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The Canadian Patent Office RECORD

Vol. XVI.—No. 11. NOVEMBER, 1888. Price in Canada $2.50 per An. United States - $2.50 "

INVENTIONS PATENTED.

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

No. 30,075. Steam Engine. (*Machine à vapeur.*)

William F. Dake, Grand Haven, Mich., U.S., 2nd November, 1888; 5 years.

Claim.—1st. In a double-acting square-piston engine, the combination of an outer shell adapted to inclose two pistons, a piston adapted to have a reciprocating motion within the shell, and an inner piston having a reciprocating motion within the outer piston, said piston moving at right angles to the motion of the outer piston, and said pistons serving as valves, substantially as described. 2nd. In a double-acting reciprocating engine of the class described, the steam passages K and K_1, and the pistons having steam ports *a* and *b*, *c* and *d*, steam passages S and S_1, and ports R and R_1, in combination with the surrounding case, substantially as described. 3rd. The inner piston having the valve-faces described, and ports R, R_1 and S, S_1, in combination with the outer piston, and surrounding case, substantially as described. 4th. In a steam engine of the class described, an inner piston in combination with an outer piston, said inner piston having two steam-chambers separated from each other, and also having ports through which the steam is conducted into the chamber, in which the outer piston moves, substantially as described.

No. 30,076. Carriage Shaft. (*Limonière de voiture.*)

Alfred Brown, Pittsburgh, Ont., 2nd November, 1888; 5 years.

Claim.—1st. The combination of tubular iron carriage shafts A, tubular cross-bar D, in combination with couplings C, C, substantially as set forth. 2nd. The combination of tubular iron carriage shafts provided with sockets B, B, to support the portion of the shafts constructed of wood N, substantially as shown and for the purpose explained.

No. 30,077. Extension Carriage Top Bar and Lever Seat Rail. (*Branches de soufflet de voiture.*)

Edward J. Robson, Mitchell, Ont., 2nd November, 1888; 5 years.

Claim.—1st. The combination of the extension bars F, F, F, F, and the revolving wheel H, H, H, H, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the extension bars F, F, F, F, and the revolving wheel H, H, H, H, of the rail A B C D E, substantially as and for the purpose hereinbefore set forth.

No. 30,078. Gas Lamp. (*Lampe à gaz.*)

Thomas C. J. Thomas, Finsbury Park, Eng., 2nd November, 1888; 5 years.

Claim.—1st. In a gas lamp, an air heating chamber with pipes, or annular divisions, some, or all of which, are made contracted, or of gradually decreasing diameter, at the ends thereof adjacent to the burner, substantially in the manner hereinabove described. 2nd. In a gas lamp, an air heating chamber with pipes, or annular divisions, in combination with a plate or partition, such as described, formed with a series of perforations through which air can descend into the annular spaces between said pipes, or annular divisions, and within the innermost of the inner of these, and the burner, substantially as hereinabove described for the purpose specified. 3rd. In a gas lamp, an air-heating chamber with pipes, or annular divisions, in combination with a perforated partition constructed in parts like flanges to enter the tops of said pipes, or annular divisions, when the parts are put together for use, substantially as hereinabove described for the purpose specified. 4th. In a gas lamp, an air-heating chamber with pipes, or annular divisions, made contracted, or of decreasing diameter at one end, in combination with a perforated partition, constructed in parts like flanges to enter the tops of said pipes, or annular divisions, when the parts are put together for use, substantially as described for the purpose specified. 5th. In a gas lamp, an air-heating chamber with pipes, or annular divisions, made contracted, or of decreasing diameter at one end, in combination with a perforated partition constructed in parts like flanges to enter the tops of said pipes, or annular divisions, a central gas supply pipe with burner, and a flange to same forming part of said perforated partition and arranged to enter the larger end of the innermost pipe, or annular division, when the parts are put together for use, substantially as hereinabove described for the purpose specified. 6th. In a gas lamp, an air-heating chamber with pipes, or annular divisions, some, or all of which, are contracted at their lower ends, in combination with a gas supply pipe and a burner, or tube, closed at its lower end, formed with lateral openings for the issue of gas, and provided with a surrounding curtain guide or deflector, said burner and its surrounding curtain guide or deflector, (or one of them) being of a form resembling a trumpet mouth, that is to say, gradually increasing in diameter towards the end of the burner, or the annular orifice at which the gas escapes from between the burner, or tube, and said curtain guide, or deflector, substantially as described for the purpose specified. 7th. In a gas lamp, an air-heating chamber with pipes, or annular divisions, some, or all of which, are made contracted, or of gradually decreasing diameter at the ends thereof adjacent to the burner, in combination with a gas supply pipe, and a burner, or tube, closed at its lower end, formed with lateral openings for the issue of gas, and provided with a surrounding curtain guide, or deflector, substantially as described for the purpose specified. 8th. In a gas lamp, the combination, with an air-heating chamber provided with pipes, or annular divisions, of means for regulating the quantity of air passing to different annular spaces of the said air-heating chamber, substantially as hereinabove described. 9th. The combination of parts constituting a compound burner and comprising air-heating chamber 2, and a burner proper 35, constructed and arranged as shown and described, with, or without, some partitions 31*a*, not contracted at the lower ends. 10th. The improved gas lamp, constructed, arranged and operating substantially as hereinabove described, consisting of supply pipe 1, casting 1*a* and burner proper 35, carried by such pipe, air-heating chamber 2, casting 3, guard plates 4*a*, pipe 6, cover 7, bowl 10, frame 11, casing 14, reflector 18, chimney 22, cover 23, and its support. 11th. The improved means for regulating the supply of air to the annular spaces within the air-heating chamber, consisting of pipe 44 with tubular extensions 45, in combination with pipe 6, casting 3, supply pipe 1, casting 1*a* and air-heating chamber 2, as shown and described. 12th. The modified construction of air-heating chamber, consisting of the outer wall of cylindrical form throughout its entire length, and the outer of the intermediate tubes, or annular divisions, contracted at its inner side, and of bell-mouth form at its outer side, as shown and described. 13th The combination, of supply pipe 1, casting 1*a*, burner proper 35, curtain 40, casting 3, pipes 44 and 6, perforated plate 28, and annular divisions 31, the outer of which latter is of cylindrical form throughout its entire length, the outer of the intermediate ones contracted at its inner side, and of bell-mouth formed at its outer side, and the inner one contracted at its inner side, as shown and described. 14th. In a gas lamp, the combination, of an air-heating chamber with nozzles, pipes or annular divisions, and with an Argand burner, the arrangement and operation being substantially such as above described.

No. 30,079. Anti-Siphoning Trap.

(*Trappe contre-siphon.*)

Frank H. Paradice, Denver, Col., U.S., 2nd November, 1888; 5 years.

Claim.—1st. The combination, with a trap and its inlet and discharge pipes, of a chamber interposed between the trap and the discharge pipe, and having an upturned end or flange at its union with the discharge pipe, substantially as set forth. 2nd. The combination of the inlet pipe 1, the trap 3, discharge pipe 10, the chamber 4 interposed between the trap and the discharge pipe, and longitudinally and transversely enlarged, and having the upturned end or flange 7, substantially as set forth.

No. 30,080. Core Drill. (*Drille creux.*)

John F. Gourley, Thomas G. Viney and John F. Hertzler, Lawrence, Ks., U.S., 2nd November, 1888; 5 years.

Claim.—1st. The combination, in a core drill, of the tube A, hav-

ing the drill head K, and the core-lifter R, having the retaining devices T, substantially as described. 2nd. In a core drill, the drill head K, comprising cutters L, formed and arranged as described. 3rd. The cutter heads for core drills comprising the cutters L, in combination with the band or ring N, substantially as and for the purpose described. 4th. The combination, in a core drill, of the tube A, the cutter head K, and the core-lifter R, substantially as described. 5th. The combination, in a core drill, of the tube A, having the drill head K, the core-lifter R, and the yoke E, substantially as described. 6th. The combination, in a core drill, of the tube A having the drill-head K, the yoke E, having the arms G and the pin D, substantially as described. 7th. The combination, in a core drill, of the tube A, having the drill head K, and the core-lifter R, having the springs T, substantially as described.

No. 30,081. Apparatus for Raising and Lowering Ships' Boats. (*Appareil pour hisser et descendre les canots des navires.*)

Ferdinand A. L. de Gruyter, Amsterdam, Holland, 2nd November, 1888; 5 years.

Claim.—1st. In apparatus for raising and lowering ship's boats, the combination of a tackle block, a screw-threaded rod and a correspondingly threaded nut, through which said rod works for the purpose specified. 2nd. In apparatus for raising and lowering ship's boats, the combination, of a davit lowering tackle, a screw-threaded rod and a correspondingly formed nut through which said rod extends, and in relation to which said rod is adapted to be turned, substantially as herein described for the purpose specified. 3rd. In apparatus for raising and lowering ship's boats, the combination of a davit lowering tackle, a rod formed with right and left handed screw threads, and correspondingly formed nuts arranged thereon, said rod being adapted to be turned relatively to said nuts, substantially as described for the purpose specified. 4th. In apparatus for raising and lowering ship's boats, the combination, with a davit and lowering tackle, of a screw-threaded rod adapted to be turned about its axis, and a correspondingly threaded nut, or nuts, prevented from turning relatively to said rod, and through which said rod works, substantially as described for the purpose specified. 5th. In apparatus for raising and lowering ship's boats, the combination of a davit, pulley blocks adapted to lower a boat, and suspended from said davit and screw gearing, comprising a screw-threaded rod and a correspondingly formed nut thereon, said rod being adapted to be turned relatively to said nut, substantially as described for the purpose specified. 6th. In apparatus for raising and lowering ship's boats, the combination, of a davit lowering tackle suspended from said davit, a rod S, formed with right and left handed screw threads, a lever for rotating the said rod, and nuts 4 4, adapted to word on said rod, but prevented from turning with reference thereto, one of said nuts being connected to said lowering tackle, and the other being adapted to be connected with a boat to be raised or lowered.

No. 30,082. Improvements on the Purification of Water Sullage and Sewage and on Apparatus therefor, which Improvements and Apparatus are applicable to other Sanitary purposes. (*Perfectionnements dans la purification des eaux sales et les égouts et aux appareils pour cet objet, lesquels perfectionnements et appareils sont applicables a d'autres fins sanitaires.*)

Francis R. Conder, Guildford, Eng., 2nd November, 1888; 5 years.

Claim.—1st. The improved sanitary process for the purification of water, sullage and sewage, substantially as hereinbefore described. 2nd. The manufacture of artificially prepared mixture, or solution, or mixtures, or solutions of iron, which is, and are maintained at the required strength, by combining solid or liquid animal or vegetable, organic matter with sulphate of iron, or other suitable iron compounds, in the form of a compound mixture or solution, or mixtures or solutions, substantially in the manner and for the purposes hereinbefore described. 3rd. The employment of such compound mixture or solution, or mixtures or solutions, for the purification of water and for other sanitary and curative purposes, substantially in the manner hereinbefore described. 4th. The improved sanitary apparatus, consisting of a tapered and perforated container, in combination with a tank or cistern, furnished with inlet and outlet pipes, all substantially as hereinbefore described. 5th. The improved sanitary apparatus for household use, known as a ferrometer, substantially as hereinbefore described, and shown at Fig. 3 and 4 of the accompanying drawings, for carrying out my improved sanitary process.

No. 30,083. Improvements in Making Hinge Leaves. (*Perfectionnements dans la fabrication des bandes des pentures.*)

William H. Hart, New Britain, Conn., U.S., 2nd November, 1888, 5 years.

Claim.—1st. The herein described method of forming hinge leaves, which consists, first, of cutting out a blank, wide enough for two or more pairs of hinge leaves, then dividing the blank through the middle and rolling its wings into knuckles, or *vice versa*, finally severing the blank, having the rolled knuckles into separate hinge leaves, substantially as described and for the purpose specified. 2nd. In forming hinge leaves from blanks, wide enough for two or more pairs, that improvement which consists of punching and countersinking the screw holes, while the blanks are thus wide and afterwards severing the said blanks into individual hinge leaves, substantially as described and for the purpose specified.

No. 30,084. Improvements in Securing Sanitary Earthen Closets to floors of apartments. (*Perfectionnements dans l'ajustage des sièges d'aisance à la terre sèche aux planchers des appartements.*)

Robert F. Elliott, Kingston, Ont., 2nd November, 1888; 5 years.

Claim.—1st. The combination of a metallic ring in two parts A, A, with convex and concave projections B B, C C, to form a lock when united, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the separate parts of the metallic ring connected by projecting convex and concave lugs B B, C C, which forms a solid lock on each side at the base of the ring, and a solid joint in the curved or elevated portion of the ring H, H, substantially as and for the purpose hereinbefore set forth.

No. 30,085. Tobacco Pipe and Art of Manufacturing the Same. (*Pipe de fumeur et art de la fabriquer.*)

August Ruth, St. Louis, Mo., U.S., 2nd November, 1888; 5 years.

Claim.—The improvement in the art of manufacturing corn cob pipes, consisting in first treating the cob to render it pliable, and subsequently compressing it, to form the pipe bowl.

No. 30,086. Cartridge Shell.

(*Etui de cartouche.*)

Gershom M. Peters, Cincinnati, Ohio, U. S., 2nd November, 1888; 5 years.

Claim.—1st. A cartridge, the sides of which are cut and indented, to leave inwardly projecting holding pieces, the said pieces being indented in such manner that when pressed inward their inner faces are convex, the shell being entirely cut away at the bottom of said holding pieces, which are forced inward, so that their edges press against the wad or ball. 2nd. A cartridge, the sides of which are indented and cut to leave inwardly projecting holding pieces, each separate holding piece having an arc-shaped base, as and for the purpose set forth.

No. 30,087. Device or Apparatus for Burning Hydro-Carbon or other Oils. (*Appareil à brûler les hydrocarbures et autres huiles.*)

Lasslo Chandor, St. Petersburg, Russia, 2nd November, 1888; 5 years.

Claim.—1st. In a candlestick or apparatus for burning hydro-carbons, the combination of the small tube I, with the reservoirs A, A_1, for the purpose set forth. 2nd. In a candlestick or apparatus for burning hydro-carbon oils, the combination of the reservoir A, air tube and the match box holder H substantially for the purpose described. 3rd. In a candlestick or apparatus for burning hydro-carbon oils, the combination of the reservoirs A, A_1 and burner B, with the tube K, outer tube L_2 and wick sheath L_1, for the lower flame M, substantially as and for the purpose set forth. 4th. In a candlestick or apparatus for burning hydro-carbon oils, the combination of the burner B, tubes K and L_2, and wick sheath L_1 with tray F and gallery D, substantially as and for the purpose set forth and shown. 5th. In a candlestick or apparatus for burning hydro-carbon or other oil, the combination of the burner B and tray F, with the mantle C widened at its lower end, and the perforated mantle C_1, C_2 attached to the inner part of the said tray, substantially as set forth. 6th. In a candlestick or apparatus for burning hydro-carbon or other oils, the combination of the reservoirs A, A_1, burner B, tray F, gallery D, mantle C, C_1, C_2, and chimney E and air-tube I, substantially as and for the purpose set forth and shown. 7th. The combination of the several parts as a whole to constitute my improved candlestick or apparatus for burning hydro carbon and other oils, so as to operate substantially for the purpose set forth in the foregoing specification and as shown on the accompanying drawings.

No. 30,088. Hand Truck. (*Camion à bras.*)

John J. Hahn and Irvin J. Maggard, Oxford, Kan., U.S., 2nd November, 1888, 5 years.

Claim.—1st. In a truck, the combination of the main frame, the sliding frame and the handles, pivoted to the main frame, substantially as and for the purpose specified. 2nd. In a truck, the combination of the main frame, the sliding frame confined in ways on the main frame, and extension handles pivoted to the main frame and carrying a windlass, connected with the sliding frame, whereby the same is raised or lowered, substantially as described. 3rd. The combination, with the main frame and the sliding frame, of extension handles, pivoted to the main frame, and pivoted folding braces connected with the main frame and extension handles, as set forth. 4th. In a truck, the combination, with a frame and cross-piece, of a rod carried by said cross-piece between the side bars of the frame, and a hook mounted on said rod to freely slide on the same, and provided at its free end with one or more hooks to engage the chime of a barrel, substantially as described. 5th. The combination, with the main frame and extension handles of the herein described dog, pivoted in a section of the extension handles, and adapted to removably hold the handles extended, substantially as described. 6th. The combination of the main frame, the sliding frame operating in longitudinal ways in the upper side of the main frame, the windlass shaft and the herein described system of power multiplying pulleys, mounted on the sliding frame, and the main frame and the ropes or cords secured at one end to the sliding frame and operating over said pulleys and secured at their opposite ends to the windlass, substantially as described. 7th. A truck, provided with the extension handles formed in sections of each handle, being pivoted to the side bars of the truck, substantially as described. 8th. In a truck, the combina-

tion of the main frame, the sliding frame, the handles and a windlass journalled between said handles and connected with the sliding frame, substantially as described. 9th. In a truck, the combination of the main frame, the sliding frame and the extension handles pivoted to the main frame, for the purpose described.

No. 30,089. Harness Saddle. (*Sellette.*)

J. Frank Bond, Portland, and William H Scott, Deering, (assignees of Andrew H. Larkin, Portland), Me., U. S., 2nd November, 1888; 5 years.

Claim.—1st. In a harness saddle, the combination of the skirt and pad, with the metal loop plate *a*, made as described and secured to the point or lower end thereof, substantially as and for the purposes set forth. 2nd. The plate, having a transverse slot and shoulder and rivets, substantially as described.

No. 30,090. Soil, Gas, Water, Sewer Pipes and Fittings. (*Tuyaux et garniture pour le fumier, le gaz, l'eau et les égouts*)

Philip Gleich, Horatio S. Krause and Richard J. Cheney, St. Paul, Minn., U.S., 2nd November, 1888; 5 years.

Claim.—1st A pipe, formed with alternate peripheral grooves and ridges around its outer surface throughout its length, for the purpose herein set forth. 2nd. In combination with the pipe described, formed with alternate peripheral grooves and ridges around its outer surface, a pipe coupling socket adapted to receive the end of the said pipe and having alternate grooves and ridges around its inner surface, and a soft metal packing between the pipe and socket, as herein set forth. 3rd. In combination with a pipe formed with alternate peripheral grooves and ridges around its outer surface, a pipe coupling socket adapted to receive the end of the pipe therein, and having alternate grooves and ridges around both its inner and outer surfaces, as herein set forth.

No. 30,091. Knitting Machine. (*Machine à tricoter.*)

David C. Bellis, Philadelphia, Penn., U. S., 2nd November, 1888: 5 years.

Claim.—1st. The combination of the needle cylinder and needles of a knitting machine, with a bed plate, a cam cylinder and driving mechanism therefor, a needle rest and side cams on the cam cylinder, sliding gates and a friction ring, carrying the sliding gates, all substantially as set forth. 2nd The combination of the needle cylinder and needles of a knitting machine with a cam cylinder, having a needle rest, and a top cam provided with yielding end pieces free to move both upward and laterally with reference to the said top cam, substantially as set forth. 3rd. The combination of the needle cylinder and needles of a knitting machine with a cam cylinder, having a needle rest, and a top cam provided with yielding end pieces, adapted to inclined grooves in the cylinder, and free to move both upward and laterally therein, substantially as and for the purpose described. 4th. The combination of the needle cylinder and needles of a knitting machine, a cam cylinder and driving mechanism therefor, with a needle rest top bottom and side cams and sliding gates provided with noses, the width of the needle rest to serve at the same time as the bottom side cams, substantially as specified. 5th. The combination of the needle cylinder, cam cylinder, and needles of a knitting machine, with a driving shaft gearing, by which the shaft drives the cam cylinder, a crank handle on the shaft, and a sliding spring locking bolt on the handle, to engage with the shaft, substantially as set forth. 6th. The combination of the bed plate of a knitting machine, the cam cylinder and a needle cylinder with a supporting cylinder for the latter, flanged at its lower end and secured to the bed plate, and a cam ring on the flange of the supporting cylinder to raise and lower the needle cylinder, all substantially as specified. 7th. The combination of the needle cylinder of a knitting machine, having needles, some with long projecting bits, and others with short projecting bits, with a cam cylinder having a needle-rest, a cam adapted to slide laterally into and from said needle-rest, devices for pushing the said cam inward and drawing it outward, and means for restricting the inward movement before the cam reaches a position to act upon the short bits of the needles, all substantially as specified. 8th. The combination of the needles and needle cylinder of a knitting machine, with a cam cylinder having a needle rest, a cam adapted to slide laterally in said cylinder, a cam lever to push the said cam inward and springs to draw it outward, and a tripping pin acting on said cam lever as the latter rotates with the cam cylinder, all substantially as specified 9th. The combination of the cam cylinder of the machine and its fixed cam with the cam nose, a spring acting thereupon to hold it in operative position, and a pivot pin for said cam nose, inclined in respect to the vertical, whereby said cam-nose has an upward and backward yielding movement, all substantially as specified.

No. 30,092. Beer Engine. (*Pompe à bière.*)

John H. Nathan, Sydney, N.S.W, (assignee of James A. Bigelow, Melbourne, Victoria), 2nd November, 1888; 5 years.

Claim.—1st In a beer engine, the combination of the following elements; a base plate adapted to be fixed to a bar or counter, a pump barrel on said plate, a valved plunger and its rod adapted to work upwardly in the pump barrel, a cylinder surrounding the pump barrel and forming a chamber there between, a circular spray pipe in said chamber, an inlet pipe communicating with the spray pipe, an outlet pipe leading from the base of the chamber, a cap plate centrally apertured over the pump barrel and fitted thereat with an outlet valve, and having openings over said chamber, provided with detachable covers, means, substantially as described and shown, for connecting the base and top plates an outlet pipe leading from the valved aperture in the cap plate and provided with a delivery tap, valved pipes connecting the pump barrel with a source of liquor supply, and a foot lever fulcrumed below the bar or counter, and connected to or with the plunger rod, all constructed, arranged and adapted to operate, substantially as herein shown and described. 2nd. In a beer engine, the combination, with the pump barrel B having base and cap plates, the plunger *p*, *l*, and its rod *p*, the connecting rods *c*, *r*, treadle *t*, and band or spring *s*, *a*, of the suction pipes *s*, leading from a source of liquor supply to the pump-barrel, and provided with regulating taps T and check valves V, whereby on opening said taps and operating the treadle, different kinds of liquors may be simultaneously delivered to and mixed in the pump barrel, as herein set forth. 3rd. In a beer engine, the combination water inlet and outlet pipes I, *o*, the pump barrel B, having base and cap plates, and the chamber C around the pump-barrel, of the spray pipe *s*, *p*, in said chamber and communicating with the pipe I, whereby hot or cold water may be sprayed into said chamber for heating or cooling the contents of the pump barrel and find exit from the chamber through the pipe *o*, as herein set forth. 4th. In a beer engine, the combination, with the pump barrel B, having a base plate, the chamber C surrounding the pump barrel and the outlet pipe *o*, of the cap plate P1, having hand holes H, H, over said chamber, provided with detachable covers, whereby hot or cold mediums may be placed in said chamber for heating or cooling the contents of the pump barrel, and find exit from the chamber through the pipe *o*, as herein set forth.

No. 30,093. Tobacco Cutting Machine. (*Hache-tabac.*)

The LeClair Manufacturing Company (assignee of George LeClair), Oswego, N.Y., U.S., 2nd November, 1888; 5 years.

Claim—1st. In combination with the feed-hopper and conveyor, the feed-roller *a*, provided with circumferential grooves *a1*, *a1*, the rotary circular knives *b*, *b*, over the feed roller and entering the grooves thereof, the plate *c* and the roller *d* over the said plate and provided with grooves coinciding with the aforesaid knives, as set forth and shown. 2nd. In combination with the feed-hopper and conveyer, the feed roller *a* provided with the grooves *a1*, *a1*, the rotary circular knives *b*, *b*, over the feed-roller and entering the grooves thereof, the plate *c* having fingers *c1* projecting into the grooves of said feed-roller, the roller *d* over the said plate and the rotary cutter C arranged to move across the discharge edge of the plate *c*, substantially as described and shown. 3rd. The cutter-head C1, formed with the longitudinal plates C11, C11, inclined toward the axis of the cutter head from the centre toward opposite ends thereof, in combination with the cutters C, C secured to the inclined sides of said plates, and having their cutting edges diverging from the centre toward opposite ends of the cutter-head, substantially as described and shown. 4th. The combination of the plate *c*, having a straight discharging edge, and the cutter-head C1 arranged axially parallel with said edge, and having the cutters C, C, with cutting edges, extending in the direction of the length of the axis of the cutter-head, and inclining toward said axis from the centre toward opposite ends of the cutter head, and diverging in said direction, substantially as described and shown 5th. A tobacco-cutting machine, comprising an endless feed belt, a feed roller arranged along the discharge portion of said belt, rotary circular knives over said feed roller and in planes parallel with the line of feed, a water-trough under the feed-roller, a stationary plate along the discharge side of the feed roller, and having a straight discharge edge, a roller over said plate, and a cutter-head arranged axially parallel with the discharge edge of the aforesaid plate, and having cutters with the cutting-edges extending in the direction of the length of the axis of the cutter-head, and inclining toward said axis from the centre toward opposite ends of the cutter-head and diverging in said direction, substantially as described and shown. 6th. In combination with the cutter and feed-conveyer, the longitudinally-oscillatory sieves F, H, the crank-shaft *i*, having the cranks projecting in opposite directions, and pitmen *l*, *l*, connecting said cranks with the sieves, substantially as described and shown.

No. 30,094. Button Attaching Machine and Method or Process of Securing Buttons to Materials. (*Machine à poser les boutons et manière de les assujétir.*)

William B. H. Dowse, (Trustee), Newton, (assignee of Edward P. Merwin and Walter E. Bennett, Boston), Mass., U.S., 2nd November, 1888; 5 years.

Claim.—1st. In a button attaching machine, an oscillating lever provided on its free end with a pawl, or dog, adapted to engage a wire to feed it through the eye of a button, a guide and support for the wire, a second oscillating lever bifurcated at one of its ends to engage the wire on both sides of the eye of the button, and arranged to move in close proximity to the wire guide, or support, to shear, or cut, the wire at this point, and a support for the eye of the button, on both sides of which the bifurcated end of the latter lever is adapted to move, to bend the wire into staple-like form in the eye of the button, all constructed, combined and arranged substantially as and for the purposes hereinbefore set forth. 2nd. As a means for severing the portion of a wire extended through the eye of a button, and bending the same into the form of a staple, or loop, therein, a guide, or support, for the wire, an oscillating lever *x* bifurcated at one of its ends, as at *l1*, and adapted to engage the wire on both sides of the eye of the button, and arranged to move in close proximity to said wire guide, or support, to shear, or cut, the wire at this point, and a support for the eye of the button, on both sides of which the bifurcated end of said lever is adapted to move, to bend the wire into staple-like form in the eye of the button, constructed combined and operating substantially as hereinbefore set forth. 3rd. In a button setting machine, a button raceway stop-gate *n1*, oscillating lever *x*, provided with the bifurcation *l1* and pin or projection *m1*, wire guide or rest *p1* and saddle-strip *o1*, combined and operating substantially as and for the purposes hereinbefore set forth. 4th. As a means for feeding a wire through the eye of a button, an oscillating lever *x* provided with a dog or pawl *e1* adapted to engage the wire and feed it forward, a guide for the wire, a second dog or pawl *f1*, adapted to engage the wire and prevent it from being drawn back as the oscilla-

ting lever returns to have its dog take a fresh hold on the wire, and a support for said second dog, or pawl, all combined and operating substantially as and for the purposes herinbefore set forth. 5th. In a button setting machine, oscillating lever x provided with the dog, or pawl e^1, pawl f^1 and its support, a guide p^1 for the wire, oscillating lever s^1, provided with the bifurcation l^1 and saddle strip o^1, all combined and operating substantially as and for the purposes hereinbefore set forth. 6th. In a button setting machine, a button hopper, walls or plates q, s, revoluble disc o, provided with the holes, or apertures p, and raceway t, all combined and operating substantially as and for the purposes hereinbefore set forth. 7th. In a button setting machine, a button hopper, a button raceway lever b_3, and oscillating lever h, provided with the cam piece d^3, all combined, arranged and operating substantially as and for the purposes hereinbefore set forth. 8th. In a button setting machine, a support for the work, a guide and support for the button, and wire loop, or staple, in the eye of the same, a clinching anvil provided with slots having curved bottoms for receiving the prongs of the loop, or staple, to clinch the same, and an eye or slot extending transversely of the first mentioned slots to guide a cord, or wire, around which the prongs of the staples may be clinched, and a reciprocating slide adapted to engage the upper end of the staple on both sides of the button eye and drive said staple, all constructed, combined and operating substantially as and for the purposes hereinbefore set forth 9th. In a button setting machine, the saddle strip o^1, stop-gate q^1 provided with the projection e^2, spring d^2, and reciprocating slide s^1, provided with the horn a^2, whereby the staple in a button is driven, and the stop-gate may be operated to admit another button and its attached staple to position to be operated upon, all combined and operating substantially as and for the purposes hereinbefore set forth. 10th. The frame f^2, provided with the guide slots e^2, e^2, having slightly inclined sides, and the button supporting and guiding plate h^2, provided with the aperture g^2, and slot i^2, constructed, arranged and combined substantially as and for the purposes hereinbefore set forth. 11th. A vertically movable work-supporting horn, a guide therefor, a lever y^2 fulcrumed on the bed of the machine and loosely connected at one end with said work-supporting horn for moving it vertically, the main shaft, and an oscillatory cam a^3 thereon engaging the other end of said lever to operate it, combined and constructed substantially as and for the purposes hereinbefore set forth. 12th. A work supporting horn, a feed dog and its bar supported thereon, a bracket to which said feed dog is pivoted, and on which pivot it is adapted to slide, a bar loosely connected at its upper end with said feed dog bar, and in like manner connected at its lower end with a lever p^2, the bed of the machine, a chair q^2 pivoted on said bed, said lever being fulcrumed on said chair, and an oscillating cam engaging the other end of said lever to move it on its fulcrum in the chair, and move the chair on its pivot, combined and operating as and for the purposes set forth. 13th. In a button attaching machine, a button raceway having the saddle-strip o^1 over which the prongs of the wire loop, or staple, are adapted to depend, provided with the slot o_3, substantially as andfor the purposes hereinbefore set forth. 14th. In a button attaching machine, a clinching anvil provided with a guide slot,or slots, for guiding and clinching the prongs of the staple, and a transverse guide eye, or slot x^1, for the cord or wire, substantially as and for the purposes hereinbefore set forth.

