section when the sections are connected together, substantially as set forth. 2nd. As a new article of manufacture, a sheet metal pipe section having on opposite sides of one end portion *h*, the outwardly raised portion *i*, and bead *g*, and having on opposite sides of the other end portion *j*, the outwardly raised portions *e* and *f*, and the grooves *c* and *d* beneath the said portions *c* and *f*, substantially as set forth.

No. 33,400. Device for Cutting Buttons from Shoes. (*Appareil pour enlever les boutons des souliers.*)

Thomas E. Lewis, Vicksburg, Miss., U. S., 14th January, 1890; 5 years.

Claim.—1st. In combination with a stand, a slotted tube having two branches, one leading to the right and the other to the left, and a box situated under the said slotted tube having a sharpened front edge, substantially as and for the purpose specified. 2nd. In combination with a stand, a slotted tube having two branches, one leading to the right and the other to the left, a box situated under the said slotted tube having a sharpened front edge, and a second box in communication with the first, substantially as and for the purpose specified.

No. 33,401. Manufacture of Boot and Shoes. (*Fabrication des Chaussures.*)

Guillaume Boivin, Montréal, Qué., 14th January, 1890; 5 years.

Résumé.—1^o. Dans la fabrication des chaussures, la manière de diviser un côté de cuir ou autre matière en empeignes et quartiers ainsi que décrit, représenté par les Figs. 1 à 8 inclusivement. 2^o. Ainsi que décrit, représenté par les Figs. 1 à 8 inclusivement. 3^o. En combinaison avec les empeignes et quartiers ainsi représentés et le dévêtis, les pièces de rapport B, D, G, I, L, O, U, U¹, V et Y, et le soufflet Z, tels que décrites et pour les fins indiquées.

No. 33,402. Ornamental Sign Letter or Symbol. (*Lettre ou symbole d'ornement pour les enseignes.*)

William A. Hewish and John J. Murphy, assignees of Luke A. Rowell, Toronto, Ont., 15th January, 1890; 5 years.

Claim.—A letter or symbol formed by cutting its shape out of a piece of thin wood or other suitable material tacked or otherwise fastened to a back of wood or other suitable material, the body of the letter being made of broken glass or pebbles cemented together, substantially as and for the purpose specified.

No. 33,403. Veterinary Surgical Instrument. (*Instrument de chirurgie vétérinaire.*)

Hiram B. Harter, Oneida, Kan., U. S., 15th January, 1890; 5 years.

Claim.—1st. The combination, with the hinged bars, the bit-bars connecting the hinged bars and projecting beyond the same, of the nails secured to the ends of the bit-bars, whereby the latter may be readily separated, substantially as described. 2nd. The combination in a veterinary instrument, of the hinged bars A and A¹ and the tion in a veterinary instrument, of the hinged bars A and A¹ and the guards F surrounding their inner ends, substantially as and for the purpose described. 3rd. The combination guard surrounding the inner end of the hinged bars, the V-shaped guard surrounding the end of the bars, the rivet passing through the sides of the guards and between the bars, and the loops secured to the back of the guard, substantially as described.

No. 33,404. Ruler. (*Règle.*)

T. Burroughs Norgate and Alexander H. Milne, Victoria, B. C., 15th January, 1890; 5 years.

Claim.—1st. The combination of the ruler bands A, B, C, D, together with the plugs and erasers, H, K, E, G, substantially as together and for the purpose hereinbefore set forth. 2nd. The combination of the ruler and bands A, B, C, D, together with the plugs and erasers H, K, E, G, as also the pen holder and pencil L, M, and ruler N, O, P, R, S substantially as and for the purposes hereinbefore set forth.

No. 33,405. Device for Supporting Shade Roller Brackets. (*Appareil pour supporter les gâches des bâtons de rideaux.*)

Charles H. Gatchell, Fredericton, N. B., 15th January, 1890; 5 years.

Claim.—The combination, in a device to support shade roller brackets, of two thin strips of wood sliding one upon the other and held together by thin metallic clasps, substantially as and for the purpose hereinbefore described and set forth.

No. 33,406. Apparatus for Washing and Separating Gold and some other Minerals and Substances. (*Appareil pour laver et séparer l'or et autres minéraux et substances.*)

Robert E. Evenden, Wellington, New Zealand, 15th January, 1890; 5 years.

Claim.—1st. The separation of gold and some other minerals and materials by a pan *b* having curved or inclined sides, and a gyratory motion produced by cranks *c* or mechanical equivalents of the same, substantially as described herein and illustrated in the accompanying drawings. 2nd. The combination of the pan *b* with the circulating pipe *e*, substantially as described herein and illustrated in the accompanying drawings. 3rd. The combination of the pan *b*, having a gyratory motion with the hopper *h* and valve or lid *h'*, substantially as described herein and illustrated in the accompanying drawings. 4th. The combination of a pan *b* having a gyratory motion with the hopper *h* having a valve or lid *h'* with the bucket *g* oscillating on the bar or pin *g'*, substantially as described herein and illustrated in the accompanying drawings. 5th. The combination of the gyrating pan *b* with the bucket *g* and its cross bar *g'*, working in slots in the side frames *i*, with the connecting rod *D'*, lever *D''* and valve *D'*, with its pipe and seat *D*, substantially as described herein and illustrated in the accompanying drawings. 6th. In a machine for washing and separating gold and some other metals and substances, the self-acting hopper feed motion, substantially as described herein and illustrated in the accompanying drawings. 7th. The machine for washing and separating gold and some other metals and materials, substantially as described herein and illustrated in the accompanying drawings.

No. 33,407. Dynamo Electric Machine. (*Machine dynamo électrique.*)

Charles S. Bradley, New York, N. Y., U. S., 15th January 1890; 5 years.

Claim.—1st. An alternating current dynamo-electric machine having generative conductor, in combination with two pairs of current-leading devices, said pairs being respectively connected to the generative conductors so as to collect two independent alternating currents, one of which has its time phase, substantially one-fourth of a wave length or period behind the other. 2nd. An alternating current dynamo-electric machine constructed with its generating circuit closed in combination with two pairs of current leading devices, the pairs being respectively connected to said generating circuit so as to collect two currents independent of each other, and substantially one-fourth of a phase apart in their relative time periods. 3rd. An alternating current dynamo-electric machine constructed with its generating conductor constituting a closed circuit, and having two pairs of independent current leading devices, one pair connected into said closed generating circuit at mutually opposite points, and the other pair connected into said generating circuit at intermediate points also mutually opposite each other. 4th. A dynamo-electric machine having an armature provided with a current-rectifying commutator and brushes therefor, and two pairs of current leading devices, the pairs being respectively connected to the armature winding at alternating points of the same so as to lead off two alternating currents independent of each other, and substantially one-fourth of a phase apart in their respective time periods. 5th. An electro-motive device consisting of a field-magnet and a rotating armature provided with a rectifying-commutator and brushes therefor, through which current is received into the armature and rotation produced, in combination with two pairs of current leading devices respectively connected to the armature winding at alternating points and so arranged relatively as to lead off two independent alternating currents, substantially one-fourth of a phase apart in their relative time periods, whereby a continuous current may be transformed into two independent alternating currents. 6th. An electro-motive device consisting of a field magnet and a rotating armature provided with a rectifying-commutator and brushes therefor, in combination with two pairs of current leading devices, each pair independently connected to said commutator at respectively alternating points, and the two pairs adapted to receive and deliver to said armature two independent alternating currents of different phase from corresponding external circuits. 7th. An electro-motive device consisting of a field-magnet and a rotating armature, providing with a rectifying commutator and brushes therefor, in circuit with the field magnet coils, in combination with two pairs of current leading devices, such for instance as contact rings and brushes, each pair independently connected to the armature winding at alternating points of the same, substantially as described, whereby the two pairs of current leading devices are adapted either to receive and deliver to said armature two independent alternating currents of differing phase from corresponding external circuits, or to receive from one external circuit a single alternating current change its time period and deliver the same into another external circuit. 8th. A self-exciting alternate current dynamo-electric generator having a rectifying alternate current brushes connected to its field-magnet circuit, and having two pairs of collecting rings and brushes adapted to deliver two independent alternating currents externally, the generating circuit being common

to both the commutator and collecting rings. 9th. A rotary electric motor consisting of a field magnet and armature, and two pairs of current leading devices, such for instance as contact rings and brushes, the respective pairs being independently connected into the armature winding at alternating points of the same and arranged for connection with two independent external circuits.

No. 33,408. Elevator Lock.

(*Enrayage de monte-charge.*)

George R. Holden, St. Thomas, Ont., 15th January, 1890; 5 years.

Claim.—1st. The combination, in an elevator lock, of the sliding or rotary segment bar *B* and three sliding jaws *G*, *G*, *G*, substantially as and for the purpose hereinbefore set forth.

No. 33,409. Weighing and Price Scales.

(*Balance de pesage et de calcul.*)

Orville W. Van Denburgh, Schuylersville, N. Y., U. S., 16th January, 1890; 5 years.

Claim.—1st. The combination of a suitable standard, a rigid frame *B'* supported upon said frame *B'*, a balance-frame *D* pivotally supported upon the said frame *D*, a beam *K* secured to the balance-frame, a revolvable indicating cylinder *M* journaled upon this beam *K*, a graduated beam *N* secured to the frame *D* and extending out parallel with, and to one side of the said indicating-cylinder, and a sliding weight upon this beam *N*, the said cylinder *M* being graduated and marked off, substantially as shown and for the purpose described. 2nd. The combination of a suitable standard, a stationary frame, a balance-frame, supported upon the stationary frame, a platform *G* supported upon the balance-frame, a tubular beam *K* adjustably secured to the said balance frame, a revolvable indicating-cylinder upon this beam, this cylinder being suitably provided with figures and spaces, a stationary graduated beam *N* secured to the said balance-frame and extending out parallel with, and in front of the cylinder, the forward end of this graduated beam being connected to the forward end of the beam *K* by an arm, a sliding graduated rod *R* inserted in the outer end of the said hollow beam *K*, and provided with a weight *S* and a sliding weight *P* upon the said graduated beam *N*, substantially as and for the purpose described.

No. 33,410. Carpet Display Rack.

(*Montre à tapis.*)

Newton H. Traver, Detroit, Mich., U. S., 16th January, 1890; 5 years.

Claim.—1st. In a display rack for carpets and similar goods, the combination, with standards and brackets held to slide upon said standards, of a reel shaft journaled in the brackets, and a spring-controlled drum connected with said shaft, substantially as described. 2nd. In a display rack for carpets and similar goods, the combination, with standards and brackets held to slide upon said standards, of a reel shaft journaled in the brackets, disks adjustably attached to the shaft and a spring controlled drum connected with the shaft, substantially as and for the purpose specified. 3rd. In a display rack for carpets and similar goods, the combination, with standards and brackets detachable from, and adjustable upon the standards, of a shaft journaled in said brackets, disks adjustably attached to the shaft and provided with pins upon their opposed faces, a spring-controlled drum connected with the shaft, and means, substantially as described, for laterally shifting the shaft, as and for the purpose specified. 4th. In a display rack for carpets and similar goods, the combination, with standards having notched flanges, brackets capable of sliding upon the standards, and pawls pivoted upon the brackets adapted to enter the notches of the standards, of a shaft journaled in said brackets, toothed disks adjustably attached to the shaft, a spring-controlled drum connected with the said shaft and a guide shaft also journaled in the brackets below and in front of the disk or reel shaft, substantially as shown and described. 5th. In a display rack for carpets and similar goods, the combination, with standards, brackets capable of sliding upon the same, one bracket being provided upon its inner face with a segmental rack projection and a reel-carrying shaft journaled in said brackets, of a drum connected with the shaft and provided with a controlling interior coil spring, a pawl pivoted upon one side of the drum having horns at its head and a spring adapted to bear alternately upon the horns, whereby the movement of the pawl over the segmental rack is controlled as the drum is revolved substantially as specified. 6th. The combination, with a drive shaft and its bearings, one of said bearings being provided with a segmental toothed projection, of a drum connected with the shaft and provided with an interior controlling coil spring, a pawl pivoted upon one side of the drum and adapted to contact with the said toothed projection horns radiating from opposite sides of the pawl head, and a strap spring attached to the drum capable of alternately contacting with the opposed horns of the pawl, substantially as specified. 7th. In a device for exhibiting carpets and similar goods, the combination, with standards having notched flanges, of brackets held to slide upon said standards comprising a body capable of contact with the side of the standards, an arm projected from the bottom of the body, essentially L-shaped lugs integral with the top and bottom of one side edge of said body, and capable of clamping one side flange of said standards, a detachable key sliding in the body having a projecting finger capable of clamping the other flange of the standards and a locking pawl pivoted upon the body, substantially as shown and described. 8th. In a device for exhibiting carpets and similar goods, the combination, with standards having notched flanges, of a bracket held to slide upon the standards comprising a body provided with a recess in its upper edge, and capable of contact with one side edge of the standards, an arm projected from the bottom forward edge of said body, essentially L-shaped lugs integral with the top and bottom of the body at its rear edge, a locking lever crossing the body recess, a key detachably secured to the body and provided with a clamping

arm, and a crank arm extending upward in front of the body recess, and a gravity pawl capable of entering the notches of the standard, substantially as shown and described. 9th. In a device for exhibiting carpets and similar goods, the combination, with standards, of sleeves adapted to receive the extremities of the standards, whereby the latter may be adjusted to different heights of ceiling, substantially as shown and described. 10th. In a device for exhibiting carpets and similar goods, the combination, with the reel or roll-carrying shaft, of an essentially conical thimble adapted to cover one end of the shaft, as and for the purpose specified.

No. 33,411. Nicotine Collector.

(*Réservoir à nicotine.*)

Emil A. Wuterich, London, Eng., 16th January, 1890; 5 years.

Claim.—1st. A tube for collecting nicotine made of a porous material and closed at its inner end, the porosity of the material being such as to permit the passage therethrough of smoke and air and the retention of the nicotine. 2nd. In combination with a pipe, cigar-holder, or like device, the removable collecting tube A of smaller diameter than the bore of the pipe and composed of a permeable absorbent material, said tube being closed at its inner end, holder, or like device, as shown. 3rd. In combination with a pipe, cigar-holder, or like device, tube A, closed at its inner end and provided with a boss or enlargement *a*. 4th. In combination with a pipe, cigar-holder, or like device, the removable porous collecting-tube A, of smaller diameter than the bore of the pipe, provided with a collar or enlargement *b* at its closed end. 5th. In combination with a pipe, cigar-holder, or like device, the removable collecting-tube A, of smaller diameter than the bore of the pipe-stem, composed of permeable material and provided with a handle or extension *c*. 6th. In combination with a pipe, cigar-holder, or like device, the tube A, closed at its inner end and provided with a collar *b* at its inner end, and with a collar *a* and a handle *c* at its outer end, the said tube being adapted to be inserted into the bore of the pipe-stem, as and for the purpose set forth.

No. 33,412. Twine Cutter. (*Coupe-ficelle.*)

Denis McDonough, Eau Claire, Wis., U. S., 16th January, 1890; 5 years.

Claim.—1st. The combination, with opposite blades pivoted at their rear ends, of opposite guards pivoted in rear of the ends of the blades and provided with grips and connected to the blades beyond their pivots, and a V-shaped spring interposed between the guards and having its terminals bearing thereagainst and adapted to maintain the blades in open relation, substantially as specified. 2nd. The combination, with a pair of shear-blades pivoted at their rear ends, of opposite sheet metal guards extended to form grips and bent to the outer ends of the blades, and having their rear ends secured to the other, and a V-shaped connecting the two in rear of the ends of the blades, and a V-shaped spring having a coil at its angle and terminating against the inner surface of the guards and adapted to retain the blades in open position, substantially as specified. 3rd. The combination, with the sheet metal guards 1 and 2, each extended forwardly to form hand grips, and provided with right angularly disposed parallel sides, and one of said guards provided with a rear plate or flap forming a stop, and a pivot inserted through the sides of the guards, of a pair of shear-blades pivoted at their rear ends and mounted in the housing formed by the guards, U-shaped slips projecting from each of the guards, embracing and riveted to one of the blades, and a V-shaped spring interposed between the guards and bearing between the inner surfaces of the same, and coiled around the pivot of the guards and serving to maintain the guards and improved cutter for twine, etc., substantially as specified. 4th. In an at their rear ends, the opposite blades pivoted together of the blades, and secured to the blades in advance of the pivot up to the front ends thereof, and covering their edges, and a V-shaped spring mounted and housed within the guards and bearing against the same so as to maintain the guards and the as set forth. 5th. The combination, with the two blades pivoted at their rear ends, of opposite guards secured to and covering the outer edges of the blades, substantially as specified. 6th. The combination, with the two blades pivoted at their rear ends, of the guards blades, and a spring interposed between the same to maintain them in an open position, substantially as specified.

No. 33,413. Elevated Conduit for Electric Wires (*Conduit suspendu pour les fils électriques.*)

Henry W. Ruttan, Winnipeg, Man., 16th January, 1890; 5 years.

Claim.—A structure for carrying electric wires comprising in combination a row of ground posts A, A, girder B supported by the as set forth, and one or more continuous conduits C secured to the girder,

No. 33,414. Electro-Heating Apparatus.

(*Appareil electro calorifique.*)

Charles E. Carpenter, Minneapolis, Minn., and Wm. S. Andrews, New York, N. Y., U. S., 16th January, 1890; 5 years.

Claim.—1st. In an electro-heating apparatus, the combination, with the body and the heating surface-plate thereof, of an electrical resistance lying between said body and plate, a layer of electrical insulating material between said resistance and the body, substantially as described. 2nd. In an electro-heating apparatus, the combination, with the body and the heating surface-plate thereof, of an

electrical resistance consisting of a reflexed refractory wire lying between said plate and body, a layer of electrical insulating material between said resistance and plate, and a layer of electrical insulating but non-heat-conducting material between said resistance and the body, substantially as described. 3rd. In an electro-heating apparatus, the combination, with the body recessed on the outer face thereof, and the heating surface-plate covering said recess, of a packing of incombustible non-heat-conducting material filling said ring, a layer of electrical insulating but non-heat-conducting material interposed between said resistance and the body, and a layer of electrical insulating material interposed between said resistance and the heating-plate, substantially as described. 4th. In an electro-heating apparatus, the combination, with the body and the removable heating surface-plate, of a detachable layer of electrical insulating and non-heat-conducting material between said body and plate, an electrical resistance consisting of a refractory reflexed wire attached to, and removable with said layer, and a layer of electrical insulating material between said resistance and the removable heating surface-plate, substantially as described. 5th. In an electro-heating apparatus, the combination, with the body and the sectional heating surface-plate thereof, of a series of independent electrical resistances underlying the sections of said plate, a layer of electrical insulating material between said resistance and the plate, and a layer of electrical insulating non-heat-conducting material between said resistance and the body, substantially as described. 6th. In an electro-heating apparatus, the combination, with the body and the sectional heating surface-plate thereof, of one or more electrical resistances underlying each section of said plate, a layer of electrical insulating material between said resistances and the plate, and a layer of electrical insulating non-heat-conducting material between said resistances and the body, substantially as described. 7th. In an electro-heating apparatus, the combination, with the body and the heating surface-plate thereof, of an electrical resistance lying between said body and the plate, a layer of electrical insulating material between said resistance and the plate, a layer of electrical insulating and non-heat-conducting material between said layer and the body, a compressor plate bearing against said plate toward the surface-plate, substantially as described. 8th. In an electro-heating apparatus, the herein described method of utilizing the heating effects produced by passing a current of electricity through a conductor of high resistance and small capacity, the same consisting in confining the resistance between the surface-plate to be heated, and an electrical insulating non-heat-conducting material (12), substantially as and for the purpose described.

No. 33,415. Electro-Heating Apparatus.

(*Appareil electro-calorifique.*)

Charles E. Carpenter, Minneapolis, Minn., and Wm. S. Andrews, New York, N. Y., U. S., 16th January, 1890; 5 years.

Claim.—1st. In an electro-heating apparatus, the combination, with an internal layer or card of incombustible electrical insulating material and resistances lying on one or both faces thereof, of a layer of electrical insulating material covering each of said resistances and exterior heated surface-plates, substantially as and for the purpose described. 2nd. In an electro-heating apparatus, the combination, with the internal layer or card of incombustible electrical insulating material and resistances lying against each face thereof, of a layer of electrical insulating material covering each of said resistances, exterior heated surface plates between which said elements are confined, and screws or other equivalents for binding all the elements together and maintaining them under pressure, substantially as described. 3rd. In an electro-heating apparatus, the combination, with an internal layer of incombustible electrical insulating material and resistances consisting of a reflexed wire secured to each face thereof, of a layer of electrical insulating material covering each of said resistances, and screws passing through plates covering each of said insulators, and the intermediate elements detachably securing all of said elements together under pressure, substantially as described.

No. 33,416. Paper Bag Machine.

(*Machine à sacs de papier.*)

John P. Ounderdonk, (assignee of Charles B. Stilwell), Philadelphia, Penn., U. S., 16th January, 1890; 5 years.

Claim.—1st. In a bag machine, the device for distending a bellows-folded blank in the plane of the bag bottom to be formed on it, which consists of feed rolls for feeding the advancing end of the combination with a device for opening the distending fingers V, V, or blanks as they pass through the rolls, for engaging the corners of the equivalent mechanism, as specified, for engaging the corners of the upper side of the blank, and gripping the corresponding corners of mechanism, as specified, for engaging the corners and grippers, or their lower side of the blank, said fingers and grippers, or their equivalent, being arranged and actuated to co-operate in distending the bellows-sided tube as it advances through the feed rolls, substantially as shown and described. 2nd. In a bag machine, the device for distending a bellows-sided blank in the plane of the bag bottom and distending the folds lying above said bottom, which consists of feed rolls for feeding the blanks forward, in combination with a device for opening the advancing ends of the blanks, a device for distending the advancing blanks consisting of the fingers V, V, and grippers K³, K³, or their equivalents, as specified, and a tucker having actuating mechanism, whereby it is caused to strike and bend the upper side of the advancing blank on or about the line *z*² and to follow the motion of the blank while it is distending, and until the fold at *z*² is fully defined, substantially as shown and described. 3rd. In a bag machine, the combination, with feed rolls for feeding the blanks, a distending device consisting of fingers V, V and grippers K³, K³, or equivalent devices, as specified, for distending a bellows-folded tube, as it advances through the feed rolls and a tucker for defining the

folds lying above the distended part of the tube, of a narrow support placed so as to lie under the centre of the upper side of the blank as it advances from the feed rolls during the distention of its end, said support serving to draw out the upper end of the diamond as the upper side of the blank is withdrawn from it after distention, substantially as shown and described. 4th. In a bag machine, the combination, with feed rolls for feeding the blanks forward, a distending device consisting of fingers V, V and grippers K³, K³, or equivalent devices, as specified, for distending a bellows-folded tube as it advances through the feed rolls, and a tucker for defining the folds lying above the distended part of the tube, of a narrow support placed so as to lie under the centre of the upper side of the blank as it advances from the feed rolls during the distention of its end, said support serving to draw out the upper end of the diamond as the upper side of the blank is withdrawn from it after distention, and a narrow guide situated between the feed rolls aforesaid, and the rolls which deliver the diamond folded blank to the mechanism for completing the bag, said guide being arranged to lie within the lower side of the blank and serve to pull out the front point of the diamond, substantially as shown and described. 5th. In a bag machine, the combination, with feed rolls for feeding the blanks forward, a distending device consisting of fingers V, V grippers K³, K³, or equivalent devices, as specified, for distending a bellows-folded tube as it advances through the feed rolls, and a tucker for defining the folds lying above the distended part of the tube, of a narrow support placed so as to lie under the centre of the upper side of the blank as it advances from the feed rolls during the distention of its end, said support serving to draw out the upper end of the diamond at the upper side of the blank is withdrawn from it after distention, a narrow guide situated between the feed rolls aforesaid, and the rolls which deliver the diamond folded blank to the mechanism for completing the bag, said guide being arranged to lie within lower side of the blank and serve to pull out the front point of the diamond, and folder plates arranged to close down on the diamond and hold it to form, after it is drawn as aforesaid, while the diamond folded end of the blank is passing to the mechanism which completes the bag, substantially as shown and described. 6th. In a bag machine, the combination, with feed rolls for feeding the bag blanks forward, and a device for opening the advancing end of the blank as it leaves the rolls of distending fingers having actuating mechanism, whereby they are made to extend forward to receive the upper side of the partially opened blank to move apart so as to engage the corners of said upper side at a selected point, and to move together to permit the retraction of side above them, and grippers K³, K³, or equivalent mechanism, as described, to engage the edges of the lower side of the blank and co-act with the distending fingers, to open the tube in the plane of the bag bottom, substantially as shown and described. 7th. In a bag machine, the combination, with feed rolls for feeding the bag blanks forward, and a device for opening the advancing end of the blank as it leaves the rolls, of distending fingers having actuating mechanism whereby they are made to extend forward to receive the upper side of the partially opened blank to move apart, so as to engage the corners of said upper side at a selected point and to move together to permit the retraction of side above them, grippers K³, K³, or equivalent mechanism, as described, to engage the edges of the lower side of the blank and co-act with the distending fingers to open the tube in the plane of the bag bottom, and a reciprocating tucker having operative mechanism, whereby it is caused to strike and bend the advancing blank between the feed rolls and the distending fingers, and at the line where the fold z^2 is to be formed in the bag to remain in contact with the blank and move down with it until the fold z^2 is fully defined, and then move up to permit the advance of another blank, substantially as shown and described. 8th. In a bag machine, the combination, with feed rolls for feeding the bag blanks forward, and a device for opening the advancing end of the blank as it leaves the rolls of distending fingers having actuating mechanism, whereby they are made to extend forward to receive the upper side of the partially opened blank to move apart, so as to engage the corners of said upper side at a selected point, and to move together to permit the retraction of side above them, grippers K³, K³, or equivalent mechanism, as described, to engage the edges of the lower side of the blank and co-act with the distending fingers, to open the tube in the plane of the bag bottom, a narrow support placed so as to lie centrally under the upper side of the blank as it advances from the feed rolls and is distended, a narrow guide placed so as to lie centrally within the under side of the blank as it passes to the presser rolls which complete the diamond, said support and guide co-acting to spread out the distended end of the blank to a diamond form, and a reciprocating tucker having operative mechanism, whereby it is caused to strike and bend the advancing blank between the feed rolls and the distending fingers, and at the line where the fold z^2 is to be formed in the bag to remain in contact with the blank and move down with it until the fold z^2 is fully defined, and then move up to permit the advance of another blank, and side folders actuated so as to close down and compress the diamond after it is formed as aforesaid

and while the diamond folded end is passing to the presser rolls which finally crease it to form and then open out to permit the distention and spreading out of another blank, substantially as shown and described. 10th. In a bag machine, the device for distending the blank in the plane of the bag bottom consisting of the feed roll K¹, having a co-acting roll, in combination with a device for opening the mouth of the advancing bag blank as it passes through said rolls, grippers K³, K³, pivoted on roll K¹, and having actuating mechanism, whereby they move inward to engage the corners of the lower side of the blank at selected points, to engage the contact with the blank for a definite part of the rotation of the roll, and then move outward and release the blank, and reciprocating distending fingers V, V, having actuating mechanism, whereby they pass over them to spread out so as to engage the corners of the blank upper side at points corresponding to those on the side engaged by the grippers and to close together again to permit the retraction of said upper side, said distending fingers and grippers being arranged to co-act in distending the blank, substantially as shown and described. 11th. In a bag machine, the device for opening the end of a bellows-folded tube into the diamond form consisting of the feed roll K¹, having a co-acting roll, in combination with a device for opening the mouth of the advancing bag blank as it passes through said rolls, grippers K³, K³, pivoted on roll K¹, and having actuating mechanism, whereby they move inward to engage the corners of the lower side of the blank at selected points, to engage the contact with the blank for a definite part of the rotation of the roll, and then move outward and release the blank, reciprocating distending fingers V, V, having actuating mechanism, whereby they are made to extend forward to permit the upper side of the blank to pass over them to spread out so as to engage the corners of the blank upper side at points corresponding to those on the lower side engaged by the grippers, and to close together again to permit the retraction of said upper side, said distending fingers and grippers being arranged to co-act in distending the blank, a narrow guide placed so as to lie centrally within the lower side of the bag blank as it is drawn from the distending fingers, and a tucker S having actuating mechanism, whereby it is made to strike the blank as it passes from between the feed rolls on the line where the fold z^2 is to be formed to move down between the fingers V, V, and the roll K¹, until the fold z^2 is fully defined and the upper side of the distended blank withdrawn for the said distending fingers and then retracted, all substantially as shown and described. 12th. In a bag machine, the combination, with feed rolls for feeding bellows-folded blanks forward, of a curved former plate E², whereby the advancing end of the blank is opened as it leaves the rolls, mechanism for distending the blanks on the plane of the bag bottom to be formed and for defining the folds lying above said bottom, consisting of the fingers V, V and grippers F³, F³, or their equivalent, as described, and a tucker S, all substantially as and for the purpose specified. 13th. In a bag machine, the combination, with the feed rolls for feeding the blanks forward, a device for distending bellows-folded blanks consisting of the fingers V, V and grippers F³, F³, or equivalent mechanism, as specified, and a tucker S arranged to co-act with said distending device, as described, of the narrow drawing rollers L, L', and a narrow guide placed to lie within the lower side of the blank, and co-act with the roll L' in drawing the distended end of the blank to the diamond form. 14th. In a bag machine, the combination, with the feed rolls for feeding the blanks forward, a device for distending bellows-folded blanks consisting of the fingers V, V and grippers F³, F³, or equivalent mechanism, as specified, and a tucker S arranged to co-act with said distending device, as described, of the narrow drawing rollers L, L' and the drawing rolls M, M', said roll M' being narrow and arranged to rest centrally within the lower blank side so as to co-act with roller L in drawing out the distended end of the blank to the diamond form. 15th. In a bag machine, the combination, with the feed rolls for feeding the blanks forward, a device for distending bellows-folded blanks consisting of the fingers V, V and grippers F³, F³, or equivalent mechanism, as specified, and a tucker S arranged to co-act with said distending device, as described, of a narrow support placed so as to lie centrally under the upper side of the blank as it advances and is distended, and the drawing rolls M, M', said roll M' being narrow and placed so as to lie centrally within the under side of the blank so as to co-act with the narrow support aforesaid in drawing out the distended end of the blank into the diamond form. 16th. In a bag machine, substantially as specified, the combination, with the supporting roll L', which the reciprocating distending fingers V, V, so that the ends of the said fingers in their forward position lie beneath the rim of said roll. 17th. In a bag machine, substantially as described, the combination of the loosely journaled roll L', having a spring-supported sustaining arm L' and adjustable stop L', with the drawing roll L' having a portion of its surface cut away so as to loosen the grip of said rolls on the blank and permit its withdrawal from between said rolls. 18th. In a bag machine, substantially as specified, the combination of the feed rolls K K' the curved former E² the rolls L, L' to engage the upper side of the blank and the guide plate E³ for directing said upper side between said rolls. 19th. In a bag machine, substantially as specified, the combination, with a rocker shaft V', of distending fingers V, V, journaled in said rocker shaft and actuating cams, whereby the shaft is oscillated and the fixers rotated back and forward in their bearings so as to give their points a double reciprocating motion. 20th. In a bag machine, substantially as specified, the combination of the feed roll K', the fingers K³, K³, secured at the outer edges of said roll, and the cams K², K², whereby said fingers are made to move inward and engage the blank at a certain point to remain in their inward position for a determined period in the rotation of roll K', and then allowed to move out to release the blank. 21st. In a bag machine, substantially as specified, the combination of the tucker S with a reciprocating lever connected with said tucker, cam mechanism for actuating said lever to regulate the up and down stroke of the tucker, guides T within which said tucker reciprocates, a rock shaft T' attached to said guides, and cam mechanism for actuating said rock shaft so as to guide the edge of the tucker during its downward and upward motion. 22nd. In a bag machine, substantially as specified, the combination, with the feed roll K', of the

guide bar and back of the reservoir-bar on the way to the needles, so that, as the needles form their loops, the reservoir-bar yields under the tension of the springs and prevents undue straining of the threads, substantially as described. 18th. Means for producing a constant sufficiently equal and regulatable drag or tension upon the selvage or warp threads, consisting of the combination, with a bobbin or reel upon which the said thread is wound, of a hood or shield resting directly against the surface of the thread on said bobbin or reel, and a weight or weights suspended therefrom, whereby regulatable pressure due to the weight is exerted on the thread, substantially as described. 19th. The combination, with a warp weaving machine, of separate upright cops, cones or bobbins for the threads, said cops, cones or bobbins arranged in series, each succeeding series being at a higher elevation than the preceding, and the corresponding cop, cone or bobbin in succeeding series being a little to one side of the one next in front of it and in connection therewith, corresponding top guides for the threads, one vertically over each cop, cone or bobbin, each successive series of top guides being sufficiently lower than the preceding to prevent entanglement of the threads as they are led forward to the machine, substantially as described. 20th. Means for supplying tension to the threads between the creels or bobbins and the machine, the same consisting of a series of stationary rods over which the threads pass, in combination with a series of rods connected with a removable, and means for meshing the latter with the stationary rods, so that the movable rods may enter and press the threads to any desired extent between the stationary, thereby imparting the requisite tension, substantially as described. 21st. Means for providing the requisite selvages, where several widths of cloth are being woven simultaneously from a warp beam and for taking care of the extra threads, the same consisting of the combination, with the machine and its warp beam, of separate bobbins from which the selvage threads are drawn, a driven shaft with drums arranged convenient to the beam, a drum for each thread to be disposed of, and a reel resting by its own weight upon each drum, the construction being such that the friction of the drum against the thread on the reel serves to wind the thread upon the reel as fast as it comes from the beam, substantially as described. 22nd. Means for threading the threads of a fresh beam through the thread guide troughs, the same consisting of the combination, with the ends of the threads, of a retaining clip or clamp, and a light bar provided with a series of hooks, one for each thread gaged to the same gage as the thread guide troughs, and engaged with the threads a short distance back of the said clip, the construction being such that, when the clip and the light bar with the hooks are brought adjacent to the thread guide troughs, the hooks with their threads may enter and be drawn through the troughs thereby threading them all simultaneously, substantially as described. 23rd. As a means for facilitating the simultaneous threading of the thread guide troughs and dispensing with the necessity of threading hooks, the same consisting of the combination, with the ends of the threads on the beam, of a holding bar or clip consisting of a U-shaped trough and wedge-shaped filling bar, the threads previous to being clamped by the bar gaged by a comb or otherwise to correspond accurately with that of the thread guide troughs, whereby, when the holding-bar is brought down closely to the thread guide troughs and moved forward, the threads will enter naturally into the troughs, substantially as described. 24th. Means for accurately gaging the threads before clamping them in the holding-bar or clip, the same consisting of the combination, with said holding-bar or clip, of a bar with V-shaped notches, the bottoms of said notches being accurately gaged to correspond with the thread guide troughs, said bar adapted to be brought across the warp threads and the threads forced into the bottoms of the notches, substantially as and for the purposes described.

No. 33,420. Electric Signalling Device.

(Appareil électrique à signaux.)

James C. O'Neil, Cleveland, Ohio, U.S., 17th January, 1890; 5 years.

Claim.—1st. In a railroad signal, the combination, with circuit closers located in proximity to and on opposite sides of a crossing, a metallic circuit, including both of said circuit closers, and a battery of an electro-magnet in circuit with either of said circuit closers, an armature, a mechanically driven circuit closer controlled by said magnet, a mechanically driven circuit breaker, an electro-magnet for controlling the same, a circuit, including the mechanically driven circuit closer and breaker, the battery and an alarm, a track circuit closer at the crossing, and a circuit, including the latter named circuit closer, the battery and electro-magnet of the mechanically driven circuit breaker, substantially as set forth. 2nd. In a railroad signal, the combination, with electric circuits adapted to be made and broken by a passing train electro-magnets, an armature lever carrying armature of mechanically driven motors, a revolvable circuit closer, comprising two disks carried by a shaft of one of said motors, one of said disks being provided with a notch for the reception of one end of an armature lever, and the other disk having a notch for the accommodation of a contact spring, a revolvable circuit breaker carried by a shaft of the other motor, and comprising two disks, one of said disks having a notch for the reception of the end of an armature lever, and a projection on the other disk to engage a contact spring and a circuit, including both the revolvable circuit closer and breaker, the battery and a signal, substantially as set forth.

No. 33,421. Piano. (Piano.)

Ludwig Barthelmes, Toronto, Ont., 17th January, 1890; 5 years.

Claim.—1st. A sounding board, free from the iron plate, and the casing of the piano combined with the bridges, iron frame hitch and turning posts and strings, substantially as and for the purpose set forth. 2nd. A sounding board, free from the iron plate or frame and having a clearance from the casing of the piano around the top and for a short distance down each side, substantially as and for the purpose set forth. 3rd. The bridge D for a piano, partly concaved on top, having a flat margin along each edge, upon which a continuous rest wire is laid, substantially as and for the purpose set forth. 4th.

The bridge D for a piano, partly concaved on top, having a flat margin or margins, upon which a continuous rest wire or wires is laid, combined with a sounding board B, strengthened by only two ribs and two counter bridges, and free from the iron frame A, and having a clearance from the casing of the piano around the top, and for a short distance down each side, substantially as and for the purpose set forth. 5th. The bridge D for a piano, substantially as and for the purpose having a rest wire laid upon a flat margin, along each edge of said bridge, combined with an agraffe or press bar, the strings *d*, iron as and for the purpose set forth. 6th. In a piano, the position of the bridge D, moved close to the curved flange of the iron frame, and the hitch pins moved back a corresponding distance, as specified and for the purpose set forth. 7th. A back for a piano, composed of two end posts H, and two or more intermediate trussed posts H' bound together in the usual manner, substantially as and for the purpose set forth. 8th. The combination of the trussed posts H', stud pins *h*, apertures *e*, sounding board B, iron frame A, bridges D, strings *d*, and hitch and turning posts, substantially as and for the purpose set forth.

No. 33,422. Knockdown Box.

(Boîte en boîte.)

Casbar G. Krikorian, Smyrna, Turkey, 17th January, 1890; 5 years.

Claim.—1st. In a knockdown box, the combination, with the bottom of side pieces hinged to the upper face of the same, provided with vertically mortised grooves upon the inner face, near the extremities, end pieces also hinged to the upper face of the bottom, having bevelled ends adapted to enter the said mortised grooves, a lid hinged to one side piece, and means, substantially as shown and described, for locking the lid in engagement with the sides and ends, as and for the purpose specified. 2nd. In a knockdown box, the combination, with the bottom of side pieces hinged to the upper face of the same, having vertical mortised grooves upon the inner face of the extremities, end pieces hinged to the upper face of the bottom, provided with bevelled ends adapted to enter said mortised grooves, a lid hinged to the side piece, a catch pivoted to the outer face of the opposite side piece, a keeper adapted to receive said catch attached to the edge of the lid, substantially as shown and described, whereby the sides, ends and lid of the box may be made to assume a horizontal position, essentially in the same plane with the bottom, or the sides and ends be carried upward to a vertical position at right angles to the bottom, and a lid secured upon said sides and ends, as and for the purpose specified.

No. 33,423. Seal. (Cachet.)

Lewis A. Brown, St. Louis, Mo., U.S., 17th January, 1890; 5 years.

Claim.—A seal, consisting of a plate and a label, the plate being cast onto the label, substantially as described.

No. 33,424. Station and Street Indicator.

(Indicateur de station et de rue.)

Frederick H. Choyne, Brampton, Ont., 17th January, 1890; 5 years.

Claim.—1st. A roll of paper, passing around a series of spindles and rollers, the end rollers on which the paper is wound or unwound being connected together by an endless cord, the said rollers being so constructed that either of them may act as winding rollers, in combination with a shaft connected by an endless cord to one of the end rollers, the said shaft being driven from a vertical rod deriving motion from the axle of the car, substantially as and for the purpose specified. 2nd. A roll of paper X, passing around the roller D, the spindles *d*, *e*, *f* and roller E, the rollers D and E having grooved pulleys M and J, which are connected together by the cord L, in combination with the shaft F, having at one end a grooved pulley I, which is connected by the cord K to the double grooved pulley J, and at the other end the bevel pinion G, which meshes with a corresponding pinion H on the vertical rod A, substantially as and for the purpose specified. 3rd. The roller B, having a gear wheel N secured on one end, in combination with the standard Q which drops in the hole b, when the roll of paper X brings one of the holes *e* underneath the standard, which in dropping, tilts the lever S and throws up the short end of the lever against the notch *e* of the dog P, which is thus raised out of the notch *a*, thereby allowing the rod O to drop into the gear wheel N, substantially as and for the purpose specified. 4th. The rod O, sliding in suitable guides and having a spring Z, notch *a* and pin *c*, in combination with the slotted arm T held in position, *b*², spring 2 and connected by the cord *i* to the lever *h*, which is acted upon by the cam *g*, so as to cause the arm T to raise the pin *e* and bring the dog P opposite the notch *a*, into which it falls, substantially as and for the purpose specified. 5th. The bar U, one end of which slides on the pin *k*, while the other end, *m*, slides in the guides *z*, in combination with a lever *h*, cord *i*, slotted arm T, pin *c* and rod *o*, substantially as and for the purpose specified. 6th. The bar U, provided with a sleeve I, into which is fitted a pin *m*, past which the groove P of the wheel B revolves, until the hole *a* comes opposite to the pin *m*, in combination with the spring *r* designed to bring the pin *m* into the hole *a*, substantially as and for the purpose specified. 7th. The bar U, one end of which slides on the pin *k*, while the other end *a* slides on the guides *z*, in combination with the eccentric Q, designed to push against the bar U, thus drawing the pin M out of the hole *a*, and at the same time bringing the end of the lever *h* out of the circuit of the cam *g*, substantially as and for the purpose specified. 8th. The roller D, having a hollow spindle *f*, which is connected to the spindle *e*, with which it revolves by the pin *u*, in combination with the dog *u*, which engages with the ratchet wheel V, having an internal ratchet W, which is engaged by the dog *x* on the end of the roller D, substantially as and for the purpose specified. 9th. The roller D, revolving on the spindle *e*, in combination with the ratchet wheel V, the face of which is held in frictional contact with the end of the roller D, by the spiral spring *v*, substantially as and for the purpose specified. 10th. The pulley M, having formed on it the pin *y*, in combination with the crank spindle, against which the said pin *y* strike, as the pulley M revolves, thus operating the bell hammer, substantially as and for the purpose specified.

No. 33,425. Protector for Pianofortes.*(Protecteur pour les pianos-fortes.)*

George W. Warren, Evansville, Ind., U. S., 18th January, 1890; 5 years.

Claim.—In a piano protector, the combination of frame A and lining C, having a slot B, with foot rest D and platform E, as described and for the purpose herein set forth.

No. 33,426. Valve and Valve Gear for Steam and other Engines. *(Soupape et renvoi de mouvement de tiroir pour les machines à vapeur et autres.)*

James T. Halsey, Patterson, N. J., U. S., 18th January, 1890; 5 years.