No. 30,095. Fire-Escape. (*Sauveteur d'incendie.*)

Orson R. Barber, Auburn, N.Y., U.S., 3rd November, 1888; 5 years.

Claim.—1st. The combination, in a fire-escape, of the case having the lid on the upper end formed in two sections, the said sections having notches in their meeting edges which register when the sections are brought together, the bail, or handle, pivoted in the opposite sides of the case below the lid, and adapted to pass through the registered notches, and the drum journalled in the case and having the cable E wound thereon, substantially as shown and described. 2nd. The combination, in a fire-escape, of the case A, the shaft C journalled in the sides thereof, spool or drum D on the said shaft, spur wheel G on one end of the said spool, the sliding pawl operating in vertical ways in the side of the case, and provided with the teeth I, I, to engage alternately in the teeth of the said spur wheel, and the cord or cable E, attached at the upper end to the said drum, substantially as specified. 3rd. The combination, in a fire-escape, of the case A, the shaft C journalled in the sides thereof, spool D on the said shaft, spur wheel G on one end of the said spool, having an uneven number of teeth, vertical bar H sliding in ways in the side of the case, and having a slot h therein to receive the shaft C, the teeth I, I, on the said bar above and below the said spur wheel, and adapted to engage alternately in the teeth thereof, and the cable to be wound on the said spool, substantially as specified. 4th. The combination, in a fire-escape, of the case A, the shaft C journalled in the sides thereof, spool or drum on the said shaft, spur wheel on the side of the said spool having an uneven number of teeth bevelled on both sides to a point, sliding pawl operating in the side of the case, and having the teeth I, I at the upper and lower ends above and below the said spur wheel, the said teeth being bevelled on both sides to a point, and adapted to engage alternately with the teeth of the spur wheel on opposite sides thereof, and the cord, or cable, attached to the said spool, substantially as specified. 5th. The combination, in a fire-escape, of the case A, the shaft C journalled in the sides thereof, and having the square post c on the end thereof on the outside of the said case, spool D on the said shaft, spur wheel G, sliding pawl to engage in the said spur wheel to impede the revolution thereof, the rope on the said spool, and the key K adapted to be engaged with the said squared post c, to enable the spool to be turned to rewind the cord, or cable, thereon when unwound, as specified.

No. 30,096. Apparatus for Spraying Water. (*Appareil pour pulvériser l'eau.*)

Edgar Aldous. Forest Gate, Eng., 3rd November, 1888; 5 years.

Claim.—1st. A water spraying apparatus, consisting of the outside case A perforated with numerous small holes, inner lining B held off inside of A with bottom C, hole D, attached tube E, fitted with a concaved dome F, through which projects the small end of a tapered tube G, for inlet of water, the other end being arranged to be connected to a supply pipe, as and for the purposes described. 2nd. In a water spraying apparatus, the combination of the case A, perforated with numerous small holes, an inner lining B, held off inside of A, and a tapered tube F, the small end of which passes through lining, to introduce water between lining and case, the other end being connected to the supply pipe, as described. 3rd. In a water spraying apparatus, the combination of the barrel I, arranged with an internally tapered inlet J, for water, and having a rim L, projecting from a dome K, and an attached rose M, the barrel I being suitably arranged for attachment to a supply pipe to introduce water into inlet J, as described.

No. 30,097. Apparatus for Indicating and Registering the Respirations of the Body. (*Appareil pour indiquer et enrégistrer la respiration.*)

Khursed M Tata, Navsari, India, 3rd November, 1888; 5 years.

Claim.—1st. In an instrument for indicating the respirations of the body, the combination, with a tube, of a valve connected with the tube, and a needle attached to said valve, substantially as shown and described. 2nd In an instrument for indicating the respirations of the body, the combination, with a tube, and a strip of paper travelling transversely of the tube, of a valve, and a needle operated by the valve, substantially as shown and described. 3rd. In an instrument for indicating the respirations of the body, the combination, with a tube, and a mouth or nose piece secured at one end, of a valve connected with the tube near the opposite end, and a needle secured to the said valve, substantially as shown and described 4th. In an instrument for indicating the respirations of the body, the combination, with a tube, and a strip of paper travelling transversely of the tube, of a valve, a needle operated by said valve, and means, substantially as described, for manipulating the paper strip, as and for the purpose specified. 5th. In an instrument for indicating the respirations of the body, the combination, with a tube, and a nose piece, or its equivalent, secured at one end, of a strip of paper travelling transversely of the tube at the opposite end, a valve connected with the tube located near the travelling strip, a needle operated by said valve, and means, substantially as shown and described, for manipulating the paper, all combined to operate substantially as shown and described. 6th. In an instrument for indicating the respirations of the body, the combination, with a tube, and a thermometer having its bulb located within the same, of a valve connected with the tube, and a needle attached to said valve, substantially as shown and described. 7th. In an instrument for indicating the respirations of the body, the combination, with a tube, a strip of paper travelling transversely of the same, anh a thermometer having its bulb located within the tube, of a valve connected with the tube, and a needle operated by the valve, and engaging the paper strip, substantially as shown and described. 8th. In an instrument for indicating the respirations of the body, the combination, with a tube, and pressure rollers journalled at one end thereof, of a strip of paper held between the rollers, a valve connected with the tube, a needle operated by the valve, and engaging the paper, and means, substantially as described, for manipulating the said paper, as and for the purpose specified. 9th. The combination, with a tube, provided with a nose piece, or its equivalent, of a travelling strip of paper, means, substantially as described, for manipulating the paper, a valve connected with the tube, and a needle operated from the valve capable of travelling transversely across the said paper, as and for the purpose specified.

No. 30,098. Type Writing Machine. (*Graphotype.*)

Bernard Granville, Chicago, Ill, U.S., 3rd November, 1888; 5 years

Claim.—1st. In a type-writer and in combination, pivoted key levers, substantially horizontal in the machine, sliding and converging type-bars, all substantially horizontal, having type on their end faces, intermediate connections between the key-levers and type bars, a laterally moving carriage, and a platen opposite to and facing the ends of the type-bars, substantially as and for the purpose described. 2nd. In a type writer and in combination, pivoted key-levers, substantially horizontal in the machine, sliding and converging type-bars, also substantially horizontal, having type on their end faces, and intermediate connections between the key-levers and the type-bars, a laterally moving carriage, and a platen opposite to and facing the ends of the type-bars, and an inking mechanism, substantially as and for the purpose described. 3rd. In a type-writer and in combination, pivoted key-levers, substantially horizontal in the machine, sliding and converging type-bars, substantially horizontal having type on their end faces, and intermediate connections between the key-levers and the type-bars, laterally moving paper carriage and platen opposite to, and facing the ends of the type-bars, and a vertically and rotating ink disk, substantially as and for the purpose described.

No. 30,099. Elevating Apparatus. (*Monte-charge.*)

Charles R. Otis, Yonkers, N.Y., U.S, 3rd November, 1888; 5 years.

Claim.—1st. An elevator, provided with a main valve and an electric valve and a regulating valve, all constructed to operate substantially as and for the purpose set forth 2nd. The combination, in an elevator engine, of a main valve, a regulating valve therefor arranged in a supply pipe, and connected with the main valve, and an auxiliary valve operating engine, provided with a valve connected with an electric motor, substantially as described. 3rd. The combination in an elevator, of the main engine, provided with a valve, an auxiliary engine connected to operate the main valve, an electro-motor connected to the valve of the auxiliary engine, and a regulating valve controlling the flow of motor fluid to the auxiliary engine and connected with the main valve, substantially as described. 4th The combination, with the cylinder and piston of an elevator engine and with a valve controlling the movements of said engine and con-

nected with the cage to be operated therefrom, of a regulating valve in a supply pipe for said engine, connected with said controlling valve, substantially as described. 5th. The combination, with the piston and cylinder and main valve and connections between the latter and cage of an elevator, of a supplemental valve in a supply pipe for said engine, connected to the main valve, shifting devices to be operated therefrom to fully open the said pipe after the main valve begins to open its port and close it before the main valve closes its port, substantially as described. 6th. The combination, with the valve and auxiliary valve operating engine, of an elevator, of a regulating valve controlling the supply to the auxiliary engine, and connected with the main valve to be operated therewith, substantially as described. 7th. The combination, with the elevator engine, of an auxiliary engine, the piston of which is connected with the main valve, a supply pipe for said engine, and a regulating valve therein connected to the piston rod of the auxiliary engine, substantially as described. 8th. The combination of the main engine and main valve of an elevator, an auxiliary engine, and a supply pipe for said engine, and a regulating valve therein connected with the main valve to move therewith, substantially as described, the arrangement being such as to gradually and automatically close the supply of motor fluid to the auxiliary engine, as the main valve takes its position to arrest the movement of the main piston. 9th. The cage, provided with clamps, combined with a governor and a clamp releasing device, substantially as described. 10th. The combination, with the rails *a*, and cage of an elevator, of clamp levers carrying clamps arranged to receive the rails between them, and constructed and connected with the cage to permit a limited upward movement of the cage independently of the clamps, a clamp controller, whereby the clamps are applied to the rails when the speed of the cage becomes excessive, and a clamp restorer, whereby the clamps are reset to their first position after the strain on the clamps is released, substantially as described. 11th. The combination, with the rails *a*, and cage of an elevator, of levers and clamps, conical pins secured to the cage and constituting pivots for the levers, a controller for applying the clamps to the rail automatically, and a restorer for resetting the clamps when the grip is released, substantially as described. 12th. The combination, with an elevator cage, of rails *a*, clamps *b* and levers B, connected with the cage to permit a limited upward movement of the latter, independent of the clamps to loosen the grip, an automatic clamp controller to apply the clamps when the speed of the cage becomes excessive, and a clamp restorer to reset the levers when the cage if moved upwards after applying the clamps, substantially as described 13th. The combination of the rails *a*, an elevator cage, clamps, clamp levers and clamp controllers, and conical fulcrum pins for the levers, and springs supporting the levers on the thicker portions of the pins, substantially as set forth. 14th. The combination of the cage, conical fulcrum pins secured thereto, clamps, clamp levers on said pins, and springs supporting the levers on the thickest parts of said pins and clamp controller, substantially as described. 15th. The combination, with the cage and clamps, of a threaded shaft carrying nuts connected with the clamps, a driving wheel connected with said shaft, a travelling rope and a governor provided with rope clamps, substantially as described, whereby said wheel is put into operation to turn the shaft when the speed becomes excessive, substantially as described. 16th. The combination with the rails, cage and clamps, of levers carrying the clamps and supported movably on conical pivots carried by the cage and a clamp controller connected with the clamps to apply the same when the speed of the cage becomes excessive, substantially as set forth. 17th. The combination, with the cage clamps, clamp carrying levers and clamp controller, of conical pivots for the levers, supporting springs and a restoring motor, substantially as set forth. 18th. The combination, with the cage clamps, clamp levers, and driving wheel thereof, of a travelling rope passing round said wheel, a governor driven by said rope, rope clamp connected with said governor, and a restoring spring for resetting the clamps to their normal position, substantially as set forth. 19th The combination, with the clamps, and clamp carrying levers B, B, pivoted below the cage of the nuts, threaded shaft, driving wheel, travelling rope and governor, and a spring connected with the shaft and with a stationary support, substantially as set forth 20th. The combination with the cage clamps, conical fulcrum pins and springs of a driving wheel connected with said clamps, a restoring spring, a governor, a travelling rope passing round the driving wheel and governor wheel, and rope clamps connected with the governor, substantially as set forth.

No. 30,100. Process for the Manufacture of Sodium. (*Procédé de fabrication du sodium.*)

Henry S. Blackmore, Mount Vernon, N.Y., U. S., 3rd November, 1888; 5 years.

Claim.—1st. The method, herein described, of making sodium, which consists in mixing together calcium, hydrate, ferric, oxide sodium, carbonate and carbon, heating the same in a chamber and collecting and condensing the vapors, substantially as described. 2nd. The process herein described, of making sodium, which consists in decomposing sodium, hydrate by nascent metallic iron in a finely divided rate, substantially as described.

No. 30,101. Corn Extractor. (*Extirpateur des cors.*)

Louis A. A. J. Comte and Joseph A. Charland, Montreal, Que., 3rd November, 1888; 5 years.

Résumé.—Un composé d'acide acétique crystallisable, de résine et de cochenille, a tout dans les proportions ci-dessus mentionnées et pour les fins décrites.

No. 30,102. Tension Device for the Warp Beams of Looms. (*Appareil de tension pour les ensouples de derrière des métiers à tisser.*)

Chester Bailey, Janesville, Wis., U.S., 5th November, 1888; 5 years.

Claim.—1st. A tension device for the warp beams of looms, comprising a follower bar, vertically adjustable at one side of the loom frame, a weight acting on the follower bar to elevate it in contact with the roll of warp, a tension lever fulcrumed on the opposite side of the loom frame, and carrying an adjustable weight and a fixed counter weight, a friction wheel mounted to rotate on the warp beam above the tension lever, a friction band on the friction wheel and connected to the tension lever and an endless chain connected to the adjustable weight on the tension lever and passing respectively over a wheel connected with the follower bar and a wheel journalled at the fulcrum of the tension lever, substantially as shown and described. 2nd. In a tension device for the warp beams of looms, the combination, with a friction wheel on the warp beam, and a friction band thereon acting to retard the revolution of the warp beam, and a tension lever fulcrumed on the loom frame connected with the friction band and carrying an adjustable weight, of a vertically movable follower bar, a winding drum connected with the follower bar to actuate the same, a chain wheel on the shaft of the winding drum, a second chain wheel at the fulcrum of the tension lever and an endless chain passing over the chain wheels and connected to the adjustable weight on the tension lever, substantially as shown and described. 3rd. The combination, with the beam A, the gearing A^1, O, thereon, the shaft N^1, the friction wheel N thereon, the band L on the friction wheel and the tension lever K^1, carrying the weights K, K^2, of the weight E, the cord F, the pulley *d*, the sliding follower bar C carrying the roller D, the drum *f*, the strap *h*, connecting the drum and the follower bar, the chain wheels H, H^1, and the endless chain J passing over the chain wheels and connected to the weight K on the tension lever, substantially as shown and described.

No. 30,103. Electrode for Secondary Electric Batteries. (*Electrode pour les batteries électriques secondaires.*)

Sylvanus L. Trippe, Brooklyn, N. Y., U. S., 5th November, 1888; 5 years.

Claim.—1st. In a secondary or storage battery, a sheet of perforated metal bent of folded, and a conducting wire frame, comprising vertical or horizontal wires attached to its inner side to form an outer covering or envelope for the electrode, substantially as set forth. 2nd. An electrode for a secondary or other battery, composed of an exterior perforated plate or envelope having attached to it internally a suitable conducting wire and an interior perforated and corrugated plate, there being a suitable composition between the plates, and the whole being held or pressed together, substantially as set forth.

No. 30,104. Box Handle. (*Poignée de colis.*)

Justus A. Traut, New Britain, Conn., U. S., 5th November, 1888; 5 years.

Claim.—The herein described box handle, consisting of the horizontally projecting handle 6, the arms 7, 7, extending upwardly and diverging inwardly therefrom, and the return arms 8, 8, at the outer ends of the arms 7, 7, substantially as described and for the purpose specified.

No. 30,105. Brick Kiln. (*Four à brique.*)

George W. Sharer, Terre Haute, Ind., U. S., 5th November, 1888; 5 years.

Claim.—1st. In a brick kiln, the combination of a furnace, the wall of the kiln having eyes connecting the furnace with the interior of the kiln, and cold air passages in the wall of the kiln, and opening into said eyes through the top wall of the latter, substantially as described 2nd. In a brick kiln, the combination of a furnace, the wall of the kiln having eyes connecting the furnace and the interior of the kiln, and cold air passages leading from the open air into the eyes, and the passages to the middle eye passing around of the side eyes, substantially as described. 3rd. In a brick kiln, the combination of a furnace having passages b^1, b^2, b^3 and chamber b^4, subdivided by bricks, and the front wall of the furnace having abutments provided with eyes and facets b^5 and b^7, and abutting into the combustion chamber of the furnace. 4th. In a brick kiln, the combination of a furnace, the wall of the kiln having eyes connecting the furnace with the interior of the kiln, and cold air passages in the wall of the kiln and opening into said eyes through the top wall of the latter, and the passage leading to the middle eye, passing under one of the other eyes, substantially as described.

No. 30,106. Manufacture of Lawn Tennis Balls. (*Fabrication des balles de jeu de paume.*)

Harry H. Waddington, Manchester, Eng., 5th November, 1888; 5 years.

Claim.—The improvement in the manufacture of lawn tennis balls, consisting in moulding in the surface of the india rubber ball, a groove, or grooves, corresponding in form with the seam, or seams, and after sowing on the cover as usual pressing the seam, or seams, into the said groove, or grooves, so as to produce a ball in the form of a perfect sphere, and with the stitches below the surface, substantially as hereinbefore described and illustrated by the drawing annexed.

No. 30,107. Coin Operated Electrical Apparatus. (*Appareil électrique activé par une pièce de monnaie.*)

Percival Everitt, London, Eng., 5th November, 1888; 5 years.

Claim.—1st. In an electric machine adapted for giving shocks to persons, and provided with magneto-electric devices, a handle connected with such devices, and serving the double purpose of completing the circuit, and also as a means for revolving the same to

generate the electric current. 2nd. An electric machine adapted for giving shocks to the person, and provided with magneto-electric devices, and having one handle serving for completing the circuit connected to said devices, and serving as a means for revolving the same, and another handle, and regulating devices connected therewith adapted for increasing or diminishing the current. 3rd. In an electric machine adapted for giving shocks, and provided with magneto-electric devices, a coin-receiver, and a coin operated unlocking device, a handle connected with, and serving to operate the magneto-electric devices to generate the electric current, combined with means, substantially as described, serving to lock the machine and prevent its operation until the locking device, acted upon by the introduction of a coin, or its equivalent, shall be released. 4th. In an electric machine provided with magneto-electric devices, and with a coin-receiver, and coin operated devices, the combination of a handle connected with, and serving to operate the magneto-electric devices for generating the current, and a locking device serving to prevent such handle being operated until the introduction of a coin, or its equivalent, shall have released such locking device. 5th. In an electric machine provided with magneto-electric devices, and with a coin receiver, and coin-operated devices, the combination of one handle, connected with and serving to operate the devices for generating the electric current, a locking device serving to prevent such handle being operated until the introduction of a coin, or its equivalent, shall have released the locking device, and another handle, and regulating devices connected therewith, adapted for increasing or diminishing the current and completing the circuit. 6th. In an electric machine provided with magneto-electric devices, and with a coin-receiver and coin-operated unlocking devices, the combination of two handles, connected respectively to the positive and negative wires, one handle being connected with, and serving when released by the agency of a coin to drive the machine for revolving the electro-magnets to generate the current, and the other handle, and regulating devices connected therewith, adapted to increase or diminish the current, and a locking device, substantially as described, which prevents the operation of the machine until said locking device is acted upon and set free by the introduction of a coin, or its equivalent.

No. 30,108. Art or Process of Extracting Aluminium. (*Procédé pour extraire l'aluminum*)

Orlando M. Thowles, Newark, N. J., U. S., 6th November, 1888; 5 years.

Claim—1st. The process of producing aluminium, which consists in mixing aluminium chloride with sodium, producing substances substantially as described, and then heating the mixture in a vessel, or receptacle, and then grinding and washing, substantially as described. 2nd. The process of producing aluminium, which consists in mixing aluminium chloride with sodium producing substances substantially as described, and then heating the mixture in a vessel, or receptacle, substantially as described.

No. 30,109. Process for Producing Sodium or Potassium. (*Procédé de production du sodium ou du potassium*)

Orlando M. Thowles, Newark, N. J. U. S. 6th November, 1888; 5 years.

Claim—1st. The process of obtaining sodium, or potassium, which consists in heating a carbonaceous, or other suitable reducing material, gradually supplying caustic soda, or caustic potash, or other suitable compound of sodium or potassium thereto, and then condensing the vapour evolved, substantially as described. 2nd The process of obtaining sodium, or potassium, which consists in heating a carbonaceous, or other suitable reducing material, gradually supplying heated caustic soda, or caustic potash, or other suitable compound of sodium, or potassium, thereto, and then condensing the vapour evolved, substantially as described.

No. 30,110. Apparatus for Producing Sodium or Potassium. (*Appareil de production du sodium ou du potassium.*)

Orlando M. Thowles, Newark, N. J., U. S., 6th November, 1888; 5 years.

Claim—1st. An apparatus for obtaining sodium, or potassium, consisting of a retort, located in a furnace, and having a supply-chute, a side chamber exposed to the heat of the furnace and connecting with the retort in the furnace, and having a regulating door, adapted to adjustably close the connection, and a condenser, substantially as described. 2nd. In an apparatus for obtaining sodium, or potassium, the combination with furnace A having flue A^1, of retort B having chute B^1, with cover B^2, chamber C, having door D, and a condenser E connected with retort B by pipe F having stop-valve F^1, substantially as described.

No. 30,111. Treatment of Metals.

(*Traitement des métaux.*)

William A. Baldwin, Chicago, Ill., U. S., 6th November, 1888, 5 years.

Claim—The process of treating metals, which consists in immersing such metals without fusion in a fused bath of clay, or other like earthy substances bearing alumina, carbonaceous matter, and sodium chlorine, the latter being in excess of either of the other substances, substantially as specified.

No. 30,112. Combined Metal with Aluminium. (*Metal avec alliage d'aluminium*)

William A. Baldwin, Chicago, Ill., U.S., 6th November, 1888; 5 years.

Claim—The process of combining a metal with aluminium, consisting in first fusing clay, or like substances containing alumina, with carbonaceous matter and sodium chloride, the sodium chloride being in excess of the other substances, fusing the metal to be combined, and introducing the metal thus fused into the said fused mass, substantially as specified.

No. 30,113. Bath for Extracting Aluminium and Alloying with other Metals. (*Bain pour extraire l'aluminum et l'allier avec les autres métaux*)

William A. Baldwin, Chicago, Ill., U. S., 6th November, 1888; 5 years

Claim. The composition of matter herein described, consisting of sodium chloride, clay, or other earth bearing alumina, and charcoal the sodium chloride being in excess of the other ingredients, and the whole adapted to be fused and thereby serve as a bath, for the purposes specified.

No. 30,114. Process of and Apparatus for Disintegrating Fibres and Manufacturing Paper Pulp. (*Procédé et appareil de désagrégation des fibres et la fabrication de la pâte à papier.*)

Henry Blackman, New York, N. Y., U. S., 6th November, 1888, 5 years.

Claim—1st. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a suitable vessel under pressure by injecting steam at the bottom of the vessel, causing it to pass through the mass of material and escaping, the resulting vapors from the upper part of the vessel through a contracted opening, whereby a circulation through the mass is maintained under pressure and at a high temperature, and the vaporizable impurities are dissolved, vaporized and expelled. 2nd. The improvement in the art of disintegrating fibrous substances, which consists in boiling them under pressure in a closed vessel, and subsequently introducing steam at the bottom of the vessel, causing it to pass through the mass of material and escaping the resulting vapors from the top, whereby the impurities are first dissolved at a high temperature, and are then vaporized and expelled. 3rd The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, and subsequently boiling them under a partial vacuum and drawing off from the digester the vapors arising therein, whereby the impurities are first dissolved and then vaporized, and carried off. 4th The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, drawing off the vapours arising in the digester while introducing steam to maintain the pressure and subsequently boiling in vacuum 5th The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, drawing off the liquor and returning it to the digester, whereby a forced circulation through the mass is maintained, then drawing off the liquor, injecting steam into the mass, and subsequently boiling in vacuum 6th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, draining off the liquor, whereby the soluble impurities are removed, then injecting steam into the mass, boiling under vacuum, and drawing off the vapors that arise in the digester, whereby the vaporized impurities are carried off. 7th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, and draining off the liquor, then boiling under vacuum, and draining off the liquor, and finally adding fresh water. 8th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure with forced circulation of the liquor through the mass, then drawing off the vapors in the digester while injecting steam to maintain a pressure, then draining off the liquor and subsequently boiling under vacuum, and drawing off the vapors. 9th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, then draining off the liquor, boiling again under vacuum, injecting steam and drawing off the vapors, then draining off the liquor, then introducing water and boiling under pressure, and subsequently boiling again under vacuum. 10th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, and then under vacuum, and finally raising the pressure and blowing out the fibrous matter and liquid into a vacuum chamber. 11th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, and then under vacuum, draining off the liquor, introducing fresh liquor and discharging from the digester passing the fibrous matter and liquid through a grit-separator, and finally drawing them through a pump. 12th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester under pressure, and then under vacuum, draining off the liquor, introducing fresh liquid, raising the pressure and blowing out the fibrous matter and liquid into a vacuum chamber, adding fresh water, washing the fibrous matter through a series of traps in a grit-separator, whereby the heavier particles are arrested and drawing the fibrous matter and liquid through a pump. 13th. The improvement in the manufacture of paper-pulp, which consists in treating fibrous substances in a digester, removing the soluble impurities by boiling, and draining off the liquor, removing the vaporizable impurities by boiling in a vacuum, and drawing off the vapors, then discharging the fibrous matter and liquid from the digester, and subsequently removing the heavier foreign matters by precipitation from the fluid pulp. 14th. The improvement in the art of disintegrating fibrous substances, which consists in boiling them in a digester while circulating steam or liquid through the mass, and from time to time injecting steam into the digester through its outlet, whereby the material adjacent to the outlet is treated homogeneously with the remaining material. 15th. An apparatus for disintegrating fibers, consisting of a digester, a perforated pipe, or pipes, entering the same, and steam, water and chemical pipes connected to said perforated pipe, and provided with valves, combined

and adapted to operate substantially as set forth. 16th An apparatus for disintegrating fibres, consisting of a digester, a perforated pipe, or pipes, passing through the same, steam pipes connected to both ends of said perforated pipe, a circulating pump connected to one end of said perforated pipe, and the delivery pipe from said pump connected to the opposite end of said perforated pipe, with suitable valves for said pipes, combined and adapted to operate substantially as set forth. 17th. An apparatus for disintegrating fibres, consisting of a digester, a perforated pipe, or pipes, passing through the same, steam, water and chemical pipes connected to said perforated pipe, a screen in the bottom of said digester, a drainage pipe leading from beneath said screen and connecting with said pipes, and a circulating pump connected to said drainage pipes, and to one of said perforated pipes, and its discharge pipe extending to and connected with the opposite end of said perforated pipe, all combined together and with suitable valves, and adapted to operate substantially as set forth. 18th The combination of a digester, a perforated pipes, or pipes, entering it, steam, water and chemical pipes connected to said perforated pipe, a vacuum pipe leading from the digester, a pump in connection with said pipe, a branch pipe connecting said perforated pipe with said vacuum pipe, and suitable valves in the respective pipes arranged to operate substantially as set forth. 19th. The combination, with a digester, of two or more perforated pipes extending through it, valved cross-pipes connected to them at their opposite ends, and a circulating pump with its suction connected with one of said cross-pipes, and its discharge connected to the other, substantially as set forth, whereby the said pump may draw liquid from the digester through one of said perforated pipes, and return it thereto through another. 20th. An apparatus for disintegrating fibres, consisting of a digester, a valved vacuum pipe leading from the upper part thereof, and an exhausting device connected to said pipe and adapted to produce a partial vacuum in said digester, and a steam pipe entering the bottom of said digester, combined and adapted to operate substantially as set forth. 21st. The combination, of a digester, a vacuum chamber, a suction pump, an outlet passage from the digester to said vacuum chamber, a valve in said passage, a suction pipe extending from said vacuum chamber to said pump, and a suction pipe extending from the digester, and communicating with said pump, substantially as set forth. 22nd. The combination of a digester, an outlet passage therefrom, a grit separator, and a force pump, whereby the contents discharged from the digester pass through the grit-separator before being drawn into said pump, substantially as set forth. 23rd. The combination of a digester, a vacuum chamber, an outlet passage from the digester entering said chamber, a valve in said passage, a force pump adapted to draw the liquid from the bottom of said chamber, and a suction pump adapted to draw the air from the upper part of said chamber, and thereby to maintain the vacuum therein, substantially as set forth. 24th. The combination of a digester, a vacuum chamber, a valved outlet passage from the digester to said chamber, a suction pump connected to said chamber, and adapted to maintain the vacuum therein, an outlet for liquid from the bottom of said chamber, a grit separator connected to said outlet, and a force-pump with its suction connected to the outlet of said separator, and adapted to draw the liquid therethrough against the suction in the vacuum chamber, substantially as set forth. 25th. A digester constructed with double walls, forming a water jacket between, in combination with a pipe extending from the top to the bottom of said jacket, and a pump for causing a circulation in said pipe and jacket, substantially as set forth. 26th. The combination, with a digester, of a horizontal shaft in its lower portion, arms fixed on said shaft, and suitable means for rotating said shaft, whereby the contents of the digester may be agitated, substantially as set forth. 27th The combination, with a digester having a screen in its bottom, of an agitator for the contents thereof, consisting of a shaft in said digester, arms on said shaft arranged to play over and stir the contents close to the said screen, and means for rotating said shaft, substantially as set forth.

No. 30,115. Process and Apparatus for Manufacturing Paper Pulp. (*Procédé et appareil de fabrication de la pâte à papier.*)

Henry Blackman, New York, N. Y., U. S., 6th November, 1888; 5 years.

Claim.—1st. The improvement in art of making paper pulp, which consists in, first disintegrating fibrous material and subsequently pulping the disintegrated fibres by suspending them in a liquid vehicle, and agitating the liquid by forcing it through a passage containing obstructions or deflections, thereby causing a relative movement of the fibres, whereby the latter are gently worked apart and reduced to a condition of pulpiness. 2nd. The improvement in the art of making paper pulp, which consists in, first disintegrating fibrous material by boiling with a solvent, separating the disintegrated fibres from the solvent and subsequently pulping them by suspending them in a liquid vehicle, and agitating the liquid by forcing it through a passage containing obstructions, thereby causing a relative movement of the fibres, whereby the latter are gently worked apart and reduced to a condition of pulpiness. 3rd. The improvement in the art of making paper pulp, which consists in passing disintegrated fibres with liquid through an extended passage containing corrugated plates, whereby it is sub-divided into sinuous spaces, through which the liquid flows, carrying the fibres against the projecting corrugations. 4th. The improvement in the art of making paper pulp, which consists in first disintegrating fibrous material, and subsequently pulping the disintegrated fibres by suspending them in a liquid vehicle, passing the fibres and liquid through a closed chamber, and agitating the liquid therein by agitating devices driven by power, thereby causing a relative movement of the fibres, whereby the latter are gently worked apart. 5th. The improvement in the art of making paper pulp, which consists in forcing disintegrated fibres through a closed chamber, and agitating them therein by reciprocating corrugated plate driven by power, between which plates the liquid is forced to flow. 6th. The improvement in the art of making paper pulp, which consists in forcing the fibres with liquid through an extended passage, wherein they are first forcibly agitated by means of moving agitating devices driven by power, and subsequently gently agitated by passing stationary obstructions contained in said passage. 7th The improvement in the art of making paper pulp, which consists in forcing the fibres with liquid through a passage or chamber, and over moving brushes which act to scrub the fibres. 8th. The improvement in the art of making paper pulp, which consists in forcing the fibres with liquid through a passage or chamber and between opposite brushes, which are moved relatively to one another and act to scrub the fibres. 9th. The improvement in the art of making paper pulp, which consists in forcing the fibres with liquid through a passage, clothed internally with brushes and scrubbing them in their passage therethrough by brushes filling said passage and driven by power. 10th. The improvement in the art of making paper pulp, which consists in forcing the fibres with liquid through a passage, wherein they are forcibly agitated by agitating devices driven by power, and then through a passage wherein they are scrubbed by moving brushes. 11th. The improvement in the art of making paper pulp, which consists in forcing the fibres with liquid through a passage wherein they are scrubbed by moving brushes, and subsequently forcing them through an agitating passage wherein they are gently agitated by contact with obstructions. 12th. The improvement in the art of making paper pulp, which consists in forcing disintegrated fibres mixed with a liquid vehicle through an agitating passage or chamber, whereby the fibres are cleansed, then draining the liquid from the fibres, adding clean liquid and forcing again through an agitating passage or chamber. 13th. The improvement in the art of making paper pulp, which consists in cleansing the fibres by forcing them with liquid through a scrubber draining off the liquid, supplying fresh liquid, and forcing through an agitating passage 14th. The improvement in the art of making paper pulp, which consists in cleansing the fibres by mechanical agitation with liquid, and by scrubbing, then draining off the liquid, supplying fresh liquid, and forcing through an agitating passage. 15th. The improvement in the art of making paper pulp, which consists in mixing disintegrated fibres with a bleaching liquor, forcing the fibres and liquid through a passage containing agitating obstructions, whereby the liquor is brought into intimate contact with the fibres, then draining off the bleaching liquor, adding fresh water, and forcing the fibres and water through a second agitating passage, whereby the fibres are rinsed and freed from the residue of bleaching liquor. 16th The improved apparatus for manufacturing paper-pulp, consisting of the combination of a digesting vessel, a pump, an agitator consisting of a passage or chamber containing agitating obstructions or deflections, and pipes connecting the respective parts, whereby the fibres disintegrated in said digester may be forced by said pump through said agitator. 17th. The improved apparatus for manufacturing paper pulp, consisting of the combination of a digesting vessel a pump, a pipe for conducting the contents of the digester to said pump, a water pipe communicating therewith, whereby the fibres discharged from the digester may be mixed with water and washed to said pump, and an agitator in communication with said pump, and consisting of an extended passage containing agitating obstructions or deflections, whereby the fibres and water may be forced by said pump through said agitator. 18th. A pulp agitator, consisting of the combination of a casing with alternate partitions therein, forming a back-and-forth passage for the pulp, and with agitating obstructions in said passage, adapted to cause an eddying of a stream of liquid forced therethrough. 19th. A pulp agitator, consisting of the combination of a casing with alternate partitions therein, forming a deflected passage for the pulp, and with agitating obstructions, consisting of corrugated plates arranged in said passage and sub-dividing it into sinuous spaces. 20th. A pulp agitator, consisting of the combination of a casing, forming a passage for the pulp, corrugated plates in said casing, the alternate plates being movable relatively to the others, and mechanism for imparting motion to said alternate plates. 21st. A pulp agitator, consisting of the combination of a casing, forming a passage for the pulp corrugated plates fixed longitudinally in said passage, with their corrugations extending transversely thereof, movable corrugated plates alternated with the fixed plates, a reciprocating frame connected to said movable plates and extending outside the casing, and a rotary shaft having a crank connected to and reciprocating said frame. 22nd. The improved apparatus for manufacturing paper pulp, consisting of the combination of a pump and a scrubber, the latter consisting of a casing with a passage through it for the pulp, and a moving brush in said casing adapted to scrub the pulp in its passage through said casing. 23rd. A pulp scrubber, consisting of the combination of a casing forming a passage for the pulp, stationary brushes clothing said passage, and a movable brush arranged in said passage, whereby the pulp in flowing through passes between said stationary and movable brushes. 24th. A pulp scrubber, consisting of the combination of a casing, a cylindrical passage through said casing, brushes lining said passage, and a cylindrical brush arranged to rotate in said passage. 25th. The improved apparatus for manufacturing paper pulp, consisting of the combination of a pump, an agitator and a scrubber connected together, substantially as set forth 26th. The improved apparatus for manufacturing paper pulp, consisting of the combination of a pump, an agitator connected to said pump, and a draining device connected with the outlet of the agitator and adapted to free the pulp issuing therefrom of its liquid vehicle.

No. 30,116. Saw Swaging Machine.

(*Machine à étamper les scies.*)

Milo Covel, Chicago, Ill., U.S., 6th November, 1888; 5 years.

Claim.—1st In a saw swage, the combination, with the frame, of a head block, a rocking or rolling die inserted in said head, a link connected at the inner end to said die, a connecting rod pivoted to the outer end of said link an eccentric strap in which the lower end of the connecting rod is inserted, a cam or crank wheel and a countershaft upon which the same is mounted, whereby the required motion is transmitted to the roller die, substantially as and for the purpose set forth. 2nd. In a saw swage, the combination, with the rocking or roller die, provided with a recess in the line of the saw, of a die point seated in said recess, and a set screw for adjustably securing said die point in place, substantially as and for the purpose set forth. 3rd. In a saw swage, the combination, with a head block of a roller

die inserted horizontally therein and provided with an adjustable die point, as described, of a stationary die passing diagonally through said head, and a screw-bolt having a threaded engagement with the stationary die, whereby the same may be properly adjusted with reference to the companion or roller die, substantially as and for the purpose set forth 4th. In a saw swage, the combination, with the frame, of the vertical guides bolted thereto, a cross head moving between said guides and provided with a seat rest for a saw, the saw-clamping bars secured to and moving with the cross-head, a cross-bar having bevelled shoulders on the underside, as described, and arranged between said guides below the cross head, the plate a_4 bolted to the cross-bar, the slide bar E engaging with the underside of the cross-bar, and having bevelled shoulders, the connecting rod D_2, the crank-wheel B_4 and the counter-shaft upon which the same is mounted, whereby a vertical movement is transmitted to the cross-head, and the saw raised to bring the teeth in position to be operated upon by the swaging dies once in each revolution of the crank-wheel, substantially as set forth 5th. In a saw swage, the combination, with the head-block, of the saw clamping bars having bevelled upper ends, the spring jaws rigidly secured at one end, the opposite bevelled ends bearing loosely against the outer bevelled surfaces of the clamping bars, and the adjusting screws inserted through the head-block and having contact with said jaws, substantially as and for the purpose set forth. 6th In a saw swage, the combination, with the cross-head C_2, and the cross-bar C_6, of the adjusting screw-bolts b_1, b_1, inserted in the underside of said cross-head and adapted to rest on the upwardly projecting flange a_5, forming a part of said cross-bar, substantially as and for the purpose set forth 7th. In a saw swage, the combination, with the frame, of the cross-head, the cross-bar C_6, the vertical screw-shaft F, the pinion wheel d, the horizontal shaft F_1 and the pinion d_1, whereby the saw may be raised by hand for the purpose of securing the proper adjustment of the same relative to the swaging dies, substantially as set forth. 8th. In a saw swage, the combination of the feed lever H, the bell-crank lever H_1, the eccentric strap B_3, the link d_4 and the feed-finger H_2, whereby the saw teeth are automatically presented to the swaging dies in regular order of succession, substantially as set forth. 9th. In a saw swage, the combination of the feed-lever, a feed finger pivoted to the upper end of said lever, a bell crank and the gage bolts h, h_1, substantially as and for the purpose set forth.

No. 30,117. Snow Plough. (*Charrue à neige.*)

Thomas Y. Woolford, Augusta, W. V., U. S., 6th November, 1888; 5 years.

Claim.—1st. The combination, with the car and the revolving snow wheel, arranged transversely, and having laterally and forwardly curved peripheral cutters, of automatic clearers which are pivoted in rear of the wheel and have their front ends bent or turned down to adapt them to enter and work in the spaces between said cutters, substantially as shown and described. 2nd. The combination, with the car and the snow wheel arranged transversely in front of the same, of the two clearers pivoted in rear of the wheel and having heads and a spring for holding them, normally retracted and in working contact with the circumferential middle flanges and lateral cutters of the wheel, as shown and described. 3rd. The combination, with the snow wheel, having a central chain wheel secured to it, of a wedge shaped divider and shield arranged in front and expanded to cover and protect the said chain wheel, as shown and described. 4th. The combination of the vertical wedge-shaped divider and shield with the snow wheel arranged transversely, and the chain wheel mounted on the same shaft, and peripheral flanges attached to said wheel located alongside the chain wheel, as shown and described.

No. 30,118. Sash Cord Fastener.

(*Accroche-corde de croisée.*)

Joseph L. Bohannan, Frankfort, Ky., U. S., 6th November, 1888; 5 years.

Claim.—1st. In a sash cord holder, the socket having a notch in its upper side and the slide or plate fitting over the outer end of socket, substantially as specified. 2nd. In a sash cord holder, the socket provided with a notch D and having a head on its outer end provided with a dovetailed groove and the dovetailed slide or plate fitting in the said groove, substantially as specified.

No. 30,119. Secondary Battery.

(*Batterie secondaire.*)

Charles B. Askew and James K. Pumpelly, Chicago, Ill., U. S., 6th November, 1888; 5 years.

Claim—1st. The combination, with a plate of a secondary battery carrying the active material, of a supporting plate of porous material, one side of which conforms to the shape of the metal plate and the other side of which is provided with separating ribs, substantially as described. 2nd. The combination, with the plates of a secondary battery, of the supporting plates, one side of each of which plates conforms to the shape of the metal plate and the adjacent sides of the supporting plates being provided with longitudinal ribs integral with the body of the plates, whereby the active material may be securely held in position and free circulation of fluid allowed, whether the plates be upright or horizontal, substantially as described.

No. 30,120. Baking Pan. (*Tourtière.*)

Bettie H. Bicknell, London, Tenn., U. S., 6th November, 1888; 5 years.

Claim.—1st. As a new and improved article of manufacture, the herein described cover for baking pans, having an open top, and provided with an endless water chamber, or receptacle, substantially as and for the purposes specified. 2nd. The improved cover herein described, consisting of the inverted pan, and the outer band or box open at its upper end, and united at its lower end to the lower end of the inverted pan, substantially as set forth. 3rd. An improved cover, consisting of an inverted pan, and an outer band or box united at its lower end to the inverted pan, and separated above such point from the sides of the pan, forming an intermediate water chamber, or receptacle, substantially as set forth.

No. 30,121. Lithographing by means of Sand Blast. (*Lithographie au jet de sable.*)

Joseph L. Mills, London, Eng., 6th November, 1888, 5 years.

Claim.—The process and means of lithographing, particularly described in the foregoing specification, substantially as and for the purposes therein mentioned.

No. 30,122. Fanning Mill. (*Tarare-cribleur.*)

Heinrich Sommerfeld, Canton, Kan., U. S., 6th November, 1888, 5 years.

Claim.—1st A fanning-mill having sieves H and I, connected to opposite arms of the pivoted T crank F, in combination with the rod E, connected at one end to the T-crank F, and at its other end to the revolving crank A, substantially as and for the purpose specified. 2nd. In a fanning mill, the slanting sieve I, connected to the pivoted T-crank F, the partition K which separates the sieve I from the portion of the chamber slanting towards the spout L, the upper sieve H connected to the pivoted crank F, in combination with the rod E connected at one end to the crank A, and at its other end to the bell-crank F, substantially as and for the purpose specified.

No. 30,123. Combined Cradle and Rocking Chair. (*Berceau fauteuil à bascule.*)

William Furl and Rudolph Fraenzel, Lock Haven, Penn., U.S., 6th November, 1888, 5 years.

Claim.—The combination of the cradle-frame, the chair-frame movable into and out of the cradle-frame, and the chair-seat pivotally supported on the chair-frame, whereby it may be turned for use at right angles to the cradle-frame, or may, when not in use, be adjusted into line with and telescoped in said cradle-frame, substantially as set forth.

No. 30,124. Ventilator. (*Ventilateur.*)

George A. Prichard and Eugène Mignault, New York, N. Y., U. S., 6th November, 1888; 5 years.

Claim.—1st In a ventilator of the character herein set forth, the power fan and exhaust fan mounted on the same shaft in a shell divided into two compartments, said shell being provided on its exterior with the open projecting funnels turned in opposite directions, for collecting and directing air currents, and having separate inlet openings and separate discharge openings, or outlets, the parts being combined and arranged substantially as shown. 2nd. In a ventilator of the character herein set forth, the combination with the shell containing the power fan and exhaust pan, of the exterior projecting funnels turned in opposite directions, and the perforated hood and inclined flanges, substantially as shown and described. 3rd In a ventilator of the character herein set forth, the combination with the shell having the projecting funnels turned in opposite directions, and the hood and inclined flanges, of the vertical shaft, the two fans located in separate compartments of the main shell, the said fans being keyed to the shaft and reversible thereon, substantially as and for the purpose set forth.

No. 30,125. Art of Governing or Regulating Revolving Machines. (*Art de gouverner ou régler les machines tournantes.*)

François Van Ryselberghe, Brussels, Belgium, 6th November, 1888; 5 years.

Claim.—1st The method, substantially as hereinbefore described, of regulating the speed of motors, which consists in varying the motive power, or the resistance to the motive power, substantially in accordance with the position of an object moving in a parabolic curve. 2nd. A speed governor for motors, having a moving body in continuous operative connection with the motor, moving in the path of a parabola and changing its position in accordance with the speed of the motor, substantially as described. 3rd. A speed governor, consisting essentially of a rotating parabolic track, a freely moving runner upon the track, and a source of power for the motor under the continous control of the runners, substantially as described. 4th. In a speed governor for motors, the combination of a parabolic track actuated by the motor to rotate about its vertical axis, with a freely moving runner upon the track, and a source of electrical energy controlling the operation of the motor and under the continuous control of the runner, substantially as described. 5th. In a speed governor for motors, the combination of a parabolic track actuated by the motor to rotate about its vertical axis, with a freely moving runner upon the track, a source of electrical energy controlling the operation of the motor, and an electric circuit of variable resistance composed in part of the track charged by the source of electrical energy, and under the continuous control of the runner, substantially as described. 6th. In a speed governor for electric motors, the combination of a parabolic track constituting a continuous resistance in the circuit of the motor, and rotated by the latter about a vertical axis with freely movable runners upon the track for completing and maintaining the circuit, whereby the resistance of the motor circuit and the speed of the motor are under the continuous control of the runners, substantially as described. 7th. In a speed governor for electric motors, the combination of a parabolic track composed of two parallel parabolas of relatively poor conducting material rotated about a vertical axis by the motor, and included in the circuit of the latter with free metallic runners, one upon each branch of the track and each in contact with the two parabolas, substantially as described.

No. 30,126. Electrical Cut-Out.

(*Interrupteur d'électricité.*)

Nolton F. Stoddard, Detroit, Mich., U. S., 6th November, 1888; 5 years.

Claim—1st. In combination with the base, [illegible]ng the central post, the circuit wires, the contacts attached to said base, said contacts having means of engagement with the circuit wires, the cup having the neck with passage through it, a set of contacts located in said cup having curved arms adapted to engage with, and to be removed from, the contacts of the base, a set of shunt wires, their lower ends being adapted to receive a lamp, said wires passing through the neck of the cup, one of the wires being attached to one of the contacts, the other being attached to an auxiliary contact, and a fusible wire connecting the auxiliary contact to the contact A, as and for the purposes specified. 2nd. The combination of the base having on its under face the slots c, and the central post K, the contacts J, B attached to said base, the wires W, and screws S, the wooden cup, the contacts A, A1, attached to said cup, each contact having the curved arm t, the shunt wire a1, attached to the contact wire A1, and passing through the neck of the cup, the fusible wire a having one end attached to the auxiliary contact, the other end to the contact A, the lower end of the shunt-wires adapted to be coupled to an incandescent lamp, as and for the purposes set forth. 3rd. In combination with the base having the central wooden post, the wires W, the contacts attached to said base, and a shell or cup having two contacts attached thereto, said contacts having means of engagement with the contacts of the base, and an auxiliary contact attached to the cup having a shunt-wire passing therefrom out of the cup, and the shunt-wire attached to the contact A1, passing also out of said cup, the fusible wire connecting the auxiliary contact to the contact A, and light L, substantially as specified.

No. 30,127. Hydro-Carburetted Air Engine.

(*Machine à air hydro-carburé.*)

John J. R. Humes, London, Eng., 6th November, 1888, 5 years.

Claim.—1st. In hydro-carburetted air engines, wherein the inflammable charge is compressed before being fired, the improved means for releasing the charge from the cylinder during the compressing stroke of the piston, arranged and operating substantially as described, with reference to Figs. 2 and 3 of the accompanying drawings. 2nd. In hydro-carburetted air engines, the improved means, substantially as herein described, for preventing "back ignition," such means consisting in furnishing an adequate length of the passage conveying the inflammable charge to the combustion, chamber with closely packed wires arranged longitudinally, or with closely rolled wire gauze, or other suitable material, disposed in such a manner as to leave narrow, but continuous, interstices in a longitudinal direction through the mass thereof. 3rd. For use with hydro-carburetted air engines, the improved means substantially as herein described, with reference to Figs. 4 and 5, for reversing the direction of rotation of a shaft arranged in line with the main shaft of the engine and actuated therefrom, such means being adapted for operation without arresting the engine, and comprising suitable clutch mechanism for direct driving, as also a train of gearing furnished with suitable clutches for indirect driving, the said train including an externally and an internally geared wheel, respectively mounted on the two shafts and engaging with opposite sides of two pinions mounted upon a subsidiary shaft. 4th. In motor engines operated by the combustion of hydro-carbon vapour, the improved means substantially as herein described, with reference to Fig. 1, for heating the inflammable vapour before the same is admitted to the motor cylinder, or other combustion chamber, such means comprising appliances for utilizing the heat conveyed by the waste gases, or generated from a lamp, these appliances being optionally capable of simultaneous, or independent employment. 5th. In motor engines operated by the combustion of hydro-carbon vapour, the improved means substantially as herein described, with reference to Fig. 1, for heating the air for mixing with the liquid hydro-carbon in the formation of the vapour, or for subsequently mixing with the vapour, or for conveyance to the motor cylinder, or other combustion chamber direct, such means comprising appliances for utilizing the heat conveyed by the waste gases, or generated from a lamp, and adapted for simultaneous or independent employment. 6th. For use with motor engines, operated by the combustion of hydro-carbon vapour, the improved construction of lamp applicable for heating the vapour chamber, provided with a mixing nozzle, or nozzles, for generating vapour, and operating substantially as described with reference to Fig. 6.

No. 30,128. Carving Machine.

(*Machine à ciseler.*)

Stephen F. Moore, Milwaukee, Wis., U.S., 6th November, 1888; 5 years

Claim.—1st. In a carving machine, a horizontally swinging arm 4, the standard 13 located near to the arm 4, and hinged and swinging horizontally thereon, with the horizontally projecting arms 16 and 17 one above the other, secured together at their inner ends near to and supported and having a vertical movement on the standard 13, which arms carry in their outer ends at a distance from the standard 13 the cutting tool and guide spindle respectively, substantially as described. 2nd. In a carving machine, a horizontally swinging arm 4, the thereon supported and thereto-pivoted standard 13, and the tool and guide carrying frame with a band wheel 36, pulley 38, pulley 29 located below the lower arm of the tool carrying frame and belt 39, said band wheel, pulleys and belt being located below the lower arm 16 of the tool carrying frame, substantially as described. 3rd. In a carving machine, a cutting tool in a spindle located and supported in a bracket formed in the free end of a swinging arm, which bracket is expanded into a guard for the enclosed mechanism, and globe-like shield mostly surrounding the spindle, and its driving pulley thereon, said bracket, so expanded, being adapted for a knob to be grasped by both hands for the manipulation of the cutting tool, substantially as described. 4th. The horizontally swinging hinge 5, and the thereto adjustably secured arm 4, with collar 10, and the brace rod 8, adjustably secured at one end to the arm 4, and at the other end to the collar 10, the axis of which collar is the continuation of the axis of hinge 5, substantially as described. 5th. In a carving machine, a spindle holding sleeve 50, provided with a flange or head 52, and a nut 51 with a supporting arm 17 having an aperture in which the sleeve 50 is located somewhat larger than said sleeve, substantially as and for the purpose set forth. 6th. The horizontally swinging arm 4, provided with the ring face 11, in combination with the rotating hinge 12, and the securing pivotal bolt 54 having bevelled shoulder 56 adapted to receive a corresponding bevelled bearing on the hinge 12, the remainder of that part of the shank of the bolt passing through the hinge 12, being smaller than the aperture through the hinge, substantially as and for the purpose described. 7th. The lubricating device consisting of a supporting arm 4 provided with a recess 57, and a face 11, and the thereon-supported and rotating hinge 12, pivotal bolt 54, and an oil cup 58 having a duct therefrom through the bolt 54 into the recess 57, substantially as described. 8th. In a carving machine, a swinging arm 4 carrying the cutting tool, and pattern guide, in a frame supported on an arm hinged on said arm 4, said arm 4 being secured adjustably to its pivotal hinge 5 by means of set screws 6, 6, whereby the arm 4 may be rotated limitedly on its longitudinal axis, thereby providing for an inclined or undercut of the tool, substantially as described. 9th. In a carving machine, a pulley 40 supported on a pivot bolt 45 by collars 41 and 47, which bolt is secured in a swinging arm of the machine, in which arm said bolt is adjustable horizontally, whereby said pulley is adapted for use as a belt tightener in said arm, substantially as described. 10th. In a carving machine, a spindle 49 supported adjustably in an arm 17 by a sleeve 50 provided with a flange 52, and the therethrough turning set screws 53, and a nut 51 turning on the sleeve 50, substantially as described. 11th. In a carving machine, a vertically moving tool, and guide carrying frame connected with, and forming a part of, a horizontally swinging portion of the mechanism, and a gravity weight connected to said frame by a cord running over a pulley, whereby said frame is balanced and supported at any point vertically to which it is moved by extrinsic force, substantially as described. 12th. In a carving machine, a table having a lower and an upper leaf, one directly above the other, the upper one being supported on and connected to the lower one by supporting rods pivoted thereto, whereby the two leaves are constantly parallel to each other, the table being supported pivotally whereby it is adapted to be tilted substantially as described. 13th. In a carving machine, a vertically moving frame E, the therein supported tilting parallel leaves D, D1, and the guide frame N, substantially as described. 14th. A table consisting of the upper and lower leaves D and D1 connected together by thereto jointed rods O, O, and supported pivotally on the uprights E1, E1, the uprights E1, E1 supported movably on and forming a part of the frame E, the frame E supported and having a vertical movement on a sill F, the upright rails of the frame E being adapted as guides for the ends of the table in its tilting movements, substantially as described. 15th. The combination of a frame provided with two horizontal arms, one above the other, carrying the cutting tool in one arm and the guide in the other arm, said frame being supported and having vertical movement on a standard hinged to a swinging inner arm 4, with a table having upper and lower leaves for supporting respectively the pattern and material to be carved, substantially as described. 16th. The combination of the swinging arm 4, and the swinging tool and guide carrying frame, with the frame E and the two-leaved tilting table D, D1, all located, supported and arranged substantially as described.

No. 30,129. Dinner Pot. (*Marmite.*)

John P. McKee, Wayne, Iowa, U.S., 6th November, 1888; 5 years.

Claim.—The combination of the dinner pot, having a slotted plate K in the upper end of its spout, and provided with the ears D, having horizontal grooves in their inner faces, the lid sliding in said grooves and having a vertical flange at its front edge, the cover hinged to said flange and adapted to close the spout of the dinner pot, the bail rest on the sliding lid and the bail pivoted to the ears D and adapted to be supported by the said bail rest, substantially as specified.

No. 30,130. Saw-Guide. (*Garde-scie.*)

Russell M. Wooda d, Norton, (co-inventor with Charles W. Sleeper, Island Pond), Vt., U.S., 6th November, 1888, 5 years.

Claim—1st. The combination of the guide-block A, the slide B and the fingers C, C, substantially as described and for the purpose set forth. 2nd. The combination with the guide-block A, the slide B and the fingers C, C, of the rod c^2, the block c^1 and the screws b^2, b^2, substantially as described and for the purpose set forth. 3rd. The combination with the guide-block A, the slide B and the fingers C, C, of the block c^4, the link d^1, and the lever d, substantially as described and for the purpose set forth. 4th. The combination with the guide-block A, the slide B and the fingers C, C, of the latch b^3 and the stop a^1, substantially as described and for the purpose set forth. 5th. The combination with the guide-block A, the slide B and the fingers C, C, of the oil cups c^5, c^5 and the tubes c^9, c^9, substantially as described and for the purpose set forth.

No. 30,131. Automatic Coupler.

(*Attelage automatique.*)

John Bound and John C. Whitaker, Tucson, T.A., U. S., 6th November, 1888; 5 years.

Claim—1st. In an automatic coupler, the clutch F having the jaw N and rear projection terminating at t, in combination with the draw-head D, having the jaw L, as and for the purposes described. 2nd. In an automatic coupler, the peculiar construction of the clutch F, having a rear projection with a concave inner surface, in combination with the coupling link P, provided with the head H, operating in the manner described. 3rd. In an automatic coupler, the clutch F having a rear and downward projection, as shown, in combination with the pin g, the spring k and jaw L on draw-head

D, as and for the purposes described 4th. In the herein described automatic coupler, the clutch F having the projection *u*, in combination with the pin *g*, and solid cross top section *v*, of the draw-head D. 5th. In an automatic coupler, the lock-bars *a*, *a*, in combination with the clutch F and mortises *m*, *m* in the draw-head D, substantially as described 6th. In an automatic coupler, the clutch herein described, having the tongue or plunger actuated through a slot therein. 7th. In an automatic coupler, the clutch herein described, having the tongue or plunger actuated by gravity, in combination with a slotted coupling-link. 8th. In an automatic coupler, the clutch F, in combination with the tongue or plunger *f*, lock bars *a*, *a*, and the mortises *m*, *m*, in the draw-head D, as and for the purposes described.

No. 30,132. Method of and Apparatus for Discovering Leaks in Ships and other Structures. (*Mode et appareil de recherche des voies d'eau dans les navires et autres constructions.*)

Thorbiorn Thorbiornsen, Kragero, Norway, 6th November, 1888; 5 years.

Claim.—1st. The method of discovering leaks in compartments of ships and other structures, substantially as herein described. 2nd. An apparatus consisting of a smoke-producing furnace and fan combined, constructed and applied substantially as and for the purpose specified.

No. 30,133. Tufting Machine.

(*Machine à moutonner.*)

Henry H. Humphrey, Detroit, Mich., U. S., 6th November, 1888; 5 years.