Claim.—1st. The combination of the valve chamber B and the valve C, substantially as and for the purposes set forth hereinabove. 2nd. The combination of the valve chamber B, the valve C and the cut-off valve *g*, substantially as and for the purposes hereinabove set forth. 3rd. The combination, with the valve chamber B and the valve C, of the differential pressure regulator, comprising the cylinder *d* and the piston *e*, substantially as and for the purposes set forth. 4th. The combination, with the eccentric *g*, of its strap H, the wrist pin *h*, the slide *l*, the guide *m*, the pin *n*, the rod *o*, the cut-off valve *g*, the rod *p*, and the main valve C, substantially as and for the purposes set forth. 5th. The combination, with the eccentric *g*, of the fly-wheel D, the slotted carrier plate G¹, the weight *a*, the arm *b*, the slide block *g*², the stud *g*² and the spring *d*, substantially as and for the purposes set forth.

No. 33,427. Art of Producing Figures on the Surface of Wood or other Material. *(Art de produire des figures sur la surface du bois ou autre surface.)*

Charles L. Goehring, Allegheny, Penn., U. S., 18th January, 1890; 5 years.

Claim.—1st. The hereinbefore described improvement in the art of producing ornamental or other figures, designs or mouldings in or upon the surface of wood or other material, which consists in developing and forming the desired pattern or design by causing the material to traverse in a predetermined line and simultaneously therewith reciprocating or moving a rotating cutter head in a line transverse to the direction in which the material is fed, and at the same time oscillating said cutter about an axis intersecting the principle cutter and the material, and partaking of the reciprocatory movement of the cutter-head across the face of the material, whereby as the pattern is developed, the cutter is held with its plane of rotation substantially parallel with the line of cut at the point of contact with the surface, substantially as and for the purpose set forth. 2nd. As an improvement in the art of forming ornamental figures, etc., on the face of wood or other materials, the method, substantially hereinbefore described, of developing the design upon the surface operated upon, which consists in moving the material and a rotating cutter head in parallel horizontal planes, but on intersecting vertical planes and at predetermined speeds, and simultaneously therewith oscillating the cutter head about a line or axis transverse to, but intersecting the axis of rotation at a fixed point, said oscillating movements corresponding in direction to the lateral motion of the cutter-head and in degree proportioned to the relative motions of the material and the cutter-head, substantially as described. 3rd. The hereinbefore described improvement in the art of forming ornamental and other designs in or upon the surface of wood or other material, which consists in feeding the material in a right line and at a predetermined rate of speed, supporting a rotating cutter-head above said moving material, with its axis of rotation transverse thereto, oscillating said cutter-head about an axis or center lying transverse to the axis of rotation, and intersecting the latter and the cutter-head in the plane of rotation of the principal cutter, and simultaneously therewith causing the axis of oscillation to move or reciprocate in a line transverse to the motion and parallel to the surface of the material operated upon, substantially as set forth. 4th. The improvement in the art of forming ornamental and other figures in or upon a surface of wood by the removal of a portion of the surface in predetermined lines, which consists in feeding the material at a predetermined rate of speed, and causing a rotary cutter-head carrying suitable shaped bits to traverse the surface of the material, with its axis of rotation substantially parallel with and moving in a direction transverse to the line of movement of the material, said motion of the cutter-head being produced and governed by the relative rate and direction of two motions given the supports of the cutter-head, the one perpendicular and the other transverse to the plane of movement of the material, and simultaneously oscillating the cutter-head about an axis or center lying transverse to the plane in which the material is fed, so as to present the edge of the cutter hereinbefore described improvement in the art of forming ornamental figures in or upon the surface of wood or other material by the removal of a portion thereof, which consists in, first, forming a series of lines or cuts extending longitudinally of the material by feeding suitably shaped cutters or bits mounted upon a rotating arbor, which latter is given an oscillating reciprocating motion in a plane transverse to the surface of the material, the axis of oscillation intersecting the material and arbor and subsequently forming a second series of cuts determined intervals, substantially as described. 6th. The hereinbefore described improved method of producing ornamental and other designs or figures in or upon a surface of wood or other material, by means of shaping cutters applied to a rotating head, which consists in, first, forming a series of lines or cuts extending longitudinally of the surface by reciprocating a cutter across the surface on a line transverse to the longitudinal motion of the material, and oscillating said cutter about an axis transverse to the arbor and surface

acted upon, and subsequently forming another series of lines or cuts longitudinally of the surface and on lines intersecting or coinciding at predetermined intervals with the cuts or lines first formed by the application of an oscillatory reciprocating cutter head transverse to the surface of the material in like manner, substantially as described. 7th. The hereinbefore described method of forming ornamental figures on the surface of wood or other materials, which consists in causing a rotating cutter-head, carrying shaping bits to traverse the surface on a line or lines resulting from and controlled by the relative motions given the material and cutter in transverse directions and simultaneously oscillating said cutter-head about an axis transverse to its axis of rotation and intersecting the material to produce one or more grooves or beads extending in curved or irregular lines longitudinally of the surface, and subsequently forming in a similar manner a second line of grooves or beads similar to the first and intersecting the latter at predetermined intervals, the two sets or series of lines being so adjusted that at corresponding points in their length they will intersect on a predetermined line or lines and at recurring intervals. 8th. The method of forming a series of consecutive figures in or upon the surface of wood or other materials, which consists in feeding the material at a predetermined speed, and while in motion forming by means of an oscillatory reciprocating cutter transversing the face of the material (the oscillation being about an axis perpendicular to the axis of rotation and the face of the material) a series of grooves or beads in irregular or curved lines extending longitudinally of the surface, and subsequently forming a complementary series of beads or grooves in proximity to the material causing the cutters to traverse the moving surface of the material in a path which approaches, intersects and departs from the first a series of beads or grooves at predetermined intervals, whereby a series of separate figures are formed longitudinally of the surface, substantially as set forth.

No. 33,428. Method of and Apparatus for Raising Girders, Trusses and the like Members of the Lofty Structures. *(Mode de soulever les poutres, les chevrons et autres pièces semblables dans les constructions élevées et appareil pour cet objet.)*

George Anderson, Malabar, India, 18th January, 1890; 5 years.

Claim.—1st. The combination of superstructure cantilever, transverser, lifting power, and chain upon each of a pair of piers and adapted for the purpose of raising and placing a girder, or pair of girders, upon said piers, as set forth. 2nd. The combination, with a bridge-pier or equivalent member of any span-structure, of one superstructure, two cantilevers and transversers and lifting tackle, as set forth. 3rd. The combination, with a lifting chain or a hoisting and hauling engine and its chains, and a girder end of tension and compression bars, as and for the purpose set forth. 4th. The combination of two superstructures, cantilevers, transversers, lifting powers and chains respectively situated at two points on the same level above the girder-seat, and adapted thereby to the work of raising the said girder and traversing it on to its seat, as set forth.

No. 33,429. Sleigh. *(Traîneau.)*

Samuel Wheeler, Morton's Corners, N. Y., U. S., 18th January, 1890; 5 years.

Claim.—In a sleigh or sled, bars 10, having end pieces 12, round bars 13, sleeves 15, pins 16, and holding pieces 17, all formed, arranged and combined as and for the purposes hereinbefore set forth.

No. 33,430. Pipe Coupling. *(Joint de tuyau.)*

Elkanah G. Williams, James E. Lewis and Adanirum J. Stoneburner, Pitt, Ohio, U. S., 18th January, 1890; 5 years.

Claim.—The combination of the conducting pipe, provided at its lower end with outwardly projecting radial pins, the discharge pipe provided with outwardly projecting radial pins at its upper end, the circular band provided in its ends with the reversely arranged bayonet slots adapted to engage the said pins, and the downwardly tapered screen having its upper larger end secured to the inside of the band at about the center of the same, as set forth.

No. 33,431. Permutation Lock.*(Serrure à combinaison.)*

Patrick D. L. Calder, (assignee of Eugene C. Smith), New York, U. S., 18th January, 1890; 5 years.

Claim.—1st. In a lock, a series of severally shiftable interchangeable tumblers, each having a shoulder or offset and a stop fixed in the lock to limit the motion of the aforesaid tumblers, as herein described. 2nd. In a combination lock, the combination, with a series of severally shiftable tumblers, each having a cam projection and an offset or shoulder and stops against which said shoulders and cam offset or shoulder can strike, substantially as set forth. 3rd. In a combination lock, the combination, with a series of severally shiftable tumblers of which each has a cam projection, an axially rotating locking bar adapted to engage said cams, as herein described. 4th. In a combination lock, the combination, with a series of severally shiftable tumblers, of which each has a cam projection, an axially rotating locking bar adapted to engage said cams, and a bolt retainer operated by said locking bar, substantially as set forth. 5th. In a combination lock, the combination, with a series of severally shiftable tumblers, each having a cam projection, a primary key recess and an auxiliary recess at each side of the primary recess, and an auxiliary rotating locking bar adapted to engage the cam projection of the tumblers, as herein described. 6th. In a combination lock, the combination, with a series of severally shiftable tumblers, of retaining and accelerating springs acting on the tumblers,

intermediate fixed plates between the several tumblers and an axially rotating locking bar adapted to engage said tumblers, as herein described. 7th. In a combination lock, the combination, with a series of severally shiftable tumblers, of an axially rotating locking bar adapted to be engaged by said tumblers, said locking bar having a cam at one end, and of a bolt retainer which is moved by said cam on the locking bar, as herein described. 8th. In a combination lock, the combination, with a series of severally shiftable tumblers, of an axially rotating locking bar having a longitudinal groove provided with a bevel, as herein described.

No. 33,432. Wood Polishing Machine.

(*Machine à polir le bois.*)

The Berlin Machine Works, (assignee of Oza B. Osborn and Edgar G. Richards), Beloit, Wis., U.S., 18th January, 1890; 15 years.

Claim—1st. The combination of a slotted abrading cylinder A, and a pair of clamping rolls, arranged immediately within the slot, and near the periphery of the cylinder, one of said rollers being adjustable to or from the other, substantially as and for the purpose set forth. 2nd. In combination with the slotted cylinder, rollers arranged in said slot, bearings or jaws pivoted to the cylinder, one of which is adjustable, and mechanism for adjusting the slot, substantially as set forth. 3rd. The combination of the slotted cylinders, rolls carried on jaws, one of which is adjustable, adjustable wedges acting on the moveable jaws attached to an adjustable rod, substantially as set forth. 4th. The combination of the slotted cylinder, rolls carried on jaws, one of which is adjustable, adjustable wedges acting on the moveable jaws and attached to an adjustable rod, substantially as set forth. 5th. The combination of the slotted cylinder, rolls carried on jaws, one of which is adjustable, adjustable wedges attached to an adjustable rod, and the arm or nut attached to said rod and made to travel upon a parallel threaded and rotary rod, substantially as set forth. 6th. In combination with the slotted abrading cylinder and clamping rollers with flattened faces, mechanism for adjusting one of the rollers transversely to its axis, and a stop which regulates the minimum approach of flattened surfaces, substantially as set forth. 7th. The gripping rollers formed with corresponding flattened convex surfaces along a part of their length only, so as to have cylindrical portions at the ends to prevent their approach to one another when their flattened surfaces are opposed, substantially as set forth.

No. 33,433. Method of Preparing Solution Compounds for Galvanic Batteries.

(*Mode de préparation des solutions pour les piles galvaniques*)

William P. Kookogey, Brooklyn, N.Y., U.S., 18th January, 1890; 5 years.

Claim—1st. The process of making a battery dry compound whose ingredients are sulphate of soda, bichromate of soda and sulphuric acid, consisting of the following steps, viz: first dissolving the sulphate and the bichromate in about one-half of the quantity of acid to be used, the same being heated, and then adding quickly the remainder of the acid, substantially as described. 2nd. The process of making a battery dry compound whose ingredients are sulphate of soda, bichromate of soda and sulphuric acid, consisting of the following steps, viz: first dissolving the bichromate in just enough hot water to hold it in super-saturated solution, and then mixing therewith the sulphuric acid and sulphate of soda to be used, substantially as described. 3rd. The process of making a battery dry compound whose ingredients are sulphate of soda, bichromate of soda and sulphuric acid, and consisting of the following steps, viz: first dissolving the bichromate in just enough hot water to hold it in super-saturated solution, second mixing with this bichromate solution about one-half of the quantity of acid to be used, and also dissolving the sulphate therein, and third adding quickly the remainder of the acid, substantially as described.

No. 33,434. Nut Wrench. (*Clé à écrou.*)

Peter Cossette, Crystal Falls, Mich., U.S., 18th January, 1890; 5 years.

Claim—1st. The combination, with the handle 1 having the opening 3 at its upper end of the socket 4 having the shank 6 projecting therefrom, and bearing in the handle, and provided at its opposite end with the removable socket 13 having a set screw for securing it to the shank, and provided intermediate its sockets with angular shoulders, and the opposite double toothed ratchets 8 mounted on the shoulders, one at each side of the handle, and the double pawls 20 and 21 mounted on pins 18 journaled in openings in the handle, and the springs 22 terminating in eyes 23a and connected with the pawls, and provided with set screws 25, substantially as specified. 2nd. The handle 1 having the perforated head 3, in combination with the socket 4 having the bail 5 terminating in the shank 6 provided with the square portion 7, having the ratchet 8, the periphery of which is provided with oppositely disposed teeth, and the cylindrical portion 9 operating in the bearing 3, and also the squared portion 10 for the reception of a companion double toothed ratchet 8 and terminating in a reduced angular portion 11, the socket 13 having the bail 14 removably mounted on said portion 11 and having the set screw 16, the opposite springs 22 secured, as at 23, to the handle and terminating in eyes 23a, the pins 18 journaled in openings 19 near each edge of the handle, and the double pawls 20 and 21 mounted on the pins and provided with a reverse pin 24 for receiving the eye 23a and the set screws 25 inserted in openings 26 formed in the springs, substantially as specified.

No. 33,435. Water Motor. (*Moteur hydraulique.*)

Walter J. Derochie, Cornwall, Ont., 18th January, 1890; 5 years.

Claim—1st. The wheel E having wedge-shaped pockets K in the periphery, in combination with a wheel case having an outlet at the

bottom and a downwardly inclined inlet or outlets below the horizontal diameter, said pockets holding the water while passing from the inlet to the outlet and emptying the water when passing from the outlet to the inlet, as set forth.

No. 33,436. Sawdust Burner.

(*Foyer à bran de scie.*)

Russell H. Nogar, Dundee, Mich., U.S., 20th January, 1890; 5 years.

Claim—1st. In a furnace, the combination of feed tubes arranged above the combustion chamber, of perforated cones in said combustion chamber below said feed tubes, and of means to adjust the angular space between the two, substantially as described. 2nd. In a furnace, the combination of a hopper arranged above the combustion chamber, of perforated cones in said chamber, and feed tubes adjustably secured in an arch above said cones, substantially as described. 3rd. In a furnace, the combination of a hopper arranged above the combustion chamber forming an arch, of feed tubes in said arch adjusted by means of the levers, of perforated cones below said feed tubes having shields above the apertures and resting upon the grate bars, substantially as described. 4th. In a furnace, the combination of feed tubes arranged over the combustion chamber, of perforated cones in said combustion chamber, the apertures being shielded from the entrance of the fuel, substantially as described. 5th. In a furnace the combination of an arch over the combustion chamber, of feed tubes in said arch, and perforated cones below said feed tubes, substantially as described.

No. 33,437. Smoke Consuming Furnace.

(*Foyer fumivore.*)

David Clegg, Philadelphia, Penn., U.S., 20th January, 1890; 5 years.

Claim—1st. The combination of the combustion chamber and ash pit with the smoke stack open at its upper end, and having communicating up and down flues with a deflecting hood, and a valved inlet opening in the down flue, substantially as described. 2nd. The combination of the smoke stack, provided with up and down flues, the deflecting hood, the head having an air inlet opening communicating with the down flues, and a valved opening in the upper portion of said head, and mechanism for operating the valve from the cab of the engine, substantially as described. 3rd. The combination of the smoke stack, having up and down flues, with openings in said flues and slats in each of said openings for directing air into the stack and creating a draft in the down flues for carrying the smoke to the ash pit, substantially as described. 4th. The combination of the stack, having up and down flues, openings in said down flues, with pivoted slats in said openings, said slats being controlled from the cab of the engine, so as to regulate the draft, substantially as described. 5th. The combination of the smoke stack, substantially as described. 5th. The combination of the smoke stack, the up and down flues therein, a valved opening in the top of said stack, and openings in the down flues with pivoted slats therein, a rod connected to the slats and to the valve rod, said rod being connected to a lever in the cab, so that on the operation of said lever the slats and valve will be operated simultaneously, substantially as described.

No. 33,438. Method of Lubricating Engines and Separating or Softening the Incrustation in Boilers.

(*Mode de graisser les machines et séparer ou amollir les incrustations dans les chaudières.*)

Robert Goodbody, Upton, Ireland, 20th January, 1890; 5 years.

Claim—1st. In combination with a steam engine and boiler, the use of apparatus of the kind hereinbefore described, for the purpose of continuously or regularly introducing into the boiler or into the feed water a suitable hydrocarbon oil, so as to prevent the formation of hard scale in the boiler and lubricate all the working surfaces of the engine, with which the steam comes into contact, substantially as described. 2nd. A steam engine boiler, arranged so that the double purpose of lubricating the working surfaces preventing or reducing incrustation is effected, substantially as hereinbefore described.

No. 33,439. Treadle. (*Pédale.*)

James H. Whitney, Brooklyn, N.Y., U.S., 20th January, 1890; 5 years.

Claim—1st. A balanced treadle, suspended from spring bearings suspended in swivel chambers. 2nd. The balanced treadle T suspended from, and in combination with the springs S, S, and the swivel chambers C, C. 3rd. The treadle T, suspended from the springs S, S, and the slotted swivel chambers C, C, all in combination. 4th. In combination, a balance wheel, a pitman operating the same, a balanced treadle connected with the pitman through a ball and socket joint, substantially as shown and described, and suspended from spring bearings held in swivel chambers. 5th. In combination, a balance wheel provided with a counterweight, a pitman operating the same, a balanced treadle connected with the pitman through a ball and socket joint, substantially as shown and described, and suspended from spring bearings held in swivel chambers. 6th. A balanced treadle, provided with trunnions X, X, arranged to vibrate in the slots D, D, of the swivel chambers C, C, in combination with the springs S, S. 7th. In treadles, the combination of the following elements, the swiveled spring chamber C, the swivel plate L and the connecting plate E. 8th. In treadles, the combination of the following elements, the swiveled spring chamber C, the swivel plate L and the connecting plate E. 9th. In treadles and in combination, the following elements, the spring chamber C, stop lug W and the swivel plate L. 10th. In treadles, the following elements, in combination, the connecting plate E provided with the gibs G, G, the slot D and the adjustable pin A. 11th. The connecting plate E, provided with the slot D and the gibs G, G, the adjusting pin A, the swivel chamber C, swivel plate L and the pins R and R', all in combination. 12th. The treadle T, suspended on each side in spring

from the low pressure cylinder, air valves, whereby the air is admitted into the low pressure cylinder and from the latter into the high pressure cylinder and discharged from the latter, a fly wheel shaft rotated from said pistons, and valve mechanism, substantially as described, whereby the steam valves are actuated from said shaft, substantially as set forth. 2nd. The combination, with the high pressure cylinder and the low pressure cylinder arranged side to side, pistons working in the same and connecting mechanism, substantially as described, whereby the pistons are caused to move in opposite directions, of a steam induction valve, an intermediate steam valve and a steam exhaust valve, all arranged at one end of said cylinders and an air inlet valve, an intermediate air valve and air discharge valve, all arranged at the opposite ends of said cylinders, substantially as set forth. 3rd. The combination, with a pair of high pressure and low pressure cylinders arranged side to side at each end of the machine, and the pistons working in said cylinders, of two geared shafts arranged between the two pairs of cylinders, one shaft connected with the pistons of the high pressure cylinders, and the other shaft with the pistons of the low pressure cylinders, steam induction valves, intermediate steam valves and steam exhaust valves arranged at the inner ends of the cylinders, and air inlet valves, intermediate air valves and air discharge valves arranged at outer ends of the cylinders, substantially as set forth. 4th. The combination, with a compressing cylinder provided with a cylindrical air inlet passage having air inlet openings in its side, of a cylindrical air valve arranged in said passage and provided at its outer end with an enlarged piston, a cylinder in which said piston moves, a valve chamber ports connecting said valve chamber with the piston cylinder on opposite sides of the piston, and a valve arranged in said valve chamber, whereby a fluid under pressure can be admitted to the cylinder on either side of the piston, substantially as set forth. 5th. The combination, with the low pressure cylinder provided with an air inlet valve, a high pressure cylinder, a positively controlled intermediate valve, whereby the compressed air is excluded from and admitted to the high pressure cylinder, and a check valve arranged in the air passage between the intermediate valve and the low pressure cylinder, substantially as set forth. 6th. The combination, with the low pressure cylinder provided with an air inlet valve, a high pressure cylinder, a positively controlled intermediate valve, whereby the compressed air is excluded from and admitted to the high pressure cylinder, a check valve arranged in the air passage between the intermediate valve and the low pressure cylinder, and an air inlet valve connected with the high pressure cylinder and admitting external air thereto, substantially as set forth. 7th. The combination, with the compressing cylinder, of an air inlet valve provided with an actuating piston, a cylinder in which said piston moves, a valve whereby the flow of the actuating fluid to and from opposite ends of the valve cylinder is controlled, valve gear, whereby said valve is actuated and an automatic regulator, whereby the fluid pressure can be shut off from said valve, thereby suspending the action of the air inlet valve and allowing it to be opened and to remain open for the passage of air in both directions until the fluid pressure is again applied, substantially as set forth. 8th. The combination, with the air compressor and its steam supply pipe, of a piston valve adapted to open and close said openings and receiving the steam pressure in the casing on its front side, and the air pipe v^3 admitting the compressed air to the valve casing on the rear side of the valve, substantially as set forth. 9th. The combination, with the compressor and its steam supply pipe, of a regulator casing receiving steam from said pipe, a piston valve arranged in said casing, and whereby the steam passage is opened and closed, an air pipe connecting said casing with a conduit containing compressed air, whereby the air pressure tends to move the valve in the direction in which the steam passage is closed while the steam pressure tends to move the valve in an opposite direction, and a stop, whereby the closing movement of the valve is limited, substantially as set forth. 10th. The combination, with the compressor its steam supply pipe and its air valves and their actuating mechanism, of the regulator casing connected with the steam supply pipe and provided with steam inlet and outlet openings, a piston valve arranged in said casing, an air pipe admitting compressed air to the casing on one side of said valve, a hollow stem projecting from the opposite side of said valve and receiving steam from the casing, a chamber receiving the steam from the hollow stem, and a pipe conducting this steam to the actuating mechanism of the air valves, substantially as set forth. 11th. The combination, with the compressor, its steam supply pipe, its air valves and their actuating mechanism, of the regulator casing provided with steam inlet and outlet openings v^4, v^5 , and an air pipe v^6 , a piston valve arranged in said casing and provided with a hollow stem v^7 , having steam inlet openings v^8 , an adjustable sleeve v^9 surrounding the open end of the hollow stem and provided with steam passages v^{10} , a steam chamber surrounding said steam passages, and a pipe U connecting said chamber with the actuating mechanism of the air valves, substantially as set forth.

No. 33,446. Multiple Movement Device for Increasing and Transmitting Motion. (*Appareil à mouvement multiple pour augmenter et transmettre le mouvement.*)

John A. Zerbe, Dodge, Kan., U.S., 20th January, 1890; 5 years.

Claim.—1st. The combination of an extension motor device adapted to be connected to a piston rod or other reciprocating bar and provided with power arms, and the guide plate provided with divergent slots to receive guide rollers on the extremities of said power arms to extend and contract the motor device, substantially as specified. 2nd. The combination of an extensible motor device consisting of intersecting bars pivoted together, the movable guide plate geared thereto to move in the opposite direction, and the power arms on the motor device provided with guide rollers to operate in divergent slots in said guide plate, substantially as specified. 3rd.

The combination of the extension motor device, consisting of a series of intersecting pivoted bars and the rack-bar K carried by said motor device, the pinion, the slotted guide-plate connected to a rack-bar M, which meshes with the said pinion, and the power arms on the motor device provided with guide rollers to operate in divergent guide slots in the said plate, substantially as specified. 4th. The combination of the motor device consisting of a series of intersecting pivoted bars C and carrying depending guide blocks a^1 , the slotted bed plate, the movable guide plate provided with divergent slots D and geared to said motor device, said guide plate being provided with lugs to operate in the slots in the bed plate, and the power arms provided with guide rollers to operate in said slots D, substantially as specified. 5th. The combination of the extension motor device, as described, and provided with power arms C', the slack bar connected to the motor device and slotted to receive a rod L on the same, and the guide plate geared to the motor rod and provided with slots to receive guide rollers on the extremities of the outer arms, substantially as specified. 6th. The combination of the extension motor device, slack bar E provided with slot E', a spider having a series of divergent arms consisting of intersecting bars and provided with pins to operate in the slot E', substantially as specified. 7th. The combination of the extension motor device, provided with power arms C', the sliding slotted guide plate connected to said arms and geared to the motor device to operate in the opposite direction thereto, the slotted slack bar E, the slotted guide frame A', and the spider mounted on said frame having divergent arms and connected to the motor device, substantially as specified. 8th. The combination of the bed plate A, provided with parallel guide-slots G, G', G'', the sliding guide plate provided with divergent slots D, D', and having lugs b, b' , to operate in said slots G, G', the motor device consisting of intersecting pivoted bars and provided with guide blocks a^1 to operate in the slots F, said motor device being geared to said guide plate and provided with power arms having guide rollers to operate in the slots D thereof, and a slack bar connected to the motor device and provided at one end with a slot to receive a guide bolt I, substantially as specified.

No. 33,447. Device for Felling Trees.

(*Appareil pour abattre les arbres.*)

Percy H. Brown, Vesuvius Bay, B. C., 21st January, 1890; 5 years.

Claim.—1st. The combination, with an elongated bracket bar, two rollers revolvably secured to the ends of this bar by bolts that support them in position at right angles to the bar, and two rods loosely secured to the outer ends of said bolts, of a spike bar clamped to the bracket bar near its longitudinal center, and spring carrier plates that are adapted to press against the back of a cross cut saw blade, substantially as set forth. 2nd. The combination, with an elongated bracket bar perforated at spaced intervals near each end, eye bolts which are inserted in revolvable rollers and are adapted to be secured in either of these spaced holes and longitudinally perforated rollers, of two rods which serve as legs and are joined to the eye bolts, a spike bar secured to the bracket bar near its longitudinal center so as to clamp fast the ends of two spring carrier plates to the bracket bar, and two spring carrier plates that are adapted to exert their tensional force against the back edge of a cross cut saw blade, substantially as set forth. 3rd. The combination, with a bracket bar, two axially perforated rollers, two eye-bolts that support the rollers endwise against the bracket bar, and two legs loosely connected to the ends of the eye bolts, of a spike bar secured to the bracket bar, two spring carrier plates, two grooved pulleys pivoted on the free ends of the carrier plates, two set screw bolts and a cross cut saw blade, substantially as set forth.

No. 33,448. Chill for Car Wheels.

(*Moule pour les roues des chars.*)

Luther R. Faught, Philadelphia, Penn., U.S., 21st January, 1890; 5 years.

Claim.—1st. In a contracting chill, an expansion or connecting bar of reduced depth relatively to the inner section of the chill and having at its junction therewith its top face depressed below the top of said inner section at its bottom face elevated above the bottom thereof, substantially as set forth. 2nd. The combination, in a chill of continuous run or other section, an inner section composed of a divided circular series of chilling blocks or segments, and a series of expansion-bars connecting the outer to the inner section and united to the latter wholly within and clear of its parting face, substantially as set forth.

No. 33,449. Farm Gate. (*Barrière de ferme.*)

James Stephenson, Woodbridge, Ont., 21st January, 1890; 5 years.

Claim.—1st. The gate A pivoted in the brackets C, which are movably supported on the rods D fixed to the post E, in combination with the vertically-adjustable catch F and pivoted latch L, substantially as and for the purpose specified. 2nd. The gate A having a pulley N loosely journaled on its stile B, and connected to the crank a , of the latch L, by the cord M, in combination with the cord or cords O connected to the pulley N and to the pulleys P, which are suitably pivoted on the post Q, and operated by the cords R, as indicated, substantially as and for the purpose specified. 3rd. The gate A having a pulley N loosely journaled on its stile B, and connected to the crank a , of the latch L, by the cord M, the hook V pivoted on the post U, in combination with the cord or cords O connected to the pulley N and to the pulleys P, which are suitably pivoted on the post Q and operated by the cords R, as indicated, substantially as and for the purpose specified.

No. 33,450. Puzzle. (*Jeu de patience.*)

James C. Collin, Syracuse, N.Y., U.S., 21st January, 1890; 5 years.

Claim.—1st. In a puzzle or toy, a board adapted to be held in the hand and provided with intersecting endless ways arranged to re-

ceive two or more rolling discs or bodies, in the manner and for the purpose substantially as described. 2nd. In a puzzle or toy, a board adapted to be held in the hand and provided with annular ways intersecting each other, in combination with circular concavo-convex discs located and adapted to travel upon their edges within said ways, as and for the purpose described.

No. 33,451. Opening and Cap for Oil Cups, &c. (*Ouverture et couvercle de boîte à graisse, &c.*)

William J. Jones, Hamilton, Ont., 21st January, 1890; 5 years.

Claim.—1st. In an oil cup, the cup A provided with an upper plane a having an opening C therein, in combination with screw E, substantially thereon, having an opening D and set forth. 2nd. The combination as and for the purpose hereinbefore set forth. 3rd. The combination, with an oil cup A, the attachable part F having a plane a and opening C, the cap B having an opening D and the set screw E, substantially as and for the purpose hereinbefore set forth.

No. 33,452. Heating Drum. (*Poêle sourd.*)

Albert G. Hamblin, Ashland, Wis., U. S., 21st January, 1890; 5 years.

Claim.—The combination, with the heating drum or cylinder having the opposite central smoke pipes and the annularly arranged series of openings, those of one head being vertically opposite those of the other head, of the opposite convex and similarly disposed the cylinder the intermediate deflector concave and oppositely disposed to the end deflectors and of a diameter corresponding with that of the cylinder, and provided with that of the cylinder and propen-ended cold air pipes terminating in the openings in the heads of the cylinder, and passing through and tightly fitting corresponding openings in the deflectors in position within the cylinder, substantially as specified.

No. 33,453. Fire Kindler. (*Allumoir.*)

George L. Richardson, Brunswick, Me., U. S., 21st January, 1890; 5 years.

Claim.—1st. A fire kindler comprising the box or casing composed of the bottom a and the sides a', the filling of asbestos or similar indestructible material, the perforated follower or casing and the substantially as described. 2nd. A fire kindler comprising the box or casing, the filling of asbestos or similar indestructible material the top or follower and the central tube formed integral with the top or follower and provided with openings in its lower end and the vertical flanges extending outwardly from the tube, substantially as described.

No. 33,454. Machine for Turning, Grinding and Polishing Spherical Bodies. (*Machine à tourner, émouder et polir les corps sphériques.*)

Rudolph Conrader, Erie, Penn., U. S., 21st January, 1890; 5 years.

Claim.—1st. The combination, in a machine for grinding, turning and polishing spherical bodies, of two cylinders running parallel to each other, with an adjustable rotary ball-holder adapted to force a ball between said cylinders, substantially as and for the purpose set forth. 2nd. The combination, in a machine for turning, grinding and polishing spherical bodies, of two cylinders mounted on carriages adapted to be moved toward and from each other, with a rotary ball holder having a cup thereon adapted to hold a ball lever, mechanism for moving the ball holder toward and from said cylinder, and gear-set forth. 3rd. The combination, in a machine for turning, grinding and polishing spherical bodies, of a screw threaded standard A, a vertically adjustable carriage M thereon, and a bed B having gibs parallel shafts e, e, mounted in said carriages D, D, thereon, pulleys F, F and cylinders H, H, thereon, and a vertically adjustable carriage M, substantially as and for the purpose set forth. 4th. The combination, in the ball holding mechanism for a machine for turning, grinding and polishing spherical bodies, of the vertically adjustable carriage M, the vertically movable shaft O mounted in bearings holding a ball, with lever mechanism S' T for raising and lowering the shaft O, and bevel gear mechanism P' P' for rotating said shaft, substantially as and for the purpose set forth. 5th. The combination, in a machine for turning, grinding and polishing spherical bodies, of the adjustable cylinders H, H, rotating in a plane parallel to each other, with the vertically adjustable rotary ball holder O T, substantially as and for the purpose set forth.

No. 33,455. Engine Governor. (*Gouverneur de machine.*)

William H. Jenks, Brookville, Penn., U. S., 21st January, 1890; 5 years.

Claim.—1st. The combination, substantially as hereinbefore set forth, of a centrifugal governor weight and a secondary or steadying weight connected therewith, and moved correspondingly with the

governor weight but having itself little or no tendency to move the governing weight. 2nd. The combination, substantially as hereinbefore set forth, of the centrifugal governing weight and a secondary or steadying weight connected therewith, and movable simultaneously with the governor weight without itself changing its position concentric with the shaft. 3rd. The combination, substantially as hereinbefore set forth, of a centrifugal governor weight, a non-centrifugal secondary or steadying weight and flexible connections between the governor weight and the secondary weight. 4th. The combination, substantially as hereinbefore set forth, of the shaft, the eccentric, the centrifugal governor weight connected therewith, the secondary or steadying weight supported on the shaft independently of the centrifugal governor weight, and flexible non-elastic connections between the centrifugal governor weight and the secondary or steadying weight. 5th. The combination, substantially as hereinbefore set forth, of the shaft, the wheel or steadying weight loosely mounted on the shaft, the yoke rigidly secured to the shaft, the eccentric arm pivoted eccentrically on the wheel, the governor weights pivoted to the wheel, and flexible connections between the governor weights and the yoke, and between the yoke and the eccentric arm.

No. 33,456. Harness Trimming. (*Garniture de harnais.*)

Dennis J. Regan, Agawan, Mass., U. S., 21st January, 1890; 5 years.

Claim.—1st. The improved harness trimmings herein described, consisting of a base plate having overhanging wings and provided with holding spurs or ribs, substantially as shown. 2nd. The improved harness trimming herein described consisting of a loop provided plate having side walls and overhanging wings and having spurs or ribs, substantially as shown. 3rd. A loop provided plate underlying the strap, side walls rising vertically from the edges of said plate, parallel with, and contiguous to the edges of said strap, and malleable wings projecting inwardly and upwardly from the upper edges of said side walls, and adapted to be closed down onto a strap between said side walls and on said plate, said wings being provided with a series of downwardly projecting holding prongs set in rows lengthwise of the wings, and in the direction of the strain on the strap, said loop being adapted for the attachment thereto of a second strap, all substantially as shown and specified. 4th. A harness trimming or device having a strap-holding part consisting of a plate B, provided with overhanging wings C and holding ribs, shallow toward the bent over edges and deeper toward the centre, substantially as shown. 5th. A trimming for harnesses, formed of malleable metal having wings adapted to be closed down upon the strap and hold the same in place, and having engaging ribs or spurs upon the plate or wings of both, all being made integral, substantially as shown.

No. 33,457. Mechanism for the Manufacture of Barrels. (*Machine pour la fabrication des barils.*)

William H. Cram, North Windham, Me., U. S., 21st January, 1890; 5 years.

Claim.—1st. The mechanism, substantially as described, consisting in the perforated mold and its surrounding case, each made in sections separable and arranged as represented, the tubular shafts projecting from the said case and supported in bearings in standards, the air-exhaust boxes at the outer ends of such shafts, the air-exhaust pump and its pipes leading from such boxes, the movable carriage for supporting the standards of one of such tubular shafts, and the pulp charging pipe, all being arranged to operate essentially as set forth. 2nd. The mechanism, substantially as described, consisting in the perforated mold and its surrounding case, each made in sections separable and arranged as represented, the tubular shafts projecting from the said case and supported on bearings in standards, the air-exhaust boxes at the outer ends of such shafts, the air-exhaust pump and its pipes leading from such boxes, the railway carriage and carriage for supporting the standards of one of such tubular shafts, the air-pressure pump and pipe, and the pulp charging pipe, all being arranged to operate essentially as set forth. 3rd. The combination of the water discharge pipe with the mechanism, substantially as described, for pressing a barrel in one piece, from paper or wood pulp, as explained, such mechanism consisting of the perforated mold and its surrounding case, each made in sections separable and arranged as represented, the tubular shaft projecting from the said case and supported in bearings or standards, the air-exhaust boxes at the outer ends of such shafts, the air-exhaust pump and its pipes leading from such boxes, the railway carriage and carriage for supporting the standards of one of such tubular shafts, the air-pressure pump and pipe, and the pulp charging pipe, such water discharge pipe being applied to one of the tubular shafts and extended therefrom down within the space between the next adjacent heads of the case and the mold, as specified. 4th. In a machine for making hollow articles from paper or wood pulp, as explained, the combination of the revolvable perforated mold and its surrounding case with an air-exhausting apparatus for creating a vacuum within said mold and case, for the purpose set forth.

No. 33,458. Kitchen Cabinet. (*Armoire de cuisine.*)

Philomène Cousineau, Ottawa, Ont., 21st January, 1890; 5 years.

Claim.—The combination of a wood box A, cupboard B and F, drawers E and compartments C and D, all arranged in relation and described and for the purpose specified.

No. 33,459. Process and Apparatus for the Manufacture of Sulphite-Cellulose or Sulphite Stuff.

(*Procédé et appareil de fabrication de la sulfure cellulosé ou de la pâte sulfurée.*)

Ferdinand Salomon, Berlin, Germany, 21st January, 1890; 5 years.

Claim.—1st. Process of forming a scale within metallic cellulose boilers, which are to be protected thereby against the action of the boiling lyes by producing from a solution of salts or from the lye itself, by precipitation of the salts, a coating similar to boiler scale which is not dissolved by the boiling liquid used in the manufacture of cellulose. 2nd. Method of forming a protective scale in order to protect the boiling apparatus, or parts of same, employed in the manufacture of sulphite cellulose from the action of the boiling lye, such method consisting in heating the parts to be protected before contact with the sulphite lye to such a temperature that, on the sulphite lye coming in contact with these previously heated parts, the heated lye at these parts is partly decomposed and thereby the formation of a protective scale on these parts is effected. 3rd. Boiling apparatus whose inner surfaces unprovided with a metal lining or brick work are protected by a coating produced by precipitation from a solution of salts or from the lye in the vessel, all substantially as herein set forth. 4th. Providing a valve on the boiling apparatus to allow of the escape of gases or vapors during the formation of a protective scale from the sulphite lye itself or from special salt solutions. 5th. The production of a protective scale by precipitation from the sulphite lye itself, or from a solution of salts in the treatment of fibrous substances, as well as in the treatment of wood for the manufacture of cellulose. 6th. Metallic boilers heated externally which are provided internally with a protective scale produced from sulphite lye or other salts for boiling sulphite stuff.

No. 33,460. Engine. (Machine.)

James A. Clarke, Port Moody, B. C., 21st January, 1890; 5 years.

Claim.—1st. In an engine, a high pressure cylinder and a low pressure cylinder deriving its motive agent from the exhaust of the high pressure cylinder, in combination with a piston-rod carrying the pistons of the two cylinders, a cross-head secured to said piston-rod pitmen pivotally connected at opposite sides with said cross-head, crank-arms placed at angles to each other and connected with said pitmen, crank-shafts carrying said crank-arms and placed parallel with each other, a reversing link operated from one of the said crank-shafts, and operating the valves in said high-pressure and low-pressure cylinders, vertical guideways parallel with said cylinders, a slide therein and pitmen pivoted thereto at their upper ends and connected at their lower ends to cranks on said shafts, substantially as shown and described. 2nd. In an engine, the combination, with two crank-shafts and means for rotating them, of crank-arms secured on said shafts and standing at angles to each other, pitmen pivotally connected with said crank-arms, a slide pivotally connected with said pitmen, and guideways in which said slide operates, substantially as shown and described. 3rd. In an engine, the combination, with guideways W, of a slide V mounted to slide in said guideways, pitmen pivotally connected with said slide, crank-arms pivotally connected with said pitman and standing at angles to each other, main crank-shafts carrying said crank-arms, and a compound engine operating said crank-shafts, substantially as shown and described.

No. 33,461. Boat Propelling Mechanism.

(*Mécanisme de propulsion des bateaux.*)

Benjamin Kenoyer, Huron, Cal., U.S., 21st January, 1890; 5 years.

Claim.—1st. In a propelling mechanism for boats, the vertical paddles C, in combination with the vertically opposite shafts B, B', pinions b upon similar ends of each shaft, and the intermediate idlers b', connecting the pinions b, and paddle box A, substantially as shown and for the purpose set forth. 2nd. The combination, with the paddle box A, of the horizontal series of crank shafts B', and the superimposed and vertically opposite series B, a paddle C journaled on each vertical pair of cranks, and pinions b mounted on similar ends of the cranks, and idler pinions b' alternating with and connecting the pinions b of the lower series, and similar pinions b' connecting each the vertically opposite pair of pinions b, substantially as specified.

No. 33,462. Bread Board. (Pétrin)

Charlotte W. Fuller, Lincoln, Me., U.S., 21st January, 1890; 5 years.

Claim.—1st. The improved bread board, described, consisting of the kneading board A, with back B and ends E, E, in combination with the hinged cover C, having front wall F secured thereto, and with interior partitions K, L, substantially as and for the purpose set forth. 2nd. The kneading board A, free at its front edge, and having the ends E, E, and back B secured vertically along its other edges, in combination with the cover C, having front F and strengthening end pieces I, and with interior partitions made removable, substantially as and for the purpose set forth.

No. 33,463. Folding Plant Protector.

(*Tuteur d'arbre pliant.*)

William K. Hawks, Hoosick, N. Y., U. S., 21st January, 1890; 5 years.

Claim.—In a plant protector, the combination, with a rectangular wire frame, provided with spurs upon its lower side, of a similar frame, having its upper bar or side alongside the corresponding member of the first frame, and its lateral wires wound about said member at opposite ends thereof, respectively in spirals, adapted to press against the side wires of the first frame, when the frames are separated at the bottom, substantially as set forth.

No. 33,464. Furnace for Metallurgical Operations. (Fourneau pour les opérations métallurgiques.)

Bernard C. Lauth, Philadelphia, Penn., U. S., 21st January, 1890; 5 years.

Claim.—1st. A furnace for metallurgical operations, consisting of a heating or working chamber, having coal burning furnaces at each end thereof, and a flue in the central portion of said working chamber, communicating with a stack, as set forth. 2nd. A furnace for metallurgical operations, consisting of a heating or working chamber, having coal burning furnaces at each end, supplemental chambers located outside of the coal burning furnaces, in which pipes are placed for heating the gas from the producer, the gas conveyed in pipes being mingled with the gas from the coal at the point of combustion in the heating or working chamber.

No. 33,465. Manifold Order Book.

(*Livre de commandes multiples.*)

James S. McDonald, Chicago, Ill., U. S., 22nd January, 1890; 5 years.

Claim.—1st. In a manifold order book or tablet, a series of original orders, a carbon sheet, arranged substantially as described, and a base support for said orders, in combination with a pair of spring-actuated arms parallel with each other and extending obliquely across the opposing edges of the orders, and a clamping plate uniting said arms and having no connection with the base except through said arms, for removably securing the orders and carbon sheet upon the base, substantially as described. 2nd. In a manifold order book or tablet, a series of original and duplicate orders, a carbon sheet arranged substantially as described, a base support therefor, and a pair of spring actuated arms extending obliquely along the opposing edges of said orders, and a clamping plate uniting the free ends of said arms, in combination with a binding plate, between which and the clamping plate the carbon sheet is removably bound, substantially as described. 3rd. In a manifold order book, a series of original and duplicate orders, and a carbon sheet arranged substantially as described, in combination with a base support for said orders, a spring actuated clamping plate upon one end of said orders, a binding plate for the carbon sheet, and one or more angular lugs embracing one end and projecting over said orders, substantially as described. 4th. In a manifold order book, a series of original and duplicate orders, and a carbon sheet, arranged substantially as described, a base support and a spring actuated clamping plate for said orders, in combination with a separable binding plate mounted upon the clamping plate and provided upon one edge with a perforator, substantially as and for the purpose described.

No. 33,466. Car Truck. (Châssis de char.)

Luther K. Jewett, Boston, Mass., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a car truck, the combination, with a metallic transom, composed of independent pieces, of castings or braces to unite the said pieces to form the transom, and sustaining blocks provided with shoulders to co-operate with the said pieces, substantially as described. 2nd. In a car truck, a metallic transom composed of independent side and corner pieces, combined with sustaining blocks provided with shoulders to co-operate with the said pieces, and with braces or castings to unite the said pieces to form the transom, substantially as described. 3rd. In a car truck, the combination, with a metallic transom, of a curve plate sustaining frame secured at or near the ends of the said transom, substantially as described. 4th. In a car truck, the combination of a bolster, vertically movable therein, and composed of independent tubes, and sustaining blocks for said tubes, substantially as described. 5th. In a car truck, the combination, with a transom, composed of independent pieces, of a bolster vertically movable therein and composed of tubes, and sustaining blocks for said tubes, substantially as described. 6th. In a car truck, the combination, with a transom, composed of independent pieces and castings or braces to unite said pieces together, of a bolster, composed of independent tubes and vertically movable in said transom, sustaining blocks for said tubes and chafe irons to prevent wear of the bolster tubes, substantially as described. 7th. In a car truck, the combination, with a transom composed of independent pieces and castings or braces to unite said pieces together, of a bolster, composed of tubes and vertically movable in said transom, sustaining blocks for said tubes, and chafe irons secured to said bolster-sustaining blocks, substantially as described. 8th. In a car truck, the combination, with a transom, of arch bar-sustaining blocks having their upper or top sides concave downward, and arch bars shaped or bent to fit said concave sides, as and for the purposes specified. 9th. In a car truck, the pedestal strap composed of a single corrugated bar, substantially as described. 10th. In a car truck, the combination, with an arch bar sustaining block, of a metallic transom having its upper end resting upon and supported by the top of the said sustaining block, substantially as described.

No. 33,467. Freight Car Truck.

(*Châssis de char à marchandises.*)

Luther K. Jewett, Boston, Mass., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a car truck, the combination, with a transom, of a metallic bolster composed of top and bottom, separated by posts or studs, the said top being concave or curved downward on opposite sides of the bolster center, to prevent upward buckling of the bolster under excessive loads, substantially as described. 2nd. In a car truck, the combination, with a metallic transom, having independent sides a, of arch bar sustaining blocks, having each an arm c secured to the said sides, to leave free space between the said arms and the bottom of the transom, substantially as and for the purpose specified. 3rd. In a car truck, the combination, with a metallic transom, having independent sides a, of arch bar sustaining blocks, having each an arm c, and provided with a lug c' to support a link,

as c², and a lock to secure said link on said lug, substantially as described. 4th. In a car truck, a metallic transom and a metallic bolster adapted to swing in said transom, and composed of a top plate b and bottom plate b', combined with castings b¹⁰ inserted between the said plates at their opposite ends, and secured thereto, and provided with chafe irons forming an integral part of the said castings, a metallic transom and bolster vertically movable in said transom with projections or ribs, combined with clips having ribs or projections to co-operate with the ribs or projections on the arch-bar sustaining blocks, substantially as and for the purpose specified. 5th. In a car truck, an arch bar sustaining blocks secured to said transom and provided with projections or ribs, combined with clips having ribs or projections to co-operate with the ribs or projections on the arch-bar sustaining blocks, substantially as and for the purpose specified. 6th. In a car truck, a metallic transom and a metallic bolster adapted to swing in said transom, and composed of a top plate b and bottom b', opposite ends and secured thereto, and provided with chafe irons, chafe irons of the said castings, and tie bars to join the chafe irons of the said castings, substantially as described. 7th. In a car truck, a metallic transom and a metallic bolster adapted to swing in said transom, and composed of a top plate b and bottom plate b', combined with castings b¹⁰ inserted between the said plates at their opposite ends and secured thereto, and provided with chafe irons forming an integral part of the said castings and tie bars to join the chafe irons of the said castings, substantially as described.

No. 33,468. Combined Cabinet, Commode, Wardrobe and Invalid Chair.
(*Buffet, commode, garde-robe et chaise d'invalides combinés.*)

Agnes Hardie, Leetonia, Ohio, U.S., 22nd January, 1890; 5 years.

Claim.—1st. A wardrobe, or other compartment, adapted to serve as an article of furniture, formed in an upper and lower section, the lower section being provided with a seat frame, substantially as specified. 2nd. A wardrobe, or other piece of furniture, formed in an upper and lower section, said lower section being provided with a commode adapted to serve as a seat, substantially as specified. 3rd. A wardrobe, or other piece of furniture, formed in two sections, the lower section being provided with a commode, a chamber receiving the commode, substantially as specified. 4th. A wardrobe, or other piece of furniture, formed in two sections, the lower one of which is provided with a commode and has a pivoted seat arranged above the commode, and a pivoted back arranged in said opening and provided with a right angularly disposed seat adapted to be closed over the similar piece of furniture, as specified. 5th. A wardrobe, or other piece of furniture, formed in two sections, the upper section being provided with a top ventilating door and oppositely-located commode, substantially as specified. 6th. A wardrobe, or other piece of furniture, formed in two sections, the upper one being removable and carrying the hooks and other appurtenances belonging to a wardrobe, and the lower section having a pivoted seat closing over a commode and forming a chair, and the truck upon which the chair or lower section is mounted, whereby the device is converted into a perambulator, substantially as specified.

No. 33,469. Water Heater.

(*Calorifère à eau.*)

William H. Campbell, Alpena, Mich., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a boiler, a section, composed of a header, having fire-flues therein, and depending pipes communicating with said header at the lower surface thereof, and having indirect communication with the base of the boiler, substantially as described. 2nd. In a boiler, the combination, with the sections, the cross-chamber and the pipes, of the longitudinal pipes C joining the sections above. 3rd. In a boiler, the combination, with the fire-box, of a main hot air flue D and the side flues E, affording communication between the fire box and the flue D, substantially as described. 4th. In a boiler, a water supply for the same, supply-pipes J extending upward in combination with sloping pipes connecting said supply-pipes H, said manifold pipes, and vertical pipes connecting said base with rounded with tubes for water, flattened above, so as to inclose said base, as set forth. 5th. In a boiler, a fire-box surrounding the base, a water supply for the same, vertical tubes at the opposite ends, sloping pipes connecting the same, and one of said ends communicating with a top water chamber, and vertical pipes at the sides below in a direction at right angles to the flattening of the upper part, substantially as described.

No. 33,470. Kindergarten Teaching Apparatus.
(*Appareil d'enseignement des enfants.*)

Howard Body, Norristown, Penn., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a kindergarten teaching apparatus, the combination, with a flanged alphabet wheel, of a key-lever having a standard arranged in frictional contact with the flange of said standard and a spring attached to the other end of said cord and a support for said apparatus, as described. 2nd. In a kindergarten teaching apparatus, the combination, with a cup-shaped or flanged alphabet wheel, having ratchet teeth struck from its closed side, of a weighted pawl pivoted above said alphabet wheel in position to engage its ratchet teeth and prevent backlash, said pawl being provided with a pivotal bearing on each side of the ratcheted alphabet wheel, and

having a crosspiece or brace that extends across the flange of the wheel to stiffen the pawl and connect its pivotal bearings, substantially as described. 3rd. In a kindergarten teaching apparatus, the combination of a series of flanged alphabet wheels, having projecting ratchet teeth, pawls engaging said teeth to prevent backlash, means for independently rotating the alphabet wheels, and a casing, having in its face openings to expose the letters or characters on the wheel flanges, and provided between said openings with segmental grooves projecting from the face of the casing, to receive the ratchet teeth of the alphabet wheel and permit the letters on the wheel flanges to be exposed in close proximity to the openings in the face of the casing, substantially as described. 4th. A kindergarten teaching apparatus, comprising the wood cabinet containing a travelling pictorial strip, rotating alphabet wheels, having ratchet teeth, and key-levers for the wheels, and a front wall to the cabinet composed of a sheet of metal provided with the top opening 6 for exposing the pictures, a transverse line of openings 7 for exposing the alphabet letters, grooves stem for the ratchet teeth, and a transverse bottom opening 8, through which the keys project, and having its top, bottom and opposite side edges bent inward to form flanges, which are secured to the inner sides of the cabinet, substantially as described.

No. 33,471. Tension Regulating Device for Spindle Driving Bands.
(*Appareil régulateur de la tension des courroies de commande des bobines.*)

Arthur McDonald, Scotland, Conn., U.S., 22nd January, 1890; 5 years.

Claim.—In combination, the driving drum and the spindles of a spinning and twisting machine, an endless driving band engaging said drum and spindles, and having a long horizontal loop thereof, extending between the ends of the machine, under that portion of the bend extending between the drum and the spindles, a vertical post supported in bearings in said machine and free to rotate reciprocally therein, an arm attached to and extending at right angles from said post, having a pulley thereon engaging with said band, and a spiral spring surrounding said post and acting to swing said post and arm and force said pulley against the band, substantially as set forth.

No. 33,472. Implement for Loading and Re-loading Cartridge Shells.
(*Outil pour charger et recharger les cartouches.*)

Charles C. Clifford, Swissvale, Penn., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a cartridge shell crimping implement, in combination, the chambered cylinder for receiving and holding the shell therein, the removable crimping head, consisting of a block adapted to fit and freely move longitudinally in the end of said chambered cylinder, provided with a funnel-shaped aperture opening to one end thereof, the largest transverse area of which aperture is as great as the transverse area of said cylinder chamber, said aperture terminating in an opening of less diameter than that of said cylinder chamber leading to the other end of said block, and the cylindrical crimping stick adapted to be reciprocated through said reduced opening and within said crimping head and cylinder chamber, and to lap the inwardly deflected end portion of the shell in a return bend upon the inner wall of said shell, substantially as described. 2nd. In a cartridge shell crimping implement, the shell therein, the reloaded cylinder for receiving and holding the shell adapted to fit and freely move longitudinally in the end of said chambered cylinder, provided with a funnel-shaped aperture, opening to one end thereof, the largest transverse area of which aperture is as great as the transverse area of said cylinder chamber, said aperture terminating in an opening of less diameter than that of said cylinder chamber, leading to the other end of said block, means, substantially as described, whereby the said crimping head may be adjusted longitudinally on and relative to said cylinder, and the cylindrical crimping stick adapted to be reciprocated through said reduced opening and within said crimping head and cylinder chamber, and to lap the inwardly deflected end portion of the shell in a return bend upon the inner wall of said shell, substantially as described. 3rd. A shell loading implement, comprising the chambered cylinder A, the shell retaining head fitting on, and closing one end of said cylinder, the removable crimping head, consisting of a block adapted to fit and freely move longitudinally in the other end of said cylinder, provided with a funnel-shaped aperture, the largest transverse area of which is as great as the transverse area of said cylinder chamber, said aperture terminating in an opening leading to the other end of said block, of less diameter than that of said cylinder chamber, and the crimping stick adapted to be reciprocated through said reduced opening and within said crimping head and cylinder chamber, and to lap the inwardly deflected end portion of the shell in a return bend upon the inner wall of the shell, substantially as described.

No. 33,473. Shirt. (*Chemise.*)

James A. Sword, Toronto, Ont., 22nd January, 1890; 5 years.

Claim.—A shirt, having its bosom A connected to its body B by a seam a located on the inside of the outer edge of the bosom, substantially as specified.

No. 33,474. Machine for Grinding the Treads and Flanges of Car Wheels.
(*Machine à émouler les diamètres et bourrelets des roues de chars.*)

Patrick H. Griffin, Buffalo, N.Y., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In machines for truing up the treads and flanges of car wheels, the combination, with an H-shaped bed plate, of a series

of standards carrying the main spindle above and a fixed shaft below a driving pulley, having a pinion, a spur wheel engaging said pinion and fixed to a sleeve having a pinion engaging a spur wheel fixed to the main spindle above, and a suitable number of slide rests carrying emery wheels, as described for the purpose set forth. 2nd. In machines for grinding the treads and flanges of car wheels, the combination, with the base-plate, of the head consisting of two standards having the main spindle above and a fixed counter-shaft below, said main spindle having a driving pulley with its pinion, the counter-shaft having the pinion and spur wheel on said main spindle, the driving pins in said spur-wheels, the slide rests having emery wheels, and the feed mechanism operated by said pins and connected with said slide rests, as and for the purpose set forth. 3rd. In machines for grinding the treads and flanges of car wheels, the combination, with an H-shaped bed plate, of a series of standards carrying the main spindle above and a fixed shaft below, a driving pulley having a pinion, a spur wheel engaging said pinion and fixed to a sleeve, a pinion engaging a spur wheel fixed to the main spindle, and a suitable number of slide rests carrying emery wheels, said main spindle having expandable mandrills outside of the outer standards, as described, whereby the car wheels are chucked directly to the main spindle, as set forth. 4th. In machines for grinding the treads and flanges of car wheels, the combination of the main spindle with an expandable mandrel thereon, and jaws, a collar and a revolving screw spindle for actuating said mandrel, substantially as set forth. 5th. The combination, with the spindle G, G', having the spur-wheel M, M', provided with the pins 29, of the lever 28 pivoted to the standard 27, the connecting rod 30, lever 24 having pivoted pawls 25, spring 26 and the ratchet wheel 23 and feed screw 21, as set forth. 6th. The combination, with the feed screw 21, having the ratchet wheel 23 and lever 24, of the pawl 25 having its tail engaged by the U-shaped spring 26, as and for the object set forth.

No. 33,475. Apparatus for Reproducing Copies of Writings, etc. (*Appareil pour reproduire les manuscrits, etc.*)

Marc A. Levy, New York, N.Y., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a duplicating apparatus, the combination of an absorbent pad, an absorbent composition thickly applied to one surface of said pad, and a gelatine substance thinly applied to the outer surface of said composition, all substantially as described and for the purposes set forth. 2nd. In a duplicating apparatus, the combination of an absorbent pad, having its back edges and a border around its face covered with a protecting material, substantially as described, and a gelatine substance thinly applied to the outer surface of said composition, substantially as and for the purposes described. 3rd. A duplicating apparatus, consisting of an absorbent pad, having part of one surface thereof coated with an absorbent and a gelatine composition, so as to form an elevation thereon and leave a border around said pad, lower than said elevation, substantially as described and for the purposes set forth.

No. 33,476. Railroad Tie.

(*Traverse de chemin de fer.*)

Theophilus F. Thomas, Grand Cane, La., U.S., 22nd January, 1890; 5 years.

Claim.—1st. The combination of the members A, A, having their meeting ends engaging and forming a horizontal joint, and the coupling plates secured to the sides of the members and extending across the joint, as set forth. 2nd. The combination of the members A, A, having vertical upper portions at their meeting end and having engaging convex and concave portions below the said vertical portions, and the coupling plates connecting the meeting ends of the said members, as set forth.

No. 33,477. Raising and Lowering Gear for Stools and Chairs. (*Mécanisme pour soulever et abaisser les bancs et les fauteuils.*)

Charles March, Ottawa, Ont., 22nd January, 1890; 5 years.

Claim.—The combination, with the shaft A, having the pawl D, the spring E and rod C, of the hub or column B having the rack F, substantially as hereinbefore shown and described and as and for the purpose set forth.

No. 33,478. Power Feed Matching Machine.

(*Machine à bouter à alimentation forcée.*)

Benjamin G. Luther, Worcester, Mass., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a matching machine, the combination, with the cutter the duplicate carriers, and a pair of feeding rollers supported by the said carriers, of the connected lever adapted to impart equal movement to the carrier, and rollers relatively to the plane of the cutter, and means for forcing the feeding rollers toward each other to clasp the boards, substantially as described. 2nd. The combination, in a matching machine, provided with a cutter and pairs of feeding rollers having pivoted carriers at opposite sides of the cutter arbor, of a corresponding pivoted carrier and its supported feeding roller at each side of the cutter arbor, and a guide link jointed to the carriers and provided with the open slot, substantially as described. 3rd. In a matching machine, the combination, with the arbor provided with opposite cutters, the one adapted to tongue and the other to groove the board, pivoted carriers, and the feeding rollers supported by said carriers, of the connected levers for imparting equal movement to the pivoted carriers and their rollers, relatively to the plane of the cutters, connected means for adjusting the feeding rollers of both cutters at the same time, and the springs which allow for a forced opening movement in the feeding rollers of one of the cutters greater than the corresponding movement of the feeding rollers of the opposite cutter, substantially as described.

No. 33,479. Cake Mixer. (*Pétrin à gâteaux.*)

Nell L. Barron, Barton, Vt., U.S., 22nd January, 1890; 5 years.

Claim.—1st. The combination, with the outer case and the inner cup, of the shaft C having bearings in the walls of the outer case, the beater carried by the said shaft, and the sleeves F and F' surmounting the shaft, and having the blades of the beater attached to the sleeve F' extending through the beater blades and having squared portion, as shown, the shaft C having squared portion G fitting the squared portion of said sleeve, substantially as shown and case and the inner cup, of the shaft C having bearings in the walls of the outer case, and formed with squared portion G near one end, on the said shaft and the sleeves F and F' on the shaft, and having the beater blades attached thereto, the sleeve F extending from the inner to the outer blade at its end of the shaft, and the sleeve F' extending through the blades and formed with squared portion extending nearly to the outer case and fitting the squared portion of the shaft, substantially as herein shown and described.

No. 33,480. Bracket or Stand for Supporting Flower Pots, Lamps or other articles. (*Console ou trépied pour porter les pots à fleurs, lampes ou autres objets.*)

George W. Morgan, Jr., St. Thomas, Ont., 22nd January, 1890; 5 years.

Claim.—1st. The combination of the adjustable revolving ratchet B and the threaded arms F and J, substantially as and for the purpose hereinbefore set forth. 2nd. Also, the ball or block D, pierced by three openings, having the shoulders H and the key G, substantially as and for the purpose hereinbefore set forth.

No. 33,481. Lifting Jack. (*Cric.*)

Charles Tindall, Nicholas Mootz and Willard Vanwey, Utica, Kan., U.S., 22nd January 1890; 5 years.

Claim.—1st. The combination of the hollow standard, the lifting bar mounted in the standard and provided with ratchet teeth on its sides, the operating lever fulcrumed on the standard, the pawls depending from said lever and engaging the ratchet teeth on the sides of the lifting bar, and the locking pawls pivoted to the standard below the lifting pawls and engaging the ratchet teeth on the lifting bar, as set forth. 2nd. The combination of the hollow standard, the lifting bar mounted therein and provided with ratchet teeth on its sides, the operating lever fulcrumed on the standard and having locking pawls depending from its ends and engaging said ratchet teeth, the locking pawls pivoted within the standard and engaging the ratchet teeth, and the treadle pivoted on the standard and adapted to release the locking pawls from the ratchet teeth, as set forth. 3rd. The combination of the hollow standard having longitudinal slots in its sides, the pins N, P secured within the standard and extending across said slots, the operating lever fulcrumed on the standard, the lifting pawls depending from the operating lever and having their lower ends curved and adapted to impinge on the pins N, the spring secured within the standard and bearing on the said pawls, the locking pawls pivoted against the pins P, the spring Q secured on the standard and bearing on the locking pawls, the treadle pivoted on the standard and adapted to vibrate the locking pawls, and the lifting bar mounted in the standard and engaged by the locking and the lifting pawls, substantially as specified.

No. 33,482. Combined Mop and Wringer.

(*Torchon et essoreuse combinée.*)

Alva R. Ormsby, Mansfield, and Nellie M. Bradman, Boston, Mass., U.S., 22nd January, 1890; 5 years.

Claim.—1st. In a mop, a handle grooved longitudinally and provided with a cloth-holder, in combination with a rod fitted to slide and revolve in said groove and provided with a cloth-holder, substantially as described. 2nd. In a mop, a handle provided with a cloth-loop, a rod fitted to slide longitudinally in said handle and provided with a cloth-loop, and a mop-cloth secured in said loops, substantially as described. 3rd. In a mop, a handle grooved longitudinally, a ferule on said handle, a cloth-holder on said ferule, and a rod sliding in said groove and provided with a cloth-holder, substantially as described. 4th. In a mop, a handle provided with a mop-cloth holder, a rod fitted to slide in said handle and provided with a cloth-holder, said holders registering when the rod is withdrawn, and a mop-cloth secured in said holder, substantially as described. 5th. In a mop, a handle having a mop-cloth holder at one end, a cap fitted to slide on the opposite end thereof, a rod fitted to slide longitudinally in said handle and secured to said cap, and a cloth-holder on said rod, substantially as set forth. 6th. In a mop, a handle grooved longitudinally and provided with a ferule at one end, a cloth-holder on said handle, and a rod fitted to slide in said groove, and rivets for retaining it therein, substantially as described. 7th. In a mop, the combination of a handle grooved longitudinally, a ferule on one end thereof, a cloth-holder on said ferule, a cap sliding on the opposite end of said handle, a rod sliding in said groove and secured to said cap, and a holder in said rod, substantially as described.

No. 33,483. Push Button for Operating Door Bells. (*Pousier pour actionner les timbres des portes.*)

Jacques Rocheleau, Windsor, Ont., (assignee of Herman F. Eberts, Detroit, Mich., U.S.) 22nd January, 1890; 5 years.

Claim.—The herein described bell-wire actuating mechanism, consisting of the base plate A, shell A', slotted push-spindle B, levers C and D, and the combination therewith of the lever E or an equivalent bell-crank, substantially as and for the purpose set forth.

No. 33,484. Sheet Metal Shingle.
(*Bardeau métallique.*)

The Metallic Roofing Company of Canada, (assignee of William J. Brown and John O. Thorn.) Toronto, Ont., 22nd January, 1890; 5 years.

Claim.—A metal shingle having one side crimped to form a gutter with a nailing edge extending beyond it, the inner wall of the straight edge of the adjoining shingle may fit to form a cap for the gutter and for the nailing edge, substantially as and for the purpose specified.

No. 33,485. Metallic Railroad Tie.
(*Traverse métallique de chemin de fer.*)

Sidney U. Smith and Alonzo I. Wilcox, Bradford, Penn., U.S., 22nd January, 1890; 5 years.

Claim.—1st. A metallic tie provided with a projection over which an expansion-bar rests, the said bar having two lips and two horizontal extensions leading therefrom, which rest in boxes in the outer ends of the tie within which lugs are fastened against the rails, as described. 2nd. A metallic tie provided with a projection over which an expansion-bar rests, the said bar having lips and horizontal extensions leading therefrom and resting in boxes in the ends of the tie, and lugs having their rear edges beveled which fit corresponding bevels in the said box, as and for the purpose described.

No. 33,486. Gate for Railway Cars and other purposes. (*Barrière pour les chars de chemins de fer et autres fins.*)

The R. Bliss Manufacturing Company, Pawtucket, (assignee of John B. Wood, Providence,) R.I., U.S., 22nd January, 1890; 5 years.

Claim.—1st. A gate for railway cars or other purposes, jointed to a swinging support and to a pivoted brace, whereby, in operating the gate to either open or close the same, one edge of the gate will be moved in a direction opposite to that of the other, substantially as described. 2nd. A gate for railway cars or other purpose, jointed to a swinging support and to a pivoted brace, and provided with a spring operated catch for locking the gate in position, substantially as described. 3rd. A gate for railway cars jointed to a swinging support and to a pivoted brace which turns downward at the corner of the car and forms the hand rail, substantially as described.

No. 33,487. Boiler for Cleaning or Boiling Rags. (*Chaudière pour lessiver les chiffons.*)

George F. Barton and Charles B. Barton, Warehouse Point, Conn., U.S., 22nd January, 1890; 5 years.

Claim.—1st. The combination of a boiler of the class described with the ejector at the discharge opening of the boiler, and the pipe *m* extending around to the opposite side of the boiler, substantially as described and for the purpose specified. 2nd. In a boiler of the class described, the combination of an ejector, the covering screen or strainer *f*, hinged as described, and the pipe *m* leading laterally thence to one side of the strainer in a line parallel to its hinge, and from and for the purpose specified. 3rd. The combination of a boiler of the class described and the pipe *m* extending from under the screen at the exit around to the opposite side of the boiler, substantially as described and for the purpose specified.

No. 33,488. Boiler. (*Chaudière.*)

John N. Roberts, Brainard, Minn., U.S., 23rd January, 1890; 5 years.

Claim.—1st. The combination, with a boiler of parallel series of tubes extending longitudinally along the walls of the fire box, the tubes of each series being connected to form a continuous passage, and the lower tubes communicating with the legs of the boiler, and the upper ones discharging into the upper part of the boiler below its water line, substantially as set forth. 2nd. The combination, with a boiler, of the tubes extending along the sides and top of the fire box and connected to form a serpentine passage, the connections between the lower side tubes and the water legs, and a connection between the top tubes and the water space of the boiler below the crown sheet, substantially as set forth. 3rd. The combination, with the boiler, of the parallel connected tubes *R* extending along the sides and top of the fire box, the apertured blocks having pipes *J* bolts *I* extending through the blocks and legs of the boiler, the outside, and the curved pipe *L* communicating with the rear ends of the two inner upper pipes and with the water space of the boiler below the crown sheet, substantially as set forth.

No. 33,489. Extension Top Table.
(*Table à rallonge.*)

Christian Hauser, Elmwood, Ont., 23rd January, 1890; 5 years.

Claim.—An extension top table comprising the legs *A* connected by side and end rails *B, C*, the bar *D* connecting the side rails and with rails *L, L'*, notched into rails *B* and extending across bar *D* to the end rail *B*, and the permanent top *E* extending across bar *D* to the end rail *B*, and held down by bolts *F* covering the extension brackets, and provided with springs *F*, *F'*, passing through the permanent top *E* will be drawn down by the springs to its limited extent, as set forth.

No. 33,490. Gun Sight. (*Mire de fusil.*)

John S. Blankman, Washington, D.C., U.S., 23rd January, 1890; 5 years.

Claim.—1st. In combination with a gun, an open sight-tube of substantially uniform bore secured to the gun to narrow the field of sight and direct the vision, substantially as described. 2nd. For use with a gun, a sight-tube having a groove in its external wall parallel with the bore of the tube, substantially as described. 3rd. For use with a gun an open sight-tube having in its bore two sight-pins, the bore having a practically uniform diameter, substantially as described. 4th. A sight-tube having two sight-pins in its bore, and two sight-pins on its exterior, substantially as described. 5th. An open sight-tube journaled to move about a journal or support and in a vertical plane, in combination with a sight-leaf and with a vertically adjustable clamp, whereby the tube and its bearings can be moved up or down on the leaf, substantially as described. 6th. An open sight-tube having journal-bearings in a clamp, the journal having a screw-threaded thumb-nut, the elastic clamp and the leaf, all combined substantially as set forth, whereby the clamp can be made to firmly hold both the tube and the leaf. 7th. The open sight-tube journaled in the folding or hinged support adapted to be attached to a gun, in combination with the gun, substantially as set forth. 8th. The clamp to support the sight-tube upon the leaf or equivalent part of a gun adapted to embrace the leaf, and provided with wings having bearings for the journals of a sight-tube, in combination with said tube, substantially as set forth. 9th. An elastic sheet-metal clamp provided with perforated wings or extensions combined with a sight-tube and a journal, and a sight-leaf or equivalent, substantially as set forth. 10th. An open sight-tube adjustable about its bearings provided on its exterior surface with a graduated scale of angles, in combination with an index, substantially as set forth. 11th. A sight-tube adjustable about its bearing and provided with a graduated scale of angles, combined with a clamp which constitutes an index, substantially as set forth. 12th. In combination with a gun, a muzzle-sight and a rear sight-tube having unobstructed light openings in its side, substantially as set forth. 13th. In combination with a gun and a muzzle sight, the rear sight-tube having an unobstructed opening in one of its sides, the edge of the material at the end of said opening and bounding the same, being provided with a notch located in a plane passing through the line of sight, substantially as set forth. 14th. In combination with a gun muzzle-sight and a compound tube having two members, one normally sliding within the other and adapted to vary the length of the compound tube, substantially as set forth. 15th. In combination with a gun, a sight-tube consisting of two members normally sliding one within the other, and forming several longitudinal sight passages parallel to the axis of the tube, substantially as set forth. 16th. In combination with a gun, a compound-tube having two members one sliding within the other and adjustably held therein, each provided with a light opening in its upper side substantially as set forth. 17th. A compound sight-tube having two members one sliding within the other, each provided with a light opening in one of its sides, the inner tube being adapted to enter the other with either of its sides adjacent to the open side of the tube, substantially as set forth. 18th. In combination with a gun and with a muzzle-sight, a rear sight-tube provided with a double or notched sight-pin, substantially as set forth. 19th. In a sliding device, the combination of a rear sight tube with a muzzle-sight and with a key for securing the sight tube to a gun barrel provided with a stop conforming to the surface of the barrel, substantially as set forth. 20th. In a sighting device, the sight-tube provided with a base having a key integral therewith and adapted to fit a suitable slot in the gun-barrel, said base having also flanges to engage a sight-tube, substantially as set forth.

No. 33,491. Tire Tightener.
(*Serre bandage de roue.*)

Otis W. Choat, Willow Springs, Mo., U. S., 23rd January, 1890; 5 years.

Claim.—As an improvement in tire tighteners, the combination, with the fellies having recesses *B* at their meeting ends, of the plates having right and left-hand threaded perforations, said plates being provided with wings or flanges extending over and attached to the inner sides of the fellies, shoulders or offsets, and flanges extending from the ends of said offsets and constituting the meeting edges and the right and left-hand threaded bolt having wrench seat fitted between the said shoulders or offsets, substantially as and for the purpose set forth.

No. 33,492. Seed Cleaning Machine.
(*Machine à nettoyer les grains.*)

George A. Smith, Paulding, Ohio, U.S., 23rd January, 1890; 5 years.

Claim.—1st. In a grain scouring machine, a rotary cylinder therefor, having a double covering of wire or rigid fabric, the external covering being of a coarser mesh than the internal covering. 2nd. In a grain scouring apparatus, a rotary cylinder having a fabric of fine mesh on its interior, and immediately above said fabric one of coarser mesh, and a rod or conveyor secured spirally above the outer covering of the cylinder, substantially as shown. 3rd. In a grain cleaning apparatus, the combination of an outer cylinder and an inner rotary cylinder, said cylinders being covered with fabric of different mesh, the coarser fabrics being adjacent to each other, substantially as shown. 4th. In a machine for scouring wheat by attrition, the combination of a stationary outer cylinder, an inner concentric rotary cylinder, said cylinders being made up of fabric of different meshes, the rotary cylinder being mounted upon a hollow shaft with perforations, while the stationary cylinder is mounted on a frame having passage-ways communicating with a suction fan, substantially as and for the purpose set forth. 5th. In a wheat scouring machine, the combination of an outer horizontal cylinder mounted in a suitable frame, one end of said frame having an inlet

opening, while the opposite end is provided with an outlet opening, said inner frame having spaces between the outer casing, one of said spaces being occupied by a perforated, incline which leads to the discharge spout, an inner cylinder of less length than the outer cylinder, said cylinder being mounted upon a perforated hollow shaft and provided at one end adjacent to the discharge opening with radial blades, a suction fan secured within a casing, said fan casing communicating with an opening in the bottom of the outer casing, and means for rotating said fan, substantially as shown and for the purpose set forth.

No. 33,493. Governor for Engines.

(*Gouverneur pour les machines.*)

David P. Davis, Allendale, N.J., U.S., 23rd January, 1890; 5 years.

Claim.—1st. In a governor for engines, the combination of an eccentric operating the cut-off mechanism, capable of variable adjustment of its centre to or from the axis of the shaft, with a liquid confined locking piston connected with said eccentric and adapted to hold the same against displacement during rotation, or to release the eccentric by release of the liquid confining said piston. 2nd. In a governor for engines, the combination of an eccentric operating the cut-off mechanism, capable of variable adjustment of its centre to or from the axis of the shaft, with a liquid confined locking piston connected with said eccentric, check valves normally opposing the escape of the liquid confined upon either side of said piston, and an automatic check valve tripping mechanism, consisting substantially of a centrifugally operated weighted lever, a retracting spring and a tripping cam or toe operated by said weighted lever and spring to release the confined liquid, in the manner set forth. 3rd. The combination, with an eccentric transversely movable in parallel guide-ways for the adjustment of its centre at variable distances from the axis of the shaft, of the herein described liquid confined locking piston, liquid releasing valves, centrifugal valve operating weight, and counteracting spring, adapted as and for the purposes herein set forth. 4th. The combination, with an eccentric swivelled upon a fulcrum aside from its centre, to move transversely for the adjustment of its centre at variable distances from the axis of the shaft, of the herein described liquid confined locking piston liquid releasing valves, centrifugal valves, operating weight and counteracting spring, adapted as and for the purposes herein set forth. 5th. The combination, with an eccentric transversely removable for the adjustment of its centre at variable distances from the axis of the shaft, a centrifugal eccentric tripping weight, as H, and a retracting spring, as H, of the herein described liquid confined locking piston, liquid releasing valves, centrifugal valve operating weight and counteracting spring, all adapted as and for the purposes set forth.

No. 33,494. Kettle Cover Holder.

(*Arrête couvercle de bouilloire.*)

Orlin A. Harmon, Bloomingdale, Mich., U. S. 23rd January, 1890; 5 years.

Claim.—The combination, with a vessel provided with ears, of a bail having spiral eccentrics near its ends, the end beyond the eccentrics being passed through the ears of the vessel, a bowed handle passed around the sides of the vessel, the ends of the bail and ends of the handle being hooked together, and the tie-wire holding the handle close to the vessel, substantially as set forth.

No. 33,495. Manifold Sales Book.

(*Lioret de vente multiple.*)

Thomas W. Lawson, Winchester, Mass., U.S., 23rd January, 1890; 15 years.

Claim.—1st. A pocket or binder for use in connection with slips for sales memoranda and for duplicate copies thereof, composed of at least in part of duplicating fabric, which is relied upon for confining said slips in position convenient for service, and which also serves as a duplicating medium, substantially as described. 2nd. In a manifold sales book, the combination, substantially as hereinbefore described, of a stack or pile of zig-zag folder slips for sales memoranda, and for duplicate copies thereof, and a fabric which constitutes the front of a pocket or binder for said pile or stack and also serves as the duplicating medium, whereby said folded slips are maintained in compact form, and the duplicating fabric maintained in position for convenient use in making duplicate copies. 3rd. In a manifold sales book, the combination, substantially as hereinbefore described, of a stack or pile of integrally connected sales slips and their appropriate copy slips, and duplicating fabric, which is adjustably arranged with relation to said stack to operate as a binding medium and enable fresh surfaces of said fabric to be presented for duty between any pair of said slips. 4th. The combination, substantially as hereinbefore described, of a series of zig-zag folded sales slips and a series of slips for fac-simile copies, interfolded, and each copy-slip arranged with relation to its proper sales slip for receiving a duplicate of any memoranda made upon said sales-slip. 5th. In a manifold sales book, a series of zig-zag folded sale slips consecutively and integrally connected with a series of alternating slips for receiving fac-simile copies of entries made upon said sale slips, substantially as described.

No. 33,496. Apparatus for Producing Manifold Copies and Material to be used for this purpose. (*Appareil pour produire des copies multiples et matière propre à cet objet.*)

George H. Smith, London, Eng., 23rd January, 1890; 5 years.

Claim.—1st. The hereinbefore described composition of matter to be used for a slab or pad for taking manifold copies of writing or other analogous matter, consisting of china-clay, starch, glycerine

and water. 2nd. The combination, with a back plate of absorbent material, of a composition, consisting of china-clay, starch, glycerine and water mounted on said plate, substantially as and for the purpose set forth. 3rd. The combination, with a retaining tray, of a layer of absorbent material in the tray, and a composition, consisting of china clay, starch, glycerine and water above the said absorbent material, substantially as and for the purpose set forth.

No. 33,497. Knit Fabric. (*Tricot.*)

George D. Munsing, Minneapolis, Minn., U.S., 23rd January, 1890; 5 years.

Claim.—1st. A double-ribbed fabric, formed of threads of different materials, knit together, the finer or superior thread passing through the fabric from one side to the other, and covering the other thread on the surfaces of the ribs, substantially as described. 2nd. A double-ribbed fabric, formed of woollen and silk thread knit together, the silk thread passing through the fabric from one side to the other and covering the woollen thread on the surfaces of the ribs. 3rd. A double-ribbed fabric, formed of two threads, one of wool, the other of silk, knit together, the silk thread passing through the fabric from one side to the other, and forming a covering for the woollen thread on the surfaces of the ribs, substantially as described. 4th. A double-ribbed fabric, formed of threads of different materials knit together and of substantially the same tension, the finer or superior thread passing through the fabric from one side to the other, and lying over the other thread on the ribs of both sides of the fabric, substantially as described.

No. 33,498. Cheese Hoop.

(*Moule à fromage.*)

William H. Ludbrook, Philipsville, Ont., 23rd January, 1890, 5 years.

Claim.—1st. A cheese hoop, consisting of a tubular body, composed of staves and having a metallic lining D, as set forth. 2nd. A cheese hoop A, having a metallic lining D, as set forth.

No. 33,499. Spring Platform for Vehicles.

(*Plateforme élastique pour les voitures.*)

Francis G. Davis, Watertown, N. Y., U. S., 23rd January, 1890; 5 years.

Claim.—1st. A spring platform, consisting, in combination with front and rear axles and bolster, of the central spring perch, said perch passing centrally under the platform rigidly connected to the bottom of the rear axle and passing under the front axle and rigidly connected to the said bolster, substantially as described. 2nd. The central spring perch, in combination with the front axle, the rear axle and the bolster, said perch rigidly connected to the bottom of the rear axle, passing centrally under the platform and under the front axle, and rigidly connected to the said bolster, and the side springs rigidly connected both to the rear axle and to the said bolster, substantially as described. 3rd. The combination, with the front and rear axles and bolster, of the central spring perch, said perch passing centrally under the platform, rigidly connected to the rear axle and passing under the front axle and rigidly connected to the said bolster, the side springs rigidly connected to the rear axle and to the bolster, and the cross-braces rigidly secured to the said perch and side springs, and extending across the platform at right angles to the side springs, substantially as described. 4th. The combination, with the front and rear axles and bolster, of the central spring perch D, said perch passing centrally under the platform rigidly connected to the rear axle and passing under the front axle and rigidly connected to the said bolster, the king-bolt passed through the said perch, and the T-bolt also passed through the said perch in front of the axle, with the T-part bolted to the bolster, substantially as described.

No. 33,500. Diaper. (*Essui-main.*)

Collins Arnold, Albany, N.Y., U.S., 24th January, 1890; 5 years.

Claim.—In a diaper, formed from a flattened section of a cylindrical web of knitted fabric open at both ends, the combination, with the edges on one end of such section, of a stay formed of over edge stitches, passing through such edges at a point located intermediately of the sides of the diaper, substantially as described.

No. 33,501. Steam Engine. (*Machine à vapeur.*)

Wilson D. Haven, Trenton, N. J., U. S., 24th January, 1890; 5 years.

Claim.—1st. The combination, with the oscillatory and reciprocating valve, the valve stem mechanism for reciprocating and oscillating the latter, and the valve casing having the stuffing box *d*, of an outboard bearing situated at the opposite end of said casing supporting the valve stem and permitting of the reciprocation of the same, substantially as set forth. 2nd. In an engine, the combination, with the valve, valve-stem, and casing, a moving part, such as lever *E*, for reciprocating the valve, a bell-crank lever mounted upon a pivot carried by said part, means for oscillating the bell-crank lever relative to said moving part, connections between the bell-crank lever and the valve for oscillating the latter, and an out-board bearing situated at the end of the valve opposite said valve-gearing and supporting the valve-stem, substantially as set forth. 3rd. The combination, with the valve, the valve-stem and the valve-casing provided with the stuffing box and bearing *d*, of the outboard bearing provided with the bushing *e* divided horizontally, as described, and adjusting devices for raising the lower half of said bushing, substantially as set forth. 4th. The combination, with the

valve, the valve-stem and the valve-casing having the bearing *d*, of the outboard bearing at the opposite end of said casing consisting of a sleeve *G* flanged and divided, bushing *e*, and the cap *G*² fitting and secured to the end of said sleeve and securing the flanges of said bushing between itself and said sleeve, substantially as set forth. 5th. The combination, with the valve casing having ports on its upper and under sides, of the hollow valve provided with corresponding ports adapted to simultaneously open and admit steam to the cylinder through both the upper and under ports, the upper of said valve ports being of smaller area than the lower, substantially as set forth.

No. 33,502. Machinery for Manufacturing Nails. (*Machine à fabriquer les clous.*)

Joseph Nichols, Birmingham, Eng., 24th January, 1890; 5 years.

Claim.—1st. The improvements in machinery for manufacturing twisted or screw nails by which the wire is automatically brought forward, and twisted, cut off and headed, substantially as herein described and shown upon the drawings.

No. 33,503. Stove or Furnace. (*Poêle ou fourneau.*)

Jacob S. Williams, St. Louis, Mo., U.S., 24th January, 1890; 5 years.

Claim.—1st. The combination, in a stove or furnace, of a fire pot or basket, a chamber above and a chamber below said fire basket, and supply passages for atmospheric air communicating respectively with the two chambers and governed by a single damper, or by dampers connected together and having simultaneous movement, substantially as and for the purpose set forth. 2nd. The combination, in a stove or furnace having a fire-basket, a chamber below and a chamber above the fire-basket, a chamber supply for each chamber, of a damper appliance governing the air supply in both pipes simultaneously, substantially as and for the purpose set forth. 3rd. The combination, in a feeding-magazine for stoves and furnaces, of inner central and outer walls forming the sides of the magazine two chambers, one each side of the central flue conducting air to the inner chamber, the inner chamber closed at bottom except for orifice for entrance of atmospheric air, and the outer chamber communicating at bottom with the fire-chamber, for the purpose set forth. 4th. The combination, in a stove or furnace, of a feeding-magazine having two chambers, one each side of a central wall or partition, closed at top except for orifices by which they communicate together, the outer chamber open at bottom to the fire-chamber, and the inner chamber closed at bottom except for an air supply orifice, and air-pipes discharging respectively into the lower part of the inner magazine-chamber and beneath the fire-pot, and a valve or connected valves moved simultaneously controlling the passage of air through the air-pipes, substantially as and for the purpose set forth. 5th. The combination of the outer take 4, the fire-pot 2, air pipes 30 passing through the downtake magazine 9, inner wall having opening in the upper portion forming an inner air-chamber around the magazine closed at the top and at the bottom, an outer wall forming an outer air-chamber around discharging respectively above into the inner chamber and beneath the fire-pot and a valve or connected valves, moved simultaneously controlling the passage of air through the pipes, substantially as described.