Claim.—1st. In a tufting machine, the combination, with the standard or frame, of two overhanging arms, one carrying the stitch-forming mechanism, comprising a reciprocating needle, a reciprocating pressure foot, and a retaining hook, and the other carrying the feed mechanism, and forming the work support, substantially as described. 2nd. In a tufting machine, the combination, with the stitch-forming mechanism, of a feed disk tapering towards its periphery, and a pressure foot adapted to extend down on both sides of said disk to press the fabric into a ridge, substantially as described. 3rd. In a tufting machine, the combination of an oscillating retaining hook, a feed disk which decreases in thickness from the centre to the periphery, grooved pressure foot extending down on each side of the disk, and a reciprocating needle, substantially as described 4th. In a tufting machine, the combination, with the work-supporting arm, of the feed shaft running through said arm, the feed disk carried upon the outer end of said shaft, the actuating feed mechanism for said disk on the inner end of said shaft, and the reciprocating pressure foot extending down upon both sides of the feed disk, substantially as described. 5th. In a tufting machine, the combination, with the work support, and the serrated feed wheel carried thereon, of an intermittently vertically reciprocating pressure foot bar, a longitudinally recessed and transversely slotted pressure foot carried by the foot bar, and which at intervals holds the work in contact with the feed wheel, the needle, and means for reciprocating the same through the slot in the pressure foot, in a plane inclined to the plane in which the pressure bar reciprocates, and an oscillating loop retaining hook operating in the path of the needle in advance of the pressure-foot, all arranged to operate substantially as described. 6th In a tufting machine, the combination, with the standard, of the frame provided with an overhanging arm, carrying the stitch-forming mechanism, of a work support pivotally secured to the standard of the frame, and the feed wheel at the free end of said support, substantially as described. 7th In a tufting machine, the combination, with the standard of the frame, provided with the overhanging arm supporting near its free end the stitch-forming mechanism of the machine, substantially as described, of the work-supporting arm pivotally secured to the standard, and the automatically operating locking device on said standard and work-supporting arm, substantially as described 8th In a tufting machine, the combination of the reciprocating needle, the intermittently oscillating retaining hook eccentrically secured to its actuating rock-shaft and adapted to operate in a vertical plane in the path of the needle, substantially as described 9th. In a tufting machine, the combination with the reciprocating needle and suitable feeding mechanism, of the retaining hook 44, the oscillating shaft 41, the eccentric 45, adjustably secured to said shaft, and carrying the retaining hook, the pinion 42, and the reciprocating rack bar 7, the parts being constructed to operate substantially as described. 10th. In a tufting machine, the combination, with the drive pulley 17 and hand-wheel 5, the needle and the loop-forming hook, of the shafts 10 and 16, the transverse shaft 4, the intermeshing bevel pinion and 15, secured upon said shafts respectively, the grooved cam wheel 6, the reciprocating rack bar 7 and its actuating connection and the retaining hook 44, the crank disk 37 and its actuating connection with the reciprocating needle bar, the crank 11 on the shaft 10, and its actuating connection with the reciprocating pressure foot bar and the eccentric feed 18, and its actuating feed connection with the feed wheel 26, substantially as described 11th. In a tufting machine, the combination with the transverse shaft 4 and its actuating connections with the needle and retaining hook of the bevel gear wheel secured upon said shaft, the bevel gear wheel 9, the shaft 10 and its actuating connection with the pressure foot bar, the bevel gear 15, the drive pulley 17, and the main drive shaft 16, and its actuating connection with the feed mechanism, substantially as described

No. 30,134. Knitting Machine.

(*Machine à tricoter.*)

Henry H. Humphrey, Detroit, Mich., U. S., 7th November, 1888; 5 years.

Claim.—1st. In a knitting machine, longitudinal guide-bars secured upon opposite sides of the needle-bed, and a reciprocating carriage supported upon these guide-rods by means of downwardly projecting legs, having eyes in the lower ends thereof engaging with the guide-rods, substantially as described 2nd. In a knitting machine, the longitudinal guide bars *c*, secured in bearings *d*, upon opposite sides of the needle bed, in combination with the reciprocating carriage D, having the downwardly projecting legs *a*, and the eyes *b* formed in the lower ends thereof and engaging with the longitudinal guide-bars *c*, substantially as described. 3rd. The laterally grooved needle bed, the needles placed in said grooves and independent needle shifters, one for each needle, said shifters being located at and entering the rear end of each needle groove and adapted to be laterally projected therein, substantially as described. 4th. The laterally grooved needle-bed, the needles placed in said grooves, and independent needle shifters, one for each needle, formed of spring wire, in the shape of a loop, and adapted to clamp the end of the needle-bed, substantially as described. 5th. The laterally grooved needle bed, the needles placed in said grooves, independent needle shifters formed of spring wire in the shape of a loop, and arranged to clamp the end of the needle bed, one leg of each loop entering the rear end of one of the grooves of the needle bed, and the other leg projecting underneath the needle bed, substantially as described. 6th. The laterally grooved needle bed, the needles placed in said grooves, the independent needle shifters, formed of spring wire in the shape of a clamping loop, with one leg of each loop located in the rear end of one of the needle grooves and with the other leg extending underneath the needle bed, and a device for increasing the frictional hold of each spring wire clamping loop in its inner position, substantially as described. 7th. The laterally grooved needle-bed, the needles slidingly secured therein, and the independent needle shifters, consisting of a series of spring metal loop clamps, one ...ch needle, slidingly secured at the front and rear edges of the needle-bed at the heel of the needles, substantially as described. 8th The laterally grooved needle-bed B, the bars B^1, removably secured thereto to form at the front and rear edges thereof slots registering with the grooves in the needle-bed, and the independent needle shifters N, engaging through these slots into the grooves of the needle-bed, at the rear end of the needles, substantially as described. 9th. The laterally grooved needle-bed B, the bars B^1, removably secured thereto to form at the lower edges thereof slots registering with the grooves in the needle bed and the independent needle shifters M, engaging through these slots into the grooves of the needle bed at the rear end of each needle, said needle shifters being made of spring wire in the form of a loop arranged to clamp the edge of the needle bed, one leg of each loop entering through the bar B^1 into the lower end of one of the grooves of the needle-bed, and having a toe *m*, to prevent its withdrawal, substantially as described. 10th. The laterally grooved needle-bed B, the bars B^1, removably secured thereto to form at the front and rear edge thereof lateral slots registering with the grooves in the needle-bed, the independent needle shifters M, located at the front and rear edges of the needle-bed and slidingly secured thereto by the bars B^1 and having a clamping action thereon, the bends *m*, in the needle shifters and a corresponding depression (or raise) *n*, on the needle bed, substantially as described. 11th. The reciprocating carriage D, the wing knitting cam *s*, having tenons *t*, the mortices ..., formed in the bed of the reciprocating carriage and the screws ..., one for each cam, passing through slots in the carriage bed and securing the cams adjustably in position, substantially as described. 12th. In combination with a reciprocating carriage carrying the knitting cams, the wing knitting cam *s*, its adjusting screw ..., carried by the cam and the pointer ... pivotally secured at one end and carried by the adjusting screws, substantially as described 13th The reciprocating carriage D, carrying the knitting cam, the bed plate *h*, removably secured to the frame of the carriage and provided with mortices, and the knitting cams having tenons engaging adjustably into said mortices, substantially as described 14th. The reciprocating carriage D, carrying the knitting cams, the transverse mortice *j*, formed in the bed of the carriage, the shifting cam *j*, provided with a tenon engaging into said mortice, the screw ..., and the spring washer ..., and the arm K, substantially as described. 15th. The reciprocating carriage D, carrying the knitting cams, the transverse mortice *j*, in the bed of the carriage, the shifting cam *j*, provided with a tenon engaging into said mortice, the screw ..., the spring washer ..., the lever ..., the spring ..., and the shifting arm *k*, substantially as described 16th. The laterally grooved needle-bed, the needles placed therein, the reciprocating carriage carrying the knitting cams, the laterally shifting centre cam, the outwardly projecting shifting arm secured thereto, a pin secured to such arm, and shifting cam stops secured to the corners of the bed and provided with inclined planes arranged to operate in connection with the pin on the shifting arm, to shift the centre cam, substantially as described 17th. The laterally grooved needle-bed B, two series of needles placed therein, the reciprocating carriage D, carrying the knitting cams, the laterally shifting cams *j*, the outwardly projecting arms K secured to the shifting cams, the pins ... and handle *k*, secured to said arms, and the shifting cam stops J secured at the corners of the needle bed and having the inclined planes *l*, substantially as described 18th. The reciprocating carriage, the shifting yarn guide H, the sliding box *o*, the longitudinal guide bar ... and the shifting yarn guide lever and its actuating mechanism, substantially as described. 19th. The reciprocating carriage, the shifting yarn guide H, the clamping collar *o* adjustably securing said yarn guide in position, the sliding box *o* carrying said clamping collar, the guide bar ... and the means for shifting the sliding box on its guide bar, substantially as described. 20th. The reciprocating carriage, the shifting yarn guide H, the clamping collar *o*, the sliding box *o*, the guide bar ..., the yarn guide lever O, the lever ..., the friction sleeve ... and the guide bar *c*, all arranged to operate substantially as described. 21st. The reciprocating carriage, the shifting yarn guide H, the sliding box *o* carrying said yarn guide, the guide bar ..., the shifting yarn guide lever O and the adjustable stops ..., ..., substantially as described. 22nd. The reciprocating carriage, the shifting yarn guide lever O, the lever ..., the guide bar *c*, and the sliding sleeve ..., having the friction plate ... and spring ..., all arranged to operate substantially as described. 23rd. The yielding tension yarn guide P, the rock-arm R, the tension lever Q, removably secured thereto, the tension coil

spring U, all arranged to operate substantially as described. 24th. The yielding tension yarn guide P, the rock arm R the spring tension lever Q, removably secured thereto, the coil spring U, the barrel T and the screw S having the milled head s and nut s1, all arranged substantially as described.

No. 30,135. Accoutrement. (*Accoutrement.*)

Charles G. Slade, London, and Nesbit W. Wallace, Southsea, Eng., 7th November, 1888; 5 years.

Claim.—1st. The combination, with the braces B and waist belt C, to which they are buckled at D, of the brace extensions E, substantially as specified, passing from the buckles D around the great coat, or other package carried at back of the waist belt, and buckled at their extremities to the braces, as and for the purpose described. 2nd The combination, with the braces B and with the runner loop at the crossing point thereof, of the strap H encircling both the great coat, or other package F, and the mess tin G. 3rd The mode of supporting the valise by carrying straps a, attached thereto and passing through loops a1 on the braces B over the shoulders, and secured to buckles I on the front of the braces, the straps a lying upon the said braces and being able to be disconnected for the purpose of removing the valise without disturbing the rest of the equipment, as specified. 4th. The combination, of the parts B, B1, of the braces, and the double ended buckles I, whereby the parts B, B1 are permanently connected together. 5th. The valise having its flap so cut and seamed to the body of the valise that the top of the closed valise will be slightly hollow or concave, as specified. 6th. The combination, with the parts B1 of the braces, and with the buckles I, and with the waist belt C, of the ammunition pouches provided with runners and loops through which the waist belt and the parts B1 of the braces respectively pass for supporting the weight of the pouch, as specified. 7th The herein described means of holding the flap of the expense pouch open when required, as specified. 8th. The combination, with the ammunition pouches, of outside loops at the ends of the pouch for holding cartridges for use on emergency, as specified. 9th. The construction of ammunition pouches with loops for loose cartridges, in combination with pockets for packets of ammunition, as described. 10th. The combination, with the breast flap, of the tunic, of loops to hold cartridges, for the purpose specified.

No. 30,136. Upsetting and Die Forging Enlarged Ends on Metal Bars. (*Mode de refouler et forger à l'étampe les bouts élargis des barres de metal.*)

Frederick H. Smith, Baltimore, Md., U. S., 7th November, 1888; 5 years.

Claim.—1st. In combination with an anvil, a horizontal receiving female die consisting of a shaping chamber, with a front channel, a vertical compressing male-die fitted to slide down and up within the shaping chamber, and means to drive the heated bar forward into the shaping chamber. 2nd. In combination with an anvil, a horizontal receiving female-die consisting of a shaping chamber, with a front channel, a vertical compressing male-die fitted to slide down and up within the shaping chamber, and a front gripping cross-head. 3rd. In combination with an anvil, a horizontal receiving female-die consisting of a shaping chamber, with a front channel, a vertical compressing male-die fitted to slide down and up within the shaping chamber, a front gripping cross-head, and a rear cross-head connected therewith by rods, a rear horizontal cylinder and piston fitted to actuate the rear cross-head and connecting rods, and front gripping cross head 4th. In combination with an anvil, a horizontal receiving female-die consisting of a shaping chamber with front and and rear channels for the bar, a vertical compressing male-die fitted to slide down and up within the shaping chamber, and means to drive the heat-softened end of a stationary bar backward into the shaping chamber. 5th. In combination with an anvil, a horizontal receiving female die consisting of a shaping chamber with front and rear channels for the bar, a vertical compressing male-die fitted to slide down and up within the shaping chamber, and a horizontal upsetting ram fitted to slide endwise within the rear channel of the female-die. 6th. The combination, of an anvil, and a horizontal female-die consisting of a shaping chamber with front and rear channels for the bar, of a vertical compressing male-die fitted to slide down and up within the shaping chamber, and means to drive both ends of the heated portion of the bar towards the centre of the die. 7th. The combination of an anvil, and a horizontal female-die consisting of a shaping chamber with front and rear channels for the bar, of a vertical compressing male-die fitted to slide down and up within the shaping chamber, a horizontal ram fitted to move within the said rear channel, and a front gripping cross-head to move the heated bar in the said front channel. 8th In combination with mechanism for ramming endwise a metal bar and thus upsetting its heat-softened end within a shaping chamber, of a bulbous protuberance projecting from the top or bottom, or both into the centre of the said shaping chamber, for the purpose set forth. 9th. In combination with mechanism for ramming endwise a metal bar and thus upsetting its heat-softened end within a shaping chamber, of a bulbous protuberance, one end of which is rounded and the opposite end tapered or wedge shaped, said protuberance projecting from the top or bottom, or both into the said shaping chamber 10th. As an improvement in the art of upsetting bridge bars, the hereinbefore described process consisting of first heating a portion of a metal bar, enclosing the heated portion within a die of any desired shape, and driving the heated bar forward into the shaping chamber. 11th As an improvement in the art of upsetting bridge bars, the hereinbefore described process consisting of first heating a portion of a metal bar, enclosing the heated portion within a die of any desired shape, and driving both ends of the heated portion of the bar towards the centre of the die, for the purposes described. 12th. As an improvement in the art of upsetting bridge bars, the hereinbefore described process consisting of enclosing the heated bar within a die, firmly fixing the heated bar at the point where the eye-seat will come, so as to prevent it from bending laterally when the upsetting pressure is applied, and upsetting the heated portions adjacent to the said fixed point by driving the heated bar forward. 13th As an improvement in the art of upsetting bridge bars, the hereinbefore described process consisting of enclosing the heated bar within a die, firmly fixing the heated bar at the point where the eye seat will come, so as to prevent it from bending laterally when the upsetting pressure is applied, and upsetting the heated portions adjacent to the said fixed point by driving the heat-softened end of the bar backward. 14th. As an improvement in the art of upsetting bridge-bars, the hereinbefore described process consisting of enclosing the heated bar within a die, firmly fixing the heated bar at the point where the eye-seat will come, so as to prevent it from bending laterally when the upsetting pressure is applied, and upsetting the heated portions adjacent to the said fixed point by driving the metal from opposite directions toward said fixed point 15th As an improvement in the art of upsetting bridge bars, the hereinbefore described process consisting of enclosing the heated bar within a die, penetrating one or both sides of the heated bar at the point where the eye-seat will come, so as to give an initial lateral expansive direction to the metal, and driving the heated metal into the die. 16th. As an improvement in the art of upsetting bridge bars, the hereinbefore described process consisting of enclosing the heated bar within a die, penetrating one or both sides of the heated bar at the point where the eye-seat will come, so as to give an initial lateral expansive direction to the metal, and driving the heated metal from opposite directions towards the said penetrated point.

No. 30,137. Machine for Rolling and Wrapping Cigars. (*Machine à rouler et envelopper les cigares.*)

Claes W. Bowman, New York, N. Y., U. S., 7th November, 1888; 5 years.

Claim.—1st. In cigar rolling machines, a cigar receiving mould formed of a set of spring closed individually yielding power driven rolls with an opening at one end for the endwise insertion and withdrawal of the cigar, in combination with a spreader individually connected to each roll, whereby all of said rolls are simultaneously spread apart at that end of the mould through which the cigar is inserted and withdrawn, substantially as and for the purposes hereinbefore set forth. 2nd. The combination, with spring-closed yielding power driven rolls, inclosing a cigar mould space, access to which is had from one end of the rolls, and mechanism for spreading said rolls apart so as to open the mould at that end of a support, movable to and from said end to permit the cigar to be inserted in and withdrawn from the mould, and a tip forming thimble carried by said support, substantially as hereinbefore set forth. 3rd. The spring closed power driven cigar mould rolls, supported at one end only, and inclosing at their other end an opening through which the cigar is inserted and withdrawn from between them, and mechanism for spreading the rolls apart, in combination with a support movable to and from the said entrance end of the rolls, and a tip-forming thimble carried by said support, substantially as and for the purposes hereinbefore set forth. 4th. The combination, of the rolls D, the slotted standards B, C in which said rolls are supported at one end only, the spreader F, the driving shaft, and the gearing for communicating motion from said shaft to said rolls, substantially as and for the purposes hereinbefore set forth. 5th. The combination, with the spring-closed power-driven rolls inclosing a cigar mould space, access to which is had from one end of the rolls, and mechanism for spreading the rolls apart, of a support movable to and from this end of the rolls, and a tip-forming thimble, and a cutter for shaping the point end of the wrapper, both of which are carried by said supports, substantially as and for the purposes hereinbefore set forth 6th. The combination with the spring closed power-driven cigar mould rolls, inclosing at one end an opening through which the cigar is inserted endwise between them, and mechanism for spreading the rolls apart, of the thimble head stock located at this end of the rolls and movable therefrom so as to leave said opening unobstructed, and the thimble carried by and adjustable upon said head stock, substantially as and for the purpose hereinbefore set forth 7th. The combination of the rolls A, inclosing a mould space into which a cigar is inserted endwise from one end of the rolls, the support and tip-forming thimble carried thereby located at and movable from this end of the rolls so as to uncover the entrance end of the mould, and the ejector adapted to operate upon the cigar from the opposite end of said mould, said thimble support and ejector being connected to move simultaneously and together, substantially as and for the purposes hereinbefore set forth. 8th. The combination, of the rolls, the table and the guide plate pivoted or hinged above the plane of the table, and adapted to tilt with relation to the table, substantially as and for the purposes hereinbefore set forth.

No. 30,138. Apparatus for Standardising and Measuring Intensity of Color. (*Appareil pour titrer et mesurer l'intensité de la couleur.*)

Joseph W Lovibond, Salisbury, Eng., 7th November, 1888, 5 years.

Claim.—1st. An apparatus for standardising and measuring intensity of color, consisting of a tube or case with an eye aperture at one end and object apertures at the other end, and standard strips inserted between the eye aperture and one object aperture whilst the object to be examined is similarly inserted between the eye aperture and the other standard aperture, substantially as described. 2nd. An apparatus for standardising and measuring intensity of color, consisting of a tube or case with an eye aperture at one end and object apertures at the other, and a partition between the object apertures terminating in a knife edge bisecting the eye aperture, and provision for inserting standard pieces on one side and the object to be examined on the other side, substantially as described.

No. 30,139. Centreboard for Vessels. (*Semelle de vaisseau.*)

Henry W. Wells, Rowayton, Conn., U S, 7th November, 1888; 5 years.

Claim.—1st. In a vessel, the combination, with a keel and trunk, and a pin passing through the keel, of a centreboard having at its lower forward end a slot extending from the lower edge upward and forward, and adapted to engage the pin when in operative position. 2nd. A centreboard for vessels, having at its forward lower corner a casting 6, provided with a slot 5 which extends from the lower edge upward and forward.

No. 30,140. Art or Process of Treating Soap Lyes for the Purpose of Obtaining Glycerine and other Products therefrom. (*Procédé de traitement des lessives de savon pour en tirer la glycerine et d'autres produits.*)

James A. Kirk, John B Kirk, Milton W. Kirk and Wallace F. Kirk, Chicago, Ill., U.S., (assignees of Albert Domeier, and Otto C. Hagemann, London, Eng.), 7th November, 1888, 5 years

Claim.—1st The process herein described, of recovering glycerine from lye, which consists in adding thereto while air is blown through the lye, an excess of acid in the presence of an insoluble silicate, substantially as and for the purpose described. 2nd. The process of recovering glycerine from lye, which consists in adding to it an acid in the presence of a current of air, and of an insoluble powder to serve as a mechanical carrier, of the resulting precipitate, said precipitate being the insoluble resinous and fatty acids that were originally contained in the lye. 3rd. The process of preparing lye for the extraction of glycerine, which consists in adding thereto an excess of acid in the presence of a mechanical carrier in the nature of an insoluble powder, of the resulting precipitate, and afterward adding an alkali to said lye for the purpose of removing the albuminous matters contained therein, as specified. 4th. The process herein described, of extracting salt from lye, which consists in adding thereto acids in the presence of an insoluble powder constituting a mechanical carrier of the resulting precipitate, and afterwards adding an alkali to the lye, and then boiling it down until the salt it contains crystallizes and glycerine is separated, as set forth. 5th. The process of extracting salt and glycerine from lye, which consists in, first, adding lime, second, boiling the lye down to the salting point, third, adding acid in the presence of an insoluble powder constituting a mechanical carrier of the resulting precipitate, then adding alkali, and, finally, boiling the lye down until the salt crystallizes and glycerine is separated, as set forth 6th. The process of recovering salt and glycerine from spent lye, which consists in adding lime, then acid in the presence of a mechanical carrier of the nature of an insoluble powder, of the resulting precipitate, then soda, and, finally, boiling down the lye until the salt it contains crystallizes and glycerine is separated, as set forth.

No. 30,141. Wood Split Pulley.

(*Poulie de bois brisée*)

William R. Fee, Cincinnati, Ohio, U. S., 7th November, 1888; 5 years.

Claim.—1st. In a wooden split pulley, the hub or pulley built up of layers of semicircular pieces, the ends of which cross each other at right angles, so that the projecting ends interlace, having a central bore larger than the shaft, in combination with the tapering bush on each side, around which the semicircular pieces are locked, substantially as herein set forth. 2nd. A pulley, having a web on which is built up, separately at each side a hub, composed of semicircular pieces, each alternate piece of which has its central straight edge on a line with the central split of the web, and the other semicircular piece at right angles thereto, so that the lapped semicircular pieces of the opposite sections of the pulley interlap, and having on the periphery of this web a rim, the ends of which overlap alternately beyond the central dividing line of the two sections, substantially as herein set forth. 3rd. In a wood split pulley, a hub having interlacing projecting ends at right angles to the line of the split in the pulley, in combination with the shaft, and split tapering bush for locking said hub and binding same to the shaft, substantially as herein set forth. 4th. In split pulleys, a shaft bore therein flaring at each end, in combination with a double tapering split bush, having a tightening band or strap for holding the outer end of said bush, substantially as shown. 5th. In split pulleys, a split bush having a raised central band or rim, and the ends tapered, in combination with a strap band or ring on one end for holding the said split bush on the shaft, substantially as herein set forth. 6th. In wooden split pulleys the central web having built up on each side a tapering hub, in combination with bands or straps on the tapering ends of the hubs, substantially as herein set forth.

No. 30,142. Candle Lamp. (*Bougie-lampe.*)

John Martin, Kew, Victoria, 7th November, 1888: 5 years.

Claim.—In candle lamps, the combination of a semicircular or circular candle socket (instead of a straight one, as hitherto) which is preferably semicircular in cross-section, with a spring, or its equivalent for applying pressure to the candle in such socket, substantially as and for the purposes herein described and explained.

No. 30,143. Photographic Instrument.

(*Instrument photographique*)

John R. Connon, Elora, Ont., 7th November, 1888: 5 years.

Claim.—1st. A photographic instrument pivoted on the optical centre or axis of the lens, in combination with a sensitive film, arranged so that, as the instrument revolves, the said film shall be presented to the focus of the lens exactly as required to receive the image formed by the lens, substantially as and for the purpose specified. 2nd A photographic instrument, pivoted on the optical centre or axis of the lens, in combination with a sensitive film placed on paper, glass, or any other substance, located on a radius struck from the optical centre or axis of the lens, substantially as and for the purpose specified. 3rd. A photographic instrument pivoted on the optical centre or axis of the lens, in combination with a sensitive film placed on paper, glass, or any other substance, located on a radius struck from the optical centre or axis of the lens, and of a narrow passage way located between the lens and its focus, substantially as and for the purpose specified. 4th. A photographic instrument A, pivoted on its optical centre or axis a, around which it is caused to revolve, in combination with the rollers C, D, between which the sensitive paper B passes, and which are caused to revolve with the instrument A, so that a fresh surface of sensitive film shall be brought continuously within the focus of the lens as the instrument A revolves, substantially as and for the purpose specified. 5th. A photographic instrument A, pivoted on its optical centre or axis a, around which it is caused to revolve, in combination with the rollers E, F arranged to carry the sensitive paper B, which it carried over the rollers C, D, between the rollers G, the rollers C, D, being caused to revolve with the instrument A, so that a fresh surface of sensitive film shall be brought continuously within the focus of the lens, as the instrument A revolves, substantially as and for the purpose specified. 6th. A photographic instrument A, pivoted on its optical centre or axis a, in combination with sensitive film located within the focus of its lens on a circle struck from the optical centre or pivot of the instrument, substantially as and for the purpose specified. 7th. A photographic instrument A, pivoted on its optical centre or axis a, a sensitive film located within the focus of its lens on a circle struck from the optical centre or pivot of the instrument, in combination with a narrow passage-way located between the lens and its focus and caused to revolve with the instrument, substantially as and for the purpose specified.

No. 30,144. Combined Ledger and Bill Book. (*Grand livre et livre de traites et de remises combinés.*)

Charles L. Searcy, Waco, Ken., U.S., 7th November, 1888; 5 years.

Claim.—A combined ledger and bill-book, having the main or permanent part A of the pages ruled, or otherwise provided with profit, date, day-book, page, number, debit and credit columns, and an upper blank for the name of customer, and number and date of account, and the removable part B, provided with the ordinary bill-head blank and ruler, or otherwise provided with date, item, debit, and credit columns, the parts being divided for separation by a line of perforations, substantially as herein shown and for the purpose set forth.

No. 30,145. Spring Light Carriage.

(*Voiture légère à ressorts.*)

Isaac H. Culp, Hamilton, Ont., 7th November, 1888; 5 years.

Claim.—1st. In a light, low, one spring carriage, the combination of the double levers D, having cross-bars d, to which is secured the string E, substantially as and for the purpose hereinbefore set forth. 2nd. In a one spring carriage, the combination of the double levers and spring, with the angle pillars B, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the circle K with its cap m, axle J and the double levers D, substantially as and for the purpose hereinbefore set forth. 4th In a light, low, one spring carriage, the combination of the levers D, having cross-bars d, with spring E secured to the centres, and pillars B, of the axles J and the circle K, with its cap m, substantially as and for the purpose hereinbefore set forth.

No. 30,146. Siphon Water Closet.

(*Lattrines à siphon.*)

James E Boyle, Brooklyn, N.Y., U.S., 7th November, 1888; 5 years.

Claim.—1st. A water-closet, consisting of the combination of a bowl, a soil-passage leading therefrom, an upper trap in said passage by which water is retained in the bowl, a lower trap therein by which an air-space is formed between the two traps, and an air passage leading from said space and opening into the soil passage beyond the lower trap in such position as to be unsealed when the closet is at rest and covered with water when the outflow is taking place 2nd. A water-closet, consisting of the combination of a bowl, a soil passage leading therefrom, an upper trap in said passage by which water is retained in the bowl, a lower trap therein by which an air space is formed between the two traps, and an air passage leading from the upper part of said space, and opening into the soil-passage beyond the lower trap, close above the water level therein and adjacent to the dam thereof, whereby it is unsealed when the closet is at rest and submerged when the water is flowing out over the dam. 3rd. A water closet, consisting of the combination of a bowl, a soil passage leading therefrom, an upper trap in said passage by which water is retained in the bowl, a lower trap therein by which an air-space is formed between the two traps, and an air-passage leading from said space and opening into the soil passage beyond the lower trap, all formed in one piece of porcelain. 4th. A water-closet, consisting of the combination of a bowl, a soil-passage leading therefrom, a trap in said passage, a back-air connection and a partition in the soil-passage constructed to separate the down leg of said trap from the back air connection, and thereby constitute said leg the long leg of the siphon. 5th. A water closet, consisting of the combination of a bowl, a soil passage leading therefrom, a trap in said passage, a back-air connection at the crown thereof, and a partition in the soil passage extending downwardly from said connection and constructed to separate the down leg of said trap therefrom, and to form a separate vent passage extending from said connection, to the neck of the trap, where it connects with the soil-pipe. 6th A water closet, consisting of the combination of bowl A, soil passage B, bent to form traps D and E, with intervening air space G, back-air connection c, and partition e, dividing the lower portion of the passage into a siphon-leg h, forming a continuation of the lower trap, and a vent-passage I, communicating with said connection, whereby the soil passage forms a continuous siphon from the bowl through the lower trap and down to the bottom of said partition.

No. 30,147. Invalid Bedstead.

(Couchette d'invalide)

Calixte Ethier, St. Jérome, Que., 7th November, 1888; 5 years.

Résumé.—Dans une couchette pour invalides de toute espèce, la combinaison avec le corps principal A, B, C de ma couchette, du cadre C^1 C^1, C^2 C^2, muni de la toile C^3, à ouverture C^4, des vis sans fin G, G, avec roues dentées I, I, de l'arbre de couche J, avec pignons K, K, et du cadre L, avec toile N et vis sans fin P à filets inverses et supports articulés *o*, *o*, le tout tel que ci-dessus décrit et pour les fins sus-mentionnées.

No. 30,148. Belting. *(Courroie sans fin.)*

Frank Reddaway, Pendleton, Eng., 8th November, 1888, 5 years.

Claim.—As a new article of manufacture, a woven driving belt, having the warp of animal fibre, and the weft of vegetable fibre, substantially as herein described and for the purposes set forth.

No. 30,149. Vehicle Spring.

(Ressort de voiture)

Richard Crocker, Mazomaine, and John Diehl, Franksville, Wis., U.S., 8th November, 1888; 5 years.

Claim.—1st. A vehicle spring comprising the bar A, semi-elliptic springs H, I, and the spiral springs L, R, substantially as set forth. 2nd. A vehicle spring comprising the bar A, provided with the recesses D, E, the semi-elliptic springs H, I, and the spiral springs L, R, substantially as set forth. 3rd. A vehicle spring, comprising the bar A, semi-elliptic spring I, the spiral springs Q, R, washers T and spiral springs U, substantially as set forth. 4th. A vehicle spring, comprising the bar A, semi-elliptic springs H, I, and the spiral springs L, R, V, substantially as set forth. 5th. A vehicle spring, comprising the bar A provided with the recesses D, E, the semi-elliptic springs H, I, respectively provided with the lugs J, P, the spiral springs K, L, Q, R, the washers N, T, spiral-springs O, U and flanged shells M, substantially as set forth. 6th. A vehicle spring, comprising the bar A, semi elliptic springs H, I, spiral springs K, L, Q, R, O, U and V, V, substantially as set forth.