No. 33,504. Sewing Machine. (*Machine à coudre.*)

Télesphore Gariépy, Montreal, Que., 24th January, 1890; 5 years.

Claim.—1st. In a sewing machine, the rack B, pinion E, shaft C and head X, provided with the projection *a*, substantially as described and for the purposes set forth. 2nd. In a sewing machine, a shuttle D having a three-quarters alternating circular movement, as described with the point D¹ and projection I and M, substantially as described and for the purposes set forth. 3rd. In a sewing machine, a shuttle spool H provided with the pieces N and O, described and for the purposes set forth. 4th. In a sewing machine, the combination of rack B, pinion E, shaft C and head X, with the circular frame R¹, spool H, pieces N and O, springs P and Q, lever R and circular frame R¹, substantially as described and for the purposes set forth.

No. 33,505. Waggon Tongue. (*Timon de wagon.*)

Christopher Costello, Beverly, Ont., 24th January, 1890; 5 years.

Claim.—1st. The combination of an iron or steel prop *b* and pole A or shaft hinged at the rear end, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of pole A, staple C and slotted iron or steel prop *b*, with lock or other fastener, substantially as and for the purpose hereinbefore set forth.

No. 33,506. Vehicle. (*Voiture.*)

Charles M. Blydenburgh, Riverhead, N. Y., U. S., 24th January, 1890; 5 years.

Claim.—1st. In a vehicle having a front seat, two independent seats in rear thereof, and pivoted independently to the floor of the vehicle, whereby they may be turned outwardly at right angles and made to face each other. 2nd. In a vehicle having a front seat, two seats placed side by side in rear thereof, and having standards pivoted on

the bottom or floor of the vehicle, whereby said seats may be turned outwardly in opposite directions and made to face each other, substantially as described. 3rd. In a vehicle having a front seat, two independent seats side by side in rear thereof having standards eccentrically pivoted to the bottom or floor of the vehicle, whereby said rear seats may be turned outwardly along the opposite sides of the vehicle and be brought nearer the front seat, substantially as described. 4th. In a vehicle having a front seat, two independent seats side by side in rear thereof, and standards for said rear seats having a horizontal portion resting upon the floor or bottom of the vehicle, said horizontal portions having curved inner ends pivoted to said floor, whereby the seats may be turned from one position to a position at right angles thereto and made to face each other, substantially as described.

No. 33,507. Loom. (*Métier à tisser.*)

Nathaniel Greening, Warrington, Eng., 24th January, 1890; 5 years.

Claim.—1st. In a wire weaving loom, two alternately reciprocating rods arranged and operated to push the shuttle completely across the loom in alternate directions, in such a manner that picks from the right are inserted by one of the rods, and a prickler and by the other rod, devices for operating the rods, and a presser and for securing and compressing the selvedge, substantially as illustrated by and for the purpose hereinbefore described and as illustrated by the accompanying drawings. 2nd. In a wire weaving loom, the combination of a shuttle having the weft on a bobbin therein, two alternately reciprocating rods arranged and operated to push the shuttle completely across the loom in alternate directions, in such a manner that picks from the right are inserted by one of the rods, and picks from the left are inserted by the other rod, and devices for operating the rods, substantially as and for the purpose hereinbefore described with reference to the accompanying drawings. 3rd. In a wire weaving loom in which the shuttle is pushed from side to side of the loom by means of two opposite alternately reciprocating rods, the combination, with each rod, of a piston enclosed in a suitable cylinder, inlet and exhaust passages, and devices for operating the valves, substantially as hereinbefore described and as illustrated by the accompanying drawings. 4th. In a wire weaving loom in which the shuttle is pushed from side to side of the loom by means of two opposite alternately reciprocating rods, the combination, with each rod, of a cam wiper or crank and a multiplying lever, substantially as and for the purpose hereinbefore described and as illustrated by the accompanying drawings. 5th. In a wire weaving loom, a prickler and presser for holding the weft substantially as hereinbefore described and as illustrated by Fig. 6 of the accompanying drawings. 6th. In a wire weaving loom, a shuttle in frictional contact with the body of the shuttle, or with a washer or washers in frictional contact with the body of the shuttle, substantially as and for the purpose hereinbefore described.

No. 33,508. Tack and Nail Extractor.

(*Tire-broquette et tire-clou.*)

Fred O. Tarbox, Toronto, Ont., 24th January, 1890; 5 years.

Claim.—1st. A tack or nail extractor consisting of a metal shank, one end of which is formed into a claw and the other fitted with a suitable handle, and having a fulcrum lever pivoted at a suitable distance from the point of the claw, so that the claw is first thrown slightly forward and then raised vertically until the tack or nail is clear of the surface, substantially as and for the purpose set forth. 2nd. A tack or nail extractor consists of a metal shank, one end of which is formed into a claw having a V-shaped groove, the sides of which are gradually convex to a knife edge and having the other fitted to a suitable handle, and having a fulcrum lever pivoted at a suitable distance from the point of the claw, so that the claw is first slightly thrown forward and then raised vertically until the tack or nail is clear of the surface, substantially as and for the purpose set forth.

No. 33,509. Manufacture of Metallic Alloys or Compounds. (*Fabrication des alliages ou compositions métalliques.*)

Lazare Weiller, Angoulême, France, 24th January, 1890; 5 years.

Claim.—1st. The improvement in the manufacture of metallic alloys or compounds, consisting of the addition of zinc or spelter to copper, combined with silicon alone or sodium alone, or with silicon and sodium combined, or to copper which has been previously melted with or in the presence of silicon alone or sodium alone, or silicon and sodium combined, substantially as hereinbefore described. 2nd. The improvements in the manufacture of metallic alloys or compounds, consisting of the addition of zinc or spelter to bronze combined with silicon alone or sodium alone, or spelter to silicon and sodium combined, or to bronze which has been previously melted with or in the presence of silicon alone or sodium alone, or silicon and sodium combined, whether the zinc be allowed to remain in the preparation or be subsequently removed, substantially as hereinbefore described. 3rd. The manufacture or use of alloys, preparations or compound made or treated in the manner claimed in the preceding claims.

No. 33,510. Divided Car Axle. (*Essieu de char divisé.*)

Oliver Vanorman, Los Angeles, Cal., U.S., 24th January, 1890; 5 years.

Claim.—1st. In a divided car axle, the combination set forth of the arbor A provided with fixed collar E, socket B provided with oil hole L, perforated tube C provided with annular bosses D, D, and washer

F secured to the socket. 2nd. In a divided car axle such as set forth, the perforated tube C having annular bosses D, D, at the ends thereof, as and for the purpose set forth. 3rd. In a divided car axle the combination set forth of the arbor A provided with fixed collar E, the socket B provided with oil hole J and plugs L, the perforated brass tube C provided with bosses D, the disk H, the collar F and bolts M.

No. 33,511. Forming and Shaping Metals.

(*Façonnage et shépage des métaux.*)

Alfred Weed, Farrytown, N. Y., U.S., 24th January, 1890; 5 years.

Claim.—1st. The within-described improvement in the art of forming and shaping metallic articles, the same consisting in operating by means of opposite dies alternately receiving and approaching each other upon a bar carried between the dies to be subjected to repeated pressures and rotated or rocked, substantially as described. 2nd. The combination, in a machine for shaping articles of metal, of parallel dies and mechanism for moving them on and from each other, and a carrier for a bar or blank moving longitudinally opposite said dies and provided with a holder for the bar supported to turn in its bearings, substantially as set forth. 3rd. The combination, with reciprocating dies, of a carrier moving opposite said dies, a holder for a bar supported by said carrier, and mechanism for turning said holder intermittently, substantially as set forth. 4th. The combination, with the dies of a longitudinally moving carrier, and mechanism for rocking the same intermittently, substantially as described. 5th. The combination of the die-supports and operating appliances, dies each having a gradually-widening rib and carrier for carrying a bar between the dies, substantially as set forth. 6th. The within-described dies for forming metal articles, each with a rib gradually widening from one end to the other, substantially as set forth.

No. 33,512. Body Brace.

(*Bretelle.*)

Eleanor E. Howe, Bridgeport, Conn., U.S., 24th January, 1890; 5 years.

Claim.—1st. A band for body braces, consisting of a tapering strip of flexible fabric at one end, provided with an arm-hold partly encircled by an elastic band, and at its other end having a fastening device and re-enforced along its body part by another strip of flexible fabric having its warp-threads at right angles to the warp-threads of the main piece, substantially as set forth. 2nd. A body-enforcing piece c and an elastic band b, the direction of the warp-brace, consisting of two bands, each composed of a shoulder piece a, a body piece d, a reinforcing piece c, and an elastic band b, the direction of the warp in the piece d, being at right angles to the direction of the warp-threads in the pieces a and c, and each band provided with a part of a fastening device for securing the ends of the bands together substantially as shown and described.

No. 33,513. Wood Turning Machine.

(*Machine à tourner le bois.*)

Alfred Derouin, Gatineau Point, Que., 25th January, 1890; 5 years.

Claim.—1st. A wood turning machine consisting of the combination of the table A having grooves, a sliding carriage B, brackets b having adjustable screws, bearing D, miter wheel E, hub F having a bore F', miter G, pulley H on shaft g, pulley h, shaft I, miter gear i and j, shaft j in bearings K, L, hinged arm k, arm l, worm gear M, N, shaft o, drum O, rod u, lever Q, link g, hand lever R, dog S, rope P, pulleys p, sliding bearing d, rope T, drum v driving shaft 20, shaft s, pulley u, group of saws v pivoted table W, stud 21, mortise 22, friction wheel 23, thumb screw 24, adjustable spring 25, knife 26, substantially as set forth. 2nd. The combination of the carriage B having brackets b, gauge C, miter wheel E, hub F, bore F', miter wheel G, pulley H, driving shaft I, miter gear i, worm gear M, N, the table A, and grooves a, substantially as set forth. 3rd. The combination of the saws v pivoted table W, adjustable friction wheel 23, adjustable spring 25 with the sliding carriage B, and gauge C, substantially as set forth. 4th. The combination of the sliding carriage of a lathe having a gauge secured thereon, with a group of saws adapted to follow the contour of the said gauge, and a planing knife, substantially as set forth. 5th. The combination, with the carriage B, bracket b, of the dog S, lever R, notch r, link g, lever Q, rod n, hinged bearing L, worm gear M, N, drum O, rope P, pulleys p, sliding bearing d, substantially as set forth.

No. 33,514. Producing Fancy Figured Wooden Plates.

(*Production des planches de bois avec dessins de fantaisie.*)

Louis Ling, Berlin, Prussia, 25th January, 1890; 5 years.

Claim.—The method of producing figured wood pictures, which consists in the veneer being coated over on the back with shellac or other suitable gum, and on the front with wax, the veneer is then dried for some time and after a thin solution of white of egg and water has been rubbed over the front, the surface is spread over with gold or other metallic varnish or solution, and is then firmly pressed with an engraved brass or other suitable metal plate, the plate is then embossed by means of a deeply engraved plate and corresponding die, substantially as described.

No. 33,515. Connecting Link.

(*Chatnon brisé.*)

William G. McLean, Stewartville, Ont., 25th January, 1890; 5 years.

Claim.—The combination with the link A having longitudinal parallel sides and an opening B therein, of the tubular block or band

D sleeved thereon, bar E having the ends secured to the block and passing through the link, and the screw F passing through the block and entering the opening B in the link, as set forth.

No. 33,516. Paper Screening Machine.

(*Machine à tamiser le papier.*)

Edmund Victory, Watertown, N. Y., U. S., 25th January, 1890; 5 years.

Claim.—1st. In a paper screening machine, the combination of the series of separate screens 18, the series of independent bellows-plates 5 having the flexible bellows-joints 6 at their sides and ends, the drive-shaft 7 having the eccentrics 8, 9 alternately arranged upon it, and the connecting frames 10, substantially as set forth. 2nd. The combination, in a paper screening machine, of the body frame 2 having the parallel cross-bars 3, the series of independent reciprocating bellows-plates 5 having the flexible bellows-joints 6 at their sides and ends, the flexible packing strips 13 and 14 extending around the ends and sides of each bellows, and the top 15 having the series of parallel cross-bars 17, and the screen plates 18, substantially as set forth. 3rd. The combination of the body frame having the cross-bars, the reciprocating bellows plates having the bellows-joints and formed with the concave upper faces and central discharge openings, the packing around each bellows and the top having the cross-bars and the screen plates, substantially as set forth. 4th. The combination of the body frame having the cross-bars and reciprocating bellows plates having the bellows-joints, the concave upper faces, the central discharge openings and the pipes leading down from said openings, the packing around said bellows, the top having the cross-bars and the screen-plates, and the longitudinal box having the discharge, substantially as set forth. 5th. The combination of the body frame having the cross-bars, the reciprocating bellows-plates having the bellows-joints, the concave upper faces, the central openings and the pipes leading from said openings, the drive-shaft having the series of eccentrics alternately arranged upon it, the connecting frames, the packing around each bellows, the top having the cross-bars and screen-plates, and the longitudinal box having the discharge, substantially as set forth. 6th. The combination, with the body having the cross-bars formed with the apertures between the bellows, and the top having the apertured cross-bars which support the screen-edges, of the brace-bolts having the nuts on their upper ends, substantially as set forth.

No. 33,517. Organ Attachment.

(*Clavier d'orgue superposé.*)

John M. Smith, Leetonia, Penn., U.S., 25th January, 1890; 5 years.

Claim.—1st. In an organ attachment, the combination, with a main frame provided with adjustable bars to fit the frame into an organ of any size, of a carriage held to slide on the said main frame, a pointer held on the said carriage and adapted to indicate on markings on the said frame, spring-pressed bars held to slide in the said carriage, and provided on their under sides with projections, and false keys pivoted on the under side of the main frame and adapted to be engaged by the said projections, substantially as shown and described. 2nd. In an organ attachment, the combination, with the main frame provided in its side beams with guide-ways, of extension bars held to slide in the said side beams, and thumb screws for fastening the said extension bars in place on the side beams of the main frame, substantially as shown and described. 3rd. In an organ attachment, the combination, with the main frame provided in its side-beams with guide-ways, of extension bars held to slide in the said side beams, thumb screws for fastening the said extension bars in place on the side beams of the main frame, and vertically-adjustable blocks held on the outer ends of the said extension bars, substantially as shown and described. 4th. In an organ attachment, the combination, with a carriage mounted to slide and provided with vertically extending guide-ways, of bars held to slide in the said guide-ways and provided on their under sides with projections, and springs pressing the said bars in an uppermost position, substantially as shown and described. 5th. In an organ attachment, the combination, with a main frame set over the keyboard of the organ and provided with marks indicating chords, and arranged with relation to the regular keys of the organ, of false keys pivoted on the said main frame and engaging the regular keys of the organ bars, each mounted to slide in vertical guide-ways and provided with a number of projections adapted to press the said false keys to sound the chord, and springs at the ends of said bars pressing them upwardly, substantially as shown and described. 6th. In an organ attachment, the combination, with a main frame set over the key-board of the organ, and provided with marks indicating chords and arranged with relation to the regular keys of the organ, of false keys pivoted on the said main frame and engaging the regular keys of the organ bars, each provided with a number of projections adapted to press the said false keys to sound a chord, a carriage held to slide in the said main frame and provided with a pointer indicating on the said marks, spring-pressed bars held to slide in the said carriage and provided with projections for pressing the said false keys, and springs for holding the said bars in an uppermost position, substantially as shown and described.

No. 33,518. Dress Supporting Steel.

(*Panier de jupon.*)

Mary E. Whalen, New York, N. Y., U. S., 25th January, 1890; 5 years.

Claim.—1st. A dress-steel consisting of a bow having metallic straps secured thereto and forming a bow with double ends, substantially as described. 2nd. A dress-steel consisting of a bow having metallic straps secured thereto and projecting beyond the ends of the bow, substantially as described, whereby a bow with double ends is formed, as and for the purpose set forth. 3rd. The combination, in a dress-steel, of a main member, a connecting-strap for the ends thereof for maintaining it in a bowed position, and metallic exten-

sions united thereto at or near the ends and carrying rings at their free ends, substantially as described. 4th. The combination, in a dress-steel, of a main member, a connecting strap for the ends thereof for maintaining it in a bowed position, a supplemental brace-strap inward from said end, connecting-strap and extensions united to the main member at or near the ends and forming a medium for attaching the steel to a skirt, substantially as described. 5th. A dress-steel consisting of a bow provided with double ends, a catch at one side, and a band secured to the side opposite the catch and having its free end engaging the said catch and clamping the folds of the skirt between said band and bow, substantially as herein shown and described. 6th. In a dress-steel, the combination of a main member or bow having a connecting strap at its end, a band on the outside at the back secured at one end to said main member, and free at the other end to engage said member by a suitable catch, and rings at the forward ends of the steel, substantially as described, whereby the steel may be detachably secured to the skirt at its rear and at two independent parts at its front, as specified.

No. 33,519 Loom for Wire Weaving.

(*Métier à tisser le fil de fer.*)

Nathaniel Greening, Warrington, Eng., 25th January, 1890; 5 years

Claim.—1st. In a wire weaving loom, a beating motion constructed, arranged and operated, substantially as hereinbefore described and as illustrated by the accompanying drawings. 2nd. In the beating up motion of a wire weaving loom, the construction and arrangement of two cams, or of an equivalent duplex or two leaved cam, operating to impart a to and fro or beating up motion to the sley, substantially as hereinbefore described and as illustrated by the accompanying drawings. 3rd. In the beating up motion of a wire weaving loom, the combination and arrangement of a pivoted arm or lever 9 with two friction bowls 4, 5, and a link or links connecting the free ends of the lever 9 with the sley, substantially as hereinbefore described and as illustrated by the accompanying drawings. 4th. In a wire weaving loom, a clutch having vertical driving and driven planes and vertical following planes, constructed substantially as hereinbefore described and as illustrated by the accompanying drawings.

No. 33,520. Feed Box for Feeding Horses and Cattle. (*Crèche pour les chevaux et les bestiaux.*)

Joseph Sanders, Belle Creek, P. E. L., 25th January, 1890; 5 years.

Claim.—1st. In the feed box, Fig. 1, divided into two compartments, a receptacle B and feed department A, the combination therein and therewith of the slanting bottom F and the partition C, ally as and for the purposes hereinbefore set forth. 2nd. In the feed box, Fig. 1, divided into two compartments, a receptacle B and the combination therewith of the slanting bottom F and the adjustable board D, substantially as and for the purposes hereinbefore set forth.

No. 33,521. Apparatus for Distilling and Deodorizing Petroleum. (*Appareil pour distiller et désinfecter le pétrole.*)

George H. Van Vleck (assignee of William H. Pitt), Buffalo, N. Y., U. S., 25th January, 1890; 5 years.

Claim.—The apparatus for distilling and deodorizing petroleum having sulphurous or other offensive odors, said apparatus consisting of a furnace with two fire-places, a retort over one fire-place and a deodorizing receptacle over the other fire-place, a pipe opening into the upper part of the retort and passing down through the retort and out near the bottom of the latter to the said receptacle, which has a discharge outlet for the deodorized vapors, all substantially as described.

No. 33,522. Road Vehicle. (*Voiture routière.*)

Stephen C. Brownell and James K. H. Trouller, Windsor, Ont., 25th January, 1890; 5 years.

Claim.—1st. In a road vehicle, the jack pieces F supporting the seat and attached at their forward ends to a spring secured to the cross bar of the shafts, substantially as shown and described. 2nd. In a road vehicle, the jack pieces having the T-heads J, in combination with the pivot plates K having the lugs L, cups and springs in a road vehicle, as shown and described. 3rd. The combination, B, with the jack pieces F attached to a spring I, secured to the cross bar of the shafts and supporting the oscillating seat A, all substantially as herein shown and described.

No. 33,523. Valve and Means for Operating it. (*Soupepe et moyens de l'actionner.*)

Samuel C. McNeill, Montreal, and Peter Clark, Richmond, Que., 25th January, 1890; 5 years.

Claim.—1st. A valve-chamber having an inlet and an outlet port, and a valve-seat formed either on the inlet or outlet port, a valve designed to fit against the said seat and connected to a piston fitting nation with a small passageway provided with a cut-off valve communicating at one end with the chamber at a point where the inlet of the piston remote from the said inlet port, substantially as and for the purpose specified. 2nd. A valve-chamber having an inlet and an outlet port, and a valve-seat formed on the inlet port, a valve designed to fit against the said seat, and a sleeve M fixed to

the said valve and having a hole N made in it, a piston connected to the said valve and located in the chamber on the opposite side of the outlet, in combination with a small passageway provided with a cut-off valve and communicating at one end with the chamber at a point where the inlet port enters, and at its other end with the said chamber on the side of the piston remote from the inlet, substantially as and for the purpose specified.

No. 33,524. Coupling for Gas and other Pipes. (*Manchon de tuyau à gaz et autres.*)

John S. Hattery, Waterloo, Iowa, and John Van Liew, Van Wert, Ohio, U. S., 25th January, 1890; 5 years.

Claim.—1st. A fitting or coupler for connecting together two pipe-lines placed one inside the other, having the threaded portions or sockets for connection with both pipes made integral with such coupler, and having an outlet leading from the chamber constituting the space between the pipes, such chamber communicating with the outer line of pipes, all substantially as set forth. 2nd. In combination with a double pipe-line composed of one line of pipe surrounding another inner and stronger main pipe, a fitting or coupler having independent sockets into which the sections of both sets of pipes are threaded, and also having within it a chamber or passage communicating with the outer line of pipe, and having an outlet serving to convey away any leakage from the inner pipe, all substantially as and for the purposes set forth.

No. 33,525. Grate. (*Grille.*)

Elonso F. Gordon, Rufus F. Sprague and Charles L. Hecox, Greenville, Mich., U. S., 25th January, 1890; 5 years.

Claim.—1st. A hollow grate bar having the valve opening on its upper side, and adapted to be connected with a pipe or duct, whereby a blast of air may be forced through the said hollow grate bar, substantially as described. 2nd. A grate bar having the bore and provided with the valve seat in its upper side communicating with the bore, and the gravity valve in the said valve seat adapted to be opened by the pressure of a blast of air within the bore, substantially as described. 3rd. The hollow grate bar having the valve seats, in combination with the valves arranged in the said valve seats, the stems or rods depending from said valves and extending through the lower side of the grate bar, and the adjusting nuts secured on the lower end of said stems or rods, for the purposes set forth, substantially as described. 4th. The hollow grate bar having the operating openings and provided at one end with the valve having the operating lever, whereby said valves may be opened, and means, substantially as set forth, to force a blast of air through the hollow grate bar, substantially as described. 5th. The hollow grate bar having the valves provided with the depending stems S, the bell crank lever T connected to the said stem, and the operating rod connected to the said bell crank lever, substantially as described.

No. 33,526. Tool or Apparatus for Inserting Rubber or other Yielding Material into Grooved Tyres for Carriage Wheels. (*Outil ou appareil pour introduire du caoutchouc ou autre matière élastique dans les bandages cannelés des roues de voitures.*)

The Shrewsbury and Talbot Cab and Noiseless Tyre Company (assignee of Howard Unwin), Westminster, Eng., 25th January, 1890; 5 years.

Claim.—The improved apparatus for the purposes aforesaid, consisting of the combination of a lever, one end of which is formed into a suitable tool, a leather or other flexible strap, and a removable bolt connecting the two together and forming a fulcrum for the lever, substantially as hereinbefore described and illustrated by the drawings annexed.

No. 33,527. Vehicle Spring. (*Ressort de voiture.*)

Ambrose J. Barrett and Ephraim F. Barrett, Prairieville, Mich., U. S., 25th January, 1890; 5 years.

Claim.—1st. A vehicle spring consisting of two inverted semi-elliptical end sections B, a semi-elliptical central section D, the ends of which are connected to the concave faces of the end sections at or near the centre, and links G pivoted at their lower ends to the inner ends of the end sections, and at their upper ends to the concave face of the central section at or near its centre, substantially as described. 2nd. The combination of the downcurved semi-elliptical spring D of a given spring, upcurved semi-elliptical springs B adjacent to the centre of spring D, connected at their inner ends to about half the strength of said links and provided at centre with clips B' to the lower ends of the downcurved springs D, substantially as described. 3rd. A vehicle spring consisting of a portion of the semi-elliptical spring D rigidly attached at one of its ends to the vehicle body, and at its other end to the central portion of one of the end sections B by the clip C, substantially as described.

No. 33,528. Sliding Hill and Toboggan to be used therewith. (*Montagne russe et toboggan.*)

Byron B. Floyd, Haverhill, Mass., John F. Norton, Frederick W. Hammett and Frank Hall, Philadelphia, Penn., U. S., 25th January, 1890; 5 years.

Claim.—1st. The sliding hill A in combination with the elevators C, C', and the truck or carriage E interposed and capable of run-

ning between the terminal point of said hill and said elevators, substantially as shown and described. 2nd. A sliding hill of elliptical or spiral form and having the starting point at substantially the highest elevation and adjacent to an elevator, and the terminal point at substantially the lowest plane and extending beyond and curving to the rear of an elevator adapted to receive a toboggan for its elevation to the starting point, substantially as shown and described. 3rd. A sliding hill A provided with a forked section A' and hinged rails, and having projecting outer ends A" raised by an elevator to form a connection between the incline ways of said elevator and tracks of said sliding hill, substantially as shown and described. 4th. In combination with a sliding hill, a forked section A' with inner rails terminating on a platform D, and the outer rails at their junction with the main tracks having openings b, which are closed by hinged gates or flaps c, substantially as shown and for the purposes set forth. 5th. In a sliding hill, tracks or way consisting of friction strips I, rails J, and felt or other material K interposed between them, substantially as and for the purposes set forth. 6th. A sliding hill consisting of a series of angle irons G, as shown, and supported by rods H, friction strips I secured to said angle irons, rails J secured to said friction strips, and felt or other material K interposed between said strips and rails, substantially as described. 7th. In the sliding hill A having tracks or ways consisting of flat rails, the toboggan L provided with flanged wheels, as described, and permitted to travel over said hill, substantially in the manner shown and described. 8th. In combination with a toboggan provided with a saddle-shaped frame M, a saddle N mounted in said frame, and a double flanged wheel P, substantially as shown and described. 9th. The combination, in a toboggan, of trucks consisting of a saddle-shaped frame M adapted to be secured to the side of said vehicle, a saddle N mounted in said frame and having a flanged wheel P journaled thereto, a rod R having at its lower extremity an arm S with friction rollers T, arms g and g', bar g², and a rod U forming a connection with said arms g' on each side of said vehicle, substantially as and for the purposes set forth. 10th. The combination, with a toboggan provided with trucks consisting of a frame M adapted to be secured to the side of the vehicle, and the inner arm of said frame extending beneath the bottom of said vehicle, and a roller journaled thereto, a saddle mounted in said frame, and a flanged wheel P journaled to said saddle, substantially as shown and described. 11th. A sliding hill of elliptical form having the starting at the highest elevation, an elevator disposed adjacent thereto, and the several courses of said hill terminating at a lower plane beyond the starting point and curving to the rear of another elevator, and a toboggan with its trucks and wheels, arranged as described to travel over said hill. 12th. A sliding hill of elliptical or similar form having the starting point at the highest elevation and adjacent to an elevator, and the series of courses of the hill disposed beneath one another and terminating beyond the starting point in rear of another elevator, a truck or carriage interposed between said terminal point and elevator, and a toboggan, as described, to run over the courses of said hill, substantially as and for the purposes set forth. 13th. A sliding hill, two elevators disposed adjacent to the starting and terminal points of said hill, a drum cable and motive power for operating said elevators, substantially as shown and described. 14th. A sliding hill, elevators arranged contiguous to the starting or terminal point, a cable or rope wound around a grooved drum and passing over pulleys to said elevators, and means for permitting of the actuation of said drum, substantially as and for the purposes set forth. 15th. A sliding hill, elevators disposed adjacent to the starting and terminal points of said hill, means, substantially as described, to raise and lower said elevators, and a truck or carriage interposed between the terminal point of said hill and said elevators, substantially as shown and described.

No. 33,529. Station Indicator.

(Indicateur de station.)

Athol B. Macklin, Toronto, Ont., 28th January, 1890; 5 years.

Claim.—1st. The combination, with an integrant rectangular case, having a rectangular opening in front, the borders of which are swelled outwards and provided with rabbits adjacent to their inner edges, and the glass pane to be inserted therein, of the rolls B and B' and the web I, as and for the purpose set forth. 2nd. The combination, with an integrant rectangular case, having a rectangular opening in front, of the rollers B and B' and web I, said rollers having the screws e at one end, the barrel of which rests within the holes in the sides of said case to form journals therefor, as set forth. 3rd. The combination, with an integrant rectangular case, having a rectangular opening in front, of the rollers B and B', caps c and c' fitting over the ends of said rollers, said caps c having a concentric stud projecting therefrom, and said caps c', having screws e passing through the adjacent side of said case, to serve as journals for said rollers, and web I, as and for the purpose set forth. 4th. The combination, with case A, having a rectangular opening in front, of rollers B and B', web I and guide rollers K, as set forth. 5th. The combination, with case A, having a rectangular opening in front, of rollers B and B', cog wheels c' and c' secured on the ends of said rollers, web I and gear D, as and for the purpose set forth. 6th. The combination with case A, having a rectangular opening in front, of rollers B and B', cog wheels c' and c' on the corresponding ends thereof, gear D, shaft E and gong G, as set forth. 7th. The combination, with case A, having a rectangular opening in front, of rollers B and B', cog wheels c' and c' on corresponding ends thereof, gear D, shaft E, spur-wheel F, gong G, and a double hammer, consisting of the boss g' arms g' and spur h, as and for the purpose set forth. 8th. The combination, with case A, having a rectangular opening in front, of rollers B and B', web I and cogs c', c' of shaft E, gear D, spur-wheel F, gong G, and a double hammer consisting of boss g, arms g' and spur h projecting therefrom, and springs u', as set forth.

No. 33,530. Car Seat. (Banquette de char.)

Athol B. Macklin, Toronto, Ont., 23th January, 1890; 5 years.

Claim.—1st. The combination, with the seat cushion, having longitudinal tenons on its side edges, and side frames A having longitudinal grooves therein of a reversible back, as set forth. 2nd. The combination, with the seat cushion, having longitudinal tenons projecting from its side rails, and having longitudinal tenons projecting d, of the side frames A having the transverse reciprocating and provided with a series of recesses b, as set forth. 3rd. The combination, with the seat cushion lever D and bolts d, of the side frames A having a series of recesses b, b, therein, as set forth. 4th. The combination, with the seat cushion lever D, bolts d and springs set forth. 5th. The combination, with a series of recesses b, b, therein, as frames, of the link G, the back H, the plate h, having the segmental frame a', which are recessed at j, as and for the purpose set forth. 6th. The combination, with the seat cushion and side frame A, having a series of recesses k therein, of the links G pivoted to the side frame, spring K and back H, as and for the purpose set forth. 7th. The combination, with the seat cushion and side frames A, having a series of recesses k therein, as described, of the links G, springs K, which are turned outwards, and as for the purpose set forth. 8th. The combination, with a longitudinally adjustable seat cushion and side frames A, of the links G and the independently oscillating back a', as set forth. 9th. The combination, with a longitudinally adjustable seat cushion side frames A, links G and back H, of an oscillating foot rest, having the bearings in the said side frames with ratchets r and r' at one end, and the spring s at the other, substantially as and for the purpose set forth.

No. 33,531. Riding Plough. (Charrue à siège.)

David Thom, Watford, Ont., 28th January, 1890; 5 years.

Claim.—1st. The tongue G, provided with tongue bars G', pivotally secured to, and in combination with, the beam A, and the flanges, collars or sleeves H' inserted between the tongue bars and the beam, as and for the purpose set forth. 2nd. The combination of the tongue G, the tongue bars G', the jaws H, flanges, collars or sleeves H', and the plough beam A, as and for the purpose set forth. 3rd. The tongue G, tongue bars G', the beam A and the flanges, collars or sleeves H', in combination with the plough, the lever I², spring bolt or dog I', toothed segment I³, supplemental frame B, connecting bar J' and arm I, as and for the purpose set forth. 4th. The adjustable bar J and the anti-friction wheel J', in combination with the plow having the recess J² formed therein, and means for securing them together, as and for the purpose set forth. 5th. The adjustable bar J, having slots J³ formed therein, the anti-friction wheel J', the brace rod J³ and frame B, in combination with the plough having the recess J² formed therein, and means for securing them together, as and for the purpose set forth. 6th. The adjustable bar J, the anti-friction wheel J', the plough having the recess J² formed therein, and the beam A, in combination with the tongue G, the tongue bars G', the flanges, collars or sleeves H', the arm I, the tongue bar I', the lever I², the spring bolt or dog I', the toothed segment I³ and the supplemental frame B, as and for the purpose set forth. 7th. The pivotal arm I⁴, in combination with the trip I⁵, having a shoulder I⁶ formed thereon, the lever I², the connecting rod I³ and spring bolt or dog I', as and for the purpose set forth. 8th. The lever K¹ carrying the depth wheel K and provided with a spring bolt or dog and the toothed segment K², said lever being pivotally secured to, and in combination with the plough beam A, as and for the purpose set forth. 9th. The combination of a clevis or bridge, having a pivotal lateral movement, and a suitable support to which it is pivoted, and any suitable means for pivotally adjusting and holding said clevis more or less to either side of the plough beam, as and for the purpose set forth. 10th. A coupling u and a clevis o, one having a pivotal vertical, and the other a pivotal lateral movement, in combination with the jaws or beam A of a plough, and means for pivotally adjusting and holding said clevis more or less to either side of the plough beam, as and for the purpose set forth. 11th. The combination of the bell crank S, the segment R², the bracket R, the axle R³, the gauge or press wheel R¹, the ring clutch T, the collar T' and lever P', and devices for connecting the bell crank S with the lever P', and means for holding the lever at the position to which it is adjusted, and the beam A, as and for the purpose set forth. 12th. The combination of the coupling u, beam A, clevis O, connecting bar P having perforations T³ formed therein, with the rod P², bell crank S, segment R², bracket R, axle R³, gauge or press wheel R¹, ring clutch P and collar P', and means for adjusting and holding these devices at the position to which they are adjusted, substantially as and for the purpose set forth. 13th. The combination of a clevis O, having a pivotal lateral movement, with an adjustable press or gauge wheel R¹, for the purpose set forth. 14th. The combination of the adjustable brace M, supplemental frame B and beam A, as and for the purpose set forth.

No. 33,532. Seat. (Siège.)

Ronald Gillis, Sydney, N.S., 28th January, 1890; 5 years.

Claim.—The combination of the piece a, with the pieces b, b, substantially as and for the purpose hereinbefore set forth.

No. 33,533. Ventilator. (Ventilateur.)

Peter Abrahamson, San Francisco, Cal., U. S., 28th January, 1890; 5 years.

Claim.—1st. A ventilator for the walls of buildings, houses, apartments, etc., consisting of a box or case, having a central partition dividing it into independent separate passages, each passage having an aperture on opposite sides and at different elevations, one communicating with the outside and the other with the inside, the apertures on the same level in the two passages being reversed with re-

oil can, the combination, with the body A, the nozzle C and the perforated valve-seat, of the valve I, the valve-stem J consisting of a lever fulcrumed at an intermediate point to one end of which said valve is secured, the push-rod M engaging the other end of said stem, the rod W resting upon the bottom of the can and forming the support for the fulcrum of the valve-stem, and the spring V bearing at one end upon said stem, and at the other end secured to the can, said spring having intermediate of its ends, coils surrounding and countersunk into said rod, substantially as set forth. 7th. In an oil can, the combination, with the body A, the nozzle C and the perforated valve-seat, of the valve I, the valve-stem J to one end of which said valve is secured, the push-rod M engaging the other end of said valve-stem, the rod W, the saddle S secured to said rod and in which the valve-stem is fulcrumed and the spring V bearing at one end upon the valve-stem coiled at an intermediate part around the rod W, and at the other end secured to the can, substantially as set forth. 8th. In an oil can, the combination, with the body A, the nozzle C and the perforated valve-seat, of the valve, the valve-stem, the push-rod, the rod W, the saddle S on which the valve-stem is fulcrumed, having its under side hollowed out and fitting the rod W to which it is secured, and the spring V bearing at one end upon the valve-stem coiled at an intermediate part around the rod W, and at its other end secured to the can, substantially as set forth. 9th. In an oil can, the combination, with the body A, the nozzle C and the perforated valve-seat, of the valve I, the valve-stem J having the flattened portion J, the rod W, the saddle S secured to the rod W, and having the perforated ears *s* between which fits the flattened portion of the valve-stem, the fulcrum-pin *f* passing through said perforations, the spring V bearing at one end upon the valve-stem coiled at an intermediate part around the rod W, and at the other end secured to the can, and the push-rod M, substantially as set forth. 10th. In an oil can, the combination of the following elements, to wit, the body A, the nozzle C, the perforated valve-seat, the valve-stem J having one end flattened and provided with an elongated perforation *j*, and having at an intermediate point a second perforation, the valve I having perforated ears between which the flattened end of the valve-stem fits the pin *p* passing through said perforations, the rod W resting upon the bottom of the can and having the contracted portions *w*, the saddle S secured to said rod and having the perforated ears *s* between which the valve-stem fits, the fulcrum-pin *f* passing through the perforations of the ears *s* and through the second named perforation of the valve-stem, the push-rod M and the V-shaped spring V bearing at one end V¹ upon the valve-stem, having its other end secured to the can, and having intermediate of its ends coils surrounding the contracted portions *w* of the rod W, substantially as set forth.

No. 33,541. Sliding Door Lock.

(*Serrure de porte glissante.*)

Stephen W. Hunton, Wilksburg, Penn., U.S., 31st January, 1890; 5 years.

Claim.—1st. A lock for sliding doors consisting of two blocks limited to vertical movement in opposite directions on a fixed base, and having interlocking fingers formed in their opposing edges, and a recess for the reception of a bolt-head, and a headed bolt limited to endwise movement in a line at right angles to the line of movement of the blocks, substantially as and for the purpose described. 2nd. A lock for sliding doors consisting of two sliding blocks limited to vertical movement in opposite directions on a guideway of a base, and having the interlocking fingers and a recess formed in their opposing edges, an axially-turning shaft connected by intermediate devices with said blocks for adjusting the latter simultaneously in opposite directions and a headed bolt, substantially as and for the purpose described.

No. 33,542. Saw Swaging Machine.

(*Machine à étamper les scies.*)

Noah W. Mortorff, Solomon Mottinger and Simon Mottinger, Jennings, Mich., U.S., 31st January, 1890; 5 years.

Claim.—1st. In a saw swaging machine, the combination, with a swage block having a longitudinally extending slot, of an eccentric die mounted to turn in the said swage block, an anvil die held ad-

justably in the said swage block, an arm projecting from the said swage block and a spring-pressed tooth plate held on the said arm, substantially as shown and described. 2nd. In a saw swaging machine, the combination, with a swage block having a longitudinally-extending slot, of an eccentric die mounted to turn in the said swage block, an anvil die held adjustably in the said swage block, an arm projecting from the said swage block, a spring-pressed tooth plate held on the said arm, and a clamping device, substantially as shown and described.

No. 33,543. Bureau Drawer.

(*Tiroir de commode.*)

Dwight C. Clapp, The Estey Manufacturing Company, David M. Estey and Charles E. Rigley, Owosso, Mich., U.S., 31st January, 1890; 5 years.

Claim.—The combination, with the casing carrying the strip having a beveled face, of the drawer having its front portion extending beyond and above the sides of the drawer, and formed with an incline or bend on the upward extension thereof, whereby the sides of the drawer are prevented from binding in the casing, and the incline of the strip and drawer form a close joint and prevent binding of the front of the drawer, substantially as described.

No. 33,544. Art of Printing, Lithographing, &c.

(*Art d'imprimer, lithographier, &c.*)

The Zenolite Manufacturing Company, Philadelphia, Penn., (assignee of Oliver G. Holt, Louisville, Ky.), U.S., 31st January, 1890; 5 years.

Claim.—1st. The herein-described improvement in the art of type and plate printing, lithographing and doing other impression-work, which consists in printing, lithographing, &c., by means of natural semi-fluid maltha. 2nd. The herein-described improvement in the art of type and plate printing, lithographing and doing other impression-work, which consists in printing, lithographing, &c., by means of an ink composed of natural semi-fluid maltha and of a pigment or pigments.

No. 33,545. Ink. (*Encre.*)

The Zenolite Manufacturing Company, Philadelphia, Penn., (assignee of Oliver G. Holt, Louisville, Ky.), U.S., 31st January, 1890; 5 years.

Claim.—1st. An ink composed of natural semi-fluid maltha and a pigment or pigments.

No. 33,546. Surgical Splint. (*Eclisse de chirurgie.*)

George Beacock, Charles H. McCrady, Brockville, Ont., and Thomas J. Claxton, Montreal, Que., 31st January, 1890; 5 years.

Claim.—A surgical splint made of raw hide molded to suit the fractured limb and adapted to be laced or bound to the limb as set forth.

No. 33,547. Condenser for Condensing the Products of the Distillation of Wood.

(*Condensateur des produits de la distillation du bois.*)

Edward W. Rathbun, Deseronto, Ont., (assignee of Elbert J. Burrell, Newbury, Mich., U.S.), 31st January, 1890; 5 years.

Claim.—As a condenser of the products of the distillation of wood, the tube A surrounded by the casing B with a liquid tight space D between, and having within A a series of perforated diaphragms E, E, E, &c., as herein described and for the purpose specified.