No. 30,150. Spool Guard. *(Garde-bobine.)*

Leonard O. Smith, Philadelphia, Penn., U.S., 8th November, 1888; 5 years.

Claim—1st. A spool-guard, consisting of a piece of suitable material having an elliptical opening, substantially as and for the purpose set forth. 2nd. A spool-guard, consisting of a detachable disk of suitable material having an opening therein, in combination with a spool having a grooved periphery, the opening of the guard being of such size and shape as to permit the said guard to be attached to the spool and securely held in the groove thereof, substantially as described. 3rd. A spool having a grooved head B and a shoulder E^1, the latter of less diameter than the said head, in combination with the disk D having an elliptical opening and adapted to be secured in the groove of said head, substantially as described. 4th. A spool having a grooved shoulder of less diameter than the head, in combination with a disk having an opening and adapted to be sprung into said groove, substantially as and for the purpose set forth.

No. 30,151. Valve Gear for Steam Engines. *(Distribution par tiroir pour machines à vapeur.)*

James DesBrisay, Vancouver, B.C., 8th November, 1888; 5 years.

Claim.—1st. In a valve gear for steam engines, two locomotive cylinders provided with the usual ports leading to a common valve seat, and arranged in such a manner that the two ports of one cylinder stand at right angles to each other, in combination with a rotary valve operating on the said valve seat, and provided with two inlet ports placed opposite each other, and two exhaust ports placed similarly and at right angles to the other ports, substantially as shown and described. 2nd. In a valve gear for steam engines, two locomotive cylinders provided with the usual ports leading to a common valve seat, and arranged in such a manner that the two ports of one cylinder stand at right angles to each other, in combination with a rotary valve operating on the said valve seat, and provided with two inlet ports placed opposite each other, and two exhaust ports placed similarly and at right angles to the other ports, and means, substantially as described, for imparting a rotary motion to the said valve from the main driving shaft, so that the latter makes two revolutions to one revolution of the said valve, as set forth. 3rd. In a valve gear for steam engines, two cylinders provided with the usual ports leading to a common valve seat, and arranged in such a manner that the two ports of one cylinder stand at right angles to each other, a steam chest formed around said valve seat, and a steam inlet connected with the said steam chest, in combination with a valve held to rotate on also said valve seat in the said steam chest, said valve being provided with inlet ports placed diametically opposite each other, and leading from the interior of the steam chest to the valve seat, said valve being also provided with two outlet ports placed opposite each other, and leading from the valve seat to a central opening connected with the exhaust pipe, substantially as shown and described. 4th. In a valve gear for steam engines, the combination, with a main shaft, of a second shaft connected with the said main shaft so that two revolutions of the latter impart one revolution to the said second shaft, a sleeve adapted to turn with and slide upon the said second shaft, said sleeve being provided with a spiral groove, a pin projecting into the spiral groove, and a shaft carrying the said pin and also carrying the valve of the steam engine, substantially as shown and described. 5th. In a valve gear for steam engines, the combination, with a valve adapted to rotate on its seat, and having a concentric partition, of a ring held on the said concentric partition and pressing against the said valve by means of springs, substantially as shown and described. 6th. In a valve gear for steam engines, the combination, with a shaft connected with the main shaft of the engine, of a sleeve having a spiral groove, and adapted to slide upon and turn with the said shaft, a second shaft carrying a pin projecting into the said spiral groove of the sleeve, said second shaft also carrying the valve of the steam engine, and means, substantially as described for imparting a forward and backward sliding motion to the said sleeve in order to reverse the engine, as set forth. 7th. The combination, with the cylinders A, B, the saddle C^1, provided on its inner end with the valve seat C^2, and the ports *a*, *b* and *c*, *d*, leading respectively from the said cylinders to the said seat, and the steam chest H, on the inner end of the saddle, and provided with a steam inlet, and the cover H^1, of the rotary valve having a horizontal axis opposite exhaust ports *e*, *g*, leading from the face of the valve inward to the central exhaust passage, and the opposite inlet ports *f*, *h*, leading from the face of the valve to opposite points in the periphery, and communicating with the steam chest, substantially as set forth. 8th In a valve gear for locomotives, the rotary valve I, having a central recess I^1, and partition I^2, the exhaust ports leading from the face of the valve to said recess from opposite sides of the partition, and the inlet ports leading from the periphery of the valve through its face, substantially as set forth.

No. 30,152. Organ Pedal to Piano Attachment. *(Pédale d'orgue appliquée aux pianos.)*

John D. Kerrison, Toronto, Ont., 8th November, 1888; 5 years.

Claim.—1st. The combination, of levers and frame B, A, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the levers B, and pedal, cord "tention regulator" J, substantially as and for the purpose hereinbefore set forth

No. 30,153. Machine for Straightening and Hammering Saws. *(Machine à redresser et marteler les scies.)*

Milo Covel, Chicago, Ill., U.S., 8th November, 1888; 5 years.

Claim.—1st In a machine of the character herein set forth, the combination, with the supporting frame, of the vertical shafts B, B^1, the sliding bearing blocks in which said shafts are journalled, the companion swaging-rolls rigidly mounted on the upper ends of said shafts, and means for imparting a vertical movement to said shafts, whereby the swaging-rolls may be brought to bear on any desired part of the saw-plate, substantially as and for the purpose set forth 2nd. In a machine of the character herein set forth, the combination, with the vertically arranged shafts, having stretching and straightening rolls on the upper ends thereof, of the slide-block B^4, B^5, provided with the downwardly projecting parts a^1, a^2, the cross-head B^6, constructed in two parts and connected by the straps a^2, a^2, the standards and guides C, C, the flexible band b^1, the winding shaft b^2, and the hand-crank for rotating said winding-shaft, substantially as and for the purpose set forth. 3rd. The combination, with the supporting frame, of the vertical shafts B, B^1, the means described for transmitting motion from one to the other, the worm gear-wheel C^1, mounted on the vertical shaft B^1, and the driving shaft C^2 provided with the worm *b*, whereby the required motion is transmitted to the vertical shafts carrying the swaging-rolls, substantially as set forth. 4th. The combination, with the standards or guides C, C, of the clamp or yoke D pivoted at one end to one of said standards and adjustably secured at the other end to the companion standard, substantially as and for the purpose set forth. 5th. In a machine of the character herein set forth, the combination, with the vertical shaft B, having a swaging-roll mounted on the upper end thereof, and adapted to have a slight lateral adjustment, of the shaft B^1 carrying the companion swaging-roll, the standard or guide C on that side, the cam-shaft d^4, and the hand lever d^5, whereby said roll is forced in the direction of the other by hand, and the spring *d* for automatically separating said rolls which released from the pressure of the cam-shaft, substantially as set forth 6th In a saw-dressing machine, the anvils D^2, D^3 arranged in such relative position as to bring the working faces on opposite sides of the saw passing between the same, the saw being set up edgewise, whereby both sides of the same may be operated upon without changing the relative position of either the saw or anvils, substantially as set forth. 7th. In a machine of the character herein set forth the combination, with the table-bed, of the anvil-blocks D^2, D^3, and the swaging rolls, said anvils being placed on opposite sides of said rolls, and arranged diagonally relative to each other, for the purpose of bringing the faces of said anvils in line with the pathway of the saw, and on opposite sides of the same, whereby the saw may be operated upon from either side before or after the same has passed through the swaging-rolls, substantially as and for the purpose set forth. 8th. Jointly with the saw stretching and straightening machine, the reflecting plates E, E^6, adjustably secured to the frame-work of said machine and located at opposite ends of the same, and in line with the path of the saw, substantially as and for the purpose set forth.

No. 30,154. Sawmill. *(Scierie.)*

Edgar C. Wiley, Independence, Va., U.S., 8th November, 1888; 5 years.

Claim.—1st. The combination of the standards having the rack teeth, the slide boxes movable vertically on said standards, the saw arbor journalled in the slide boxes, the shaft W also journalled in the slide boxes, and having the pinions engaging the rack teeth, and gears, substantially as described, to connect and disconnect the shaft W, and saw arbor, for the purpose set forth, substantially as described. 2nd. The combination of the standards having the rack teeth, the slide boxes movable on said standards, the saw arbor journalled in the slide boxes, the shaft T journalled in the slide boxes, and geared to the arbor, the shaft W journalled in the slide boxes, the loose endless belt connecting pulleys on the shafts T and W, and the lever to tighten said belt, substantially as specified. 3rd. The combination of the standards, the slide boxes movable vertically on the standards, the saw arbor journalled in said slide boxes, and provided with pulley R, the endless belt guided on suitable pulleys, and engaging said pulley R, the shaft T geared to the saw arbor, and

having the pulley V, the shaft W journalled in the slide boxes, and having the spur wheels or pinions engaging rack teeth in the standards, and connections between the shaft T and shaft W to operate the latter for the purpose set forth, substantially as described. 4th. The combination of the standards having the rack teeth, the slide boxes movable vertically on said standards, the saw arbor journalled in the slide boxes, and having the pulley R and pinion S, the shaft T journalled in the slide boxes, and having the slide U meshing with pinion S, and the pulley V, the shaft W journalled in the slide boxes, and having the pinions Y engaging the rack teeth of the standards, and provided further with the pulley A1, and the endless belt B1, connecting pulleys V and A1, means to tighten the said belt for the purpose set forth, and the endless belt guided on suitable pulleys, and connected to the pulley R, substantially as described.

No. 30,155. Oar and Oar Lock.

(*Rame et toletière.*)

Gideon K. Pheatt, Toledo, Ohio, U. S., 5th November, 1888; 5 years.

Claim—1st. The oar A, having the rod B attached thereto, and adapted to enter a suitable oar-lock, the rod being longitudinally attached to the oar, substantially as described. 2nd. The oar A having the longitudinally attached rod B, formed with round portion *d* and flat portion *d*1, and adapted to enter a suitable oar-lock, substantially as described. 3rd. The oar-lock C, formed with members *i*, *i*, which approach each other at the top to form a narrow space *e*, in combination with the oar A, provided with the longitudinally attached rod B formed with the round portion *d*, and flat portion *d*1, substantially as and for the purposes set forth. 4th The oar A, cut away at *a*, and provided with the rod B, set into the space formed in the oar, in combination with the lock C, formed with spaced members *i*, *i*, to retain the said rod, substantially as described. 5th. The oar A cut away at *a*, and provided with the plate *b* set into the said cut-away place, and the rod B set into the oar adjacent to said plate *b*, in combination with the oar-lock C, formed with spaced members *i*, *i*, to receive and retain the said rod B, substantially as described.

No. 30,156. Motive Power or Driving of Centrifugal Machine or Separator. (*Force motrice ou de mise en mouvement de machine centrifuge ou séparateur.*)

Carl C. Burmeister, Copenhagen, Denmark, 8th November, 1888; 5 years

Claim.—In centrifugals, the combination of the adjustable seat F, and bed-plate T, with the double cranks E, E, gearing B, N, O, worm Q, upright shaft R, holder A, and bed plate L, substantially and for the purpose as described.

No. 30,157. Wall Covering Composition.

(*Composition pour décorer les murs.*)

Carl Straub, Syracuse, N.Y., U.S., 8th November, 1888; 5 years.

Claim.—The herein described composition of matter for covering walls, ceilings, etc., consisting of sawdust, muriatic acid, sulphuric acid, mineral cement and water, combined substantially in the proportions specified.

No. 30,158. Phono-Multiplex Telegraphy.

(*Télégraphie phono-multiple.*)

François Van Rysselbergh, Brussels, Belgium, 8th November, 1888; 5 years.

Claim.—1st. The within described method of phono-multiplex telegraphy, which consists in superposing upon the line series of isochronic simplex electric waves, and translating such waves into audible signals, substantially as described. 2nd. The method of phono-multiplex telegraphy, which consists in producing series of isochronic simplex electric waves of low potential, and transforring such electric waves into waves of high potential, and then translating such high potential waves into audible signals, substantially as described. 3rd. The within described method of phono-multiplex telegraphy, which consists in producing series of isochronic simplex electric waves, of low potential, controlling the rate of their production by the combined forces of gravity and centrifugal force, transforring said waves into waves of high potential, and translating them into audible signals by producing variations in a permanent magnetic field, substantially as described. 4th In a phono multiplex telegraph, a metallic cylinder, having circumferential rows, of recesses in its periphery, and insulated blocks secured in said recesses flush with the periphery, substantially as described. 5th. In a phono-multiplex telegraph, a metallic cylinder having rows of alternate conducting and insulated metal spaces extending around its periphery, substantially as described. 6th. In a phono multiplex telegraph, a metallic cylinder having series of circuit-controlling devices on its periphery, consisting of alternate spaces of conducting and insulated metal, the conducting spaces in each series being equal to the insulated spaces, substantially as described. 7th. In a phono-multiplex telegraph, the combination, with a motor, of a cylinder driven thereby, provided with series of circuit-controlling devices, each series bearing a fixed relative proportion to the others, a governor driven by the motor and controlling the electric circuit of the motor, high resistance conductors included in the circuit and carried by the governor, and regulating devices moving on said conductors under the influence of gravity and centrifugal force only, substantially as described 8th. The combination, with a circuit-controlling cylinder, of a series of derived or branch circuits, each separately controlled by the cylinder, a single primary of an induction coil for all the branch circuits, and keys in each branch circuit for opening and closing them, as desired, substantially as described. 9th. The combination, with a circuit-controlling cylinder, of a series of derived or branch circuits, each separately controlled by the cylinder, a single generator of low internal resistance for said circuits, a single primary circuit, of an induction coil of low resistance, and keys for opening and closing said circuits, substantially as described. 10th. the combination, with a circuit-controlling cylinder, having an isochronic motion, of a series of derived or branch circuits controlled by said cylinder, a single generator of low internal resistance, a single primary of an induction coil of low resistance for said circuits, a separate resistance in each branch circuit, and keys for opening and closing each circuit, substantially as described. 11th. The combination of a generator, the circuit of which includes a motor, and an isochronic governor and another generator, the circuit of which includes circuit-controlling devices driven by the motor, whereby the signals produced by said controlling devices may be isochronic, substantially as described 12th. The combination, with a series of derived local circuits, of a cylinder containing series of circuit controlling devices, constructed to produce relatively proportionate variations in said circuits, a motor operating said cylinder, and a governor, including a portion of the resistance, of the operating circuit, of the motor devices moving under the influence of gravity and centrifugal force only, and controlling the amount of said resistance, whereby the variations may always be maintained in synchronism, substantially as described 13th. In a phonic or tone telegraph, a receiving instrument, consisting of a tuning-fork and coils connected with the line circuit, the fork being permanently magnetized, substantially as described. 14th. A receiving instrument for tone telegraphs, consisting of a permanent magnet, a main line coil connected to the magnet and a tuning-fork also connected to the magnet, whereby the fork will vibrate in a magnetic field, substantially as described. 15th A receiving instrument, consisting of a magnet, a line coil connected to one pole of the magnet, a tuning-fork connected to the other pole of the magnet, and an adjustable shunt for the magnet, substantially as described. 16th. A receiving instrument, consisting of a permanent U-shaped magnet, a tuning-fork attached to one pole of the magnet, and a main line coil attached to the other pole, the core of the latter extending between the branches of the fork, substantially as described. 17th. The combination, with a transmitting instrument, sending rapid series of pulsations to line, of an isochronic governor connected to said transmitter, a generator of low resistance, derived circuits of said generator, including the transmitter, a single primary of low resistance, a main line, including the secondary thereof, and magnetized tuning-fork receivers in said line, substantially as described. 18th. The combination, with a transmitter producing isochronic variations in derived circuits, of a low resistance ganerator, a single primary therefor, a main line including the secondary, and a series of magnetized tuning-fork receivers connected to the line, and switch-connections in the line, whereby any one or all of the receivers may be cut out of the line, substantially as described. 19th. The combination, with a transmitting cylinder having insulated spaces, of a generator of low resistance, derived circuits therefrom, each connected to and controlled by the cylinder resistances, and keys in each derived circuit, a single primary for all the derived circuits, and a main line, including the secondary and the receiving instruments in branches of the main line, substantially as described.

No. 30,159. Boiler for Steam or Hot Water Heating. (*Chaudière de calorifère à vapeur ou à eau.*)

William B. Dunning, Geneva, N. Y., U. S., 8th November, 1888; 5 years.

Claim—1st. In a boiler for steam or hot water heating, a sliding direct draft attachment G, placed in the roof of the fire door space F, so as to allow direct communication between the fire-box A, and the air space H leading to the exit smoke flue I, substantially as and for the purpose specified. 2nd. In a boiler for steam or hot water heating, the combination of the fire-box A, sliding draft attachment G, air space H, exit flue I, and tubes C, all arranged and constructed substantially as and for the purpose specified.

No. 30,160. Steam Generator.

(*Générateur de vapeur.*)

Chester B. Turner, Detroit, Mich., U. S., 9th November, 1888, 5 years.

Claim—1st. In a steam generator, the drop flues N, substantially as described and for the purpose set forth. 2nd. In a steam generator, the smoke flues L, substantially as described and for the purpose set forth.

No. 30,161. Machine for Making Stereotype Matrices. (*Machine à faire les matrices stéréotypes.*)

John R. Rogers, Lorain, Ohio, U.S., 9th November, 1888; 15 years.

Claim.—1st. Type provided with shoulder on one side and a nick on opposite side, and having elongated body in varying lengths and provided with loop hook or eye on upper end, whereby said types may be strung on wires, substantially as described. 2nd. The types strung on tram wires, whereby the types may be traversed upon for assemblage in the composition of words or sentences and again distributed, substantially as described. 3rd. The flexible or compressible spaces, whereby the line of types set with said spaces may be justified to measure by compression, substantially as specified. 4th The combination, of types strung on tram wires, whose upper ends are supported on an arc or bow, and their lower ends concentrated and brought into two parallel vertical lines and supported by a vertical post, and a key board mechanism connected by cords or lever mechanism with latches attached to the arcs or bows in such a manner that said types are released one by one by the operation of said key-board, and latch mechanism for the assemblage of the types, substantially as and for the purpose specified. 5th The combination, with arcs or bows, of the tram wires having types strung thereon, and arranged in inclined lines downward from said arcs or bows in part of their length, and having their lower portions concentrated and brought into horizontal lines and forming two vertical planes,

whereby said types may be transferred from the arcs or bows downward to said vertical plane, for assemblage in the composition of words or sentences, substantially as described. 6th The combination, with the arcs or bows H, L, and the tram wires E having types G strung thereon, of the latch plates I, pivoted to the bow H, and having lever arms J, connected to cords K, leading to key-board C and provided with retracting springs j^2, said latches having slots i, for lips, by which the types G are held and released, one at a time, by the movements of the keys through the medium of said latches, substantially as specified. 7th. The frame B, pivoted to table A, and supporting the arc or bow, and a post F which supports the tram wires, having the types G strung thereon, said frame, with the arcs, wires and key-board mechanism arranged to be tilted over backward for changing position of said wires to enable the types strung thereon to be traversed by gravity in their assemblage and distribution, substantially as and for the purpose specified. 8th. The combination with the bed or table A, of the frame B pivoted at rear side to ears or lugs b, b, and supporting the key board C, on posts c, c, the arcs or bows D, H, L, on posts d, d, and post F, said bows and post supporting tram wires E, on which the types G are strung, and the cords K operating the latches L, whereby said frame and its accompanying mechanism may be tilted backward for reversing the position of the tram wires, and cause the assembled type to run backward again to the bows for distribution, substantially as specified. 9th The combination, with the types and compressible spaces, assembled in the manner described, of the movable jaw N, playing in ways n, n, on table N^2, and hand lever N^3, provided with latch mechanism N^4, for compressing said types and spaces against post F, whereby the line of types are justified to measure, substantially as specified. 10th. The combination, with the types and spaces, assembled in the manner described, of the fixed jaw O, and movable jaw P, attached to table A and actuated by means of the connecting rod p, connected to hand lever Q, provided with latch pawl q, and rack q^2, whereby the line of assembled types are gripped and held in alignment, substantially as specified. 11th. The combination, with bed or table A, of the plate R set in longitudinal space in front part of the table and having longitudinal groove u, of a movable galley V, having longitudinal rib V^1, running in said groove R and having ratcheted edge by which said galley is fed along said plate by a pawl W attached to the movable jaw P, substantially as specified 12th The combination, with the table A, and movable plate R carrying the galley V, of a shaft S journalled in hangers on underside of the table, and provided with cam T^2, bearing against the underside of said plate R, and actuated by hand lever T on outer end of said shaft, whereby said plate R and the galley are forced upward for making an impression by the assembled types in the matrix material contained in the galley, substantially as and for the purpose specified. 13th The series of independent single lines, matrices arranged to form paragraphs or columns in movable galleys, whereby a single line or paragraph may be removed and resupplied for the correction of errors, as substantially specified. 14th. The combination, with the assembled type, made in the form of matrices, and the locking jaws, substantially as described, of a suitable mould by which one line of type may be cast at a time, substantially as described.

No. 30,162. Churn. (*Baratte.*)

Edward Curry, Windsor, N.S., 9th November, 1888; 5 years.

Claim.—A coupling for churns, creamers, or cream preservers, consisting of a ring, having tongue e, f, g, hook h, and pin i, combined with a ring having groove a, b, c, into which is placed rubber or other soft material, dye d, and cam lever k, substantially as and for the purposes hereinbefore set forth.

No. 30,163. Machine for Harvesting Beans.

(*Machine à moissonner les fèves.*)

John Yocom, Ridgetown, Ont., 9th November, 1888; 5 years

Claim.—1st. The combination of the steel points E, with the front standards B. 2nd. The combination of the steel lances D, with the rear standards C. 3rd. The combination of the knives F, with the steel points E, and rear standards C. 4th. The combination of the guide bars G, G, with the front standards B, and the rear standards C.

No. 30,164. Running Gear for Vehicles and Method of Forming the Same.

(*Train de voiture et mode de le fabriquer.*)

Theodore C. Munz, Toledo, Ohio, U.S., 9th November, 1888; 5 years.

Claim.—1st. The herein described method of forming the axles, headblock and reaches of vehicles running gear, which consists in constructing a blank of the desired form out of sheet metal, and then forming the same into the desired shape by pressure, as and for the purpose set forth. 2nd. A step in the art of making the principal parts of a vehicle running gear, of sheet metal, which consists of forming cut away portions in the sides of the blanks corresponding to the position of the clip plates previous to forming the same into the desired shape by pressure, as and for the purpose set forth 3rd. A vehicle running gear, comprising [illegible] headblock and reach sections formed of sheet metal and [illegible] into the desired shape, as and for the purpose set forth. 4th. In a vehicle running gear, metal axles formed with a longitudinal opening upon their lower sides, in combination with a packing placed within the longitudinal opening and against the upper web, with a spindles bearing against the packing and held in firm relation thereto by clips embracing the axle and spindle, as and for the purpose set forth.

No. 30,165. Brake Shoe. (*Sabot de frein.*)

Patrick Brownley and James Straton, St. John, N.B., 10th November, 1888; 5 years.

Claim.—As an improved article of manufactured, a brake-shoe having all of its parts cast integral, or formed in one piece, said shoe being provided with one or more inclined or diagonally arranged grooves in its face, substantially as and for the purpose set forth.

No. 30,166. Rein Hook. (*Crochet de rènes.*)

Seth C. Nutter, Sherbrooke, Que., (assignee of Daniel Hutchison, Lynn, Mass., U.S.), 10th November, 1888, 5 years.

Claim.—1st. A rein hook, provided with the ball B, and tongue D, adapted to turn on the pin c, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the hook A, having boss b, and screw c, substantially as and for the purpose hereinbefore set forth.

No. 30,167. Post or Pile Driver. (*Sonnette.*)

Joseph M. Bristol and The Chamberlin Manufacturing Company, Olean, N.Y., U.S., 10th November, 1888, 5 years.

Claim.—1st, In a pile driver, the combination of the single upright B, having the hammer C secured thereto by the guide straps c, with the sled A, cross bar B^1, brace rods b, and extensible rod G, substantially as set forth. 2nd. The combination of the post head frame F, and strap f with the upright B, substantially in the manner and for the purposes set forth. 3rd. The combination of the frame F, having strap f, with the post B, having perforations b^2, and the bolts b^2, and hammer C, substantially as described 4th. The combination of the sled or support A, with the upright and the operative mechanism, and with the false runners a^1, whereby the foundation of sled can be set in horizontal position. 5th. In combination with the sled A, the false runner a^1, having slots a^2, and with the bolts a^3, and screw nuts a^4, substantially in the manner and for the purposes set forth.

No. 30,168. Door Closing Apparatus.

(*Appareil à fermer les portes.*)

John G. Witte and William L. Witte, (assignees of Francis L. Becher,) New York, N.Y., U.S., 10th November, 1888, 5 years.

Claim.—1st. An arm pivotally mounted at one end upon the door, and swinging upon an axis parallel with the axis of the door, a spring carried by the door and arranged to exert its force upon the arm in the direction required to rock the arm away from the hinged edge of the door, a suitable linked connection for connecting the arm with a point on the jamb nearer the axial line of the door than the radial distance between the axis of the arm and the axis of the door, in combination with an arm-stop affixed to the door and projecting into the path of movement, of a part of the swinging arm for arresting the swinging movement of said arm at a prescribed stage in the closing movement of the door. 2nd. A swinging arm pivotally mounted at one end upon the door, a spring for rocking the said arm away from the hinged edge of the door, a linked connection for connecting the jamb with the free end of the arm, and thereby controlling the rocking movement of the arm during the closing movement of the door, in combination with a door-check for opposing a prescribed amount of resistance to the closing movement of the door. 3rd. A swinging arm pivotally mounted at one end upon the door, a spring for rocking the said arm away from the hinged edge of the door, a linked connection for connecting the jamb with the free end of the arm, and thereby controlling the rocking movement of the arm during the closing movement of the door, in combination with a scroll-shaped buffer pivotally mounted upon the said swinging arm, and a brake affixed to and projecting latterly from the jamb for engaging the periphery of said buffer during the latter portion of the closing movement of the door. 4th. The swinging arm E, the buffer M pivotally mounted thereon, and the buffer spring M^1, in combination with the spring adjusting arm m^1, and the fastening screw m^2. 5th. The swinging arm E, the contracting spring F, connecting the free end of the arm E with a point on the door nearer the free edge thereof than the axis of the arm E, in combination with the shouldered link G, the adjustable stop g^1, and the link H connecting the free end of the arm E with the jamb, as and for the purposes set forth. 6th. The swinging arm E, mounted upon the door and linked to the jamb, the contracting spiral spring F, the link F^1 for connecting to the door the end of the spring F opposite that connected with the arm E, in combination with the adjustable screw-stop J, for increasing the distension of the spring F by collision with the link F^1 at a prescribed stage in the swinging movement of the arm E, resulting from the opening of the door. 7th. The combination, as herein set forth, of the swinging arm E, mounted upon the door and linked to the jamb, a spring acting upon the rocking arm in such direction as to tighten its connection with the jamb, and an adjusting screw connected with said spring for the purpose of varying the normal tension thereof. 8th The swinging arm E, carried upon the door and linked to the jamb, the spring F suitably connected at one extremity with the free end of the arm E, and at the other extremity with the lug d, in combination with the stop J, face-plate D having the holes d^1 and j tapped in it, as and for the purpose set forth.

No. 30,169. Bustle. (*Tournure.*)

William W. Whitlark, Ann Arbor, (assignee of Alice White, Detroit), Mich., U.S., 10th November, 1888; 5 years.

Claim.—1st. As a new article of manufacture, a bustle formed of convoluted spring-wire in vertical loops, with re-enforcing coils in the angles of the loops, and the flexible and adjustable straps seriatim secured in the coils and connecting the loops, substantially as described. 2nd. As a new article of manufacture, a bustle formed of convoluted spring-wire in vertical loops, with re-enforcing coils in the angles of the loops, the flexible and adjustable straps seriatim connecting the loops, the cross-buckle strap at the base of the bustle, and arched spring-wire top braces, substantially as described.

No. 30,170. Apparatus for Producing Patterns or Designs on Cloths and other Fabrics. (*Appareil pour produire des patrons ou dessins sur les draps ou autres tissus.*)

Carl H. Behnisch, Luckenwalde, Germany, and Charles Schreibler, Methuen, Mass., U.S., 10th November, 1888; 5 years.

Claim.—1st. A machine for toseling or brushing up designs or figures in the nap on the face of fabrics, consisting of a frame provided with drawing and guide rolls, a roll over which the fabric is adapted to pass, a rotating sheet-metal pattern cylinder over said roll, a rotating brush or card cylinder in said pattern cylinder, a slotted bed, a rotating brush or card cylinder above said bed, a vertically reciprocating blade over which the fabric is adapted to pass below said bed, a movable pattern band, a rotating brush or card cylinder above said band, and a stationary blade below said band over which the fabric is adapted to pass, substantially as set forth. 2nd. The combination, with a roll or fabric support, of a rotary pattern drum or cylinder in said pattern cylinder, substantially as set forth 3rd. The combination with a slotted bed, of a rotary brush or card cylinder above said bed, and a vertically reciprocating blade below said bed, substantially as set forth. 4th. The combination, with the movable pattern band, of a rotating brush or card cylinder above said band, and a stationary blade below said band, substantially as set forth

No. 30,171. Furnace. (*Fourneau.*)

Gates A Clark and William B. Vail, Rochester, N. Y., U. S., 10th November, 1888; 5 years.