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

1669. R. C. COMBES, 2nd 5 years of No. 21,005, from the 30th day of January, 1890. Improvements on Torpedo Railway Signals, January 3rd, 1890.
1670. THE CANADIAN ELECTRICAL CO. (assignee), 2nd 5 years of No. 20,840, from the 7th day of January, 1890. Improvements in Thermo-Electric Generators, January 3rd, 1890.
1671. W. T. & I. SHADWICK, 3rd 5 years of No. 10,888 from the 28th day of January, 1890. Improvements in the Art or Process of Manufacturing and Purifying Sulphate of Alumina and Alum, January 3rd, 1890.
1672. P. W. ST. GEORGE, 2nd 5 years of No. 21,401, from the 13th day of April, 1890. Improvements in Street Shafts and Gullies, January 7th, 1890.
1673. C. J. HIGGENS, 2nd 5 years of No. 20,852, from the 8th day of January 1890. Improvements in Lantern Holders, January 8th, 1890.
1674. G. T. SMITH, 2nd 5 years of No. 21,007, from the 31st day of January 1890. Improvements on Devices for Stretching Bolting Cloths, January 8th, 1890.
1675. G. S. BAKER, 2nd and 3rd 5 years of No. 23,884, from the 8th day of Feb., 1891. Improvements in Machines for Baking Sugar Wafer Cakes, etc., etc., January 8th, 1890.
1676. I. J. MERRICK, 2nd 5 years of No. 20,851, from the 8th day of January 1890. Improvements in Car Couplings, January 8th, 1890.
1677. NOYES & ANDREWS, 2nd 5 years of No. 20,886 from the 15th day of January 1890. Improvements in Lumber Driers, January 15th, 1890.
1678. J. Mc ADAM, 2nd 5 years of No. 20,893, from the 16th of January 1890. Improvements in Butter Tubs, January 11th, 1890.
1679. L. BARNES, 2nd 5 years of No. 21,014, from the 31st January, 1890. Improvements on Fences, January 13th 1890.
1680. W. F. PHILLIPS, 2nd 5 years of No. 10,861, from the 22nd January 1890. Improvements on Pleasure Swings, January 15th, 1890.
1681. A. H. DINGMAN, 2nd 5 years of No. 21,006, from the 30th January, 1890. Improvements in Machines for Waxing Paper, January 16th, 1890.
1682. J. B. WHITE (assignee), 2nd 5 years of No. 10,839, from the 20th day of January, 1890. Improvements in the Art of Manufacturing Horse Shoes, January 17th, 1890.
1683. J. M. ALLEN, 2nd 5 years of No. 20,946, from the 23rd of January, 1890. Improvements on the Art or Process of Making Paper Pulp and Paper, January 18th 1890.
1684. S. LAWSON, 2nd 5 years of No. 20,963, from the 26th day of January, 1890. Improvements on Gas Engines for Pumping Water etc., January 20th, 1890.
1685. S. LAWSON, 2nd 5 years of No. 20,964, from the 26th day of January, 1890. Improvements on Gas Engines, January 20th, 1890.
1686. A. HARRIS SON & CO., 2nd 5 years of No. 10,893, from the 31st day of January, 1890. Improvements on Mowing Machines, January 21st, 1890.
1687. W. Mc SHANE, 2nd 5 years of No. 22,373, from the 3rd day of September, 1890. Improvements in Faucets, January 24th, 1890.
1688. J. GOOD, 2nd 5 years of No. 21,165 from the 26th day of February, 1890. Improvements in Machinery for Spreading and Drawing Hemp, etc., January 24th, 1890.
1689. R. POTTS, 2nd and 3rd 5 years of No. 32,154, from the 30th day of October, 1893. Improvements in Registering Gauges for Railway Car Brakes, January 25th, 1890.
1690. A. M. ROSEBRUGH, 2nd 5 years of No. 21,042, from the 31st day of January, 1890. Improvements on Galvanic and Combination Galvanic and Faradic Batteries.
1691. R. MULHOLLAND, 2nd 5 years of No. 21,012, from the 31st day of January, 1890. Improvements on Vehicle Springs, January 30th, 1890.
1692. R. HELGNER and G. B. LAURASON, 2nd 5 years of No. 21,036, from the 31st day of January, 1890. Improvements in Binding Attachments for Sewing Machines, January 30th, 1890.
1693. J. G. SANDEMAN and P. EVERITT, 2nd 5 years of No. 21,009, from the 30th day of January, 1890. Improvements on Apparatus for Delivering Prepared Goods.

JANUARY LIST OF TRADE MARKS.

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

3621. HUDSON EWBANKE KEARLEY and GILBERT AUGUSTUS TONGE, of Aldgate, London, England, Tea, 2nd January 1890.
3622. } CHRISTY and COMPANY, LIMITED, of London, England. Hats, Caps, and
3623. } Helmets, 3rd January, 1890.
3624. TARR and WONSON, of Gloucester, County Essex, Mass., U.S.A. Metallic or Copper Paints, 7th January, 1890.
3625. J. and P. COATS, of Paisley, Scotland. Thread, 8th January, 1890.
3626. JOHN TAYLOR, of Toronto, Ont. Toilet Soaps, 9th January, 1890.
3627. ZOTIQUE MERINEAU, de Montreal, Que. Vermicelli, 10 Janvier, 1890.
3628. TASSE, WOOD and COMPANY, of Montreal, Que. Cigars, 10th January, 1890.
3629. LESLIE JAMES SKELTON, of Montreal, Que. All Shirts, Collars, Cuffs, except those made of paper, 17th January, 1890.
3630. C. ALFRED CHOUILLOU de Montreal, Que. Marque de Commerce Generale, 17 Janvier, 1890.
3631. G. and G. STERN, of 62 Gray's Inn, Road, London, England. Chemical Substances used for Agricultural Horticultural, Veterinary and Sanitary purposes, and also for use in Medicine and Pharmacy, 18th January, 1890.
3632. THE PHOTO PACKET PURE TEA COMPANY, of Idol-Lane, London, England. Substances used as Food, or as Ingredients in Food, including Tea, 18th January, 1890.
3633. BARLOW and JONES, LIMITED, of 2 Portland Street, Manchester, England. Cotton, Linen and Hemp goods, articles of Clothing and Linen Towels, 18th January, 1890.
3634. HORACE R. KELLY and COMPANY, LIMITED, of New York, U.S.A. Cigars and Cigarettes, 20th January, 1890.
3635. CHARLES K. SHORT, of St. John, N.B. A Medicine for the Relief and Cure of Dyspepsia, 21st January, 1890.
3636. JOHN GEORGE SAVAGE, of Montreal, Que. Baby's Own Soap, 21st January, 1890.
3637. S. DAVIS and SONS, of Montreal, Que. Cigars, 22nd January, 1890.
3638. M. G. EDSON and COMPANY, of Montreal, Que. Mustards, 22nd January, 1890.
3639. THE DANA SARSAPARILLA COMPANY, of Belfast, County Waldo, Maine, U.S.A. General Trade Mark, 23rd January, 1890.
3640. LOUIS PHILIPPE TROTTER, of Three Rivers, Que. Axes, 25th January, 1890.
3641. WALTER H. COTTINGHAM, of Montreal, Que. Dyes, Stains, Dye Stuffs and Wood Stains, 27th January, 1890.
3642. S. RAE and COMPANY, of Leghorn, Italy. A Fine Grade of Olive Oil, known as "Lucca Oil," 27th January, 1890.
3643. PILGRIM BROTHERS, of Hamilton, Ont. Mineral and Aerated Waters, 28th January, 1890.
3644. WILLIAM BARBOUR and SONS, LIMITED, of Hilden Thread Works, Lisburn, Ireland. Linen and Hemp Yarns and Threads of all kinds, including Shoe and Machine Threads, and Silk-Spun, Thrown or Sewing, 30th January, 1890.

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5192. **THE GONDOLIERS**; or, *The King of Barataria*. An entirely Original Comic Opera in Two Acts. By W. S. Gilbert. The Anglo-Canadian Music Publishers' Association. L'd.) London, England, 3rd January, 1890.
5193. **A HANDBOOK ON THE CONDITIONAL SALES ACT**, being an Annotation of the Act respecting Conditional Sales of Chattels (51 Victoria, Chap. 19, Ont.), to which is appended a complete set of Forms, by John Augustus Barron. Carswell and Company, Toronto, Ont., 3rd January, 1890.
5194. **REÇU**, marque **SERIE A** (La Canadienne Compagnie d'Assurance sur la Vie). Pierre Garon. Montreal, Que., 3 Janvier, 1890.
5195. **CIRCULAIRE B** (La Canadienne Compagnie d'Assurance sur la Vie). Pierre Garon. Montreal, Que., 3 Janvier, 1890.
5196. **JOSHUA**. By George Ebers, (book).
 5197. **SYLVIA ARDEN**. By Oswald Crawford (book).
 5198. **THE MYNN'S MYSTERY**. By George Manville Fenn (book).
 5199. **NURSE REVEL'S MISTAKE**. By Florence Warden (book).
 John Lovell & Son, Montreal, Que., 4th January, 1890.
5200. **STAY DARLING, STAY**. Song. Words by Mike Beverly. Music by Theo. Margzals. The Anglo-Canadian Music Publishers' Association (L'd), London, England, 7th January, 1890.
5201. **BIRD'S EYE VIEW OF THE CITY OF VANCOUVER**.
 5202. **BIRD'S EYE VIEW OF THE CITY OF NEW WESTMINSTER**.
 Lithograph engravings. Sarah Annie McLagan, Vancouver, B.C., 9th January, 1890.
5203. **FORM OF APPLICATION FOR MEMBERSHIP IN A MUTUAL OR BENEFIT INSURANCE ASSOCIATION**. Charles Frederick Bunbury. Toronto, Ont., 9th January, 1890.
5204. **THE ONTARIO REPORTS**. Volume XVII. Containing Reports of Cases Decided in the Queen's Bench, Chancery and Common Pleas Divisions of the High Court of Justice for Ontario. Editor, James F. Smith, Q.C.; Reporters, Queen's Bench Division, E. B. Brown; Chancery Division, A. H. F. Lefroy, George A. Boomer; Common Pleas Division, George F. Harman, Barristers at Law. The Law Society of Upper Canada, Toronto, Ont., 10th January, 1890.
5205. **THE GREAT HYMNS OF THE CHURCH**. By Rev. Duncan Morrison, M.A. (book). Hart & Co., Toronto, Ont., 10th January, 1890.
5206. **BLIND LOVE**. By Wilkie Collins (book). The National Publishing Co., Toronto, Ont., 10th January, 1890.
5207. **THOU HIDDEN SOURCE**. Hymn. For Double Choir. By T. C. Jeffers, F.C.O. I. Suckling & Sons, Toronto, Ont., 11th January, 1890.
5208. **BELL TELEPHONE COMPANY OF CANADA, HAMILTON AND DUNDAS EXCHANGES, SUBSCRIBER'S DIRECTORY, ONTARIO DEPARTMENT, JANUARY, 1890**. The Bell Telephone Company, of Canada, Montreal, Que., 14th January, 1890.
5209. **SPRING REVERIE**. Words by E. E. C. Music by Emma Fraser Blackstock, Toronto, Ont., 14th January, 1890.
5210. **SEWAGE AND GARBAGE DISPOSAL**. First Edition. The Sanitary Engineering Company of Toronto. Limited, Ont., 16th January, 1890.
5211. **TECUMSEH**. Waltz. By Ida F. Richardson. The Anglo-Canadian Music Publishers' Association (L'd.) London, England, 17th January, 1890.
5212. **PRACTICAL PROBLEMS IN ARITHMETIC**. By J. White. The Grip Printing and Publishing Co., Toronto, Ont., 17th January, 1890.
5213. **THE LUMBERMAN'S LOG BOOK**. Compiled by Patrick John Durkin, Toronto, Ont., 17th January, 1890.
5214. **ALL THE GO**. Lancers. Arranged by Charles Bohner. Whaley, Royce & Co., Toronto, Ont., 20th January, 1890.
5215. **ONE HUNDRED LESSONS IN ENGLISH COMPOSITION**. By W. H. Huston, M.A. The Grip Printing and Publishing Co., Toronto, Ont., 21st January, 1890.
5216. **LITHOGRAPHIC PLAN AND BIRD'S EYE VIEW OF THE CITY OF LONDON, ONTARIO**. William Greenwood and Edward Robert Richards, London, Ont., 24th January, 1890.

5217. { Dictionnaire GÉNEALOGIQUE DES FAMILLES CANADIENNES. Volume 5.
5218. { Dictionnaire GÉNEALOGIQUE DES FAMILLES CANADIENNES. Volume 6.
Mgr. Cyprien, Tanguay, Ottawa, Ont., 25 Janvier, 1890.
5219. LIFE INSIDE THE CHURCH OF ROM". By M. Francis Clare Cusack, "The Nun of Kenmare." Wm. Briggs, Toronto, Ont., 29th January, 1890.
5220. AN OCEAN TRAGEDY. By W. Clark Russell. The National Publishing Co., Toronto, Ont., 29th January, 1890.
5221. HUNTER QUATERMAIN'S STORY. LONG ODDS. A TALE OF THREE LIONS. By H. Rider Haggard. Wm. Bryce, Toronto, Ont., 30th January, 1890.
5222. THE MINISTRY OF FLOWERS AND OTHER POEMS. By Mrs. Mary Norton, Mount Forest, Ont., 30th January, 1890.
5223. MENUET FOR PIANO. (Op. 14, No. 1.) By J. J. Paderewski. I. Suokling & Sons, Toronto, Ont., 30th January, 1890.
5224. HIS EXCELLENCY LORD STANLEY OF PRESTON (photo. 10 x 8). }
5225. HER EXCELLENCY LADY STANLEY OF PRESTON (photo. 10 x 8). }
5226. HER EXCELLENCY LADY STANLEY OF PRESTON (photo Cabinet. }
W. J. Topley, Ottawa, Ont., 30th January, 1890.
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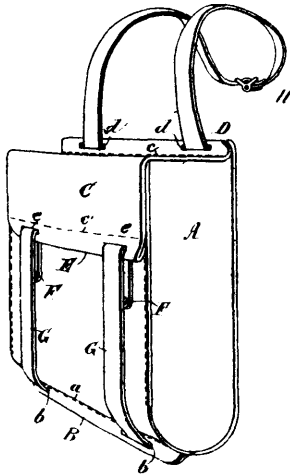
THE CANADIAN PATENT OFFICE RECORD

ILLUSTRATIONS.

Vol. XVIII.

JANUARY, 1890.

No. 1.



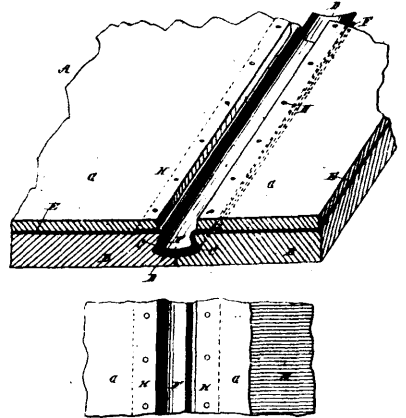
33253

Dwyer's Knapsack, etc.



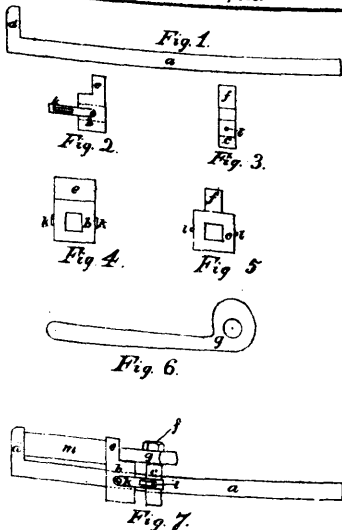
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Idhe's Belt, etc.



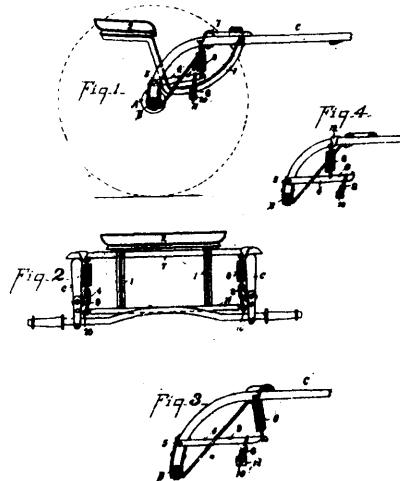
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Le Gros' Car Roof.



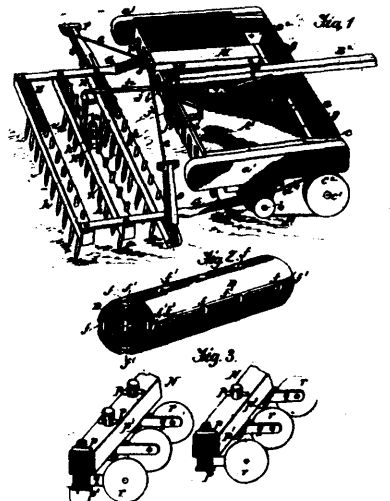
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Roblin's Clamp



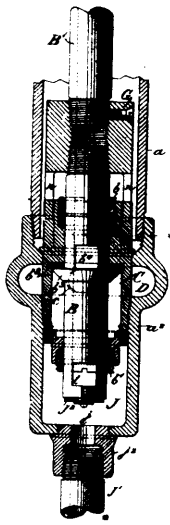
33257

Leak's Two-Wheeled Vehicle.

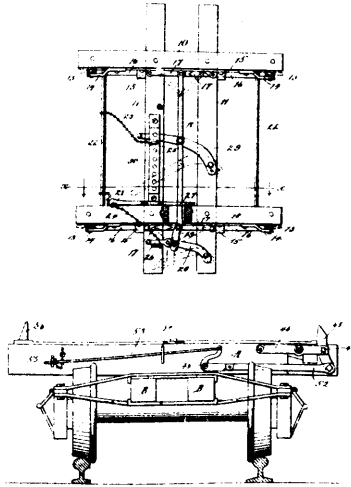


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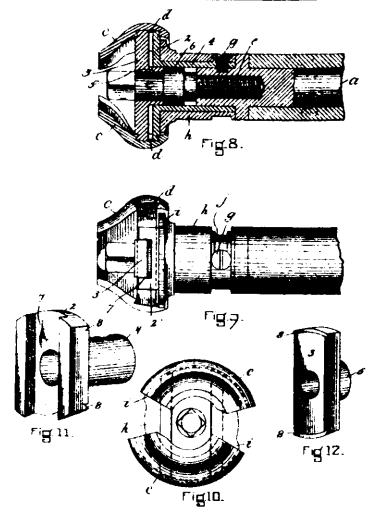
Kendall's Pulverizer, etc.



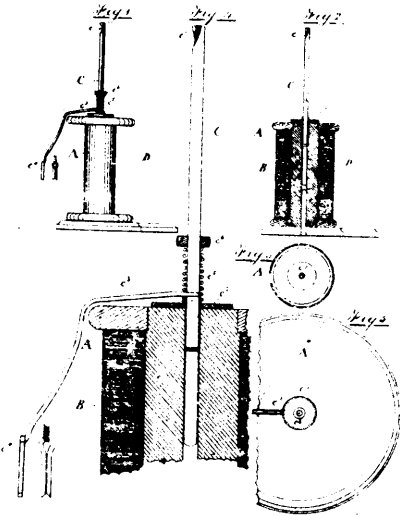
33259 McElhose's Hydrant.



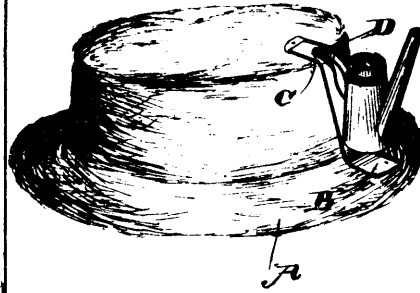
33260 Thompson's Dog Attachment for Log Cars, etc.



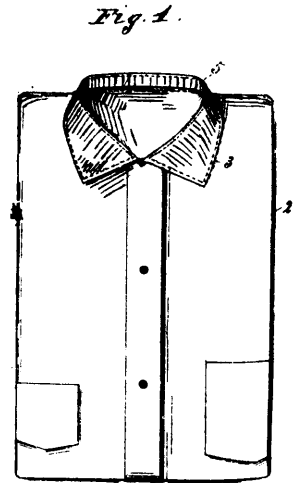
33261 Ethridge's Heel Trimming Machine.



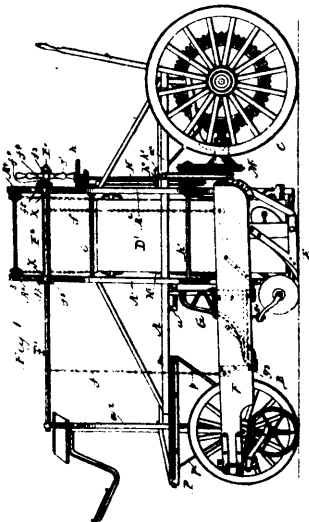
33262 Wylie & Allan's Device for Unwinding Spool Thread.



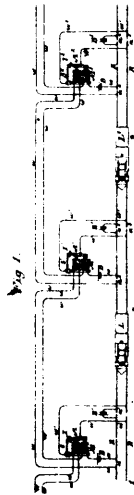
33263 Hobson's Lamp Carrier.



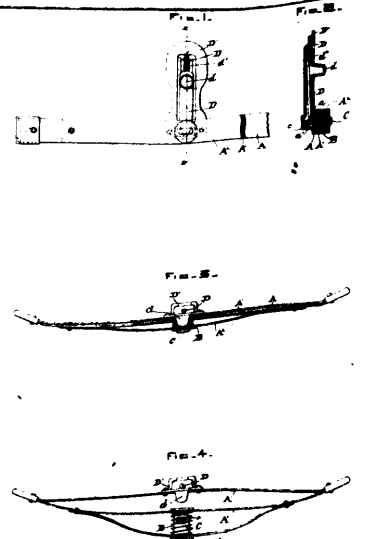
33264 Whitcomb's Collar Stay.



33265 Bunnell's Grading and Ditching Machine.



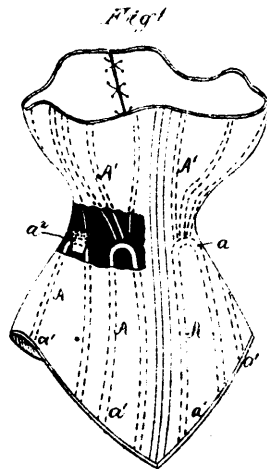
33266 Hayden's Electrical Railway Signal.



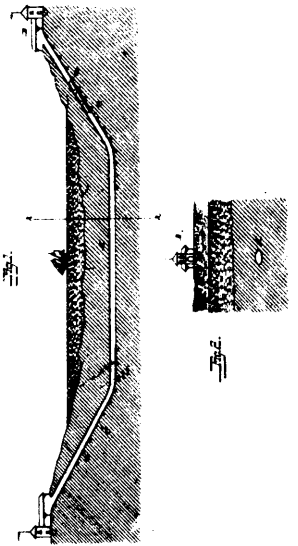
33267 Woodsford's Pocket Fastener.



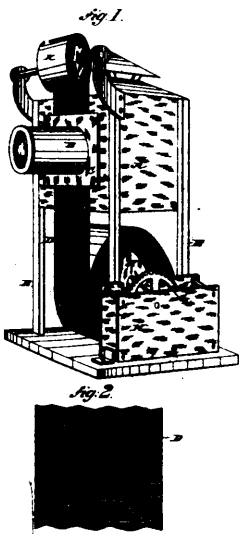
33268 Vermelyea's Corset.



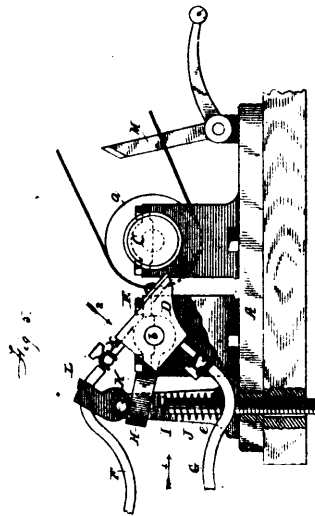
33269 Griswold's Corset.



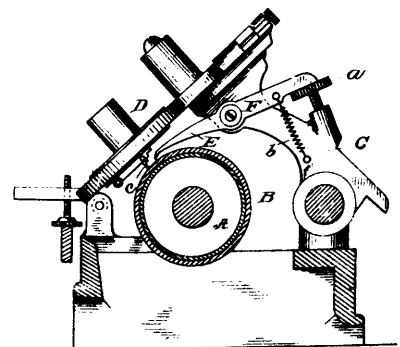
33270 Henning's System of Transportation.



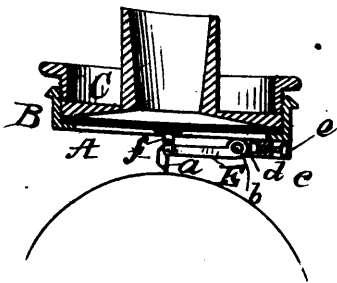
33271 Potter's Magic Lantern.



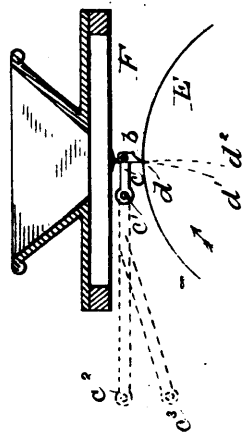
33272 Edison's Phonogram Blank.



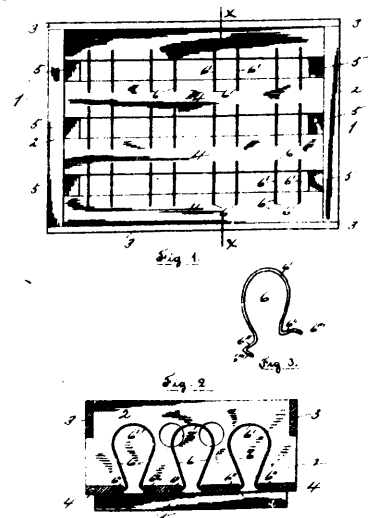
33273 Edison's Phonograph Recording Surface.



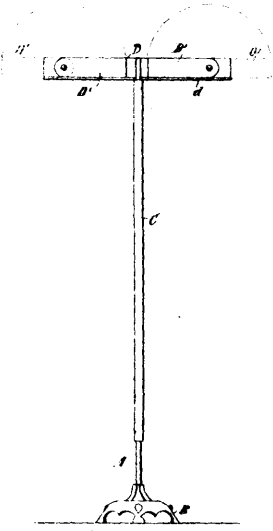
33274 Edison's Phonograph Recorder.



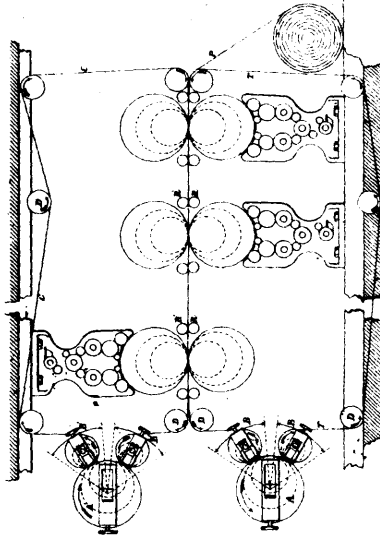
33275 Edison's Recording and Reproducing Sounds.



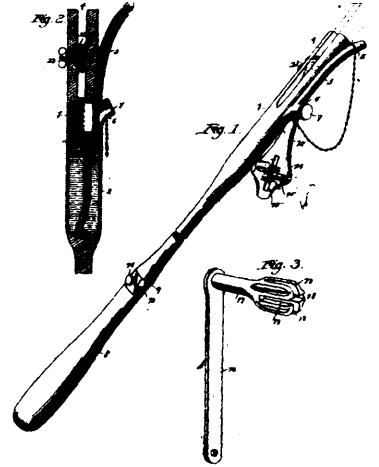
33276 Eddy's Egg Carrier.



33271 Hamilton's Device for Advertisement, etc.



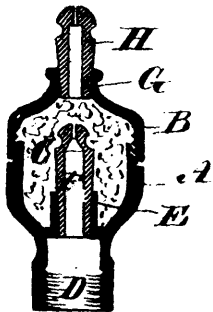
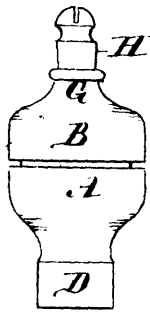
33278 Lafitte's Cylinder Printing Machine.



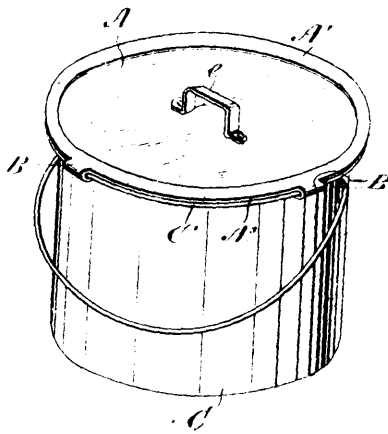
33279 Lindsay's Torch and Gas Burner Key.

Fig. 1.

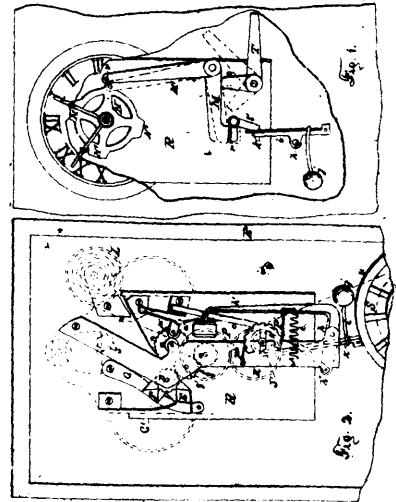
Fig. 2.



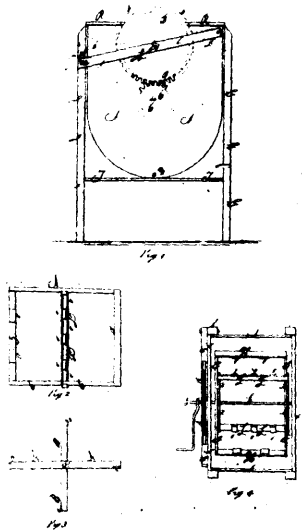
33280 Calef's Governor Gas Burner.



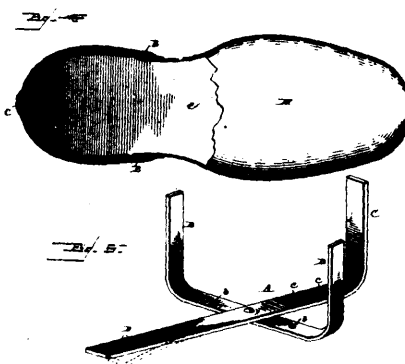
33281 Walker's Can Lid Fastening.



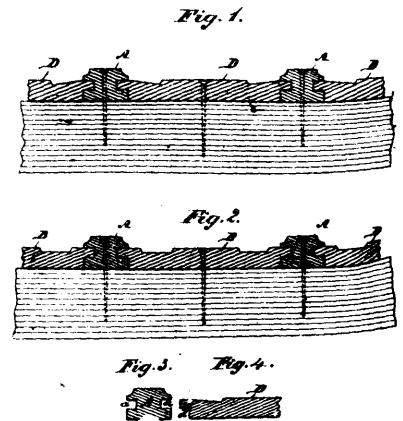
33282 Bundy's Time Recorder.



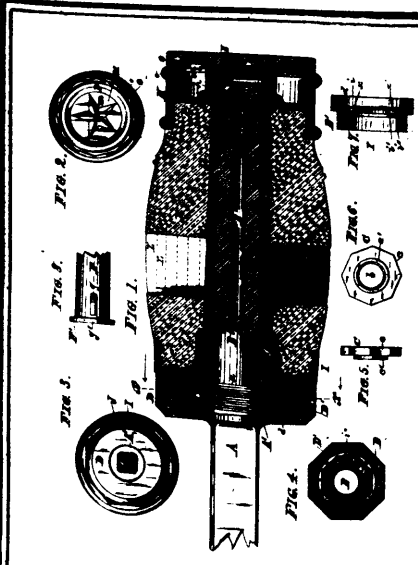
33283 Bertrand's Moulin à Beurre.



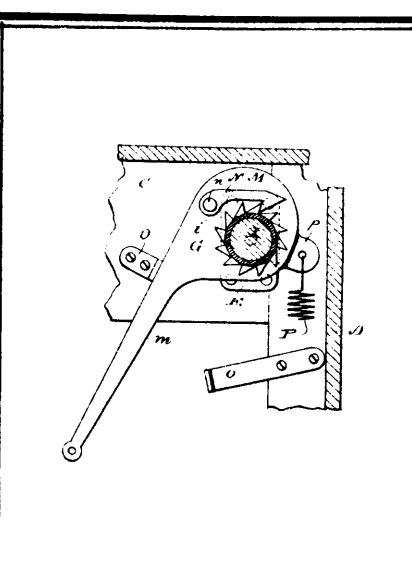
33284 Benson's Boot.



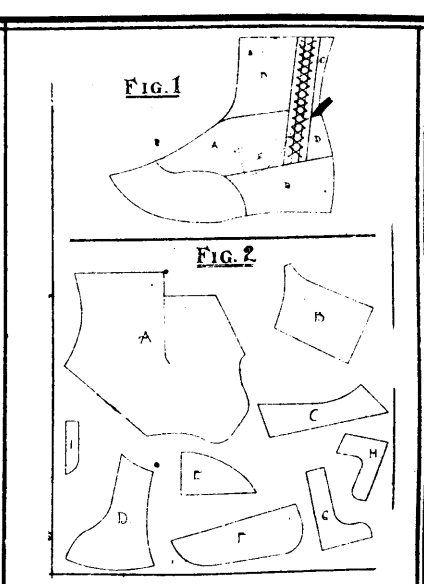
33285 Earing's Roofing and Siding.



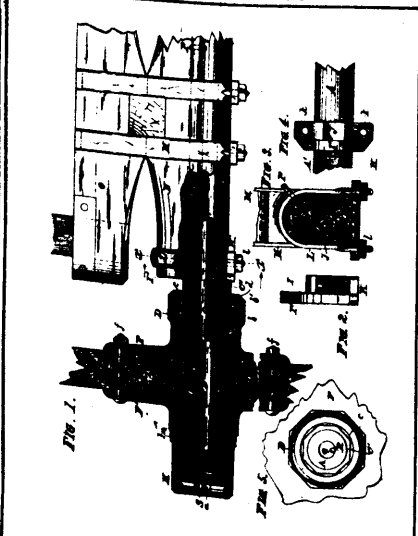
33286 Wright's Vehicle Axle.



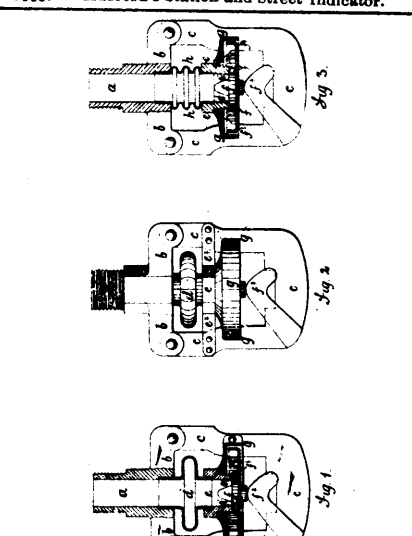
33287 Hurford's Station and Street Indicator.



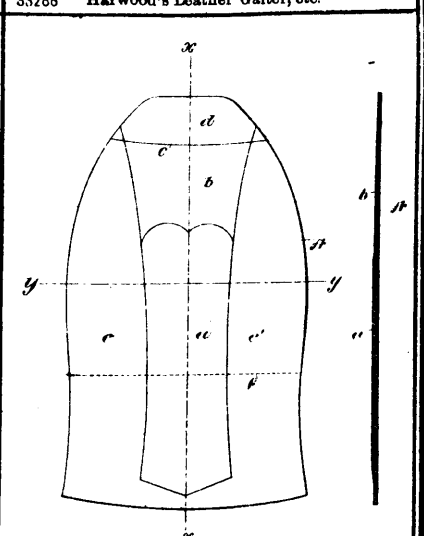
33288 Harwood's Leather Gaiter, etc.



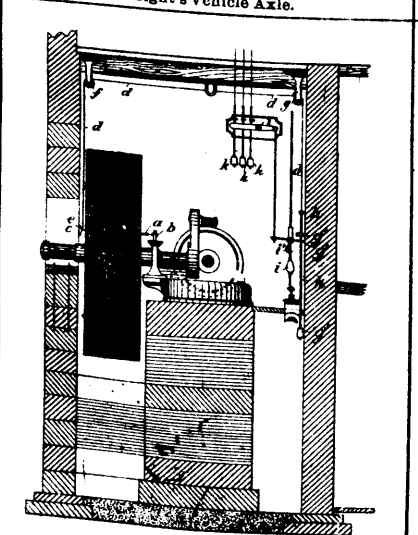
33289 Wright's Vehicle Axle.



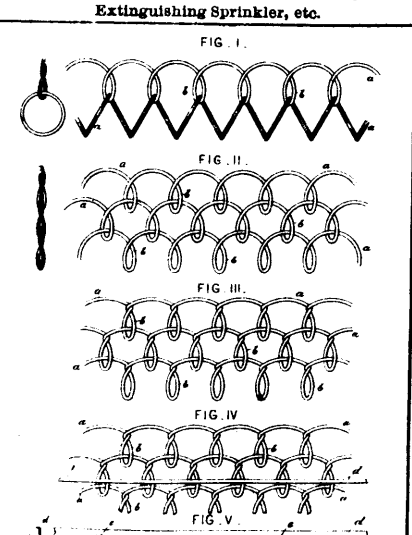
33290 Magall & Thomasson's Automatic Fire Extinguishing Sprinkler, etc.



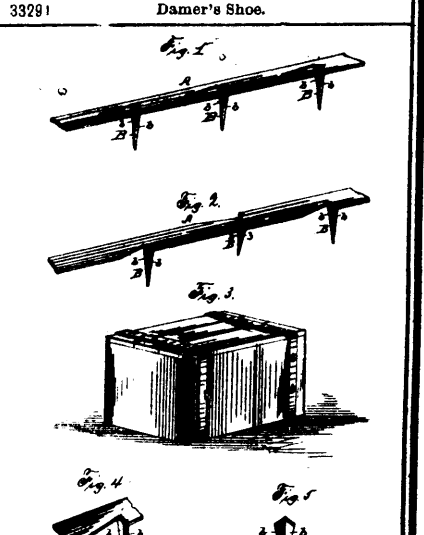
33291 Damer's Shoe.



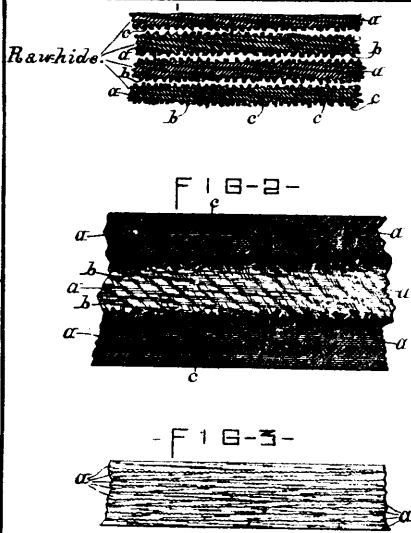
33293 Hobbs' Machinery for the Prevention of Accidents.



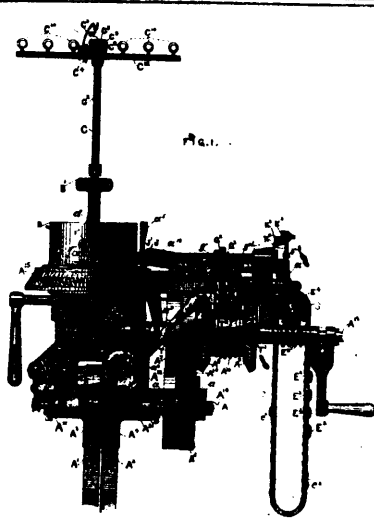
33294 Kinney's Wire Fabric, etc.



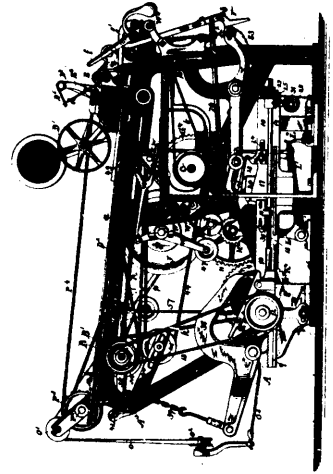
33295 Evans' Metal Band for Boxes.



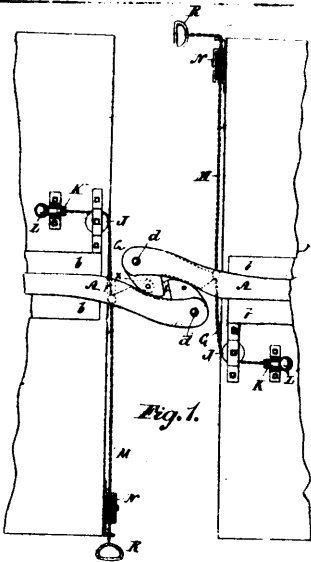
33296 Latulip's Process of Cementing Raw Hides.



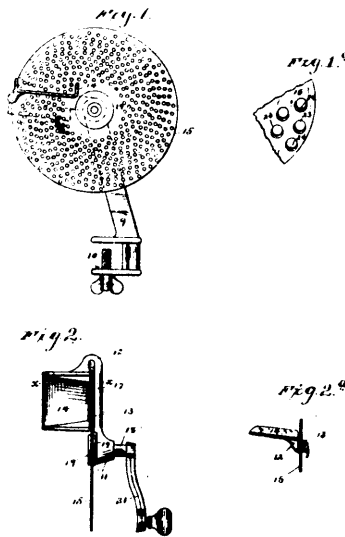
33297. Rightmire's Circular Knitting Machine.



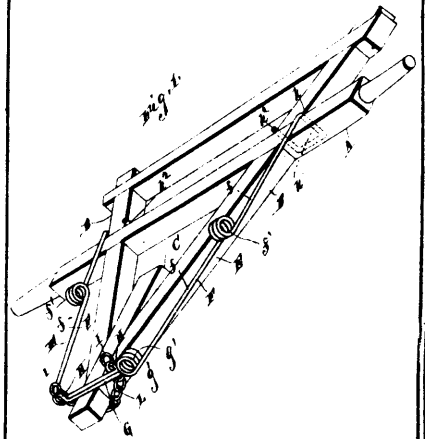
33298 Wright's Spinning Machine.



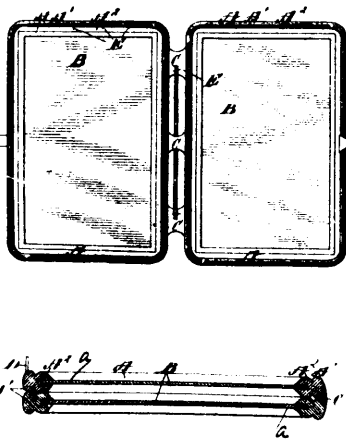
33289 Jones' Car Coupling.



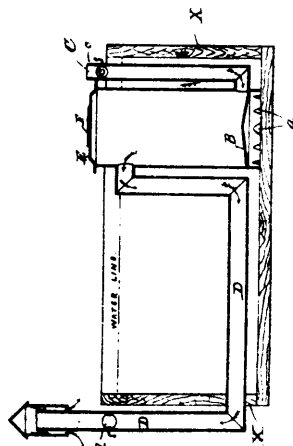
33300 Distelhorst's Grating and Slicing Device.



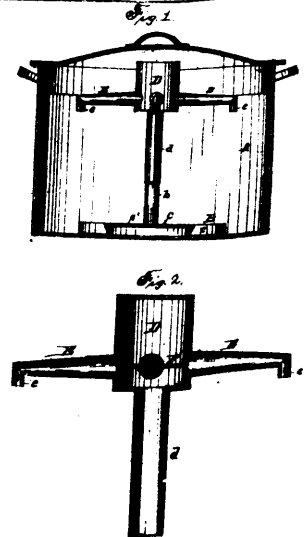
33301 Canterbuy's Tongue Support.



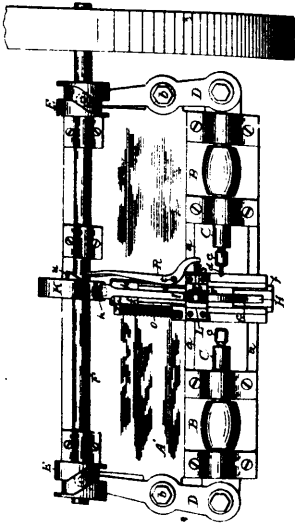
33302 Heighington's Frame for School Slates, etc.