Claim —1st. In a coking furnace, the combination, with a fire-box and a grate therein, of a wall *a* provided with a water-back, a chute or chamber to receive the material to be coked, a flue or passage connecting said chute with the fire-box below the grate, and a plunger or feeder to discharge the material into the fire-box, substantially as described. 2nd. In a coking furnace, the combination, with a fire-box and grate therein, of a wall *a* above the grate bars to form a discharge outlet opening *c*, a chute or chamber to receive the material to be coked, a flue or passage connecting said chute with the fire-box below the grate, and a valve or damper to close the opening, *c*, substantially as described. 3rd. In a coking furnace, the combination with a fire-box and grate therein, of a dividing wall provided with a water-back located above the grate to form a discharge outlet or opening, a chute or chamber to receive the material to be coked, a flue or passage connecting said chute with the fire-box below the grate, a plunger or feeder to discharge the material into the fire-box, and a valve or damper to close the said discharge outlet or opening, substantially as described. 4th. In a coking furnace, a fire-box, a grate therein, a boiler, a dividing wall provided with a water-back connected to said boiler, a dividing plate forming with said wall a chute or chamber to receive the material to be coked, and a flue or passage for the volatile products contained in said material, combined with a plunger or feeder to discharge the coke into the fire-box, substantially as described. 5th. In a coking furnace, a fire-box, a grate therein, a boiler, a dividing wall provided with a water-back connected to said boiler, a dividing plate forming with said wall a chute or chamber to receive the material to be coked, and a flue or passage for the volatile products contained in said material, combined with a plunger or feeder to discharge the coke into the fire-box, and with a valve or damper to close said discharge outlet, substantially as described.

No. 30,172. Method and Apparatus for Converting and Distributing Electric Currents. (*Mode et appareil de conversion et de distribution des courants électriques.*)

The Tesla Electric Company, (assignee of Nikola Tesla), New York, N.Y., U.S., 10th November, 1888; 15 years.

Claim —1st. The method of electrical conversion and distribution herein described, which consists in continuously and progressively shifting the points or lines of maximum effect in an inductive field, and inducing thereby currents in the coils or convolutions of a circuit located within the inductive influence of said field, as herein set forth. 2nd. The method of electrical conversion and distribution herein described, which consists in generating in independent circuits producing an inductive field, alternating currents in such order, or manner, as to produce by their conjoint effect a progressive shifting of the points of maximum effect of the field, and inducing thereby currents in the coils or convolutions of a circuit located within the inductive influence of the field, as set forth. 3rd. The combination, with a core closed upon itself, inducing or primary coils wound thereon, and connected up in independent pairs, or sets, and induced or secondary coils wound upon or near the primary coil of a generator, of alternating currents and independent circuits connecting the primary coils with the corresponding coils of the generator, as herein set forth. 4th The combination, with independent electric transmission circuits, of transformers consisting of annular or similar cores wound with primary and secondary coils, the opposite primary coil of each transformer being connected to one of the transmission circuits, an alternating current generator with independent induced or armature coils connected with the transmission circuit, whereby alternating currents may be directed through the primary coils of the transformers in the order and manner herein described.

No. 30,173. Thermostat. (*Thermostat.*)

The J. C. Mackey Co., (assignee of John C. Mackey), Syracuse, N.Y., U.S., 10th November, 1888, 5 years.

Claim.—1st. In a thermostat, a body containing a countersunk receiving chamber, and having a connecting hollow shank threaded to receive an open thimble or cap provided with a spring operating an automatic drop-bolt, in combination with heat-releasing supporting-plate and electrical supporting-points, constructed substantially as shown and described. 2nd. In a thermostat, a connecting drop-bolt provided with weighted head and body, together with a stem, in combination with a spring, a supporting-plate secured to the thermostat upon its cap by fusible solder on a heat-releasing joint, and electrically connected points contacting with the drop-bolt, constructed substantially as shown and described.

No. 30,174. Telegraph Receiver.

(*Récepteur télégraphique.*)

Charles Selden, Baltimore, Md., U.S., François Van Rysselberghe, Brussels, Belgium, and William T. Bernard, Baltimore, Md., U. S., 10th November, 1888; 5 years.

Claim. —1st. In a telegraphic receiving instrument, the combination of a pendulously suspended magnet actuated by the line current with an independent circuit breaker controlled by said magnet, and a local circuit controlled by said circuit breaker, substantially as described. 2nd. In a telegraphic receiver, the combination of a vibratory magnet actuated by the line current, with an independent pendulous circuit breaker in a local circuit controlled by said magnet, substantially as described. 3rd A telegraphic receiver consisting of two pendulous magnets susceptible to accentuated electric impulses of short duration in a line circuit, an independent vibratory circuit breaker controlled by said magnets, and a local circuit controlled by said circuit breaker, substantially as described. 4th. In a telegraphic receiver, the combination of a pendulous electro magnet susceptible to accentuated electric impulses of short duration, a vibratory circuit breaker having a slower rate of vibration than the magnet, and controlled by the same, and a local sounder circuit controlled by the circuit breaker, substantially as described. 5th. In a telegraphic receiver, the combination, with a pendulum carrying a magnet sensitive to accentuated currents of short duration in the line circuit, of a contact point located a short distance from the fulcrum upon said pendulum, and a vibratory circuit breaker carrying a contact at a greater distance from the fulcrum, substantially as described. 6th In a telegraphic receiver, a pendulum carrying a magnet responsive to accentuated currents of short duration in the line circuit, a contact point upon the lever located a short distance from the fulcrum, a pivoted lever carrying a contact at a greater distance from its pivot and having a slower rate of vibration than the pendulum, substantially as described. 7th. In a telegraphic receiver, a pendulum carrying a magnet responsive to accentuated currents of short duration in the line circuit, a vibratory circuit breaker to which momentum is imparted by the lever when the same operates under the effects of an accentuated current, and a local sounder circuit controlled by the circuit breaker, whereby the local circuit remains intact when graduated currents are sent over the line, and is broken when accentuated currents are used, substantially as described. 8th. In a telegraphic receiver, a pendulum carrying a magnet responsive to accentuated currents of short duration in the line circuit, a vibratory circuit breaker normally in contact with the lever and thrown off by the quick motions of the same, and a weight, or its equivalents, upon the circuit for maintaining contact during the slow movements of the lever, whereby the receiver will be operative by accentuated line currents of short duration, but will be inoperative by graduated currents, substantially as described. 9th. The combination, upon a single undivided line circuit over which currents of gradually increasing and decreasing strength, and accentuated currents of short duration are sent, of a telegraphic receiver operative by currents of gradually increasing and decreasing strength, and one or more telegraphic receivers operative by accentuated currents of short duration in the same undivided line, substantially as described.

No. 30,175. Appliance for Effecting the Change of Gauge of Railway Vehicles. (*Appareil pour changer la largeur de voie des chars de chemins de fers.*)

Robert A. White, Adelaide, South Australia, 10th November, 1888, 5 years.

Claim.—1st A turntable furnished with rails of suitable gauges, and with parts or the whole of its top so arranged as that it is capable of being raised and lowered, substantially as and for the purposes herein described and explained and as illustrated in the drawings 2nd. A traverser furnished with rails of suitable gauges, and with parts or the whole of its top so arranged as that it is capable of being raised and lowered, substantially as and for the purposes herein described and explained and as illustrated in the drawings. 3rd. Rails on such turntable or traverser, so arranged as that those forming the narrow gauge are so much higher than those forming the broad gauge as that the upper bodies of the narrow gauge vehicles are on a level with those of the broad gauge vehicles, substantially as herein described and explained. 4th Girders fixed in positions over a turntable or traverser to support cross-bearers pushed under the upper bodies of vehicles, for the purposes of carrying such upper bodies, while other under frames are being substituted, substantially as herein described and explained, and as illustrated in the drawings. 5th. Cross-bearers, such as are shown in Figs. 6 and 11, in combination with the girders, for the purposes herein described and explained 6th. The appliances shown in Figs. 5 and 11, for raising and lowering the movable parts of the turntable or traverser, substantially as herein described and explained.

No. 30,176. Automatic Car Brake.

(*Frein automatique de chars.*)

Edwin W. Luce, Elias Edo, Ebenezer V. Cody and Charles P. Cody, Bradford, Penn., U.S., 10th November, 1888: 5 years.

Claim.—1st In an automatic car-brake, the combination, with pressure-rods, of sliding plates adapted to be moved thereby, and brake beams and shoes connected with the said sliding plates. 2nd In an automatic car brake, the combination, with pressure-rod and sliding plates, of brake-beams having shoes or blocks, and pivoted rods between the pairs of brake beams and connected therewith, and with the said sliding plates 3rd. The combination, in an automatic car-brake, with the car-axle, of a grooved cylinder secured thereto, and having pivoted dogs, and a pivoted switch-bar adapted to be operated upon by the said dogs in the manner and for the purposes, substantially as herein set forth 4th. A switch bar having a recess at its extremity, in combination with a projection situated within the said recess, and having lugs, a spring at the rear of said projection, connecting rods or cables secured to the said lugs, and means, substan-

tially as described, for winding the said connecting rods or cables, for the purpose set forth. 5th. The combination in a car-brake, with a pivoted switch-bar, and its connecting rods or cables, of a grooved cylinder, pivoted dogs situated obliquely thereon, for the purposes set forth, and springs for keeping the said dogs in their normal position, substantially as shown and described. 6th. The combination, in an automatic car-brake, of pressure-rods and sliding plates, pivoted supports for the said sliding plates, and pivoted switch-bar carrying the said supports, with the grooved cylinder and the dogs, all arranged in the manner and for the purposes, substantially as herein set forth. 7th. The combination, in a car-brake, of pressure-rods and sliding plates, with pivoted supports for the said sliding plates, having lugs or projections, a plate having curved grooves or recesses adapted to receive the said lugs and to act as guide for the pivoted supports, switch-bar carrying the said support, rods or cables secured to the said switch-bar, and means, substantially such as described, for winding the said rods or cables, for the purpose set forth. 8th. In an automatic car-brake, pressure-rods, sliding plates adapted to be engaged thereby, pivoted support for the said sliding plates having lugs or projections, and curved recesses adapted to be engaged by the said lugs, and to act as guides for the said support, in combination with pivoted switch-bar carrying the said support, and having a recess at its extremity, a projection situated within the said recess having lugs, a spring at the rear of said projection, cables secured to the lugs of the projection, means for winding the said cables, grooved cylinder secured to the car-axle, and pivoted dogs situated obliquely thereon, all arranged for the purposes herein set forth. 9th. The combination, in an automatic car-brake, with pressure rods having spring joints at their extremities, and sliding plates, and pivoted supports therefor, of pivoted switch-bar carrying the said pivoted support and grooved cylinder, and pivoted dogs thereon, all arranged substantially as described, whereby the brake mechanism is adapted to be thrown into and out of position, and the extremities of the pressure rods will not be liable to injury thereby. 10th. In an automatic car-brake, the combination, with axles thereof, and tapered cylinder situated thereon, and formed with spiral grooves, of lever-bars adapted to engage therewith, brake-beams and shoes and rods connecting the said lever-bar with the brake-beams, whereby the brakes will be automatically operated in the event of the parting of the train. 11th. In an automatic car brake, the combination, with axles thereof, tapered cylinders situated thereon, and formed with spiral grooves, and brake-beams and their shoes, of lever-bars adapted to engage therewith, and connected with the said brake-beams, supports for the said lever-bars, and pressure rods having conical extensions and coiled springs, substantially as described, whereby the lever-bars will be normally out of engagement by their supports being normally located upon the largest portion of the conical extension. 12th. The combination, in an automatic car-brake, with the pressure-rods having conical extensions and coiled springs, lever-bars also having coiled springs to increase their power, and supports for the said lever-bars, of conical tubes secured to the car axles having spiral grooves, brake-beams and their shoes, and rods connecting the said beams, with the lever-bars, all arranged to operate in the manner and for the purposes substantially as herein set forth. 13th. In an automatic car-brake, the pressure-rods, lever-bars, supports for the said lever-bars, brake-beams and their shoes, and pivoted rods between the pairs of brake-beams, and connected therewith, in combination, with conical tubes secured to the car-axles, and having spiral grooves, and rods connecting the lever-bars, with the said pivoted rods, all arranged for joint operation, substantially as described. 14th. The lever-bars having elongated slots and headed pins, secured to the car-body, and passing through the said slots, in combination, with cables at the rear of said lever-bars, adapted to engage with hooks on the car, substantially as described, whereby the said lever-bar can be drawn back and secured, and the device rendered inoperative when desired.

No. 30,177. Valve and Valve Gear chiefly designed for Rock Drills. (*Soupape et distribution par tiroir specialement applicables aux forets de mines.*)

James McCulloch, Manchester, Eng., 13th November, 1888; 5 years.

Claim.—1st. For distributing fluid under pressure in a rock-drill, or other machine, a valve *a* which is operated by a tappet *b* and which, when moved to either end of its stroke, will close the admission port at this end, so that the pressure of the fluid will no longer act upon the corresponding end of the valve, and the said valve will be held in position by the pressure of the fluid on the remaining surfaces thereof, substantially as and for the purposes above specified. 2nd. The combination of parts comprising the cylinder A, provided with the exhaust holes or apertures *d*, the valve *a*, and tappet *b*, the projection or enlargement *c* on the piston-rod D, and the check valves *e*, substantially as and for the purposes set forth. 3rd. The cylinder A having the exhaust holes or apertures *d* in such a position that they will be covered by the pistons C, C1 before they reach the end of their stroke and cushioning of the said pistons will be caused at either end of the stroke, substantially as described. 4th. The combination of the feeding screw *m*, with the nuts *n* provided with right and left handed external screw threads *n1*, and nut *o* for taking up or compensating for the wear of the feeding screw, substantially as described. 5th. The combination, of the bracket I, with the setting up strip *t1*, and set-screw *u*, or the movable portion *v*, and bolts or screws *w* for taking up compensating for the wear in the slide of the cylinder and bracket, substantially as described.

No. 30,178. Art or Process of Preserving both Salted and Smoked Cooked Fish. (*Mode ou procédé de conservation du poisson cuit, salé et fumé.*)

Cartheart Thomson, Halifax, N.S., 13th November, 1888; 5 years.

Claim—1st. The preserving of both salted and smoked cooked fish, by subjecting the same to sufficient pressure to force out a large portion of the moisture. 2nd. The enclosing the compressed fish in waxed, oiled, or varnished paper, or other material rendered impervious to moisture, when the effects of a moist atmosphere has to be withstood, substantially as and for the purpose hereinbefore set forth.

No. 30,179. Washing Machine. (*Machine à blanchir.*)

Asa L. Burke, Hamilton, Ont., 13th November, 1888, 5 years.

Claim—1st. In a washing machine having a concave bottom constructed of angle bars C1, and depression bars C2, thus forming corrugations on a semi-circular metallic base, and an oscillating convex rocker having angle bars J, and depression bars J1, attached to sides I, thus forming an uneven rubbing surface with the clothes against the concave angle barred bottom, in combination with the parallel link motion rods G, handle K, the connecting bar H, and the two upright oscillating supports E which are attached to rocker I, substantially as and for the purpose specified. 2nd. In a washing machine, an outer box A having a shaft D in bearings A2, rocker I with supports F, lifting links N, rod O, connecting rods G, handle K, adjustable levers P, in combination with the metallic semi-circular bottom C provided with the angle bars C1, and the depression bars C2, substantially as and for the purpose specified. 3rd In a washing machine, a box A arranged to carry a shaft D in metal bearings A2 and pivoted thereto, an oscillating convex rocker I having angle bars J, and depression bars J1 (arranged with spaces) and secured to the upright supports C, oscillating on the said shaft by means of the said connections G and H, in combination with the sliding bearing cap M, and the adjustable levers P for lifting the oscillating rocker I from its working position, substantially as and for the purpose specified. 4th. A box A arranged to carry a shaft D, constructed with a detachable semi-circular bottom composed of angular cross-bars, and sections A to attach a wringer thereto, and immediately below the adjustable clothes receptacle T having elongated slots T1 for folding in, in combination with a detachable rocker I, substantially as and for the purpose specified. 5th. A table U attached to the box A, and supported by the chains Y, in combination with the several parts denoted by letters, substantially as and for the purpose specified.

No. 30,180. Device for Holding and Dressing Saws. (*Appareil pour supporter et affuter les scies.*)

Milo Covel, Chicago, Ill., U.S., 13th November, 1888, 5 years.

Claim.—1st. The combination, with the supporting frame, of a cap plate rigidly mounted on one side of the frame, the vertical levers pivoted at their lower ends to said frame, a cam shaft journalled in both said levers and frame, a second cap-plate rigidly mounted on the upper ends of said levers, and the clamping bars mounted on the top of the respective cap plates, whereby the movement of the cam-shaft throws the clamp into or out of a clamping position, substantially as and for the purpose set forth. 2nd. In a device of the character described, the combination, with the cap-plates and the clamping-bars, of the bolts *a4*, whereby said bars may be sprung or forced upward at the ends, substantially as and for the purpose set forth. 3rd. In a device of the character described, the combination, with the supporting frame, of the rack bars notched in the upper end and having a vertical movement in a rock-shaft journalled in the frame, and the pinions mounted on the rock-shaft and engaging with the lower toothed end of said rack-bars, substantially as and for the purpose set forth. 4th. The combination, with the rack-bars and the rock-shaft, of the pinions mounted on the latter and the springs coiled on the respective ends of said shaft, whereby the rack-bars are automatically forced upward when the hand clamping screws are relaxed, substantially as and for the purpose set forth. 5th. The combination, with the frame having openings *b2* in the upper part of the rack-bars, and provided on their upper ends with guide lugs, which fit into said openings, the guide brackets *b3*, *b4* and the hand screws C4, substantially as and for the purpose set forth. 6th. In a device of the character described, the combination jointly therewith of a hand gauge tool, consisting of the plate D, provided in each corner with an adjustable screw bolt *d*, substantially as and for the purpose set forth. 7th. In a device of the character described, the combination jointly therewith of a hand tool, consisting of the plate D1 grooved in the underside, and provided with ledges *d1*, and the screws *d2* for clamping the file in place, substantially as and for the purpose set forth. 8th. In a device of the character described, the combination jointly therewith of the hand-tool D1, designed to hold a three-cornered file, and consisting of the side-plate *d6*, the top plate *d7*, grooved to receive one corner of the file, and the bottom or clamping plate *d8*, and screws for adjustably securing said plate, whereby a three-cornered file may be held to bring the cutting face against the side of the saw teeth at an oblique angle, as set forth.

No. 30,181. Water Craft for Locomotion over the Surface of the Water. (*Propulseur flotant.*)

Goldsbury H. Pond, Glens Falls, N.Y., U.S., 13th November, 1888; 5 years.

Claim.—1st. A water craft provided with an endless buoyant track on which the craft rests, and moves over the surface of the water, substantially as and for the purpose hereinbefore set forth. 2nd. A water craft, having a frame with wheels provided with a covering of duck or other flexible material of sufficient width, with its ends joined and securely fastened together, enclosing all the wheels lengthwise of the frame, its edges turned over at the required angle to the main body lengthwise of the flexible material, to form the sides of a boat of the required depth, and held in that position, with ribs forming an endless flexible boat and buoyant track in which the craft rests and moves on the water, substantially as and for the purposes hereinbefore set forth. 3rd. A water craft, having a frame, with two or more wheels at each end, and having an endless flexible boat lengthwise of the frame over all the wheels, the inner surface of the lower section of said boat forming a buoyant endless track,

which is taken up out of the water at one end of the frame when the craft is in motion and dropped down at the opposite end continuously, the lower section resting motionless on the water for the wheels to run over either forward or backward, substantially as and for the purpose hereinbefore set forth. 4th. A water craft provided with wheels and with an endless buoyant track, said wheels having motion imparted to them, raise the rear end of the track up out of the water and carries it over the rear end wheels, turning it bottom upwards, then carrying it forward over the forward end wheels, reversing it right side up and dropping it down into the water, substantially as and for the purposes hereinbefore set forth. 5th. A water craft, having frame and wheels supported upon the lower section of an endless flexible boat, which rests motionless upon the water, while the wheels pass over it on its inner surface, carrying the upper section with them over the wheels and above the lower section, moving the craft at any speed over the surface of the water without any friction of the water against the bottom or sides, substantially as and for the purpose hereinbefore set forth. 6th. The combination of the frame A and B, the wheels D, D, and the endless flexible buoyant track E and E1, and the buckets L having a feathering inclination R, R, substantially as and for the purpose hereinbefore set forth. 7th. The combination of the frame A and B, the wheels D, D, the endless flexible boat E and E1, the buckets L, the feathering inclination R, R, the ribs G, substantially as and for the purpose hereinbefore set forth. 8th. The combination of the frame A and B the wheels D, D, the endless flexible buoyant track, the buckets L, the ribs G, the buoys S, the lagges Z, substantially as and for the purpose hereinbefore set forth.

No. 30,182. Railroad Signal.

(*Signal de chemin de fer.*)

David Vinton, Jr., and Frank H Vinton, Williamsburg, Mich., U.S., 13th November, 1888, 5 years.

Claim—1st. In a railroad signalling apparatus, the combination of a revoluble signal B, rods H, I connected thereto at diagonally opposite corners, rollers F, G journalled on an adjacent support, and having arms *f*, *g* connected to the rods H, I respectively, a drum J journalled near the signal B, ropes or chains K, L connecting the drum with the rollers F, G respectively, and ropes M, R connecting the drum with pivoted levers P, U respectively, adapted for operation by a trip-bar on a passing engine or car, substantially as herein set forth. 2nd. In a railroad signalling apparatus, the combination of a revoluble signal B, rods H, I connected thereto at diagonally opposite corners, rollers F, G journalled on an adjacent support, and having arms *f*, *g* connected to the rods H, I respectively, a drum J journalled near the signal ropes or chains K, L, connecting the drum with the rollers F, G respectively, rollers N, S, journalled at the side of the track, and provided with levers P, U respectively, adapted for operation by a trip-bar on a passing engine or car, and ropes or chains M, R, connecting the rollers N, S, with the drum J, substantially as shown and described.

No. 30,183. Dash Board. (*Garde crotte*)

John F. Gross, Canton, Ohio, U.S., 13th November, 1888, 5 years.

Claim.—A dash-board frame A, having elongated perforated portions B, in combination with detachable perforated plate C, substantially as and for the purpose hereinbefore set forth.

No. 30,184. Machine for Attaching Buttons.

(*Machine à assujettir les boutons*)

Ira J. Saunders and Eugene H. Taylor, Lynn, Mass., U. S., 13th November, 1888, 15 years.

Claim.—1st. In a machine for attaching buttons, a straight vertical and vertically movable raceway having a T-shaped cross-section and adapted to receive and guide a column of staple-fasteners and their attached buttons, in combination with a fixed anvil located directly beneath said raceway, a reciprocating driver arranged in close proximity to said raceway, and parallel, or nearly so, therewith, and provided with an anti-friction roll mounted upon a laterally-projecting stud set therein, and a fixed cam constructed and adapted to move the lower end of said driver laterally into and out of said raceway, and means, substantially as described, for moving said raceway vertically, substantially as and for the purposes described. 2nd. The combination in a machine for attaching buttons, of the vertical staple race-way H1, having the slot *o* cut through its back side near its lower end, the vertically-reciprocating driver-stock *c*, provided with the offset *h*, the driver *h1* secured to the front face of said offset portion of the driver-stock, the anti-friction roll *p* carried by said driver stock, the fixed plate I provided with the cam slot *q*, and the fixed anvil *n* located directly beneath said raceway, all constructed, arranged and adapted to operate substantially as and for the purposes described. 3rd. In a button-attaching machine, the combination of a fixed anvil, a straight, vertical staple raceway arranged directly over said anvil, and rigidly attached to a cylinder-supporting disk or rim firmly secured upon a vertically movable spindle, having a bearing in the frame of the machine, a rotatable cylinder mounted upon said disk or rim, and provided upon its exterior with a series of grooves corresponding in shape and size in cross-section to the groove in said raceway, and adapted to be brought successively into position over and in line with said raceway, and means, substantially as described, for moving said raceway disk or rim and cylinder vertically, for the purposes described. 4th. In combination with a fixed anvil, a straight, vertical staple raceway, the groove in which is of the same width throughout its entire length, and movable vertically to and from said anvil, a vertically-reciprocating and laterally moving driver and stock, an intermittently-vibrating elbow lever, constructed and arranged to be moved about its axis in one direction by the descent of said driver and its stock, and in the other direction by a spring, and arranged to be operated, substantially as described, to arrest the descent of a button and its staple at or near the lower end of said raceway, when the raceway is at or near the extreme of its upward movement, and to release said button again when said raceway is in contact with the anvil or the material resting thereon, and in time to be moved by the driver during the last part of its downward movement, substantially as described. 5th. The combination of the fixed anvil *n*, the straight vertical raceway H1, having a groove of uniform width throughout its entire length and movable vertically to and from said anvil, the vertically reciprocating and laterally movable driver and stock *h*, *c*, the elbow-levers *r*, *r2*, *r1*, *r3* and spring *t*, the spring *s* connecting the arms *r* and *r1*, and the pins *s1* and *s2* constructed and arranged to be moved vertically in unison with the driver, and to act upon the arms *r2* and *r3*, substantially as described. 6th. In a machine for attaching buttons, a straight vertical and vertically-movable raceway, having a T-shaped cross-section, and adapted to receive and guide a column of staple-fasteners and their attached buttons, in combination with an anvil located directly beneath said raceway, a vertically reciprocating and laterally movable driver, arranged parallel, or nearly so, to said raceway, a cam for moving said driver laterally, and mechanism, substantially as described, for reciprocating said driver and moving said raceway vertically, as and for the purposes described. 7th. The combination of the straight vertical raceway H, *l*, the disk or rim F, the cylinder B and the spindle E, all mounted and movable vertically together upon the frame A, with the driver and stock *h*, *c*, a cam for moving said driver and stock laterally, the lever C, the treadle-operated rod D and the spring D1, all constructed, arranged and adapted to operate substantially as and for the purposes described. 8th In a button-setting machine, the combination, with the raceway for the buttons and their attached fasteners, of a spring, as *t*, secured to said raceway, and having its free end projecting across the path of the buttons, for the purposes and substantially as shown and described.

No. 30,185. Radiator. (*Serpentin.*)

Royal F. Brown, Chicago, Ill., US., 13th November, 1888; 5 years.

Claim.—1st. In a radiator, a flat-sided chamber B, corresponding in width to that of the radiator, and longitudinally serrated internally and externally on opposite sides, whereby, when two or more chambers are placed together to form the radiator, the adjacent serrations on opposing flat surfaces shall afford vertical passages each of equal diameter throughout, substantially as described. 2nd. In a radiator, a chamber B corresponding in width to that of the radiator, and formed of two cast metal plates *r* and *r1*, correspondingly tapered at the edges toward their lower ends to produce the flat base *o*, each plate being hollowed out on one side, flanged at its edges, longitudinally serrated on both sides, and provided with corresponding recesses *n*, containing perforated shoulders *m*, and the two secured together at the flanges, and perforated shoulders *m*, with the hollow portions facing each other, and the shoulders *m* abutting, substantially as described. 3rd. In a radiator, a chamber B corresponding in width to that of the radiator, and formed of two cast metal plates *r* and *r1*, correspondingly tapered at the edges toward their lower ends to produce the flat base *o*, each plate being hollowed out on one side, flanged at its edges, longitudinally serrated on both sides, provided with corresponding recesses *n*, containing perforated shoulders *m*, and thickened near its lower end, the two plates being secured together at the flanges and perforated shoulders *m*, substantially as described. 4th. In a radiator, the combination of a series of chambers B, each formed of two metal plates *r* and *r1*, correspondingly tapered at the edges toward their lower edges to produce the flat base *o*, each plate being hollowed out on one side, flanged at its edges and longitudinally serrated on both sides, and the two secured together at the flanges with the hollow portions facing each other, couplings *h* and *h1* connecting adjacent chambers to cause them to intercommunicate respectively near their upper and lower ends, an inlet pipe D, an outlet pipe D1, feet F secured laterally to the extreme chambers B and carrying brackets G and rods H supported in the brackets substantially as described.

No. 30,186. Lawn Chair. (*Fauteuil de jardin.*)

Horace W. Messer, Berlin, Ont., 13th November, 1888; 5 years.

Claim.—A lawn chair consisting of side-bars A, cross bars G, jointed side-bars B, feet rest R, cross-bar C, upper cross-bar H, pulleys E, rope and canvas, all arranged and combined substantially as and for the purpose herein set forth.

No. 30,187. Machine for Grinding Rolls.

(*Machine à polir les rouleaux*)

Patrick F. Dooley, Malone, N. Y., U S., 14th November, 1888, 5 years.

Claim.—1st. In machines for grinding rolls, the combination of the vertical standards A adapted to be secured to roll frame, the brackets B vertically movable on said standards, the non revoluble longitudinal bar H connecting the said brackets, the traversing carriage mounted on said bar, and the shaft journalled in said carriage, and having the emery wheel and connections to rotate the same, substantially as described 2nd. The combination, of the vertical standards A, the brackets movable theron, the vertical screws journalled in said standards and engaging said brackets, the non-revoluble bar connecting the brackets, the traversing carriage having the grinding apparatus and mounted on said bar, and the screw I engaging said carriage and adapted to move the same on the bar, substantially as described. 3rd. The combination, of the standards having the vertical slots, the plates P arranged in said slots, the brackets B, the bolts X connecting said brackets to said plates, and having the heads M, the vertical screws L journalled in the standards and engaging the heads M, the non-revoluble bar H connecting the brackets, and the traversing carriage mounted on said bar, and having the grinding apparatus, substantially as described. 4th. The combination, of the standards A, the vertical movable bar H connected thereto, the carriage E mounted on said bar and having the part F, the screw S to move said part at right angles to the bar, the shaft journalled in part F, and having the emery wheel and pulley T, and the screw I journalled in bar H and engaging the carriage to traverse the same on said bar, substantially as described. 5th. The combination of the standards A, the vertical movable brackets B secured thereto, the

stands C swivelled to said brackets, the screw-actuated stands D movable on said stands C, the bar H connecting stands D, and the traversing carriage mounted on said bar and having the grinding apparatus, substantially as described. 6th. The combination, of the vertical standards A, the vertical screws L journalled in said standards, the horizontal shaft V, the mitre gears connecting said shaft to screws L, the brackets B guided on standards A and engaged by screws L, the non-revoluble bar H supported on said brackets, and the traversing carriage on said bar, and having the grinding apparatus, substantially as described.