33303 Eaton's Water Heater.



33304 McCaffrey's Wash Boiler.



33305 Godling's Machine for Finishing Caster Rollers.

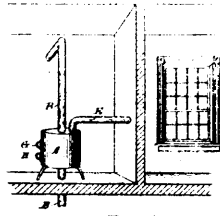


Fig 1

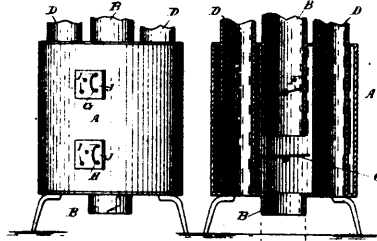
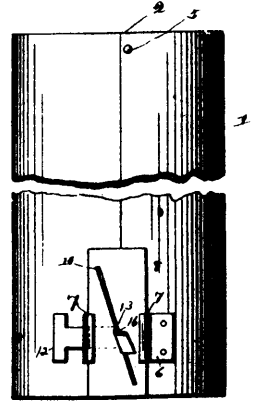


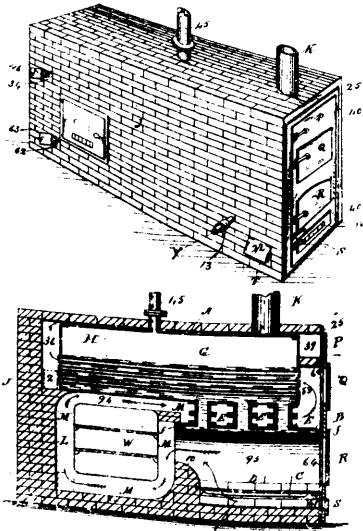
Fig. 2

Fig. 3

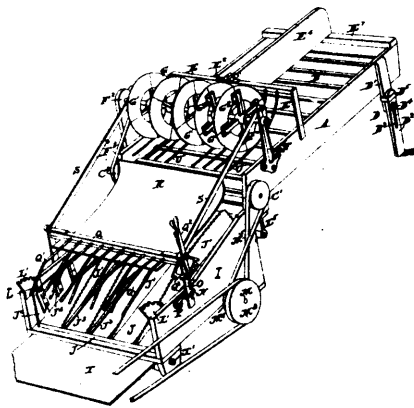
33306 Pelky's Drum Stove.



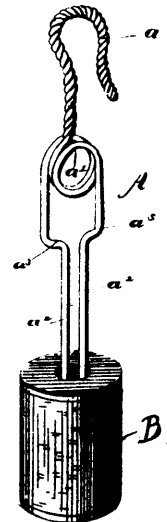
33307 Elliott's Fastening for Stove Pipes.



33308 Gray's Boiler.



33309 Wirtz, Richter & Wirtz' Band Cutter and Feeder.



33311 Cooney's Spool Holder.

Fig. 1.

N. 3252	
Name	A
Membership No.	
Date	
Amount \$	
By	

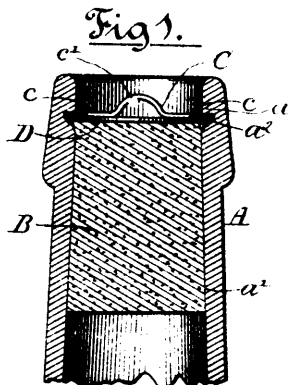
Fig. 2.

N. 3258	
Name	A
Membership No.	
Date	
Amount \$	
By	

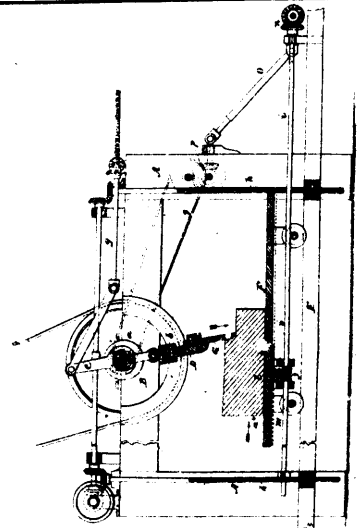
N. 3253	AUDITOR'S MEMORANDUM
From Mutual Accident Association	
Received Two Dollars (\$2.00), payment of interest on a loan of \$100.00, in full of interest on a loan of \$100.00.	
C	D

N. 3256	AUDITOR'S MEMORANDUM
From Mutual Accident Association	
Received Two Dollars (\$2.00), payment of interest on a loan of \$100.00, in full of interest on a loan of \$100.00.	
C	D

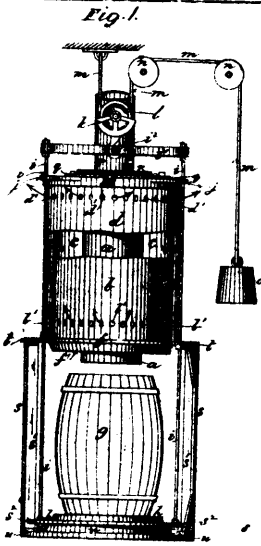
33312 Quincey's Stub Identification Receipt.



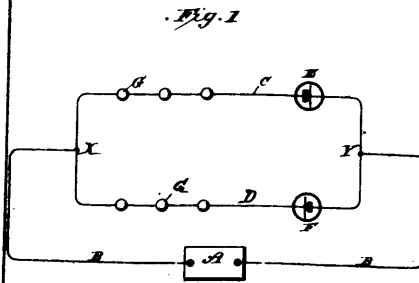
33314 Sands' Bottle Stopper Holder.



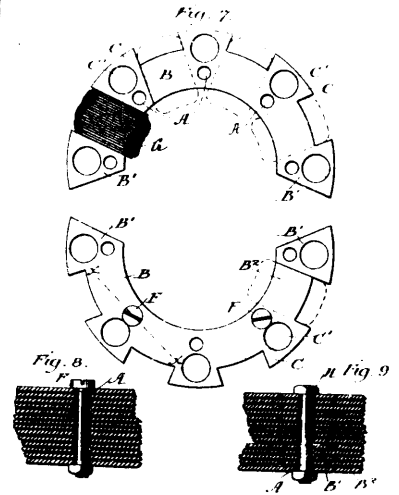
33315 Forster's Process for Cutting Stone.



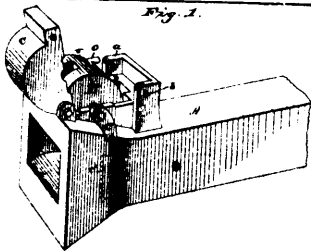
33316 Chambers' Apparatus for heating and drying barrels etc.



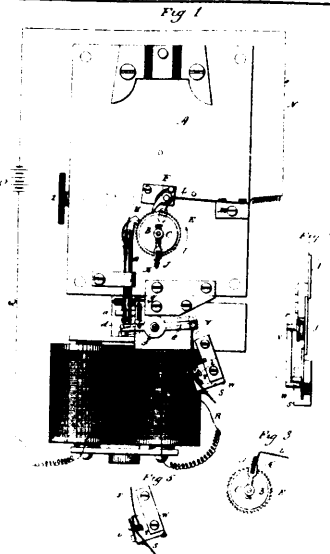
33317 Tesla's Apparatus for converting Alternating into Direct Currents.



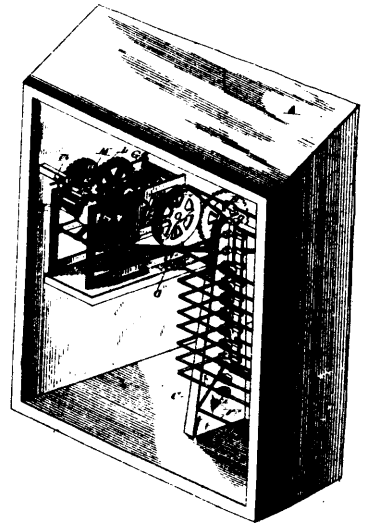
33318 Belding's Blank for making Armatures.



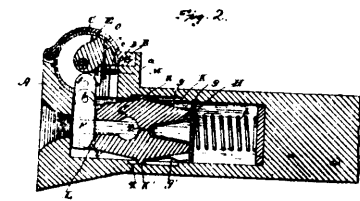
33319 Grambs' Car Coupling.



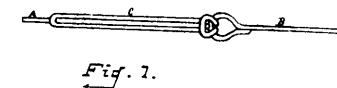
33321 Lane's Electric Winding Clock



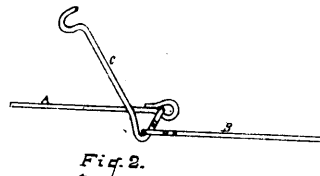
33322 Bishop's Apparatus for displaying Stereoscopic Views.



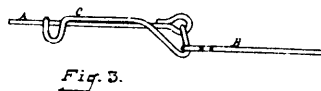
33323 Edison's Method of Recording and Reproducing Sounds.



33374 Brown's Clothes Line

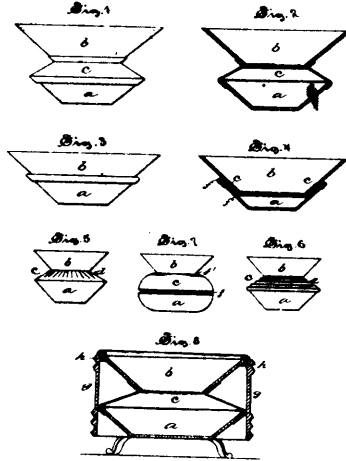


33375 Farmer's Rotary Engine.

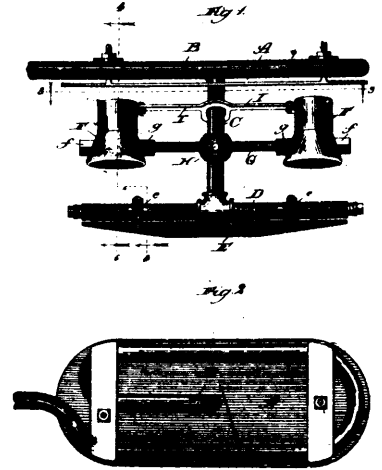




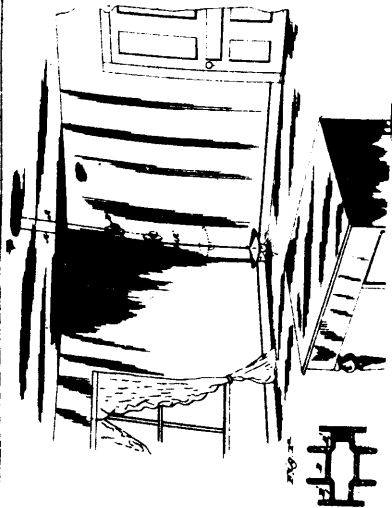
33326 Huzhea's Weather Strip.



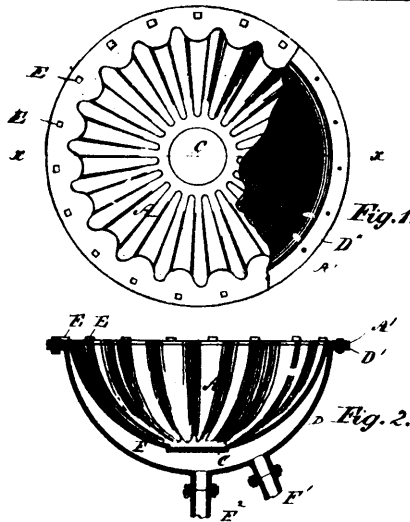
33327 Murphy's Cuspidor.



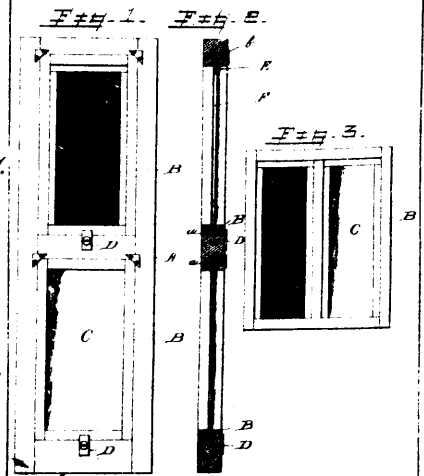
33328 Crosby's Vapor Burner.



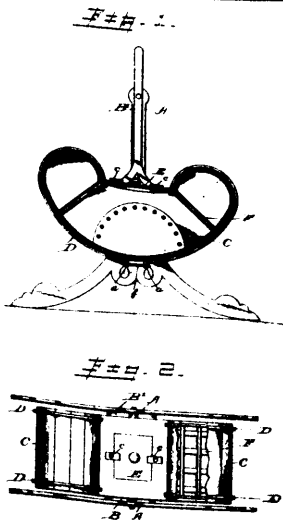
33329 Bradner's Lamp Hanger.



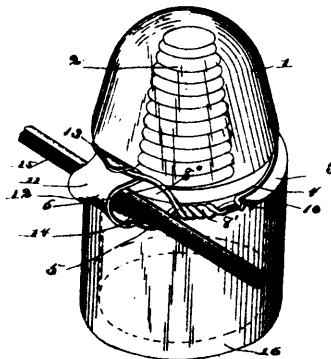
33330 Symonds' Mould for Making Paper Hat Caps.



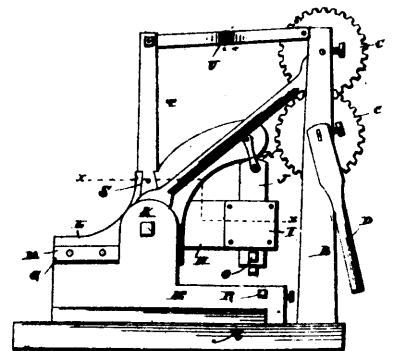
33331 Smith's Screen.



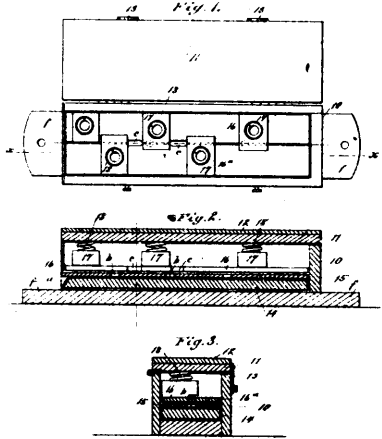
33332 Ellsworth's Churn.



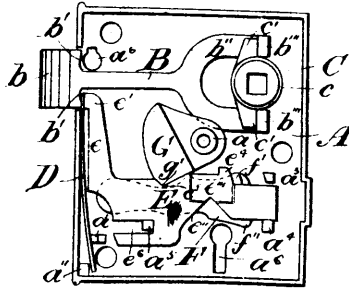
33333 Davis' Insulator.



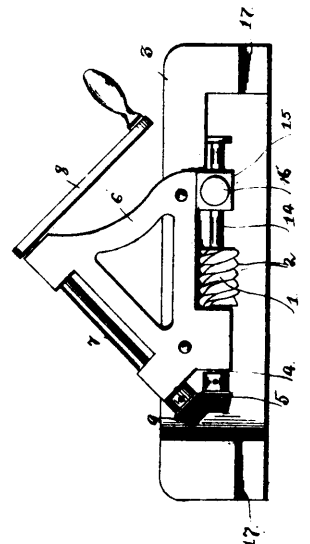
33334 Sanders' Machine for Cutting and Punching Metals.



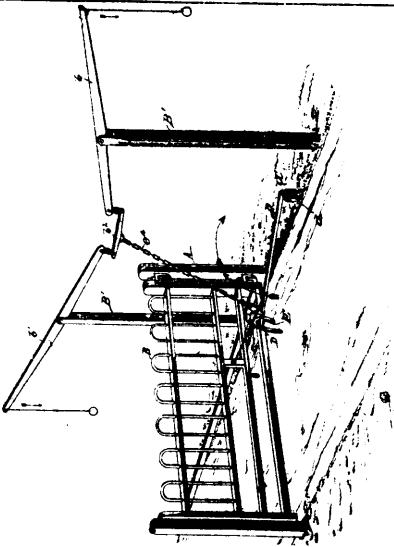
33332 Thompson's Knife Cleaner.



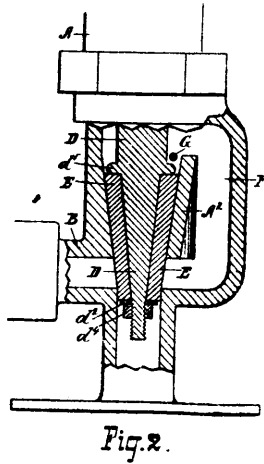
33335 Martin's Latch and Lock.



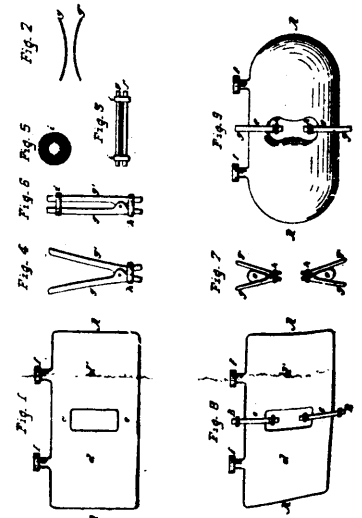
33337 Green's Saw Filing Machine.



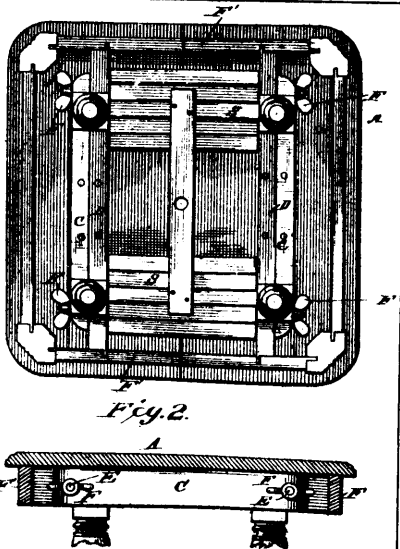
33338 Brafford's Gate.



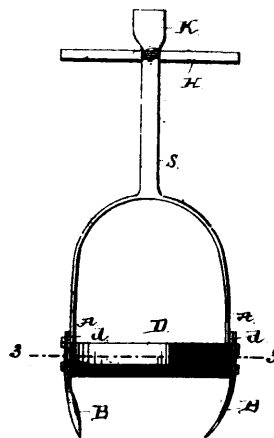
33339 Smith's Valve.



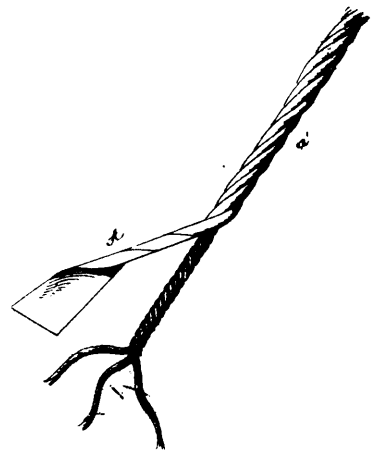
33340 Frattini's Floating Apparatus, etc.



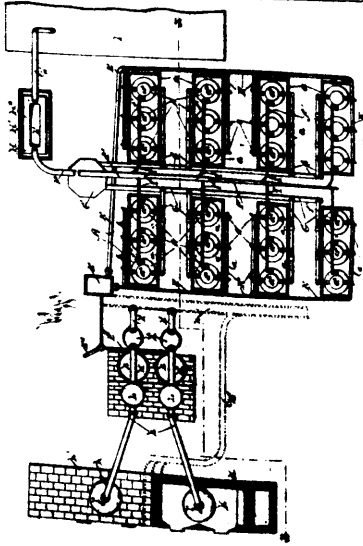
33341 Cornell's Table.



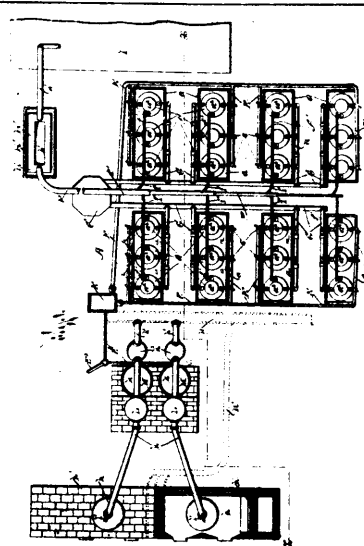
33342 McCall's Post Hole Auger.



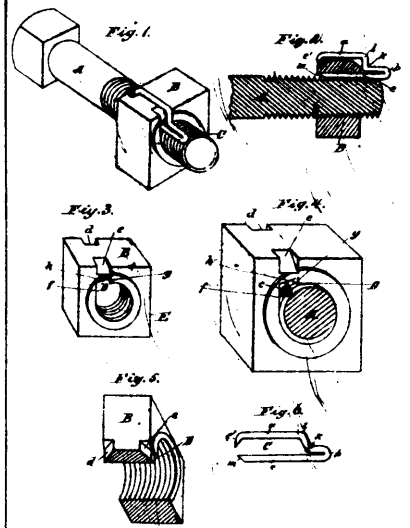
33343 Williarus' Twine, etc.



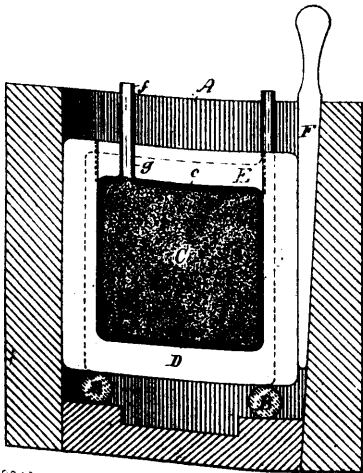
33344 Just's Apparatus for Evolving Chlorine.



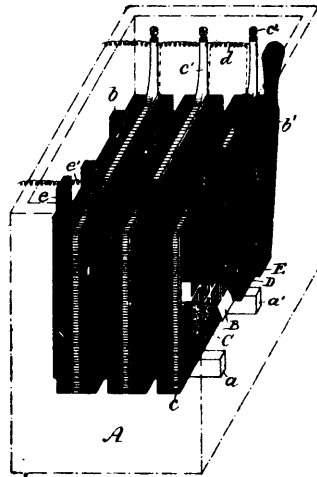
33345 Just's Method of Evolving Chlorine.



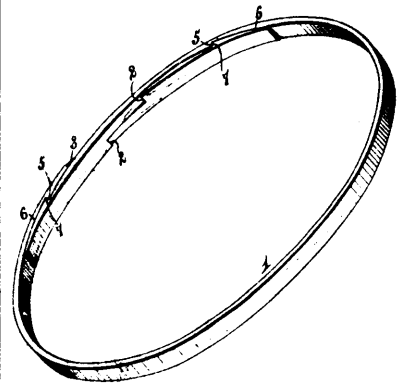
33346 Ray's Nut Lock.



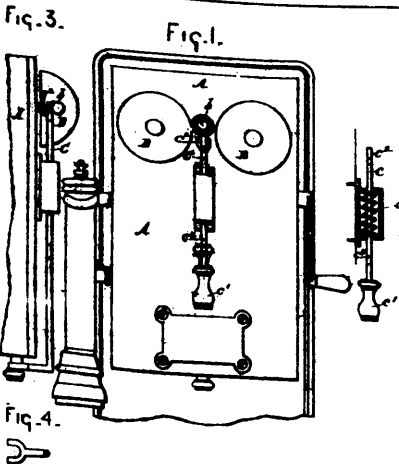
33347 Currie's Method of and Apparatus for Forming or Charging Plates for Electrical Accumulators.



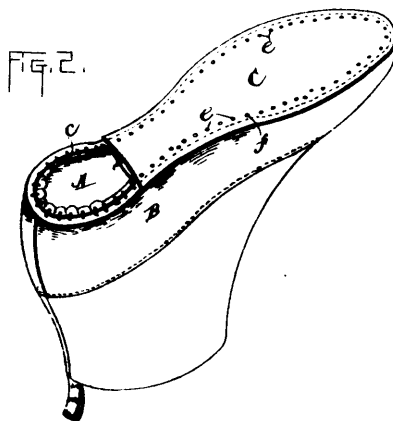
33348 Currie's Method of Electrolytically Reducing Plates Composed of Metallic Salts, etc.



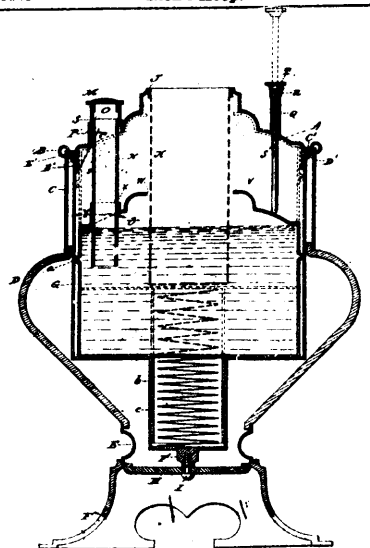
33349 Rich's Hoop.



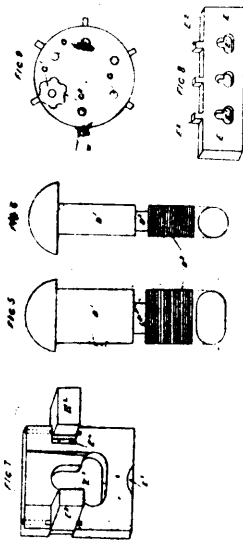
33350 Newland's Attachment for Telephone.



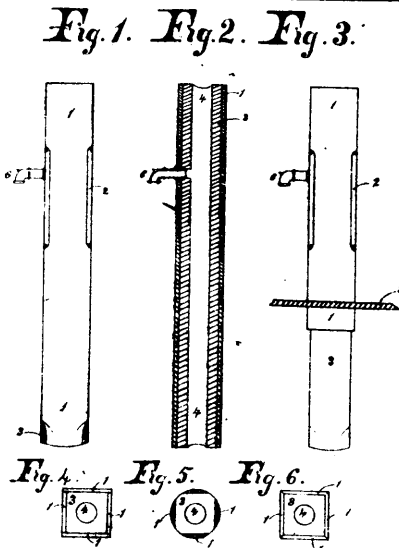
33351 Willey's Sewed Boot and Shoe.



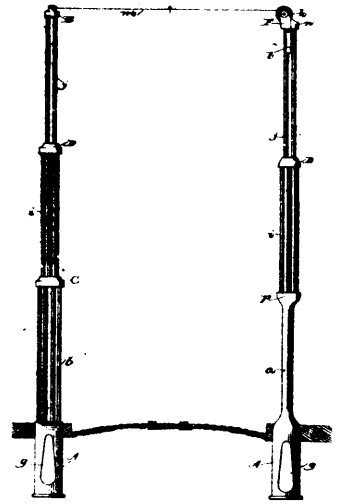
33352 Barton's Lamp.



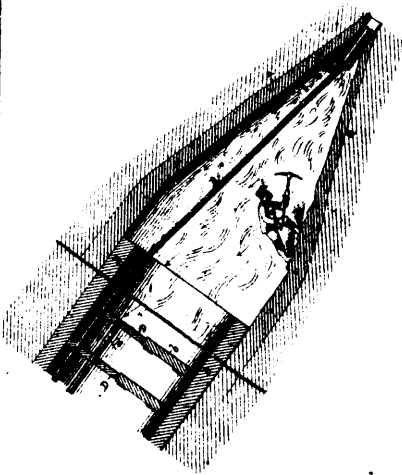
33353 Pullin's Lock Nut, et al.



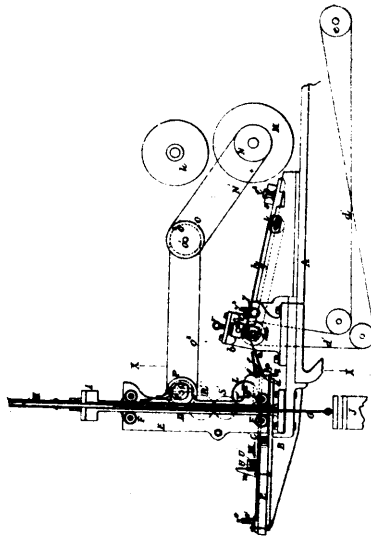
33354 Dunn's Pump Standard.



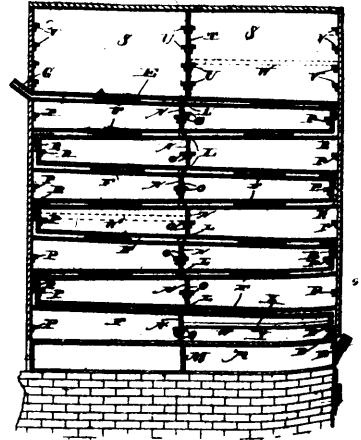
33355 Hall's Metal Post.



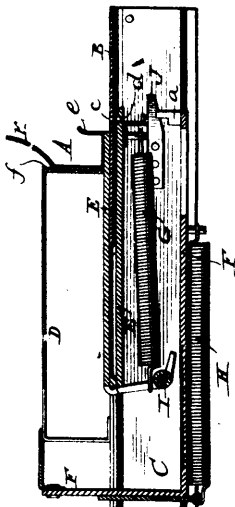
33356 SooySmith & Abbott's Process of Building Tunnels, etc.



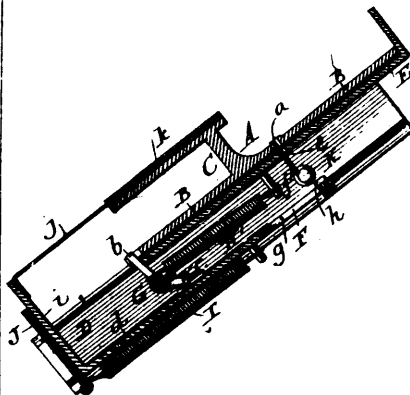
33357 Cleathero & Nichol's Feeding Apparatus for Printing Machines.



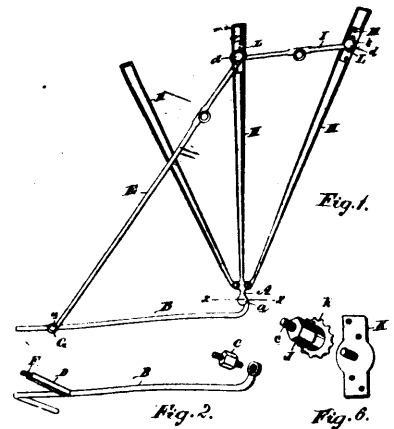
33358 Bard's Fruit Drier.



33359 Williams' Vending Apparatus.



33360 Williams' Vending Machine.



33361 Gillies' Joint for Carriage Tops, etc.

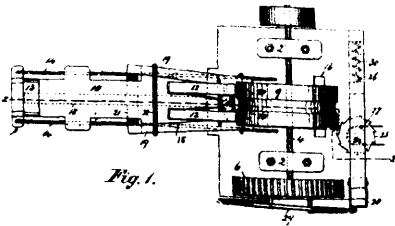


Fig. 1.

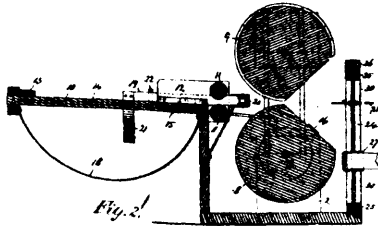


Fig. 2.

33362 Parker's Machine for Shaping Cores for Bow Sockets of Carriage Tops.

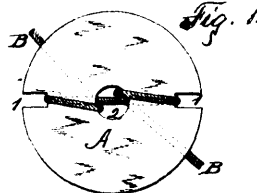


Fig. 1.

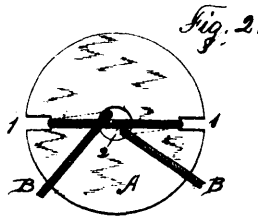
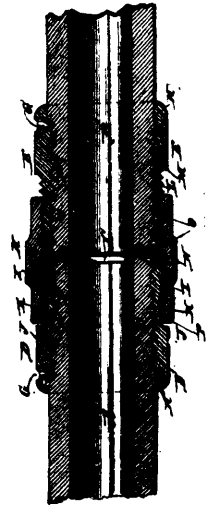
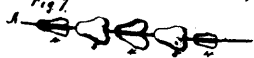
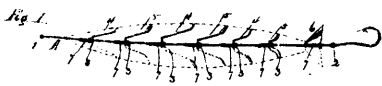


Fig. 2.

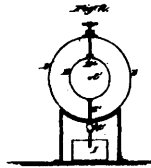
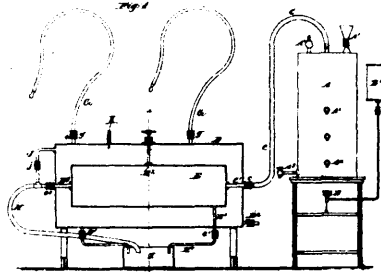
33363 Brook's Button Fastening.



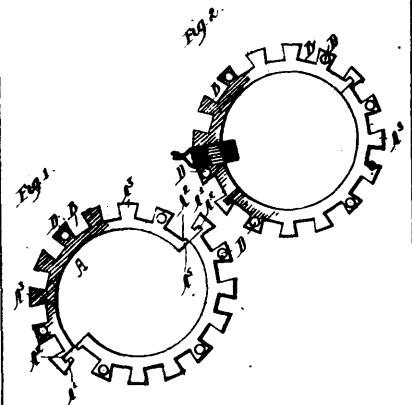
33364 McAllister's Union for Lead Pipes.



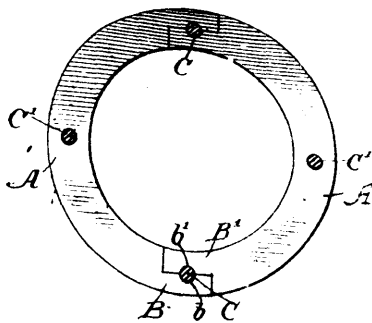
33365 Loftie's Gang Spoon Bait.



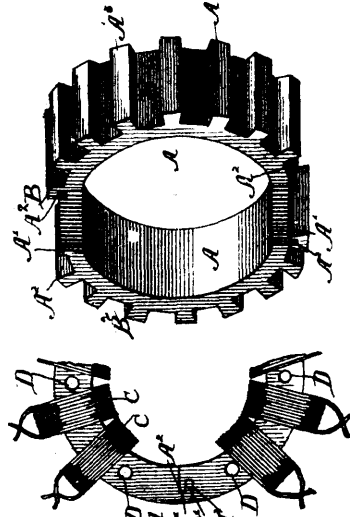
33366 Worthington's Apparatus for Inhaling Vapor.



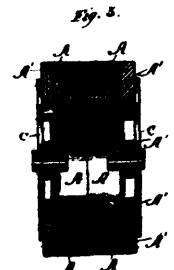
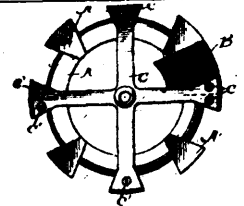
33367 Belding's Armature Plate.



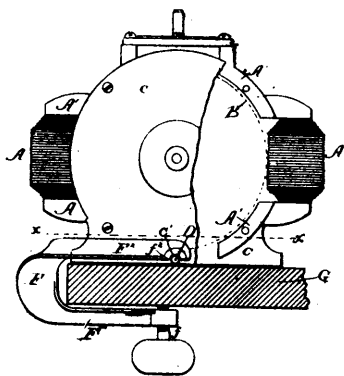
33368 Belding's Armature for Electric Machines.



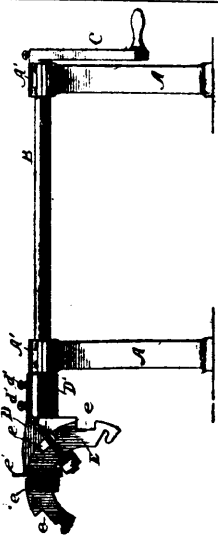
33369 Belding's Armature.



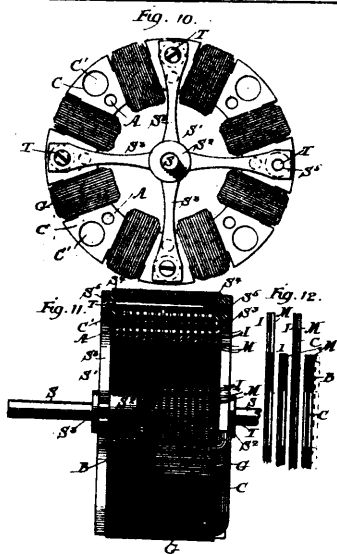
33370 Belding's Armature for Dynamo Electric Machinery.



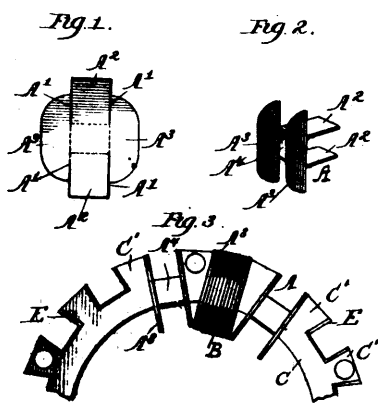
33371 Belding's Clamp for Electric Motor.



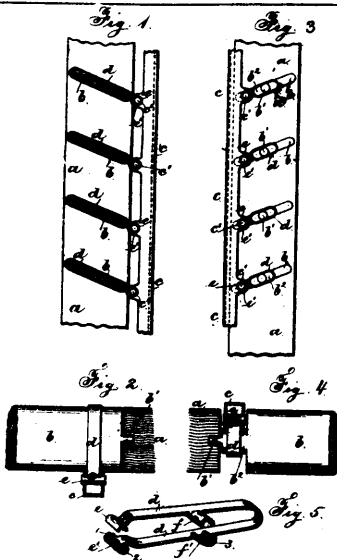
33372 Belding's Lathe for Winding Armatures.



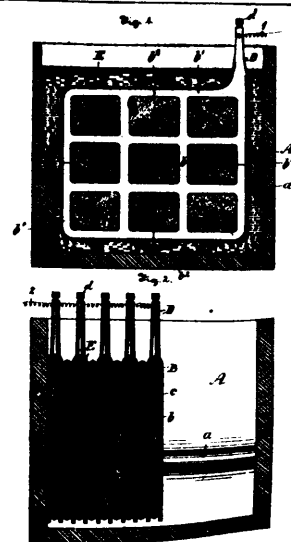
33373 Belding's Electric Motor.



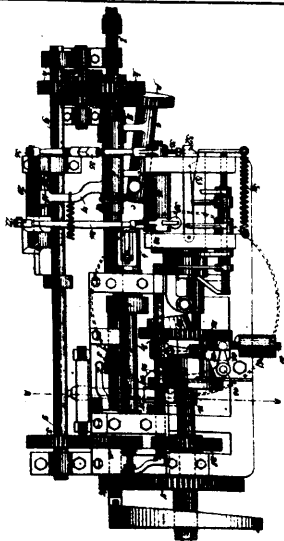
33374 Belding's Coll Guard for Armatures.



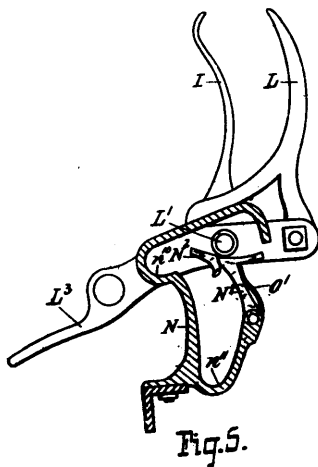
33375 Heldt's Window Blind.



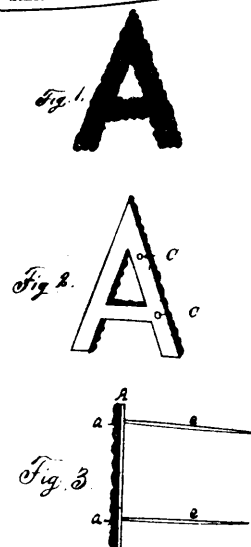
33376 Smith's Storage Battery.



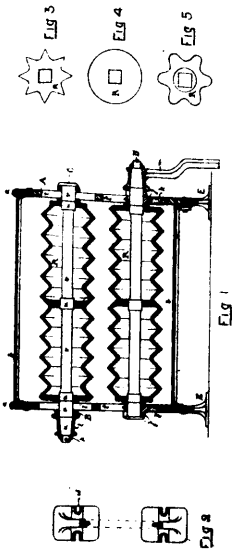
33377 Sheldon's Machinery for the Manufacture of Metallic Screws, etc.



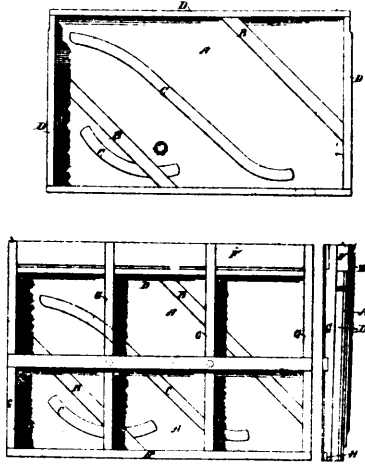
33378 Marshall's Harvester.



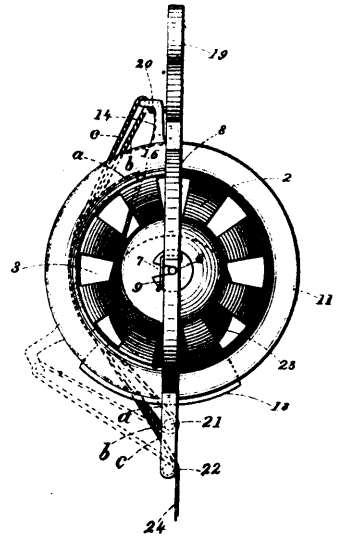
33379 Krick's Floral Letters, etc.



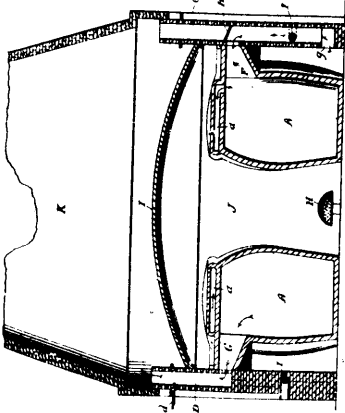
33380 Norgate & Mitne's Machine for Preparing Food, etc.



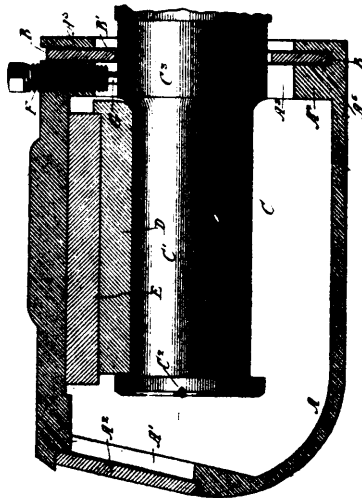
33381 Barthelmes' Art of Making Planos.



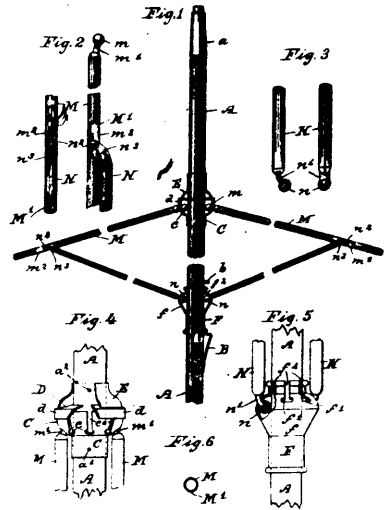
33382 Candee's Twine Holder.



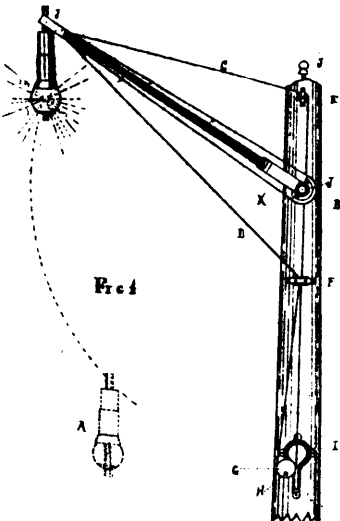
33383 Neville's Glass Furnace.



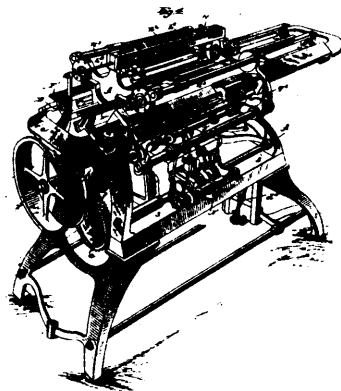
33384 Hammond's Car Axle Box.



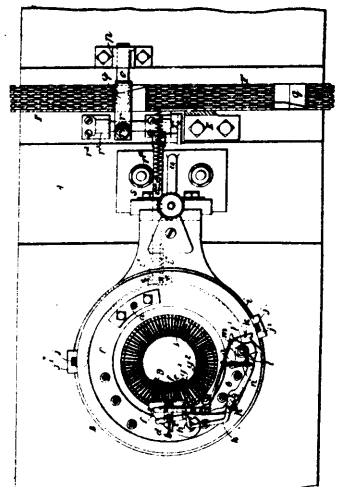
33385 Peters & Green's Umbrella.



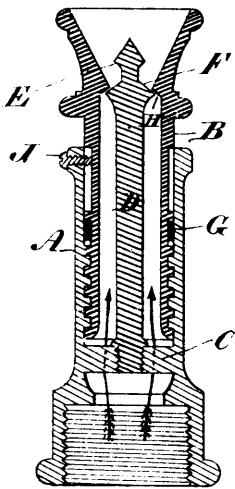
33386 Bucksey's Electric Lamp Hanger.



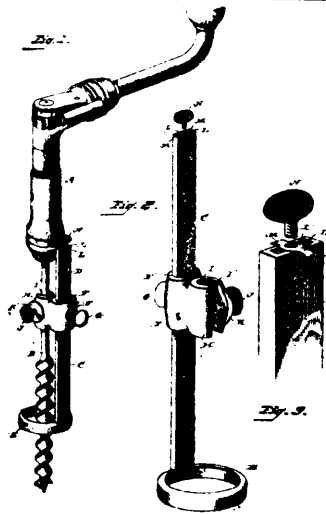
33387 Wilcomb's Knitting Machine.



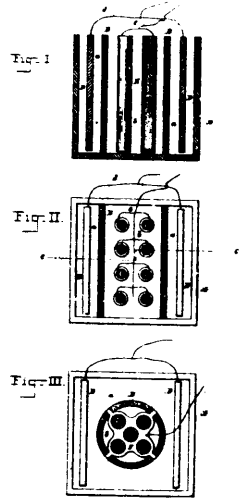
33388 Newton & Palmer's Apparatus for the Manufacture of Hosiery.



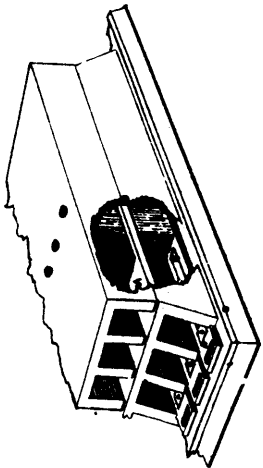
33389 McShane's Hose Nozzle.



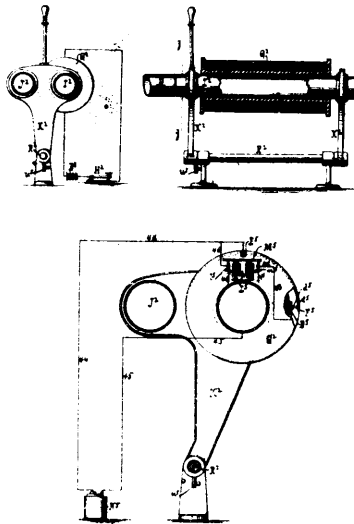
33390 Doe's Bit and Scratch Gauge.



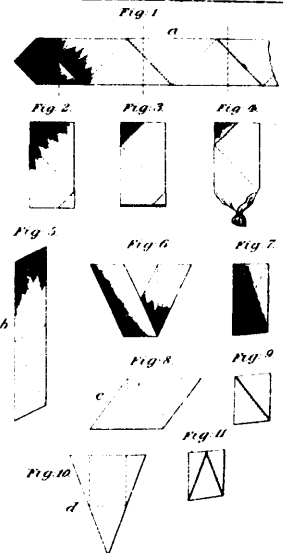
33391 Enholm's Galvanic Battery.



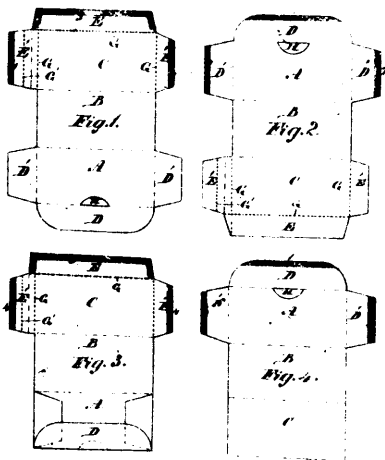
33392 Scamman's Reed Organ.



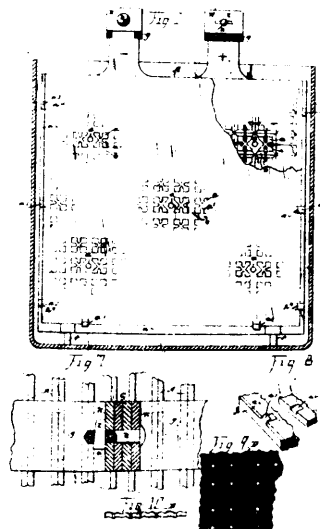
33393 Williams' Electro Magnetic Transmitter.



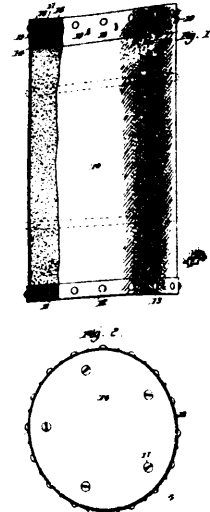
33394 Seymour's Bag, etc.



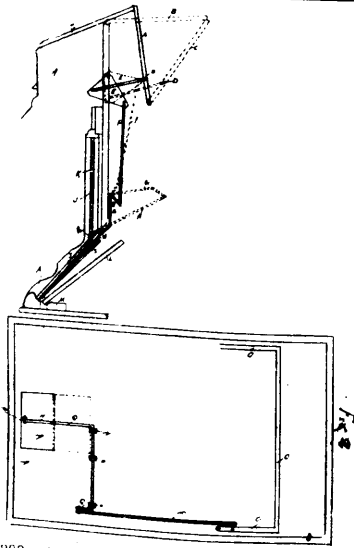
33395 Mauro's Letter Sheet and Envelope.



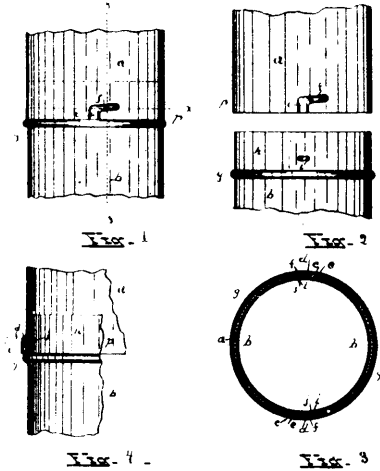
33396 Robert's Storage Battery.



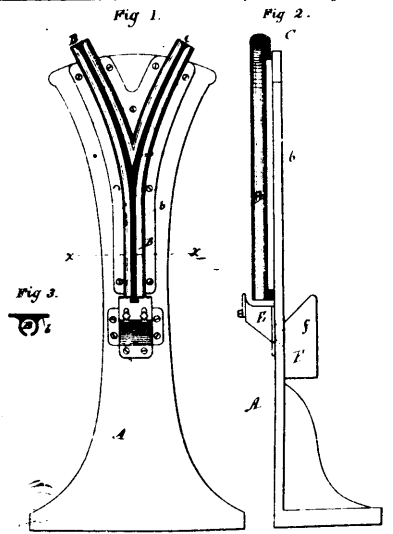
83397 Norman's Barrel.



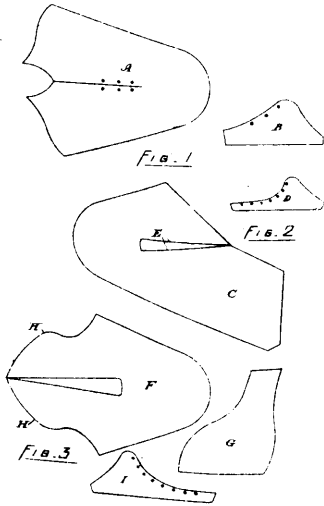
33398 Russell & Mitchell's Pedal Cover for Reed Organs.



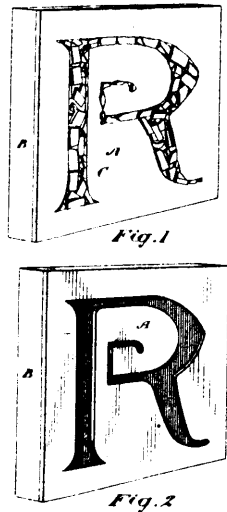
33399 Simms' Sheet Metal Pipe.



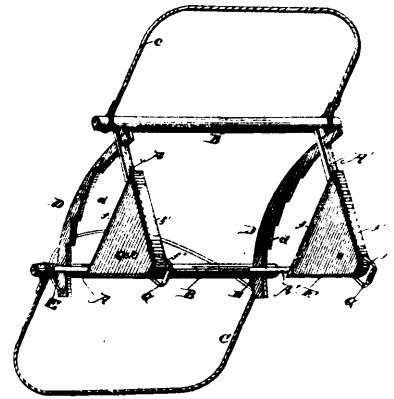
33400 Lewis' Device for Cutting Buttons from Shoes.



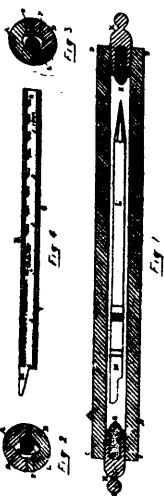
33401 Boivin's Fabrication des Chaussures.



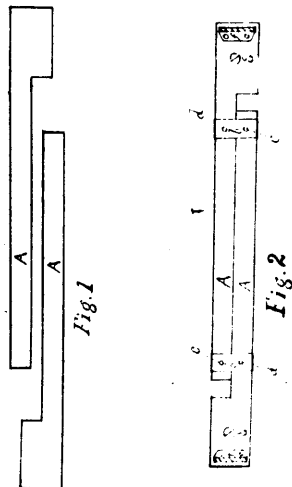
33402 Rodwell's Ornamental Sign Letter, etc.



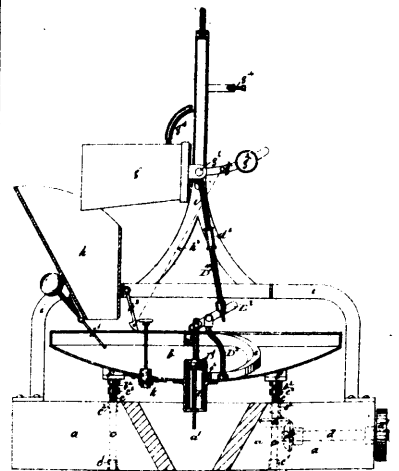
33403 Harter's Veterinary Surgical Instrument



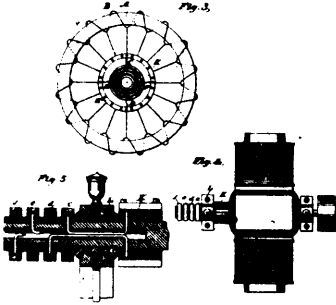
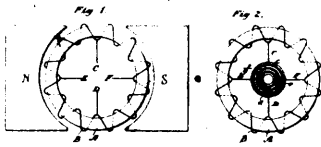
33404 Norgate & Milne's Euler.



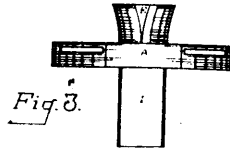
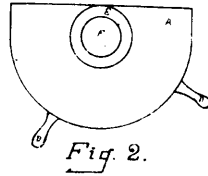
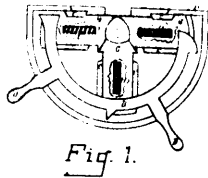
33405 Gatchell's Device for Supporting Shade Roller Brackets.



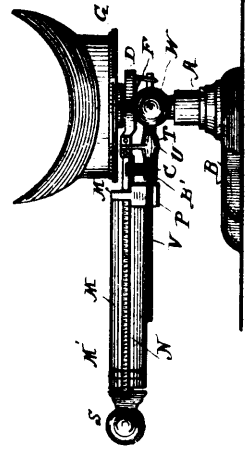
33406 Evenden's Apparatus for Washing and Separating Gold, etc.



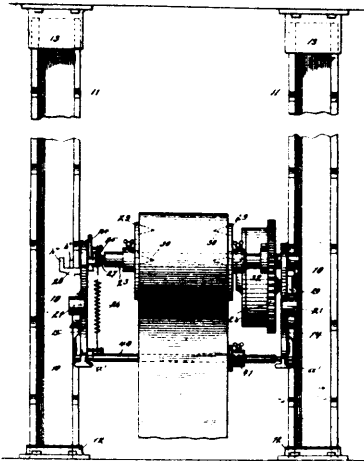
33407 Bradley's Dynamo Electric Machine.



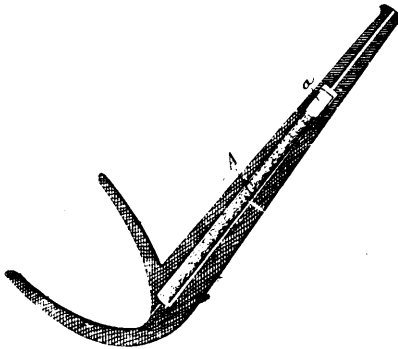
33408 Holden's Elevator Lock



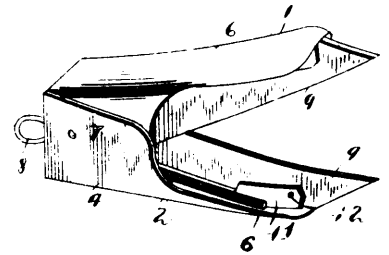
33409 Van Denburgh's Weighing and Price Scale



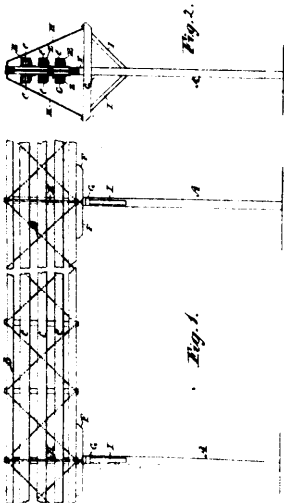
33410 Traver's Carpet Display Rack.



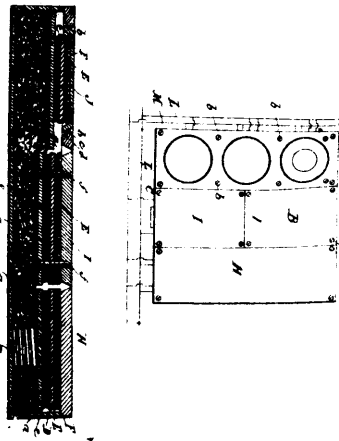
33411 Wuterich's Nicotine Collector.



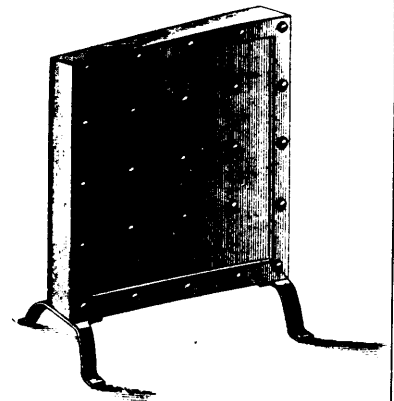
33412 McDonough's Twine Cutter.



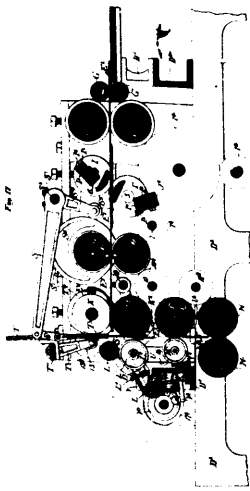
33413 Ruttan's Conduit for Electric Wires.



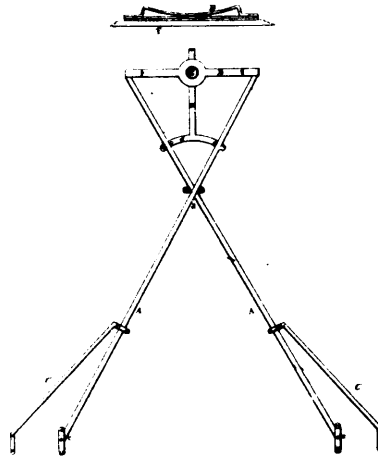
33414 Carpenter's Electro Heating Apparatus



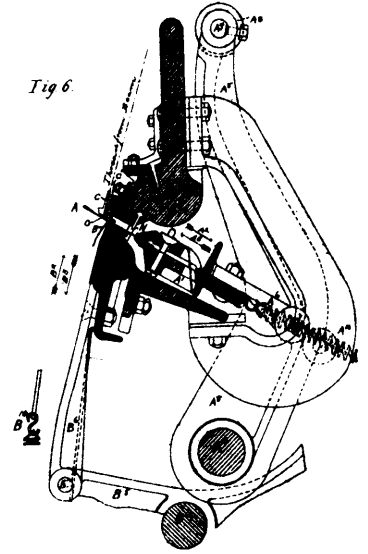
33415 Carpenter's Electro Heating Apparatus.



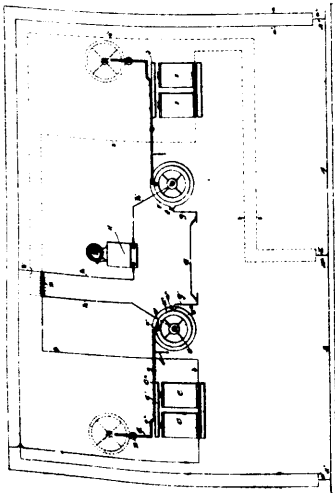
33416 Stillwell's Paper Bag Machinery.



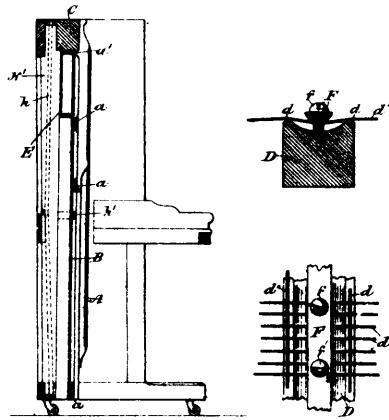
33418 Younger's Buggy, Carriage, etc.



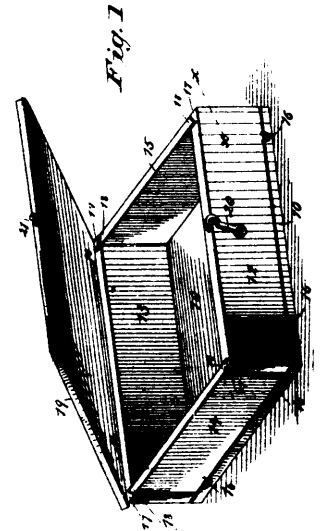
33419 Paget's Warp Machine.



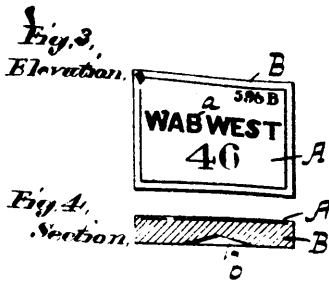
33420 O'Neill's Electric Signalling Device.



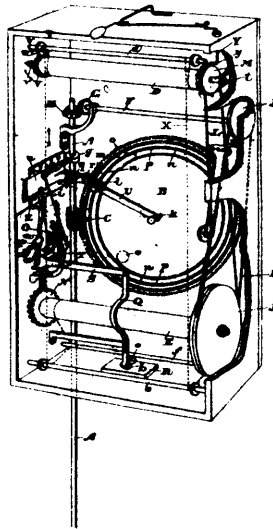
33421 Barthelme's Piano.



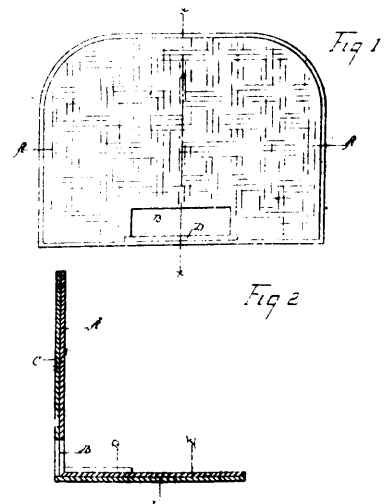
33422 Krikorian's Knock Down Box.



33473 Brown's Seal.

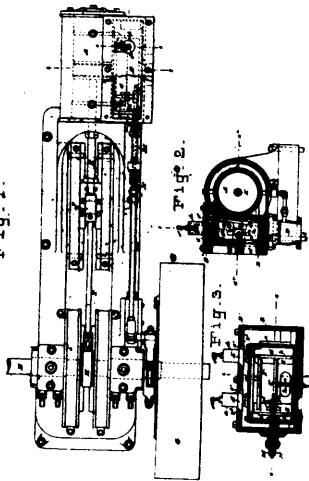


33424 Cheyne's Station and Street Indicator.

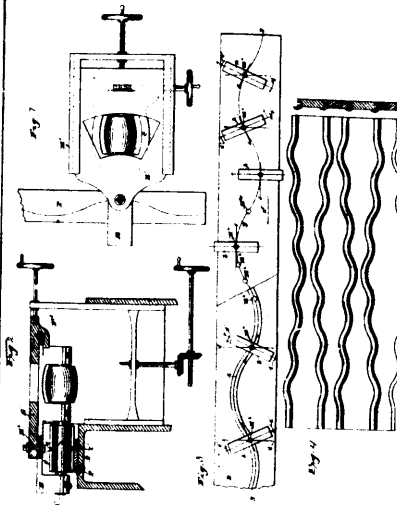


33425 Warren's Protector for Pianofortes.

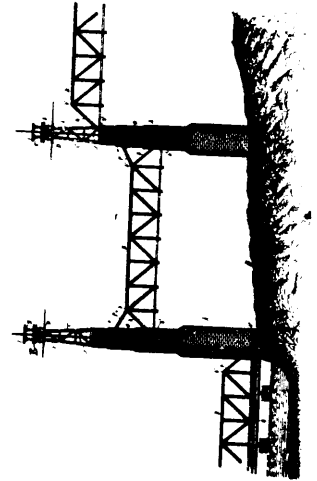
Plate I.



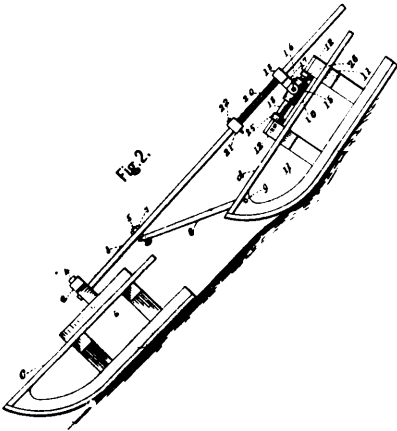
33426 Halsey's Valve, etc.



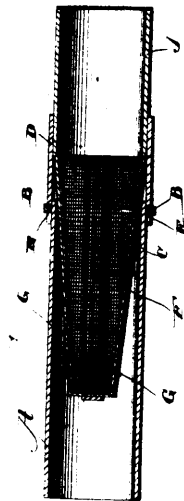
33427 Goehring's Art of Producing Figures on the Surfaces of Wood, etc.



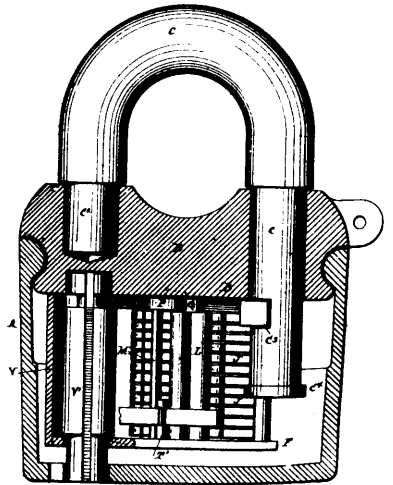
33428 Anderson's Method of and Apparatus for Raising Girders, etc.



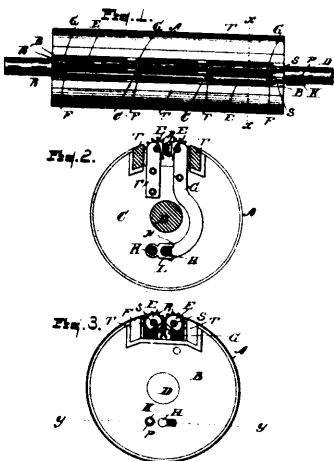
33429 Wheeler's Sleigh



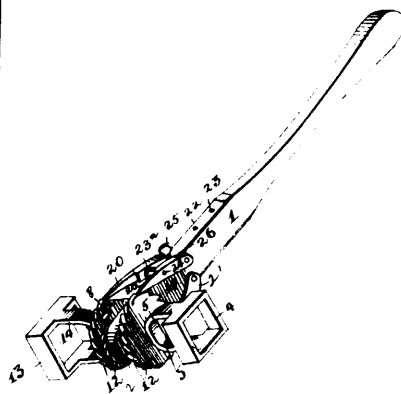
33430 Williams' Pipe Coupling.



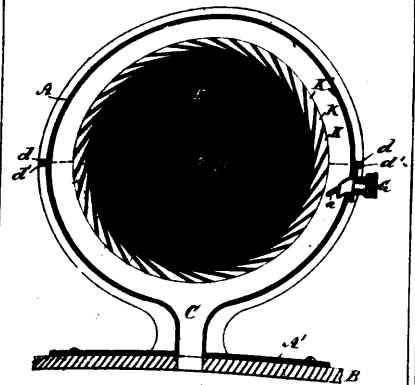
33431 Smith's Permutation Lock.



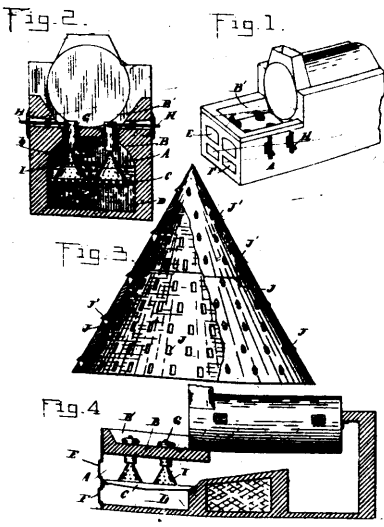
33432 Osborn & Richards' Wood Polishing Machine.



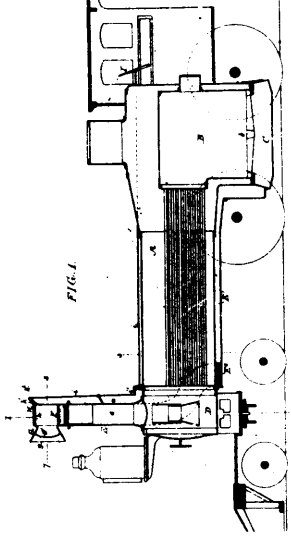
33434 Cossette's Nut Wrench



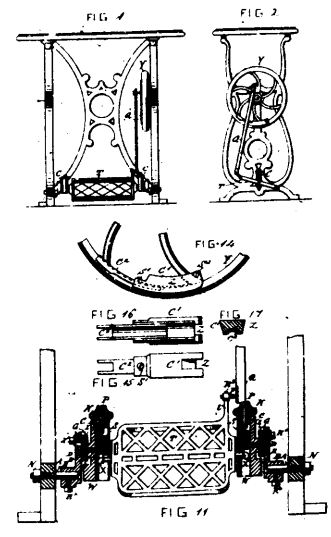
33435 Derochie's Water Motor



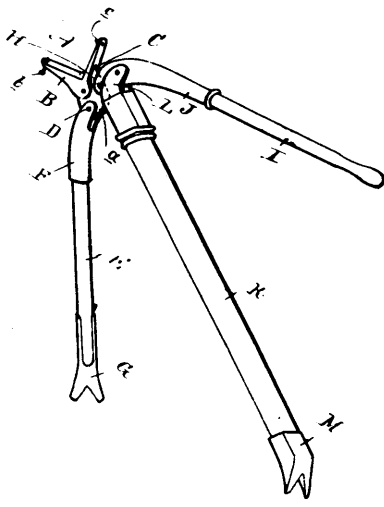
33436 Nogar's Sawdust Burner.



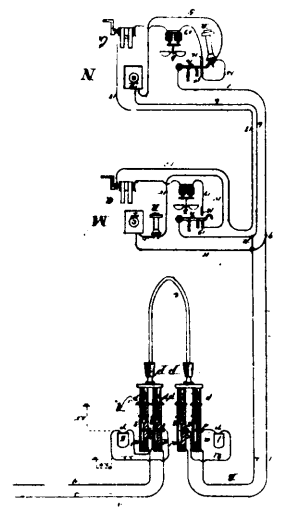
33437 Clegg's Smoke Consuming Furnace



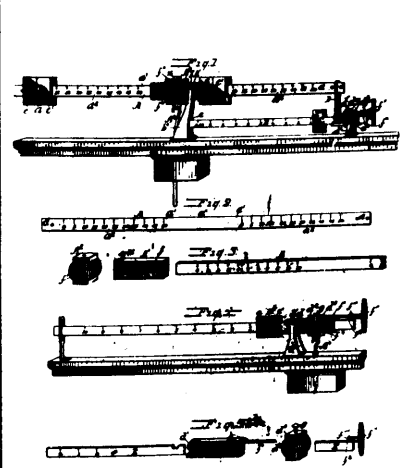
33439 Whitney's Treadle.



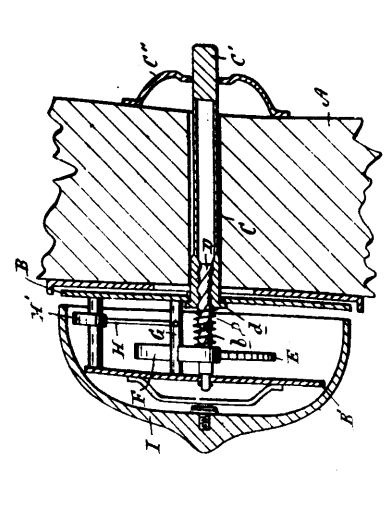
33440 Brennan's Car Pusher.



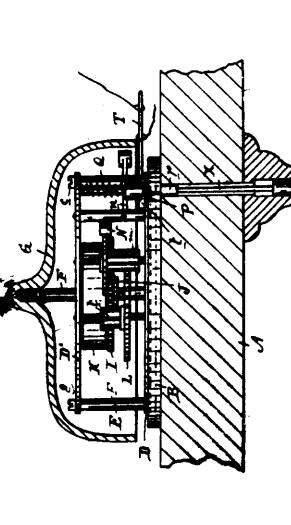
33441 Beerbank's Telephone Circuit.



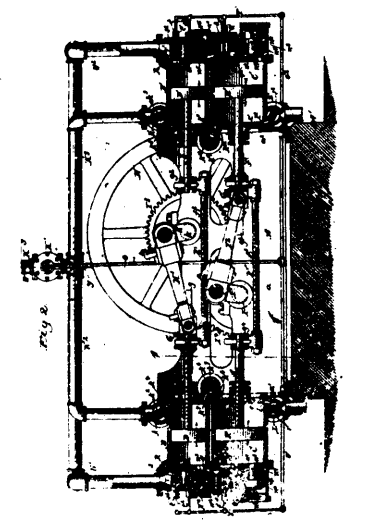
33442 Stewart's Weighing Scale



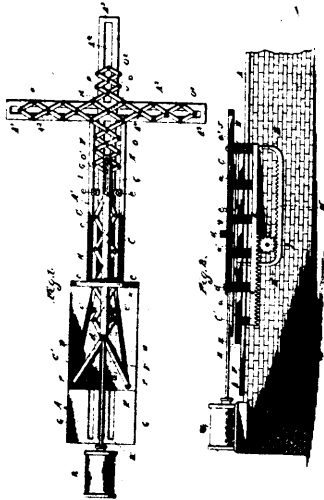
33443 Rocheleau's Bell



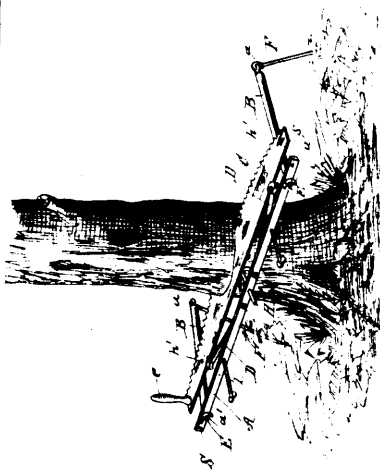
33444 Rocheleau's Bell



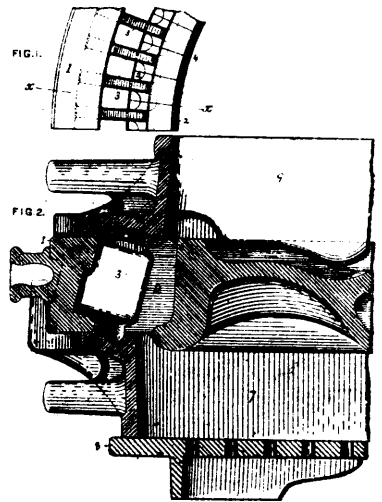
33445 Cummings' Air Compressor



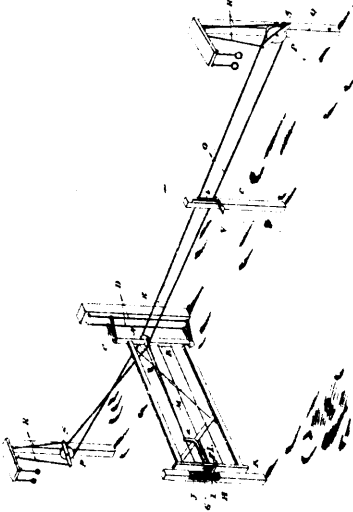
33446 Zerbe's Multiple Movement Device for Increasing and Transmitting Motion



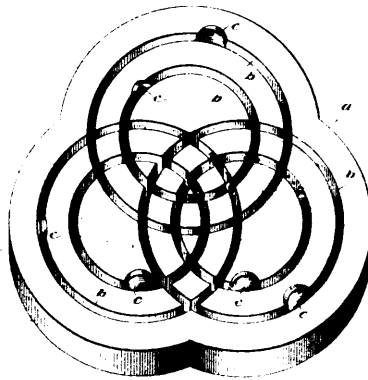
33447 Brown's Device for Felling Trees.



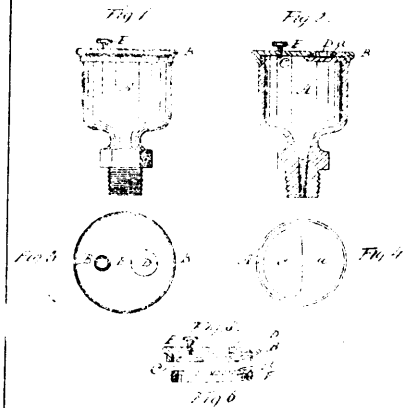
33448 Faught's Chill for Car Wheels.



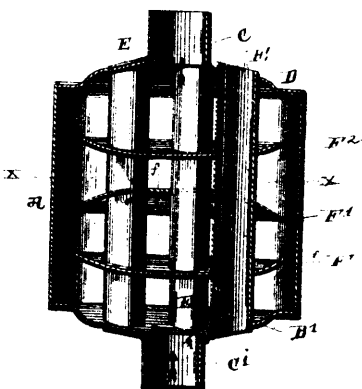
33449 Stephenson's Farm Gate.



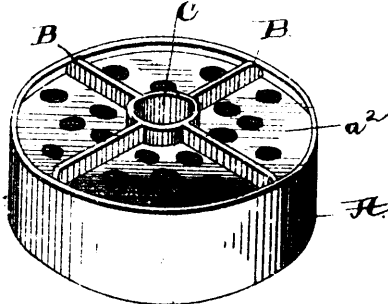
33450 Collin's Puzzle.



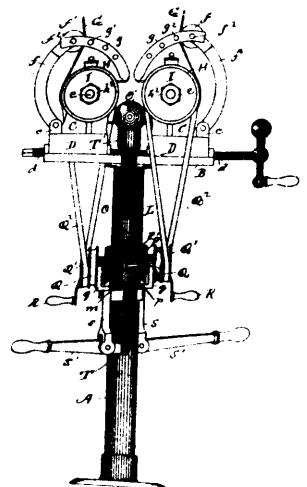
33451 Jones' Opening and Cap for Oil Caps, etc.



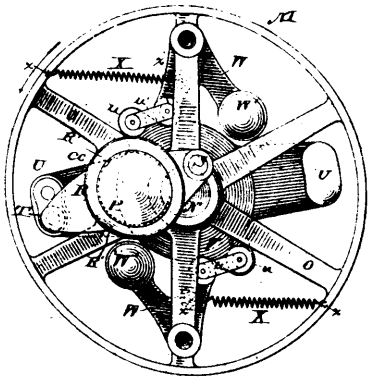
33452 Hamblin's Heating Drum.



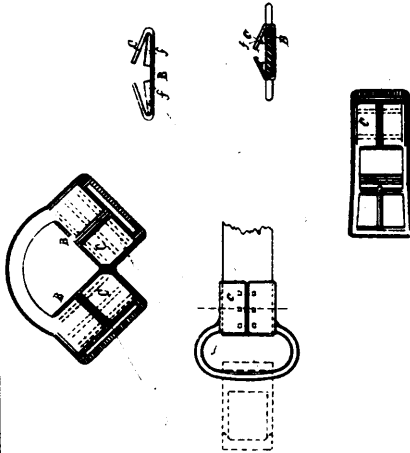
33453 Richardson's Fire Kindler.



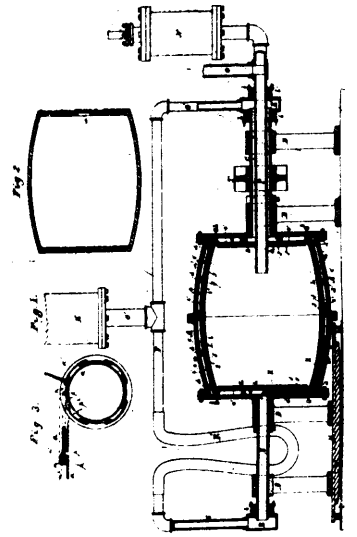
33454 Conrader's Machine for Turning, Grinding and Polishing Spherical Bodies.



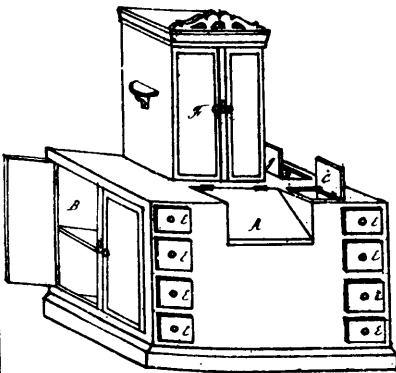
33455 Jenks' Engine Governor.



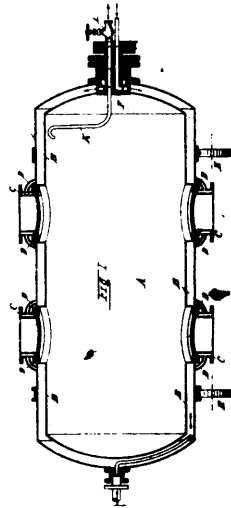
33456 Keegan's Harness Trimming.



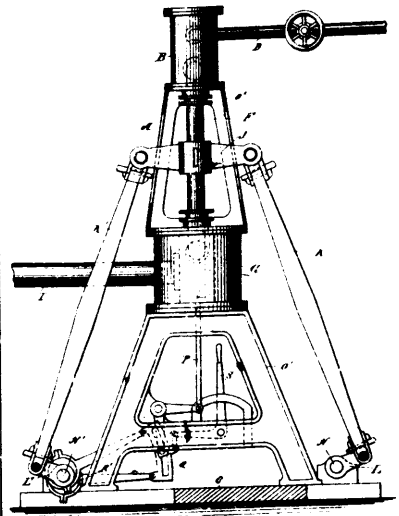
33457 Cram's Mechanism for the Manufacture of Barrels.



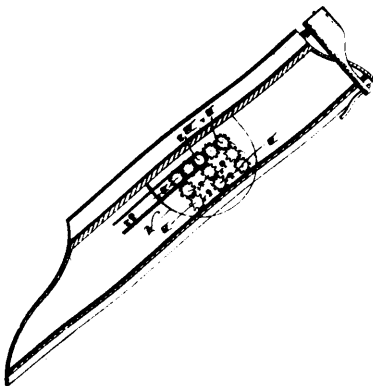
33458 Cousineau's Kitchen Cabinet.



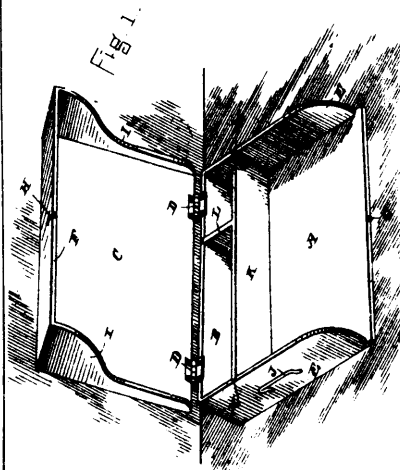
33459 Salomon's Process and Apparatus for the Manufacture of Sulphite Cellulose, etc.



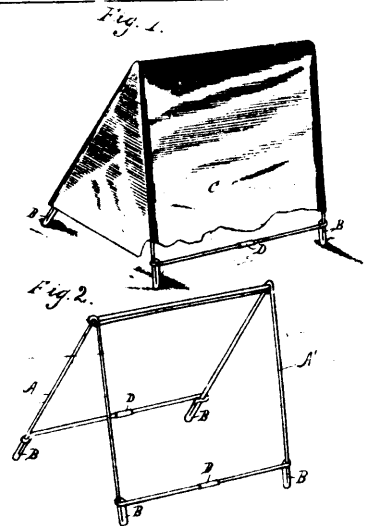
33460 Clarke's Engine.



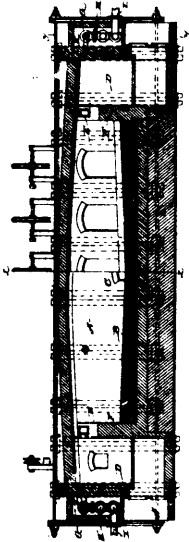
33461 Kenoyer's Boat Propelling Mechanism.