No. 30,188. Vending Apparatus for Cigars, Cigarettes, and other small Articles. (*Appareil de vente des cigares, cigarettes, et autre menus objets.*)

Charles H. Bingham, Utrecht, Holland, 14th November, 1888; 5 years.

Claim—1st. In an automatic apparatus for vending cigars, cigarettes, tablets of chocolate, and similar articles, the use of a slide *d* having the toothing *d*¹ and held in position by the pawl, or catch, of a two-armed pawl lever p_2, p_3 connected by link *o* to the lever *m* on the longer arm of which is fixed a receptacle, or coin box, such as *n*, so that when a coin is dropped into this receptacle, the arm *m* will be depressed and the pawl or catch p_2 released from gear, with the toothing on slide *d* which can now be caused to operate a roller or drum, such as *c* having the cavity or recess g_2 for receiving the articles to be vended, and deliver the same into a dish or receptacle *i* arranged exteriorly of the casing *a*, substantially as and for the purpose set forth and shown on the drawings. 2nd. In an automatic vending apparatus actuated by the weight of a coin, the use of a slide *d*, with handle d_2 provided with toothing to engage with pawl lever p_2 p_3, and having a recess thereon, such as d_3, for receiving the coin ejected from the receptacle *n* on the depression of lever arm *m*, a block or guide *f* for temporarily retaining a coin in said recess, and a glass plate *e* located in the wall of the casing in front of said recess d_3, substantially as and for the purpose set forth and shown on the drawings. 3rd. In apparatus of the kind described, the construction of the slide *d*, with recess d_3 in such manner that a coin inserted through opening *b*, and ejected by receptacle *n* into recess d_3 will remain visible behind the glass plate *e*, and be retained in this position by block *f*¹ until a second coin is inserted in the machine, and the slide is again operated, substantially as and for the purpose set forth and shown on the drawings. 4th. In an automatic vending apparatus, the bottomless receptacle or coin box *n*, which moves close to, and parallel with a strip of sheet metal, or other material, formed so as to correspond with the curve described by the said coin box until the pivot or stop *s* in the lever *m* comes in contact with a wire arrest *t* fixed to the slide *d* and remains in this position until the said slide *d* is pushed inwards, thus releasing the lever *m* which now sinks low enough to allow the coin to escape into the guide *f*, the metal strip being bent back at *r* for this purpose, substantially as and for the purpose set forth and shown on the drawings. 5th. In an automatic vending appartus, the construction of the doubly forked part *y* arranged on the spindle A and carrying at its upper end the bolt c_1, lever *m* with its pin or stud v_1, and the pawl *r*, the latter being held out of gear with the disc *g* by the pin c_1 until the lever *m* is depressed by the insertion of a coin, so that the pawl *r* comes into gear with the disc *g*, thus connecting the part *y* to the disc *g* and lever *m*, so that when the part *y* is operated by means of the knob or handle *w*, the delivery-arms will deliver the object for sale outside of the apparatus, substantially as and for the purpose set forth and shown on the drawings. 6th In an automatic vending apparatus, the device for releasing the coin from the coin box *n* consisting of the doubly forked part *y*, the doubled arm lever *m* carrying the coin box *n*, and the strip of sheet metal *q* which, when the parts are in normal position, will retain the coin in the coin box, when, however, the part *y* is operated by the knob *w*, the lever *m* will be caused to recede with its coin box *n* from the metallic strip *q*, so that the coin can fall into the guide *f*, substantially as and for the purpose set forth and shown on the drawings. 7th. In an automatic vending apparatus, the arrangement of the pawl p_2, so that the same gears into recesses in the disc *g*, and whereby the pin or stud *s* to the lever arm *m* will, after the insertion of a coin, rest on a wire or other arm *u* until the slide *d* is operated and the shaft A rotated, thus releasing the pin *s* of the lever *m* from the arm *u*, so that the lever can descend below the part *r* of the metallic strip *q* when the coin will fall from the coin box *n* into the the coin guide *f*, substantially as and for the purpose set forth and shown on the drawings. 8th. In an automatic vending apparatus, the delivery device consisting of the slotted rectangular piece C arranged beneath the receptacle B, so that the tips L of the delivery arms mounted on the spindle A will move in the slots C_1, of the piece C come in contact with the lowest flat object in the receptacle B and deliver the same at the delivery opening N, whereby the india-rubber plate E will prevent more than one object leaving the receptacle at a time, substantially as and for the purpose set forth and shown on the drawings. 9th. In an automatic vending apparatus, the device for ejecting the articles for sale consisting of a crossbar G, supported by two one-armed levers F, and carrying two tubes H, in which pistons I and helical springs K are arranged, so as to continuously press the tips L upwards against the lower card, or other object in the box B, while said object is pushed outwards according to the movement communicated to the spindle A, substantially as and for the purpose set forth and shown on the drawings.

No. 30,189. Flower Stand.

(*Jardinière.*)

Herbert L. Starks, Preston, Conn., U. S., 14th November, 1888; 5 years.

Claim.—In a revolving stand for flowers and plants, the combination, with the post A, and socket piece G_1, G_2, of the rotating shelves C, D, and cap E, the diagonal brace *f* supporting the shelf D, and the diagonal rods *h* passing through said braces and connecting said cap and lower shelf C, all as shown and described.

No. 30,190. Wash Basin, Bath Tub and Sink. (*Cuvette à toilette, baignoire et évier.*)

Charles H. Moore, Yonkers, N.Y., U.S., 14th November, 1888; 5 years.

Claim.—1st. The combination, with a bath tub or wash basin, of an overflow pipe formed inside of and secured to or made in one piece with the end of the tub or basin, and having a discharge port in the side of it extending from the bottom of the tub vertically upward, a valve operating against said discharge port, and a stem affixed to the valve and extending up inside of the overflow pipe, and having a handle or pull at the top of it for operating the valve, as and for the purpose set forth. 2nd. In a bath tub, basin or sink, the discharge port of the tub or basin made in the side of the overflow pipe, and opening into the tub at the end, and extending from the bottom of the tub vertically upward, a valve operating against said port to retain water in the tub, a stem affixed to the valve, and a handle affixed to the valve, and a handle affixed to the stem, and provided with a means to keep the valve up from its seat, for the purpose set forth 3rd. The combination, with a bath tub or basin having a lateral discharge port in the end of it, extending from the bottom of the tub or basin vertically upward, and communicating with the overflow pipe, of a valve operating against the discharge port, and having an end projecting out from the back of it operating against the incline 9 secured inside of the overflow pipe, a stem secured to the valve, and a handle secured to the stem, and provided with a means for keeping the valve open, as and for the purpose set forth 4th. The combination, with a bath tub or basin, of an overflow pipe made in one piece with the tub or basin, and having its front wall swollen into the tub or basin, and having a strainer or shield secured on the top of it that can be removed from the mouth or inlet of the overflow pipe from the inside of the tub or basin, as and for the purpose set forth. 5th. In a bath tub, basin, or link, an overflow pipe formed partly within and partly outside of the water area of the basin or line X, and made in one piece with the basin, and having a strainer or shield fitted over it that can be removed from the inside of the basin, as and for the purpose set forth. 6th. The combination with a bath tub or link, of a metal trap brought up into an aperture in the bottom of the tub, and soldered around the edge to the metal lining of the tub, and having an interiorly threaded aperture in the top plate for the purpose of getting access to the interior of the trap to clean it, and a combined plug-socket and trap-screw screwed into the said threaded aperture 7th. The combination, with a bath tub or basin, of an overflow pipe formed inside of the tub, and secured to the end and extending down into an aperture 10 made inside of the tub in the top plate of the trap, and having a removable strainer or shield on the top or inlet, the trap 2 secured to the tub, and a combined plug-socket and trap-screw screwed to an aperture in the top of the trap, as and for the purpose set forth. 8th. The combination, with a bath tub, of a metal trap secured to the tub bottom, and having two openings extending into the tub bottom inside of the tub, a plug-socket 8 secured to one of the openings, and an overflow pipe 12 secured to the opening 10 and extending up inside of the tub, and having a flat back fitted against and secured to the end of the tub, as and for the purpose set forth. 9th. The combination, with a bath tub bottom, of a trap secured thereto, and having a threaded aperture in the top plate, and a combined plug-socket and trap-screw screwed into said aperture, and arranged so that it can be unscrewed from the inside of the tub to give access to the interior of the trap to clean it, and without removing the partition or any part of the trap that presents the inflow of seven years. 10th. In a bath tub or basin, an overflow having a discharge port in the side of it at the lower end, a valve operating against the said discharge port, and a stem and handle for operating the valve, all arranged and operating within the water or line X of the tub, as and for the purpose set forth. 11th. The combination, with a basin, bath tub or link, of a bolt or bushing made separate from, and secured permanently to the body of the basin, etc, and having the end inside of the basin prepared to receive a fitting to secure the strainer or shield in position over the mouth of the overflow, the fitting which holds the strainer being arranged to admit of the said strainer being removed from the mouth of the overflow without removing the bolt or bushing from the body of the basin. 12th. The combination, with an earthenware basin, of an aperture 20 made in the earthenware, a bolt or bushing 21 extending through the aperture 20 and permanently secured in said aperture, of the fitting 22, and a bolt or fitting 19 screwed to the bolt or bushing 21 for the purpose of holding the strainer 18 in position over the mouth of the overflow, and having a head projecting out from the surface of the strainer, and a chain link 23 secured to it 13th. The combination, with an earthenware basin, of an aperture 20 made in the basin independent from the overflow opening, a bolt 19 extending through a hole made in one side of the strainer, and secured in the aperture 20, and having a flanged head pressing against the surface of the strainer 18 to keep it in position over the mouth of the overflow, and a chain or link 23 secured to the head of the bolt, all as and for the purpose set forth. 14th. The combination, with a bath tub, wash basin or link, of a bolt or bushing secured to the basin, etc, one side from the centre of the mouth of the overflow, a strainer 18 secured over the mouth of the overflow by a fitting 19, and the fitting 19 secured to the bolt or bushing, and arranged to admit of the strainer 18 being removed from the mouth of the overflow without removing the bolt or bushing from the basin, 15th. The combination, with an earthenware wash basin having the overflow pipe extend into the basin in one unbroken aperture, of the aperture 20 baked in the earthenware, the bolt or bushing 21 secured permanently in the aperture 20, and having the end inside of the basin prepared to attach the strainer 18 to after the said bolt or bushing 21 is secured in the aperture, and the strainer 18 secured over the mouth of the overflow, and arranged to be removed from and replaced to the bolt or bushing 21 without removing the said bolt or bushing 21 from the aperture 20. 16th The combination, with a basin, bath tub or link, of a strainer having a piece projecting out from it and extending into the overflow pipe, and fitting against the wall of the said overflow pipe, for the purpose of holding the strainer in position, as and for the purpose set forth.

No. 30,191. Elevator. (*Monte-charge.*)

Vital Gélineau, Lowell, Mass., U.S., 14th November, 1888; 5 years.

Claim.—1st. The combination of the car, provided with a platform, the rack standards provided with racks, dogs sliding in said platform and connected in pairs, springs arranged between said pairs of dogs and thrusting the same outward, a lever pivoted on said car and provided with two arms, the free ends of which are respectively above and below the fulcrum of said lever, rods connecting said arms with said pairs of dogs respectively, said lever being provided with a third arm adapted to be connected to the lifting rope of said car to draw and hold said dogs out of engagement with said racks, when said rope is unbroken, and to allow said dogs to engage said racks when said rope is broken, as and for the purpose specified. 2nd. The combination of the car, provided with a platform, the rack-standards provided with vertical grooves, and with racks arranged in the deepest parts of said grooves, dogs sliding in said platform and connected in pairs and normally projecting into said grooves, springs arranged between said pairs of dogs, and thrusting the same outward, a lever pivoted on said car and provided with two arms, the free ends of which are respectively above and below the fulcrum of said lever, rods connecting said arms with said pairs of dogs respectively, said lever being provided with a third arm adapted to be connected to the lifting rope of said car, to guide said car, to draw and hold said dogs out of engagement with said racks, when said lifting rope is unbroken, and to allow said dogs to engage said racks when said rope is broken, as and for the purpose specified. 3rd. The combination of the car, provided with a platform, the rack standards provided with racks, parallel tubes secured in said platform and provided with lateral slots, dogs sliding in said tubes, bars connecting said dogs in pairs through said slots, springs arranged in said tubes, a spring between each dog and a dog of the other pair, and the thrusting said dogs outward, a lever pivoted on said car and provided with two arms, the free ends of which are respectively above and below the fulcrum of said lever, rods connecting said arms with the respective bars which connect said dogs in pairs, said lever being provided with a third arm adapted to be connected to the lifting rope of said car, as and for the purpose specified.

No. 30,192. Apparatus for Automatically Delivering Goods in Exchange for Coin. (*Appareil de livraison des marchandises active par une pièce de monnaie.*)

Edward Powell, Newton, Wales, Eng., 14th November, 1888, 5 years.

Claim.—1st. Apparatus in which such disc or ring is rotated by means of a handle on the outside of the box, to which it is connected only when a coin has been introduced. 2nd. The pivoted lever, which when actuated by the coin withdraws the bolt and leaves the disc or ring free to be turned, substantially as described. 3rd. The combination of the hook upon the handle, and the curved plate by which the coin is supported, substantially as described.

No. 30,193. Hydro-Carbon Burner.

(*Foyer à hydro-carbures.*)

Benjamin Gurney, Detroit, Mich., U. S., 14th November, 1888; 5 years.

Claim.—1st. A hydro-carbon burner, having a retort lying in the path of the flame from the burner, substantially as shown and described. 2nd. In a hydro-carbon burner, a retort projecting into the combustion chamber, and connected with burners near the front of the combustion chamber, substantially as and for the purposes set forth. 3rd. A hdro-carbon burner, consisting of the retort D provided with the supply pipe G extending forward into the combustion chamber B, and provided near the front of the combustion chamber with the burners F, whereby the flame from the burners is passed over the retort, substantially as and for the purposes set forth.

No. 30,194. Cartridge Loading Machine.

(*Machine à charger les cartouches.*)

Gearshom M Peters, Cincinnati, Ohio, U. S., 14th November, 1888, 5 years.

Claim.—1st. In a cartridge-loading machine, the combination, with the actuating mechanism and a central shaft actuated by a cam-wheel, provided with eccentric guide-ways, and with in and-out trends about a quadrant apart, of a roller for operating said central shaft, and a roller for operating a horizontal slide, each engaging such eccentric way, and said slide being connected with and operating a lever I in a reciprocating manner, by means of rollers at the outer end of said slide playing in an ogee slot or slots in said lever, the other end of the lever being connected to mechanism for rotating a shell-supporting table, as and for the purpose set forth. 2nd In a cartridge-loading machine, the combination, with a horizontal slide H, having rollers P connected thereto, of the adjustable lever I having slotted blades engaging the rollers, said slots being ogee in shape, and acting as cams to impart motion to the lever I through the intervention of the rollers and intermediate connections between the lever I and the revolving shell-carrying table, as and for the purpose set forth. 3rd. In a cartridge-loading machine, the combination, with the central shaft and its actuating mechanism, of a hollow shaft and rotating table secured thereto, a lug-plate having lugs corresponding to the shell-cases, said lug-plate being connected with the table by means of a hollow shaft, as and for the purpose set forth. 4th. In a cartridge-loading machine, the combination, with the central and hollow shafts and their actuating mechanism, a rotating shell-supporting table and a lug-plate connected thereto, of a lever pivoted to a hollow shaft, having the extension C_2 for operating the catch A_2, and the spring-catch X for engaging successively the lugs on the lug-plate, and pushing them till caught and held by the catches Z and A_2, as and for the purpose set forth. 5th. The combination, with the rotating shell-carrying table of a cartridge machine, of the lug-plate connected thereto and having lugs U, a lever W pivoted on the shaft of the lug-plate, having an arm C_2 extending therefrom and connected with suitable operating mechanism, and two spring-catches A_2 E carried by the frame of the machine and embracing the lugs in succession, one catch acting horizontally and the other perpendicularly, so as to stop the movement of the lug-plate and prevent its rebound, as and for the purpose set forth. 6th. In a cartridge-loading machine, the combination, with the rotating table and lug plate connected thereto, of an air cushion or chamber provided with a piston engaged and actuated by the lugs successively, whereby the jar of the lug-plate and rotating table is prevented, as set forth. 7th. The combination, with a rotating table, its lug-plate and actuating mechanism, of a catch A_2 provided with a piston moving in and out of the air chamber, the lugs on the lug-plate when the latter is rotated alternately coming into contact with the catch, said cylinder having a slot to accommodate the sliding movement of the piston and hold the catch in position, as and for the purpose set forth. 8th. In a cartridge-loading machine, the combination, with the driving mechanism, of a cam-wheel, having variations from its centre arranged in quarters, and intermediate connection between such cam-wheel and a rotary shell-carrying table, and the reciprocating shaft which supports the loading implements, whereby these parts are alternately operated, as set forth. 9th In a cartridge loading machine, the combination, with the driving mechanism, of a cam wheel engaging rollers actuating a central shaft and horizontal slide, said cam-wheel having a central variation arranged in quarters, the rollers engaging said variations at right angles and alternately, one roller giving the central shaft a vertical movement, the other giving the slide a horizontal movement, and such slide being in operative connection with the rotary shell-carrying table, as and for the purpose set forth. 10th. In a cartridge-loading machine, the combination, with the central shaft, a hollow shaft surrounding the same, and slide H having rollers P connected thereto and engaging a rotary cam on the driving shaft, of the adjustable lever I having slotted blades engaging the rollers, said slots acting as cams to impart motion to the lever I through the intervention of the rollers, and by intermediate connection to a rotary shell-supporting table carried by the hollow shaft, substantially as and for the purpose set forth. 11th. In a cartridge loading machine, a shell-feeder consisting of a hopper gradually diminishing in width and depth from the receiving to the discharge end, a conveying and return belt, a wire cage for conducting the shells to the shell-placer, a hook for arresting said shells entering said cage wrong end foremost, and a tilting bridge for throwing out arrested shells, or excess of shells. 12th In a shell-feeding device, the combination, with a cage leading to the shell-placer, of a tilting pivoted bridge provided with a balance-weight, so adjusted that when more than one shell is on said bridge it will automatically tilt and displace the excess of shells. 13th. In a cartridge-loading machine, a shell-placer, consisting of a piston and shell holding block, said block sliding horizontally in bearings beneath the shell-holder of the rotating table, the upper bearing of the block forming a cut-off to the shell-feeder, when the block is moved beneath the shell-holder, as and for the purpose set forth. 14th. In a shell-placing device, the combination, with the actuating mechanism, of a hollow block to receive the shell from the feeder, a piston for forcing the shell into the case, said block and piston being actuated by slotted double blades D_3 on the lever attachment to the central shaft, the block being connected thereto by a roller moving in the cam-slot, the roller in the upper portion of the slot moving the block forward into position, and in the lower portion of the slot holding the block while the piston passes through it, as and for the purpose set forth. 15th. In a cartridge-loading machine, the combination, with a powder or shot hopper of a feed-wheel operated by a ratchet, said feed-wheel containing four or more openings to the shell, said openings being graduated by slides radiating from the centre of the feed-wheel, and regulated by a cam-slotted wheel conforming to said centre, and having a stem reaching downward through the bottom of the hopper, as and for the purpose set forth. 16th. In a cartridge-loading machine, the combination, with a support for the wad-strip, of a wad-cutter and placer, consisting of a tubular cutter and an interior rammer, the rammer being actuated directly by the arm L_4, extending from the head-block of the central shaft, and the cutter being actuated by the same arm through the intervention of cam-slotted levers M_4, by which said cutter is moved to a certain distance and held in position for the return of the rammer, as and for the purpose set forth 17th. The combination, with the shell-supporting mechanism, of a shell indenting device, consisting of the rammer G_5, with flattened head R_5, the tripod F_5 for carrying the indenters, the bars I_5 for throwing the indenters in and out, the arm K_5, with bearings S_5, the cam-slotted arms M_5, the levers P_5 and the indenting points with the knife-like edges or projections A_5 at the end, as and for the purpose set forth. 18th. In a cartridge-loading machine, the combination, with the support for the wad strip and feed-mechanism therefor, of a wad cutter and placer, consisting of a tubular cutter and an interior rammer, the rammer being actuated directly by the arm L_4 extending from the head block of the central shaft, and the cutter being actuated by the same arm through the intervention of the cam-slotted levers M_4, by which said cutter is moved to a certain distance, and held in position for the return of the rammer, as and for the purpose set forth. 19th. In a cartridge-loading machine, the combination, with the shell-holder and a reciprocating plunger for objecting the loaded shell, said plunger carrying a wad marker at its lower end, of a spring-pressed vibrating lever pivoted to the frame which supports the plunger, and carrying an ink-roller in position to engage and be pressed aside by the plunger-head, as set forth.

No. 30,195. Miner's Rock Drill.

(*Foret de mine.*)

William A Jenkins, Philadelphia, Penn., U.S., 14th November, 1888, 5 years.

Claim.—1st. The combination, with a drill rod, of a cam for operating the same, which cam is provided with a groove or recess extending across its face through and slightly beyond its centre, one side of which groove is curved from the periphery to the centre, and having a gradually decreasing radius toward the centre of the cam, substantially as shown and for the purpose set forth. 2nd. The combination, with a drill-rod having a lifting pin, of a cam for operating

the same, which cam is provided with a groove I1 having a radial side and a curved side, said curved side extending from the periphery toward the centre, said curved side having a gradually decreasing radius, said curvature extending over and past the centre, and ending at the inner end of the radial portion, substantially as and for the purpose described. 3rd. The combination, with a drill-rod having a lifting pin, of a cam for operating the same, which cam is provided with a groove I1 having a radial side arranged at one side of the centre line of said cam, and a curved side beginning with its point at the opposite side of said centre line extending from the periphery toward the centre, said curved side having a gradually decreasing radius, said curvature extending over and past the centre of said cam, and ending at the inner end of the radial portion, substantially as and for the purpose described. 4th. The combination, with a cam provided with a cam groove I1, substantially as shown, one edge of which is formed of a radial straight portion arranged at one side of the centre of the cam, of a spring-actuated drill-rod having a lifting pin formed with an approximately semicircular bearing face for operation in said groove, its opposite face formed straight, and extended beyond the centre of the cam, whereby the pin is instantly released by the cam when the said straight portion of the pin and the radial straight side of the groove are in coincident planes, substantially as and for the purposes set forth. 5th. In a mining drill, the combination of the drill-supporting frame, the column Z for supporting said frame, and a series of adjustable friction disks connecting said frame to the column, said disks consisting of a horizontal disk 20, vertical disks 31 and 38, said disks 31 and 38 arranged at right angle planes to each other, said disks 20, 31 and 38 connected to each other by means of angle plates and having independent adjustments, the disk 20 connected with the main frame, and the disk 31 connected with the column Z, all arranged substantially as and for the purpose described. 6th In a mining drill, the adjusting disks, said disks consisting of a fixed portion provided with V-shaped projections, and a central portion having internal V-shaped grooves engaging said projections and arranged between said fixed portions, and means for adjusting the several parts together, substantially as shown and described. 7th. In a mining drill, the combination, with the main frame, and a disk 16a having V-shaped circular projections formed thereon secured to the lower edge of said main frame, of the disk 20 provided with V-shaped circular grooves meshing with the projections on the disk 16a, said disk being formed on the lower end of an extended arm V of the main frame, the angle plate 23 formed with V-shaped projections engaging grooves in the outer face of the disk 20, and said angle plate connected by means of the disks 31, 38, the plate 33, and the connecting bar 41 with the column Z, substantially as and for the purpose described. 8th. In a mining drill, the combination, with the main frame adjustably connected to a connecting bar 41 mounted upon the column Z, said bar provided with an extended portion 43, of the adjustable brace bar 44 journalled in the portion 43 of the bar 41, and the adjustable brace bar W connected to the front end of the bar F of the main frame, whereby said frame is securely adjusted to the mine walls, substantially as shown and described. 9th. In a mining drill, the combination, with the cam I journalled in the frame A, fixed guides C, C secured in said frame provided with V-shaped grooves, the cross-head D having V-shaped tongues entered in said grooves, and a lifting pin connecting said cross-head and cam, of the U-shaped spring resting against the upper edge of the cross-head, and having its opposite end connected with the frame A, substantially as and for the purpose described. 10th. The combination, with the head, the U-shaped spring M for operating the forward throw of cross-head, one leaf of said spring connected with and adjustably secured to the frame, and the other leaf extending over the cross-head of the central bearing plate, secured in the upper end of the cross-head, and provided with a knife bearing edge adapted to support the leaf m of the spring M, substantially as and for the purpose described. 11th. The combination, with the cross-head D, the drill-rod B secured thereto, the chuck secured to said drill-rod, the cam for operating the drill and cross-head, said cross-head formed with a cam recess in its edges, of the arms K pivoted to the frame, their upper ends engaging the cam recess on the cross-head, and their lower ends engaging radial projections on the chuck L, said arms being adapted to oscillate by the travel of the cross-head, whereby a rotary motion is imparted to the clutch, substantially as and for the purposes shown and described. 12th. In a mining drill, the combination, with the cross head, the frame F secured thereto having lateral arms d_3, d_3 formed thereon, provided with cam-shaped openings J a, ranged in contra-relation to each other, the drill rod B connected to the cross-head, the chuck L connected to the drill-rod, and provided with radial projections, of the swinging arms K centrally pivoted to the frame A, connected at their upper ends with the cam openings J, and their lower ends k arranged to engage the radial projections upon the chuck, and the cam mechanism, substantially as shown and described, for raising the cross-head, whereby said arms will be oscillated and thereby rotate the chuck, substantially as and for the purposes set forth. 13th In a mining drill, the combination, with the cross-head, the frame F secured thereto, having arms d_4, d_4 projecting therefrom, and projecting over the sides of the cross head, said arms being provided with cam-shaped openings arranged in contra-relation to each other, the drill-rod B connected to the cross-head, the chuck L secured to the drill-rod, and provided with radial projections, of the arms K pivoted centrally upon the sides of the frame, and provided at their upper ends with roller bearings engaging the cam openings J, in the arms d_4, their lower ends k being arranged to engage the radial projections of the chuck springs l, l_1 for automatically throwing said arms back to their normal positions, and the cam mechanism, substantially as described, for operating the cross-head, all arranged as and for the purpose described. 14th. The combination, with the cross-head carrying the drill-rod, the chuck attached to the said drill-rod, the cam mechanism I, substantially as shown and described, for producing the upward movement of the cross-head, and the spring for forcing said cross-head down, of centrally pivoted arms arranged to oscillate by contact at their upper ends with cam faces of the cross-head, their lower ends being adapted to engage the chuck, and revolve the same when said arms are oscillated, substantially as shown and described. 15th In a mining drill, the combination, with the drill-rod, and chuck L having radial projections, of the pivotal stop P adapted to engage the radial projections of the chuck, substantially as shown. 16th. In a mining drill, the combination, with the drill-rod, and the chuck secured thereto, provided with radial projections, of the pivotal stop P adapted to engage the said radial projections, and having an extension Q2 provided with a bayonet or other lock joint engaging a stud upon the frame, whereby said stop may be swung out of engagement with said stud, and permit of the rotation of said drill chuck, substantially as and for the purpose specified. 17th In a mining drill, the combination, with the main frame T having a dovetail slide S formed in its length, of the drill frame A provided with a yoke having a dovetail recess embracing said slide S, a screw aperture arranged in said yoke portion parallel to the slide opening, and a feed screw adapted to enter said screw aperture, and held to rotate in the upper arm T3 of the main frame, and provided with a hand wheel, all arranged substantially as and for the purposes described. 18th In a mining drill, the combination, with the main frame T, of the drill frame A hinged to said main frame, whereby the drill and drill mechanism may be swung to one side of the hole being drilled, substantially as and for the purpose described. 19th. In a mining drill, the combination, of the main frame provided with a U shaped arm V, forward extended arms T1 and T2 and a supplemental arm F4, the arms T2 and T3 supporting the drill frame, said arm T3 being pivoted to the outer end of the arm V, and the arm T2 pivoted upon the bolt connecting said arm V with the arm T4, said connections of the arms T1, T2 permitting the swinging of the frame T, and the drill mechanism away from its working position, substantially as shown and described. 20th. In a mining drill, the combination, with the main frame T, said frame consisting of the arms T1, T2, and V shaped arm V and the the supplemental portion F4, said arms having hinged connections at their outer ends to the arm V, and frame T respectively, the forward end of the arm T2 being formed with a reduced portion of dovetail shape in cross section, the arm T4 having an enlarged portion arranged to fit the reduced part of the arm T2, said arm being provided with an elongated slot of the U-shaped spring embracing the arm T2, its forward end being adapted to embrace the ends of the arms F2, T4, and an adjusting bolt passed through the spring arms and the slot, by the adjustment of which the said spring may be slid back and permit the arms T2 and F4 to become disconnected, thereby allowing the frame to be swung upon its pivots, substantially as shown and described. 21st In a mining drill, the combination, with the drill-rod provided with a collar and the frame, of the cushion device arranged between said collar and the frame, said device consisting of an enlarged ring or collar arranged around the drill rod, a circular ring or disk arranged at the outer periphery of said collar, and split rubber rings placed about said rod, and adapted to fit between the said rings, substantially as and for the purpose described.

No. 20,196. Wire Nail Machine.

(*Machine à clou de fil de fer.*)

Eugène Fontaine, Auburndale, Ohio, U.S., 14th November, 1888, 5 years.