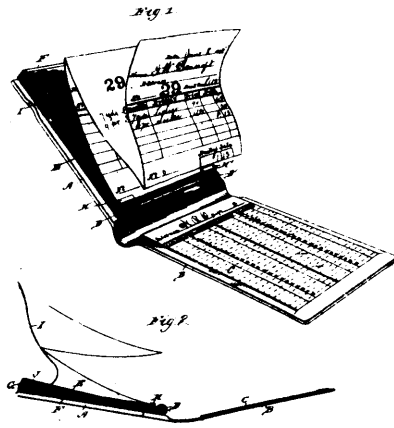
33462 Fuller's Bread Board.



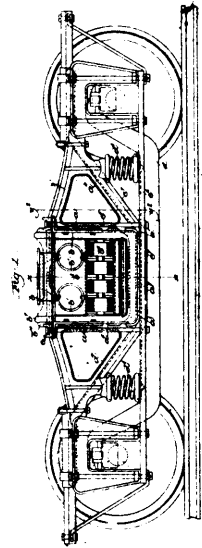
33463 Hawks' Plant Protector



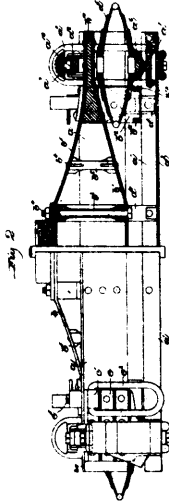
33464 Lauth's Furnace for Metallurgical Operations.



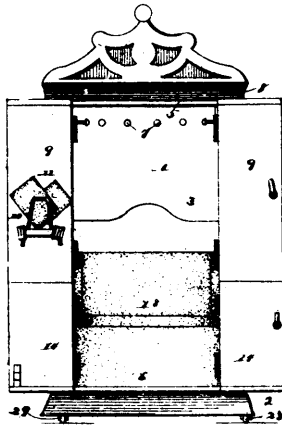
33465 McDonald's Manifold Order Book.



33466 Jewett's Car Truck.



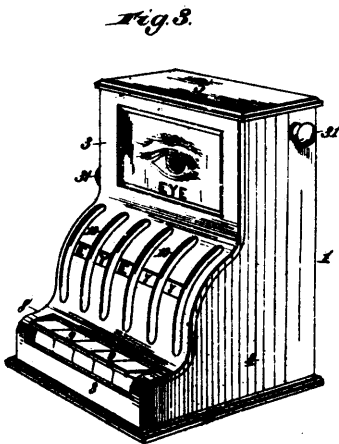
33467 Jewett's Car Truck.



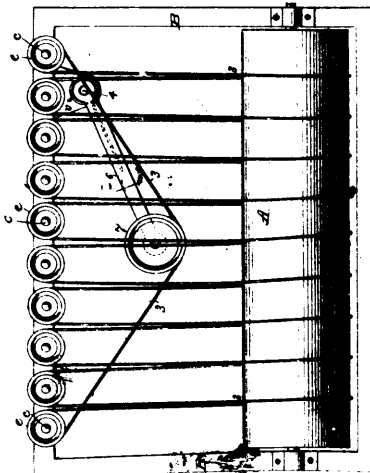
33468 Hardie's Cabinet, etc.



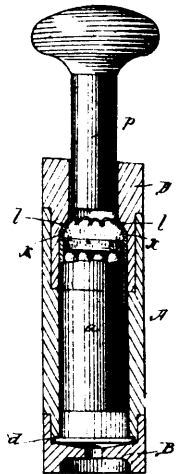
33469 Campbell's Water Heater.



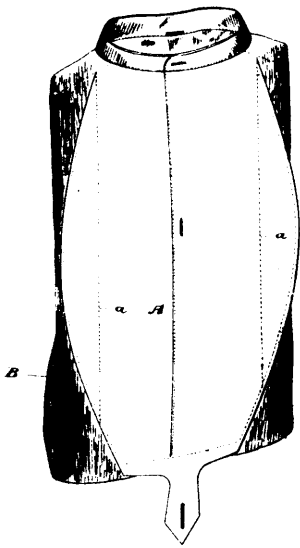
33470 Body's Kindergarten Teaching Apparatus.



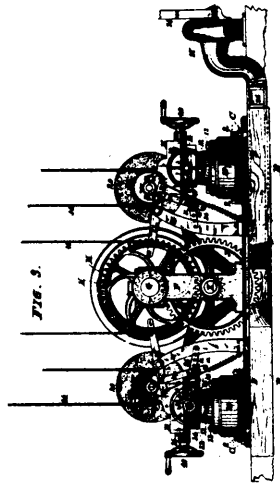
33471 McDonald's Tension Regulating Device.



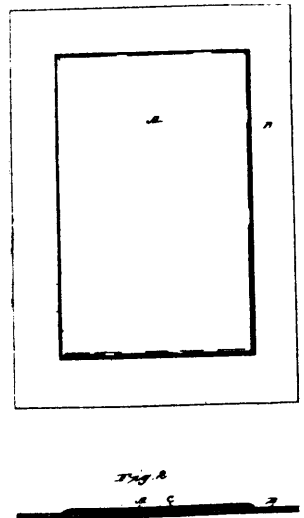
33472 Clifford's Implement for Loading and Re-loading Cartridge Shells.



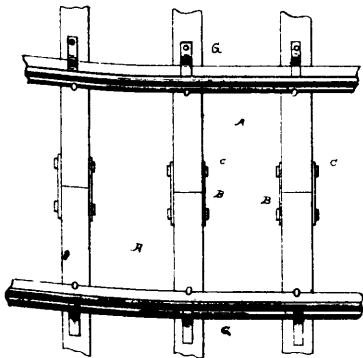
33473 Sword's Shirt.



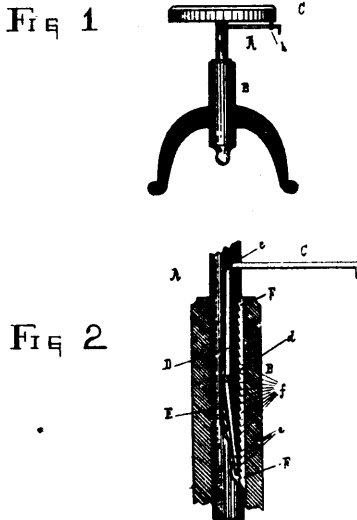
33474 Griffin's Machine for Grinding the Treads and Flanges of Car Wheels.



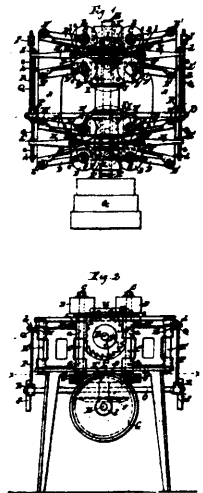
33475 Levoy's Apparatus for Reproducing Copies of Writing, etc.



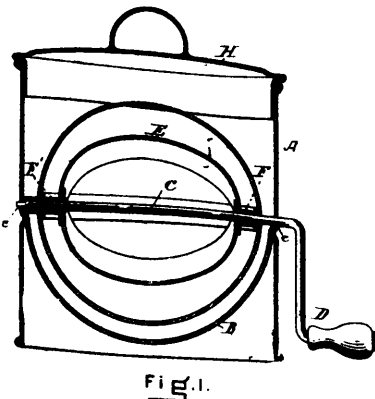
33476 Thomas' Railroad Tie.



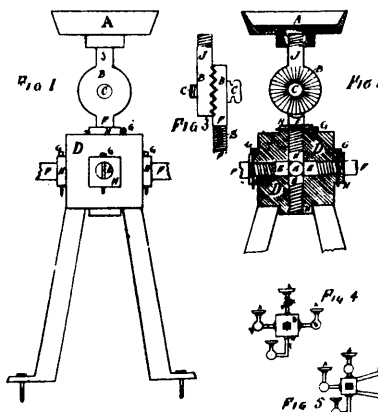
33477 March's Raising and Lowering Gear for Stools and Chairs.



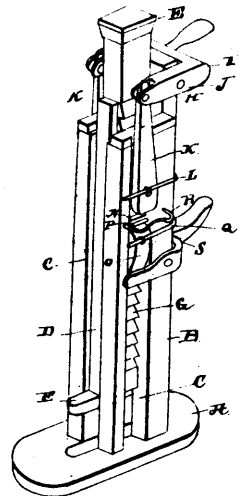
33478 Suther's Power Feed Matching Machine.



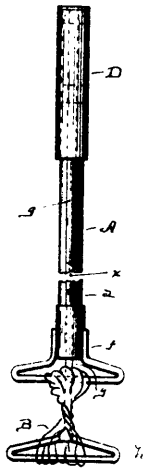
33479 Baron's Cake Mixer.



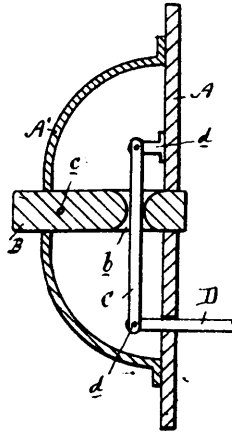
33480 Morgan's. Bracket or Stand for Supporting Flower Pots, etc.



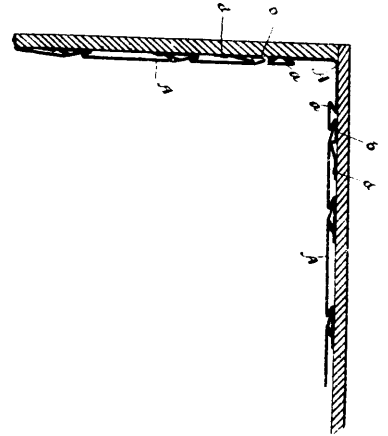
33481 Tindall's Lifting Jack.



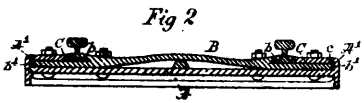
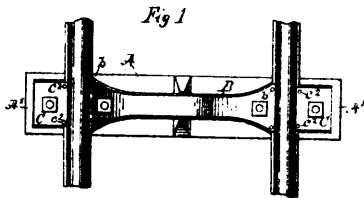
33482 Ormsby's Mop and Wringer.



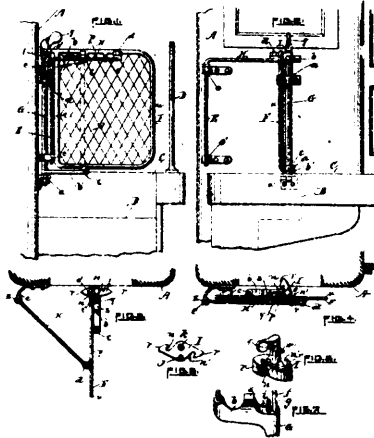
33483 Ebert's Button for Door Bells.



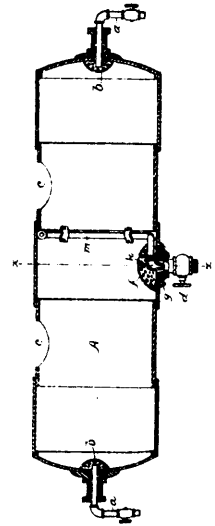
33484 Brown & Thorn's Sheet Metal Shingle.



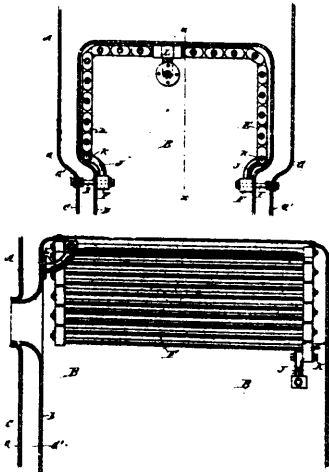
33485 Smith's Metallic Railroad Ties.



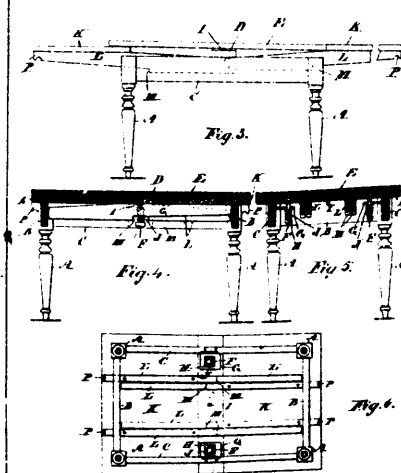
33486 Wood's Gate for Railway Cars, etc.



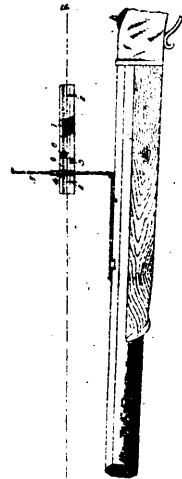
33487 Barton's Boiler for Cleaning or Boiling Rags.



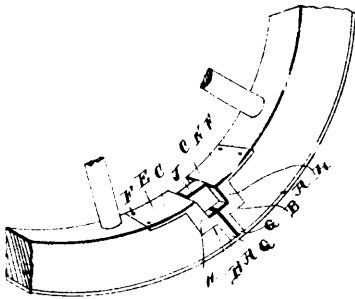
33488 Roberts' Boiler.



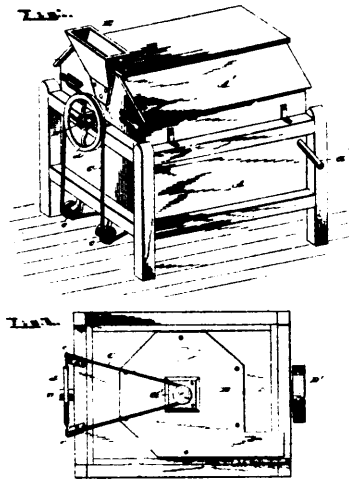
33489. Hauser's Extension Top Table.



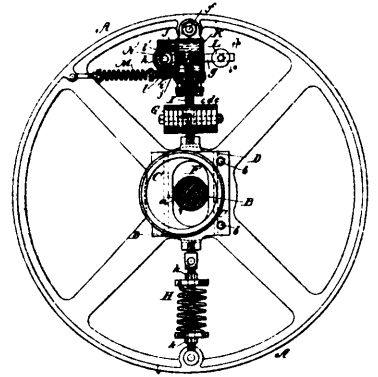
33490 Blankman's Gun Sight.



33483 Ohtat's Tire Tightener.



33492 Smith's Seed Cleaning Machine.



33493 Davis' Governor for Engines.

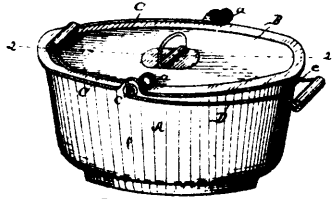


Fig. 1

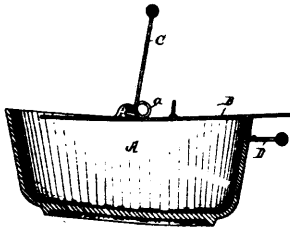
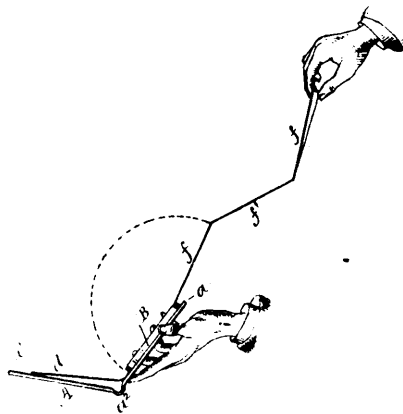
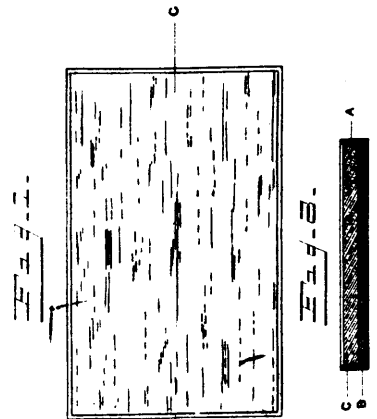


Fig. 2

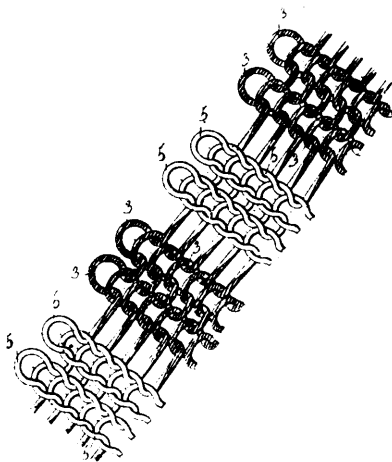
33494 Harmon's Kettle Cover Holder.



33495 Lawson's Manifold Sales Book.



33496 Smith's Apparatus for Producing Manifold Copies, etc.



33497 Knusing's Knit Fabric.

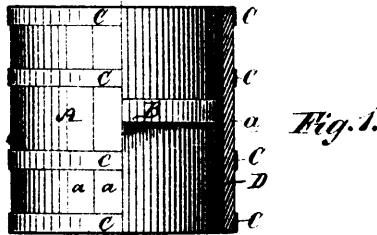


Fig. 1.

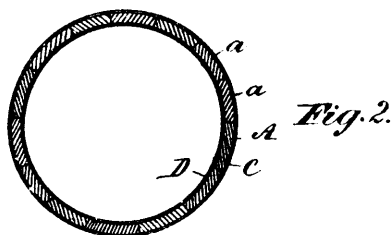
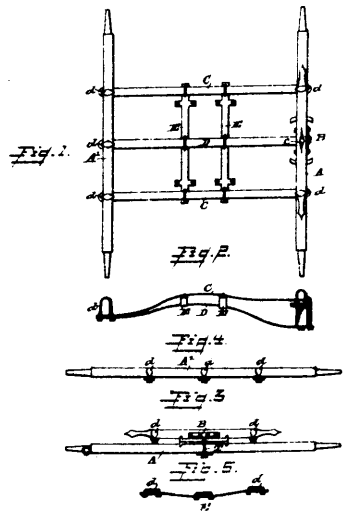
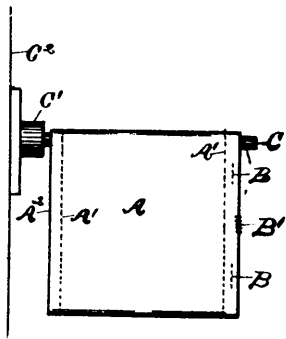


Fig. 2.

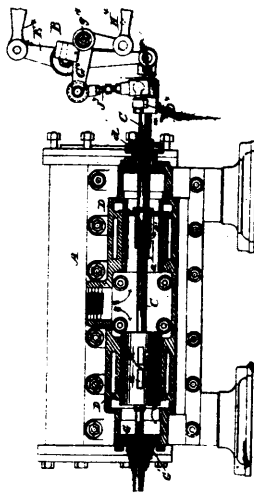
33498 Sudbrook's Cheese Hoop.



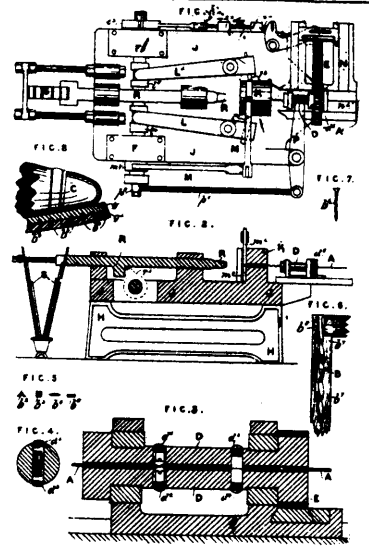
33499 Davis' Syring Platform for Vehicles.



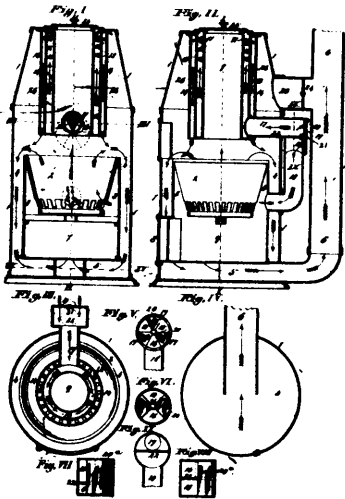
33500 Arnold's Diaper.



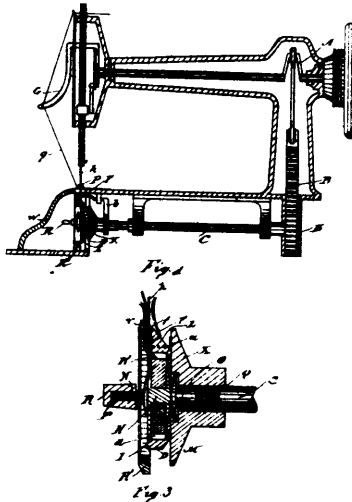
33501 Haven's Steam Engine.



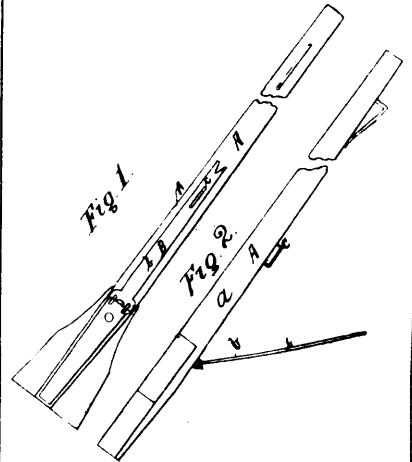
33502 Nichols' Machinery for Manufacturing Nails.



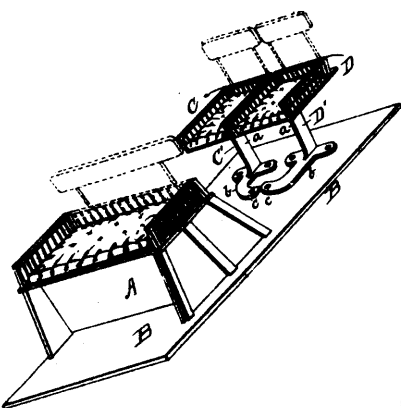
33503 Williams' Stove or Furnace.



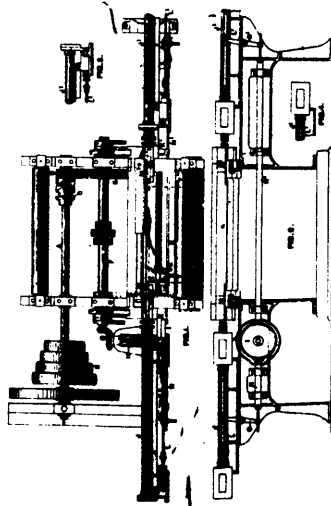
33504 Garlepy's Sewing Machine.



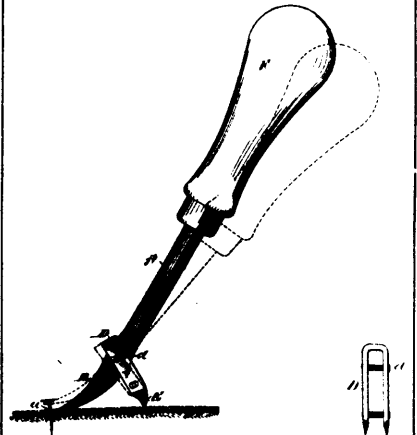
33505 Costello's Wagon Tongue



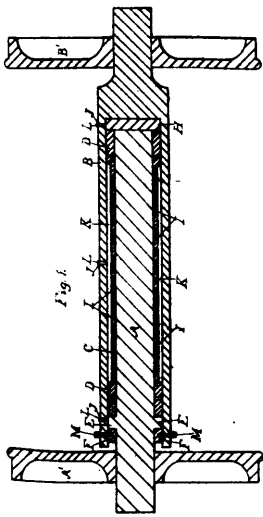
33506 Blydenburgh's Vehicle.



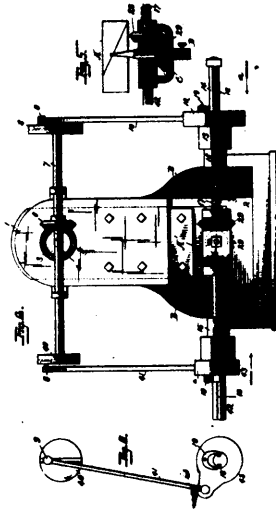
33507 Greening's Loom.



33508 Tarbox's Tack and Nail Extractor.

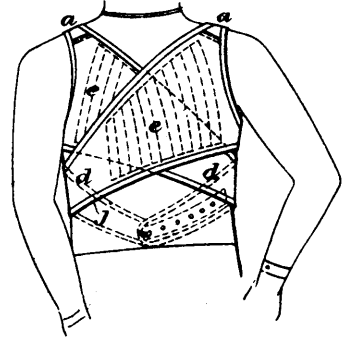


33510 Vanorman's Divided Car Axle.

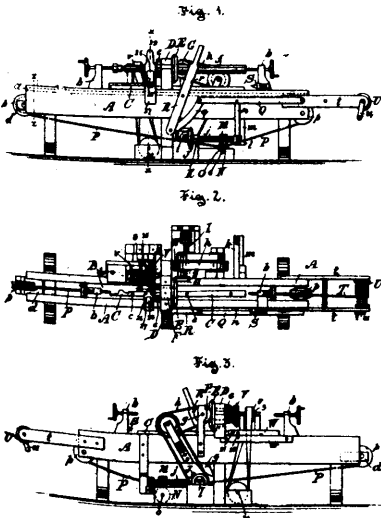


33511 Weed's Forming and Shaping Metals

Fig. 2.



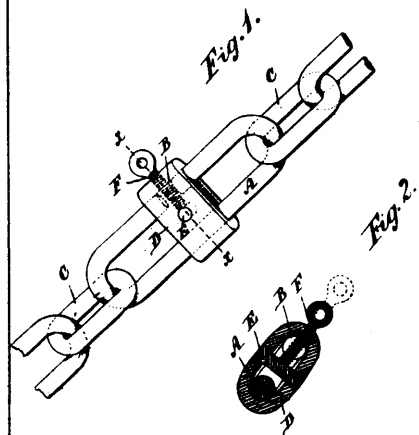
33512 Howe's Body Brace.



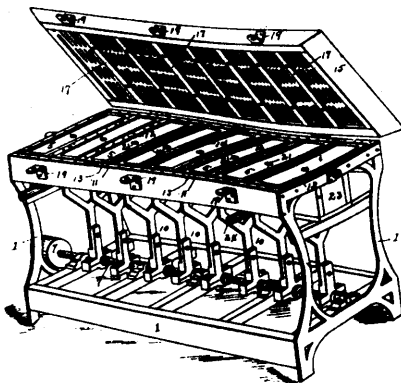
33513 Derouin's Wood Turning Machinery.



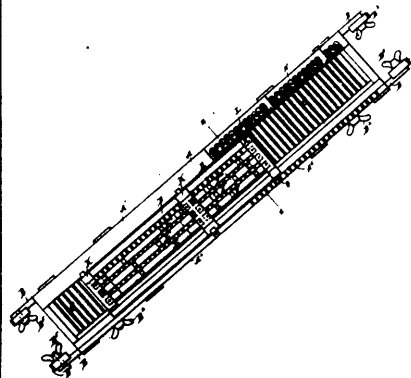
33514 Ling's Fancy Figured Wooden Plates.



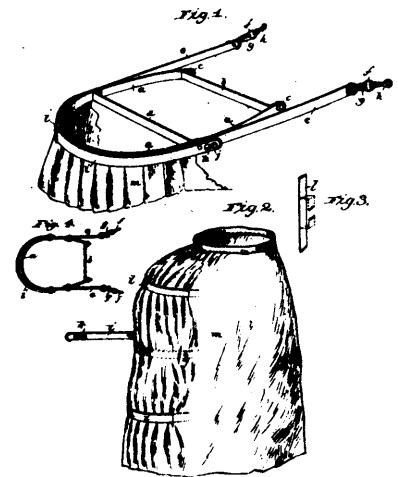
33515 McLean's Connecting Link.



33516 Victory's Paper Screening Machine.



33517 Smith's Organ Attachment.



33518 Whalen's Dress Supporting Steel.

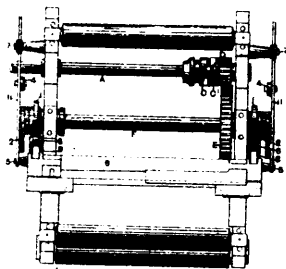


FIG. 1.

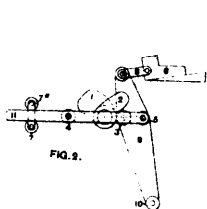


FIG. 2.



FIG. 3.

FIG. 4.

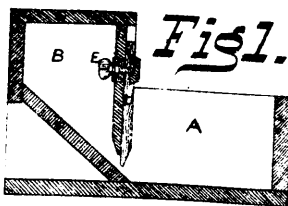


FIG. 1.

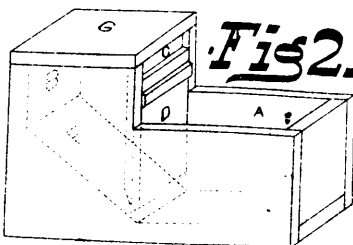


FIG. 2.

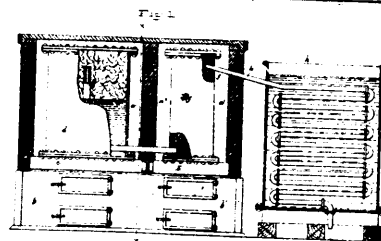


FIG. 1.

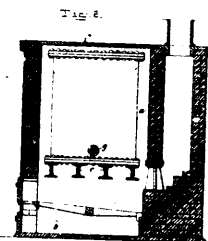


FIG. 2.

33519 Greening's Loom for Wire Weaving.

33520 Sander's Feed Box for Horses, etc.

33521 Pitt's Apparatus for Distilling and Deodorizing Petroleum.

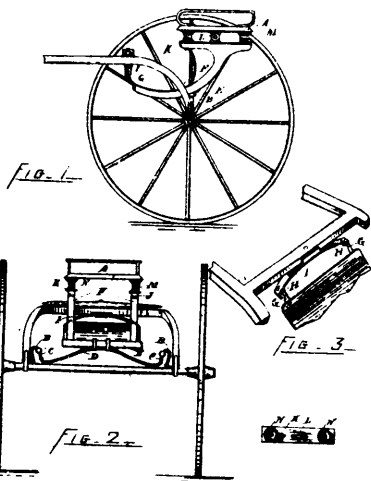


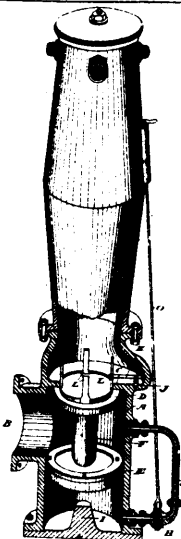
FIG. 1.

FIG. 2.

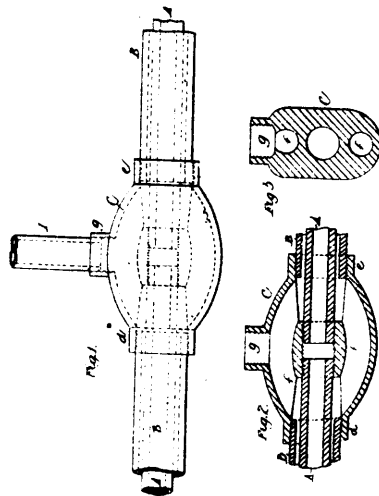
FIG. 3.

FIG. 4.

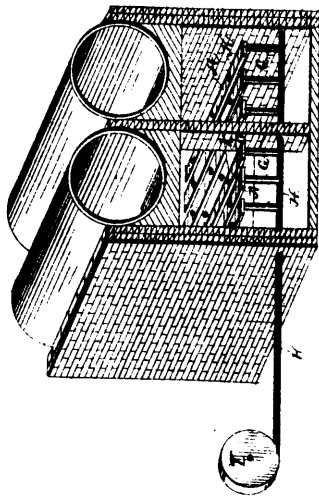
33522 Brownell's Road Vehicle.



33523 McNeill's Valve, etc.

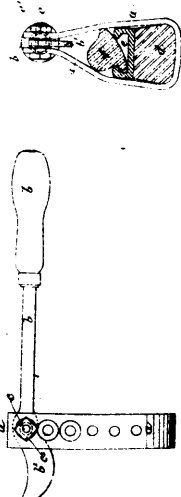


33524 Hattery's Coupling for Pipes.

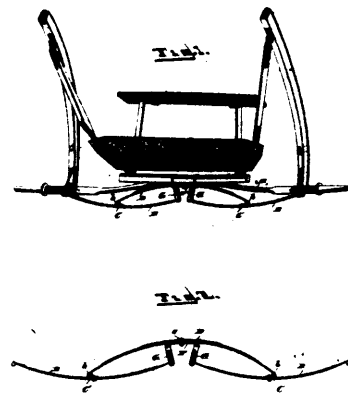


Gordon's Grate.

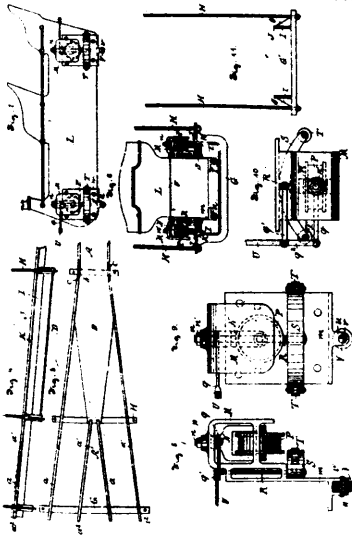
33525



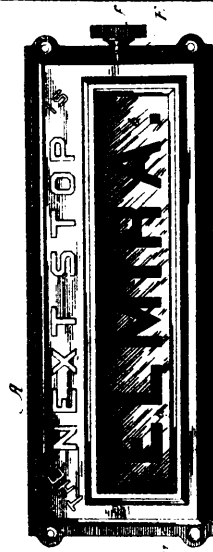
33526 Unevin's Tool or Apparatus for Inserting Rubber, etc.



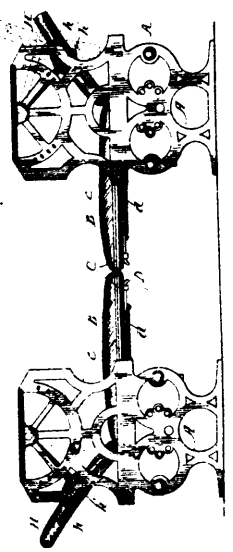
33527 Barrett's Vehicle Spring.



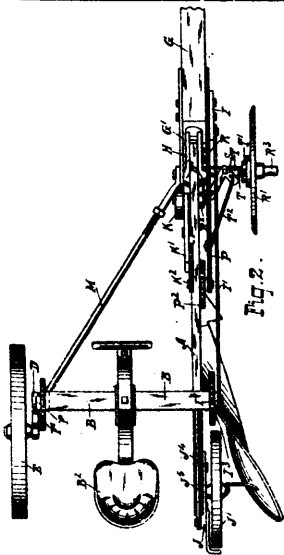
33528 Floyd's Sliding Hill and Toboggan.



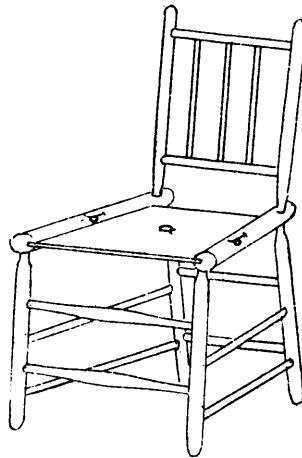
33529 Macklin's Station Indicator.



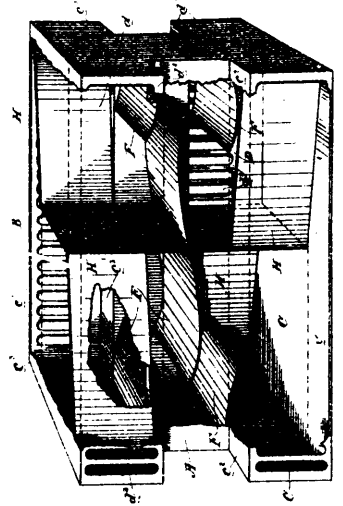
33530 Macklin's Car Seat.



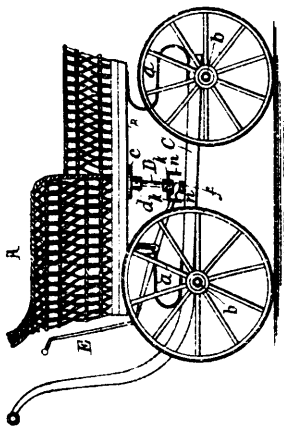
33531 Thom's Riding Plough.



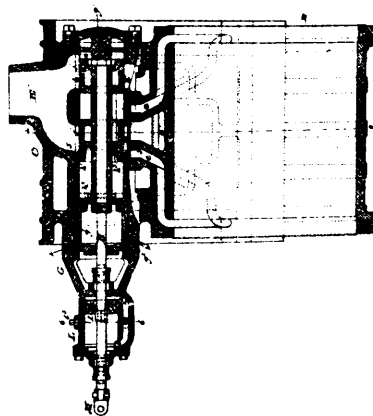
33532 Cillis' Seat.



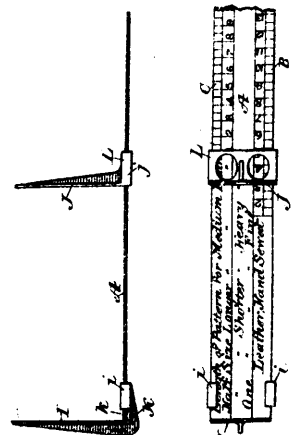
33533 Abrahamson's Ventilator.



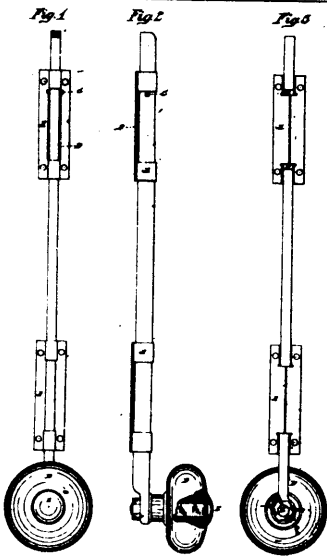
33534 Richardson's Child's Carriage.



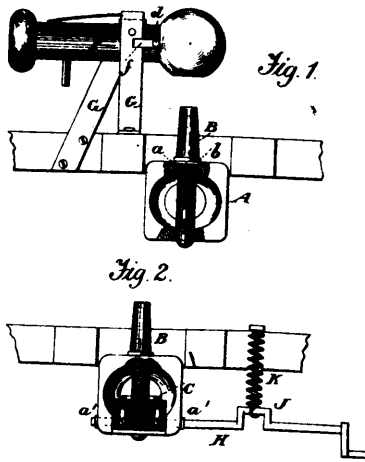
33535 Pitkin's Compound Engine.



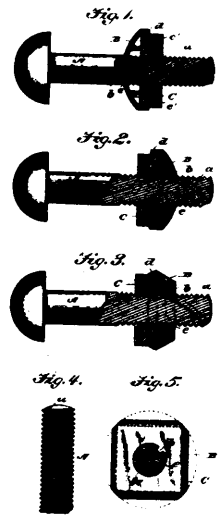
33536 Damer's Shoemaker's Rule.



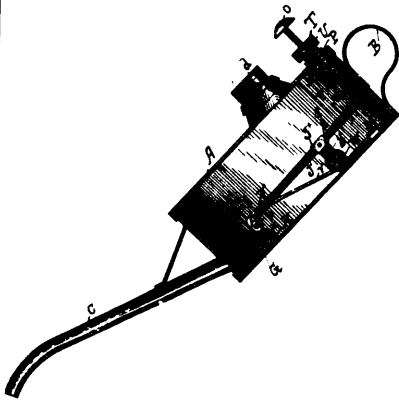
83537 Laforce & Brownar's Targette de Chassis.



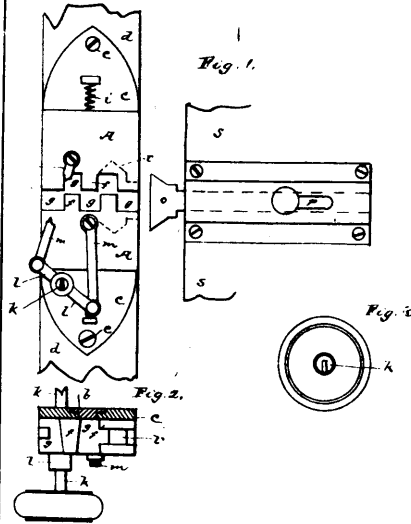
83538 Harris' Car Coupler.



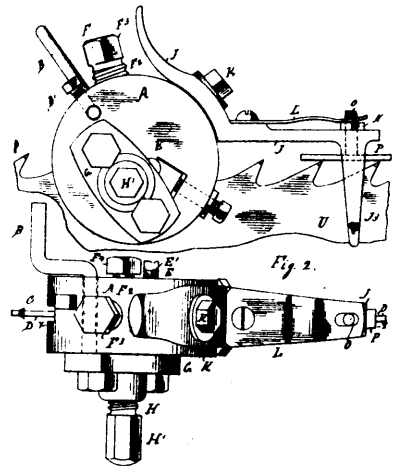
83539 Trammel's Nut Lock.



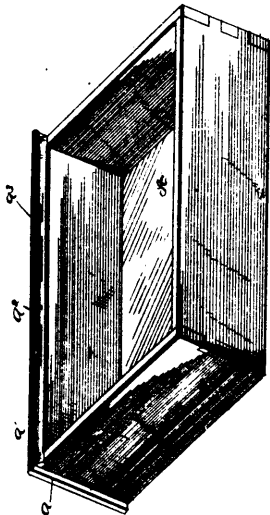
83540 Eau's Oil Can.



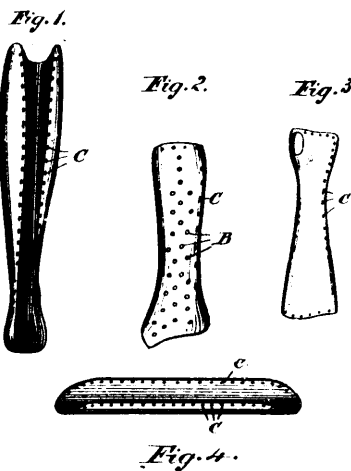
83541 Hunton's Door Lock.



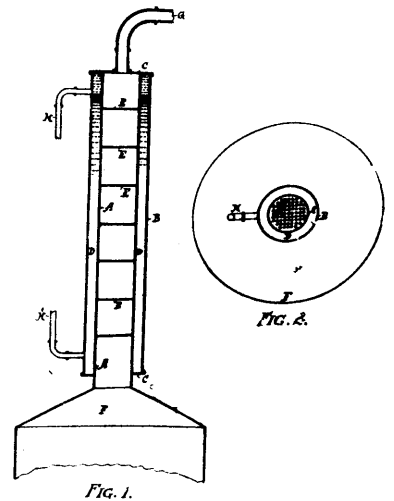
83542 Mortorff's Saw Swaging Machine.



83543 Clapp's Bureau Drawer.



82646 Beacock's Surgical Splint.



83547 Burrell's Condenser, etc.