Claim.—1st. In a wire nail machine, the combination of the movable shear, and a carrier to receive the blanks, substantially as described. 2nd. In a wire nail machine, the combination, of the movable shear, a carrier to receive the blanks, and grinding mechanism, substantially as described. 3rd. In a wire nail machine, the combination of the movable shear, the finger actuated thereby, and a rotary carrier to receive the blanks, substantially as described 4th. In a wire nail machine, the combination, with the continuous feed, of the sliding plunger or hammer, the clamping dies, the shear, and the finger, the parts being arranged to co-act substantially as described. 5th In a wire nail machine, the combination, with the rotary cutters, of the rotary carriers consisting of the outer disks provided with peripheral pockets and running at equal speed, the central disk of smaller diameter running at higher speed or in the opposite direction, the friction strap over the central disk, and the rotary pointing cutters, substantially as described. 6th. In a wire nail machine, the combination, in a rotary carrier, of the outer disks M, M1, the central rotary disk M11 of lesser diameter, the peripheral pockets r formed in the outer disks, the friction strap N on the central disk, and the tighteners P having the spring tension Q, substantially as described. 7th. In a wire nail machine, the combination, with the rotary carrier, of the power lever C carrying the movable shears, the lever E pivotally secured below said power lever, and carrying the spring finger F, and pin a, and the arm b on the power lever, the parts being constructed to operate, substantially as described. 8th. In a wire nail machine, substantially as described, the combination, with the wire feed tube, of the movable die, the lever operating said die, and the cam K and the flange t on said cam, substantially as described. 9th. In a wire nail machine, the combination, with the rotary carrier, of the rotary cutters R and the guide rails w, substantially as described. 10th. The combination, with the rotary carrier, of the power lever C carrying the shear B, and the arm b, of the lever E carrying the finger F, and of the cam D having the delay face s, substantially as described. 11th. The herein described process of manufacture of wire nails, consisting in delivering the blank after it is cut from the wire, and provided with a head, into pockets formed in a carrier which rotates the nail and carries the exposed end of the shank over grinding rollers to form a sharp conical point, substantially as described.

No. 20,197. Carbureting Gas Lamp.

(*Lampe à gaz carburante*)

Arthur Kitson, Philadelphia, Penn., U.S. 14th November, 1888, 5 years.

Claim—1st. In a carbureting gas-lamp, the combination, with the carbureting-vessel, of a supply pipe having passage-ways in its sides, and a burner-support attached to said pipe, and adapted to open and close said passage-ways. 2nd. In a carbureting gas-lamp, the combination, with a carbureting-vessel, gas-burners, and burner-support, of a valve situated at or near the burner support, and adapted to open and close simultaneously all of the burner passage-ways leading to the carbureting-vessel and to the gas-supply, substantially as de-

scribed. 3rd. In a carbureting gas-lamp, the combination, with a carbureting-vessel, a gas-burner, and a burner-support, of a gas-supply pipe terminating in the neck or mouth of the carbureting-vessel, and a valve placed at the termination of said pipe, adapted to admit and shut off the gas from said pipe, to the gas burners, and carbureting-vessel, substantially as described. 4th In a carbureting gas-lamp, the combination, of a gas-supply pipe, a gas-burner, a burner-support internally grooved and screw-threaded, and an asbestos washer placed at end of said groove, with a carbureting-vessel detachably connected to said burner-support by an elongated screw-threaded neck which engages the similar screw threads in said groove, and arranged to make a gas tight joint with the said washer, and a packed joint or stuffing-box attached to the lower end of burner-support, substantially as and for the purpose herein described. 5th In a carbureting gas-lamp, the combination, with a gas-burner and burner-support, of a carbureting-vessel detachably connected to said burner-support by a neck, said neck forming with its connection to the burner-support, a valve adapted to open and close the passage-ways leading from the carbureting-vessel to the burners, substantially as described. 6th. In a carbureting gas-lamp, the combination, with a gas-supply pipe, and gas-burners, of a carbureting-vessel sectionally constructed in two parts, one having a ring of soft-metal and the other an annular rib fitting thereon to form a joint, and a receptacle for solid hydro-carbon, substantially as described.

No. 30,198. Method of and Apparatus for Crocheting. (*Mode et appareil d'ouvrage au crochet*)

Joseph M Merrow, Merrow, Conn., U. S., 14th November, 1888; 5 years.

Claim.—1st The method of crocheting the edges of fabrics, which consists in carrying a thread through the fabric several times, at substantially one place, near the edge thereof, grasping said thread alternately below and above the fabric, and enchaining loops of said thread at or beyond the edge of said fabric, and repeating such operation at other points suitably distant, thereby producing a series of clusters or scallops. 2nd. The method of crocheting, which consists in carrying a thread through the fabric, near the edge thereof, and interlooping said thread together with a supplemental thread at or beyond the edge of said fabric, substantially as shown and described. 3rd. A reciprocating thread-carrying needle and looper, and means for operating said needle and looper, in combination with fabric-feeding mechanism, containing pattern or timing devices for operation of feeding, substantially as set forth. 4th. The combination of a looping mechanism, substantially as described, with feeding mechanism, and means for actuating the same for feeding the fabric once for several complete operations of the said looping mechanism. 5th. The combination of a looper, and means for reciprocating the same above and below the fabric, with a reciprocating thread carrying needle, and a stationary guide for supplemental thread located in proximity to said needle and in the path of the said looper, whereby the said supplemental thread may be grasped with the main thread by the said looper. 6th. The reciprocating needle, a finger, around which loops may be formed, a looper, and means for reciprocating said looper alternately above and below the said finger, in combination with a stop located above the fabric, said stop engaging and acting to retain the needle thread in position to be grasped by the looper above said fabric, substantially as set forth. 7th. The combination, with the work plate of a reciprocating thread carrying needle, and a finger around which loops may be formed, a looper, and means for reciprocating said looper above and around the edge of and below said finger, and a presser foot open upon its side adjacent to said looper, whereby the thread carried by the looper may be drawn down upon the fabric, substantially as set forth. 8th. The combination of the work plate or bed of a reciprocating needle, a looper, and means for reciprocating said looper alternately above and below the fabric, in combination with a stop to limit the downward movement of said looper, and means for adjusting the upward throw of said looper, substantially as shown and described. 9th The combination, with the frame, of the looper bar and its sleeve guide, the latter pivoted to the frame and provided with the pin or projection o^6, as set forth. 10th. The combination, with the bed, the needle and vibrating looper of pivoted lever Q for vibrating said looper support m^5, upon which said lever is pivoted, said support being adjustable on the machine bed, whereby the looper may be adjusted with respect to the needle, as set forth. 11th. The combination, with the frame and driving shaft of the machine, of the needle lever pivoted to the frame, a rod pivoted by one end to said lever, near the longitudinal centre thereof, an eccentric on the driving shaft, to which the other end of said rod is operatively connected, the looper bar and its sleeve adapted to be raised and lowered in the machine, and mechanism, substantially as described, connecting said needle lever with the looper bar and its sleeve, whereby both are operated vertically, as set forth. 12th. The combination, with the needle lever and means for operating it, of the movable looper bar and its horizontal guide sleeve o^2 and vertical guide sleeve O, the needle lever being loosely connected with the vertical guide sleeve, and a spring surrounding the vertical guide sleeve between the needle lever and horizontal guide sleeve substantially as set forth. 13th. The combination, with the needle lever and means for operating it, of the looper bar and its sleeve, the latter consisting of a vertical and horizontal portion, a collar secured to the upper end of the vertical portion of said sleeve, a spring below said collar, a loose collar interposed between said spring and first-mentioned collar, said needle arm embracing said sleeve between said collars and a stop to limit the downward movement of said sleeve, as set forth. 14th. The combination, with the looper bar and its sleeve, consisting of the vertical and horizontal portions, and means for operating the same vertically, of the driving shaft, a cam grooved cylinder mounted thereon, an elbow lever having one of its arms operatively connected with said cylinder, the end of the other arm of said lever extending through a loop secured to the rear end of the looper bar, and a slotted arm secured to the rear end of the horizontal portion of the sleeve, one end of said loop extending through the slot of said arm, as set forth.

No. 30,199. Switch Signal. (*Signal d'aiguillère.*)

Adélard F. Martel, Montreal, Que., 14th November, 1888; 5 years

Claim.—1st. The detachable block or plate E, provided with the insulated contact arms F, G, and suitable electric conductors, and adapted to be applied to a switch stand, and to have one of its arms connected directly with the shaft thereof. 2nd. In combination with post A and shaft B, a collar D provided with pin D^1, and secured to the shaft, contact arms F, G, mounted upon the post or a plate thereon and included in an electric circuit, a link H, connected at opposite ends with the pin D^1 and arm G, and a bell or signal also located in the circuit. 3rd. In combination with post A, a shaft B provided with a two-part collar D, having a pin D^1, an electrical circuit, contact arms F and G secured to the post and included in the circuit, a link connecting the pin D^1 and the arm G, and a bell or signal included in the circuit. 4th. In combination with a switch stand and its operating shaft, the devices herein described for electrically indicating whether the switch is open or closed, comprising a plate with suitable contact fingers, a collars provided with a pin or stud and secured to the operating shaft, a link connecting the pin or stud with one of the contact arms, wires I and J connected with the contact arms and with the earth, and a battery and an alarm or signal, also included in the circuit formed by the wires and the contact fingers. 5th. In combination with a switch-operating mechanism, or a semaphore, a removable or detachable plate E, provided with a circuit-closer adapted to be operated by the switch-operating mechanism. 6th. In combination, with a rotatable shaft, a fixed arm or point, a movable arm electrically insulated from the fixed arm, a normally open circuit, in which said arms are included, an alarm or signal also included in the circuit, and a link connecting the shaft with the movable arm.

No. 30,200. Cartridge Magazine, (*Magasin à cartouches*)

Abraham Colley, South Richmond, Victoria, 14th November, 1888: 5 years.

Claim—1st. In cartridge magazines for attachment to rifles, the use of a spring cradle, such as shown at B, to discharge cartridges by means of a thumb crank B^2 through a slot in its side, substantially as herein described and explained. 2nd. The dovetailed slot C in the face of the magazine to fit on to a dovetailed bar C^1 on the side of the rifle, and the spring catch C^2 to keep the magazine from slipping when thus attached to the rifle, substantially as herein described and explained.

No. 30,201. Manufacture of Gas from Coal and Apparatus Employed therein. (*Fabrication du gaz de houille et appareil pour cet objet*)

John H. R. Dinsmore, Liverpool, Eng., 14th November, 1888: 5 years.

Claim.—1st. The method herein described, of making illuminating gas from the tar condensed from gas made in gas making apparatus, in which a heated duct is employed for the purposes described, which method consists in conveying the said tar condensed from gas to a chamber, and causing it to gravitate from this chamber on to the hot surface of the said heated duct in the presence of freshly distilled gas, which is being passed through such duct. 2nd. The improvement in the manufacture of illuminating gas from coal, herein described, which consists in distilling gas in closed retorts of ordinary construction, then passing such gas into a heated duct or ducts, and introducing into such duct or ducts tar condensed from the gas made in the retorts and a diluent gas, the said tar being thereby gasified in the presence of freshly-distilled coal gas, and the tar gas so produced diluent, and coal gas being thereby passed together through and subjected to the heat of the said duct or ducts, wherein they become mixed, blended and rendered permanent, substantially as set forth. 3rd. The improvement in the manufacture of illuminating gas from coal herein described, which consists in distilling gas in closed retorts of ordinary construction, then passing such gas into a heated duct or ducts, and introducing into such duct or ducts the tar condensed from the gas made in the retorts and a diluent, the said tar being thereby gasified in the presence of freshly-distilled gas, and the tar gas so produced, diluent, and coal gas being then passed together through and subjected to the heat of the said duct or ducts wherein they become mixed, blended and rendered permanent, and then passing the said gases through an artificially cooled passage or passages, substantially as set forth. 4th. The improvement in the manufacture of illuminating gas from coal, herein described, which consists in distilling gas from closed retorts of ordinary construction, then passing such gas through an artificially cooled passage or passages, whereby some of the tarry or non-fixed vapours are arrested, then passing the gas into a heated duct or ducts, and introducing into such duct or ducts the tar condensed from the gas made in the retorts and a diluent, the said tar being thereby gasified in the presence of freshly-distilled gas, and the tar gas so produced, diluent, and coal gas being then passed together through and subjected to the heat of the said duct or ducts, wherein they become mixed, blended and rendered permanent, and then passing the said gases through an artificially cooled passage or passages, substantially as set forth. 5th. A bench of coal distilling apparatus, comprising a plurality of distillatory retorts A, one or more heated ducts B, and one or more artificially cooled passages, said retorts being arranged closely together and said duct or ducts B being disposed in the bench above the retorts A and connected by pipes a to the retorts, and the said cooling passage or passages being interposed on the heated duct or ducts between the coal distillatory retorts and the gas exit passage substantially as and for the purposes set forth. 6th. In a bench of coal-distilling apparatus, the combination of a plurality of distillatory retorts A, ascension pipes a^1, a chamber C, artificially cooled passage D, a heated duct B and artificially cooled passage E, the said chamber, artificially cooled passages and heated duct being common to the plurality of retorts, substantially as described. 7th. In a bench of retorts in which a heated duct or ducts is or are employed

in conjunction with the coal distillatory retorts, the combination, with the said duct or ducts, of a trough or troughs, into which tar is deposited, and gas from the distillatory retorts introduced, and a cooling passage or passages disposed between the trough or troughs and the said duct or ducts, substantially as described. 8th. In apparatus of the type herein described, the combination of a chamber in which tar is collected, or to which it is conducted with a heated duct, said chamber being in communication with the said duct, and arranged above it, and provided with a passage through which the tar falls directly from the chamber on to a red hot surface of the duct, substantially as and for the purposes set forth. 9th In gas making apparatus, of the type herein described, the combination of a chamber in which tar is collected, or to which it is conducted, a cooled passage and a heated duct through which the gas made in the retorts is passed, said cooled passage being interposed between the chamber and the heated duct, and said chamber being in communication with the said duct and arranged above it, and provided with a passage through which the tar falls directly from the chamber on to the red hot surface of the heated duct. 10th. The combination, with a heated duct of a bench of gas-making apparatus, of a chamber C, having a trapped outlet d_1, by which the tar is conducted to the said hot duct, and ammoniacal liquor excluded, as described, and a cooling passage D, substantially as set forth. 11th. The combination, with a heated duct, of a bench of gas-making apparatus, of a chamber C, dip pipes a^2 for conveying the gas thereto, tar return pipe c^2, ammoniacal liquor outlet pipe c^1 and a trapped passage d_1, through which tar and gas is passed, substantially as set forth. 12th. In a bench of gas making retorts, the combination of a chamber C common to the set of retorts of the bench, and into which the gas from the retorts is passed, as described, a heated duct B and a valve h_1 interposed between the chamber C and the duct, and provided with passages connecting with the said chamber, both ends of said duct and an outlet pipe, whereby the course of the gas from the chamber is either directed through the said heated duct, or directly from the chamber to the said outlet pipe, substantially as and for the purposes set forth. 13th. The combination, with a heated duct of a bench of gas making apparatus, of the chamber C, wherein the gas from the coal distillatory retorts and tar is introduced, a cooling passage D placed at the inlet end of such duct, and a cooling passage placed at the outlet end thereof, said cooling passages being connected with the duct and placed above it, whereby the matters condensed therein fall therefrom directly on to a red hot portion of the duct, substantially as set forth.

No. 30,202. Air Brake. (*Frein atmosphérique*)

Harvey S. Park, Chicago, Ill., U.S., 16th November, 1888; 5 years.

Claim.—1st. The combination of the train pipe A, the car reservoir O, the brake cylinder R, the valve chamber D having ports k, m, n, q, r and t, the chamber S having a port u, the slide valves K, K_1 having passages p, s, and the piston I_1, substantially as described. 2nd. The combination of a train pipe A, a car reservoir O, a brake cylinder R, a valve chamber D, slide valves K, K_1 a piston I_1, a chamber S, a piston U_1, and a valve w, substantially as described. 3rd. The combination, with the valve chamber D provided with ports k, m, n, q, r and t, the slide valves K, K_1 having passages p and s, the piston I_1, the hollow stem I, the valves b and z, the chamber S having a port u, the valve w, the piston U_1, and the pipe V, substantially as described. 4th. The combination of the valve chamber D, the car reservoir O, the connecting pipe N, the slide valve K_1, the port r, the piston I_1, the chamber S, the port u, the piston U_1, and the valves w and x, substantially as described. 5th The combination of the piston I_1, the stem G having a passage a, the stem I having a passage e, the valves b and z, and the cap L, substantially as described. 6th. The combination of the cap L, the passages M, M_1, the valve chamber D having ports k, m, n and q, and the slide valve K having ports o and p, substantially as described. 7th. The combination of the train pipe A, the valve chamber D having ports k, m, n, q, r and t, the piston I_1, the slide valves K, K_1 provided with ports o, p, s, the passages M, M_1, the car reservoir O, connecting pipe N, the chamber P, the pipe Q, the brake cylinder R, the chamber S having a port u, the Piston U_1, and the pipe V, substantially as described.

No. 30,203. Feed Gauge for Platen Printing Machines. (*Justifieur de machine d'imprimerie à platine*)

Frank A. Bagley, Cherokee, Iowa, U.S., 16th November, 1888; 5 years.

Claim.—1st. As an improvement in feed gauges for printing-presses, the adjustable spring-arm having an end designed to strike the edge of the paper to be printed upon, substantially as shown and described. 2nd. The spring-arm adjustably secured at one end to a gripper-arm of a printing-press, and having a flanged end, as shown and described. 3rd. The combination, with a gripper-arm of a printing press, of the spring-arm adjustably secured to said gripper-arm, and having an outwardly-curved and flanged portion, substantially as set forth. 4th The combination, with the gripper arm, having a bend or side projection, of the spring-arm adjustably secured to said gripper-arm between the sides of said bend, substantially as shown and described. 5th. As an improvement in feed gauges for printing-presses, the combination, with the gripper-arm, of the adjustable spring arm having a curved and flanged portion, and the metallic plate secured to the platen sheet, substantially as shown and described. 6th. As an improvement in gripper-arms and feed-gauges for platen presses, the combination, with the gripper-arm, of the spring-actuated arm designed to enter a groove or recess of said gripper-arm, substantially as shown and described. 7th. The combination, with the gripper-arm provided with a groove or recess, of the spring actuated arm, and the curved or bent spring-arm, substantially as shown and described, said arms being designed to enter said groove or recess when compressed, substantially as set forth. 8th. As an improvement in gripper-arms and feed-gauges, the gripper-arm having a groove or recess in its front face, and a short arm or projection, in combination with plate adjustable thereon, and the arm having its spring securing rod attached to the adjustable plate, substantially as shown and described 9th. As an improvement in feed-gauges for platen presses, the spring-actuated arm having an outer flanged end, and the spring-arm secured thereto, substantially as shown and described. 10th As an improvement in feed-gauges, the combination, with the gripping-arm, of the adjustable plate having a circular or rounded portion, the spring-rod passed the re through, and the arm secured to one end of said spring rod, substantially as shown and described. 11th. The combination, with the gripper-arm having the arm or projection, of the adjustable plate secured to said arm or projection, the notted bolt, the spring rod and the rigid arm having a spring-arm secured thereto, substantially as shown and described. 12th. The herein described combined gripper-arm and feed-gauge, comprising the gripper-arm provided with a rubber-facing, the short arm or projection, the adjustable plate, the spring-rod, the arm having an outer flanged end, and the spring arm, in combination with the metallic secured to the platen, substantially as shown and described.

No. 30,204. Gas Burner. (*Bec à gaz.*)

Walter M Jackson, New York, N.Y., U.S., 16th November, 1888; 5 years.

Claim.—1st. In a gas burner, the combination, with an outer cylinder A^2 closed at one end, and provided with gas escape openings c in its side, of an inner cylinder A^1 somewhat shorter than the outer cylinder, and provided with a gas escape opening a of less capacity than the escape openings in the outer cylinder, substantially as set forth. 2nd. In a gas burner, the combination, with a gas pillar or shell A, of an outer cylinder A^2 having holes c in its side wall, and an inner cylinder A^1 perforated in its top surface, this opening being of less capacity than the aggregate side openings in the outer cylinder to produce a gas regulating device in a burner body, substantially as set forth. 3rd. In a gas burner, the combination, with an outer cylinder A^2 closed at its upper end and having side openings c, of an inner cylinder A^1 provided with a closed end, this end being perforated with an opening a of less capacity than the aggregate side openings in the outer cylinder, and stops or projections h located between the top of the inner cylinder and the inner top surface of the outer cylinder to limit the upward movement of the inner cylinder, substantially as set forth. 4th In a gas burner, an outer cylinder A^2 closed at one end and open at the outer, and having an outlet, or outlets c, in its side wall, an inner cylinder A^1 shorter than the outer cylinder closed at one end, and having a hole a of less capacity than the outlet in the outer cylinder, and provided with upward projections h, in combination with a plate or cover I, having an inlet hole e through it, and adapted to be secured gas tight to the open end of the outer cylinder, substantially as set forth. 5th. Two concentric cylinders A^1, A^2, cut, struck, or drawn from sheet metal, provided respectively with gas inlet a and outlet c, one fitting loosely within the outer, the inner cylinder maintained within the outer by a suitable stop h, perforated cap or plug I upon which the inner cylinder rests, substantially as set forth.

No. 30,205. Waggon Lifter. (*Chèvre à voiture*)

George E. Baker, West Wawanosh, Ont., 16th November, 1888; 5 years.

Claim.—1st. A clutch holder c and support A, in combination with a standard S, guides G, G_1, and a vertically adjustable bar B, as and for the purpose set forth 2nd. A sliding clutch C_1, link D and lever L, in combination with a standard S, guides G, G_1, and vertically adjustable bar B, as and for the purpose set forth. 3rd. A sliding clutch C_1, link D, and lever L, in combination with a standard S, guides G, G_1, vertically adjustable bar B, clutch holder C, and arm A, as and for the purpose set forth.

No. 30,206. Die for Holding Triangular Wire. (*Filière pour saisir le fil de fer triangulaire.*)

William Taylor, Alleghany, Penn., U.S., 16th November, 1888; 5 years.

Claim.—1st. For operation in a wire nail machine, a pair of gripping dies, constructed to have and present, by the junction of said dies, an oblong triangular cavity bounded with two equal and parallel triangular ends, and three plain sides which meet in three parallel lines extending from the three angles or corners of one end to the three angles or corners of the other end, substantially as shown for the purposes set forth. 2nd. The combination of a heading punch with gripping dies, which, when closed, present an opening of triangular form, as shown and set forth.

No. 30,207. Bottle. (*Bouteille*)

William J. McKee, Detroit, Mich., U.S., 16th November, 1888; 5 years.

Claim.—A bottle provided with a transverse opening through the neck, with the glass carried out at the ends to constitute an elongated bearing for the cork, substantially as described.

No. 30,208. Pump Sucker. (*Clapet de pompe.*)

Robert Martin and David Martin, Chatham, Ont., 17th November, 1888; 5 years.

Claim.—1st. The valve L^1 having opening o formed therein, in combination with and rigidly held in place between the lower edge of the wedge W, and the flange f^1, of the wedge W_1, and means for holding the wedge together, as set forth. 2nd. The collar L, in combination with and rigidly held in place between the enclined or wedged faces of the wedges W, W_1, and means for holding these wedges together, as set forth 3rd. The combination of the valve L^1, and collar L, in combination with the annular wedges W, W^1 having flanges f, f^1 formed thereon respectively, and means for holding them together, as and for the purpose set forth. 4th. The combination of the valve L^1 having opening o formed therein, and collar L, in combination with the annular wedges W, W^1 having flanges f, f^1 formed

thereon respectively, and perforations P formed therein, rods R formed with shoulders R1, nuts N and bar B, as and for the purpose set forth.

No. 30,209. Slide Hoisting Roller Gate.
(*Barrière en coulisse.*)

George E. Green and Adam Irving, Manitowaning, Ont., 17th November, 1888; 5 years

Claim.—1st The combination of the gate K, and the g te gearings C, substantially as and for the purpose hereinbefore set forth. 2nd. The gate K having the bevelled part of the rear of gate M, substantially as and for the purpose hereinbefore set forth.

No. 30,210. Method of Making the Heads of Wood Screws. (*Mode de fabrication des têtes de vis à bois.*)

The American Screw Company, (assignee of Charles D. Rogers), Providence, R.I., U.S., 17th November, 1888; 15 years.

Claim—1st The combination of the solid die for forging screw heads, with the two punches or hammers to act in succession for upsetting the metal to form the head, the first of which has the face which acts on the metal, the counterpart, substantially with the exception of the slot of the face to be given to the screw head, and the second of which has its face the counterpart in luding the slot of the final form to be given to the face of the head of the screw. 2nd. The method of forming a finished head to a screw by first compressing the metal between a solid die, and a hammer having a working face the counterpart except as to the slot of the end or face to be given to the head of the screw until it fills, the cavity of the die, or of the hammer, or of both, with the exception of a space for the subsequent flow of the metal at the angle between the moulding surface of the hammer, and the moulding surface of the die, and then further compressing the metal to fill such space by a hammer having its working face, the counterpart of the end or face to be finally given to the head of the screw including the slot. 3rd. The finishing hammer, substantially as described, having projecting from its face a tongue with parallel, or nearly parallel, sides, to form slot in the metal within the cavity of a die in which a flat-faced screw head is to be formed.

No. 30,211. Feeding Mechanism for Machines for Making Screw Blanks. (*Mécanisme d'alimentation des machines à faire les ébauches des vis.*)

The American Screw Company (assignee of Charles D. Rogers), Providence, R.I., U.S., 17th November, 1888; 15 years.

Claim.—1st. In a machine fo. making screw-blanks, the combination, with a solid die in which the head of the blank is formed, and an intermittingly-actuated gripping clamp, of a short stroke feed-box, provided with a jointed clamp arranged and connected so as to slowly start the headed wire from the die, and a second or supplemental feed-box, having a similar clamp actuated by mechanism arranged to continue and complete the feeding of the wire ahead to form the blank, substantially as hereinbefore described 2nd. In a machine of the class described, the combination of two wire-feeding devices, each provided with a toggle jointed and adjustably mounted lever connected with the grooved clamp to receive the wire cams for actuating the feeding devices, the same being so constructed and timed that the first cam to act will force the headed wire from the die immediately followed by the second cam which completes the feeding of the wire to produce the blank. 3rd. The combination of a heading die, a clamping device, a guide, as *g*, for the wire, a short stroke feed box provided with means for intermittingly gripping and releasing the wire, arranged to travel in close proximity to the mouth of said guide, and an auxiliary feed-box having means for intermittingly gripping and releasing the wire, substantially as hereinbefore described. 4th. In a machine for making screw-blanks, the combination of an initial or short stroke feed-box having toggle jointed cam-actuated levers for clamping the wire and feeding it ahead, and a similarly jointed and actuated supplemental feed-box for continuing and completing the feeding of the wire begun by the first-named feeding device, substantially as set forth. 5th. A feed-box of the class described, having a gripping clamp adapted to receive the wire, a toggle-jointed lever mounted therein, connected with the gripping-clamp, and adjusting screws for controlling the movement of said lever, substantially as hereinbefore set forth. 6th. The short stroke feed-box, substantially as hereinbefore described, arranged to first clamp the wire, and having mechanism for forcing the box and wire ahead, combined with a supplemental feed-box, having a guide, as *b*, secured thereto, and having a clamp arranged to grasp the wire, and mechanism for actuating the clamp and carrying the feed-box and wire ahead to complete the feeding of the wire to produce a blank, and mechanism for releasing the clamps and returning the feed-boxes to the normal position. 7th. The combination, with the forward feed-box, constructed, arranged and operating substantially as described, and having a lug, as *e*, of the rear or supplemental feed-box, constructed, arranged and operating substantially as set forth, and a locking lever, as *u*, pivoted to the frame and engaging both feed-boxes, whereby the forward feed-box is held in a stationary position until the wire is firmly clamped therein, followed by the movement of the rear feed-box, which automatically releases the lever from the forward box preparatory to feeding the wire to produce a blank. 8th. The combination, with the two feed-boxes, mounted one in advance of the other, and provided with toggle-jointed levers, arranged to actuate the gripping clamps, of mounted cams connected with the feed-boxes, constructed and arranged so that the forward clamp will grasp the wire and remain stationary until the clamp of the rear feed-box releases its hold upon the wire and returns to its normal position and again commences to advance, the forward clamp is then carried ahead to its limit, thereby forcing the headed blank from the die, instantly followed by releasing the wire, the rear clamp meanwhile engages the wire and completes the feeding of th wire to produce a blank.

No. 30,212. Hammer for Forming the Heads of Screws. (*Etampe pour façonner les têtes des vis.*)

The American Screw Company (assignee of Charles D. Rogers), Providence, R.I., U.S., 17th November, 1888; 15 years.

Claim—1st. The heading hammer for repairing the head of a blank for the action of finishing and slotting hammer, the acting part of the face of which is slightly curved or cylindrical, substantially as herein described. 2nd. The combination, in a machine for forming finished heads of flat headed screws, including the slot of two heading hammers, the first to act of which has a curved or cylindrical surface across its face, as herein described, and the second of which is provided with a tongue extending from its face, the counterpart of the slot to be produced.

No. 30,213. Screw-Threading Machine.
(*Machine à fileter les vis.*)

The American Screw Company (assignee of Charles D. Rogers), Providence, R.I., U.S., 17th November, 1888, 15 years.

Claim—1st. In a machine for forming screw-threads upon metal blanks, the combination of two mounted threading dies arranged to reciprocate past each other, and mechanism for effecting such movement, consisting of a toothed rod secured to each die or cross-head, a loosely-mounted gear-wheel meshing into both toothed rods, and a connecting-rod jointed to one of the cross-heads and to a suitably mounted crank-pin, whereby the crank, in revolving, imparts a reciprocating motion to the dies in opposite directions, substantially as described. 2nd. In a machine of the class described, and in combination, a cross-head having a threading-die mounted thereon, a rack, as *c2* secured thereto, a link jointed to the cross-head and connected with a suitably-actuated crank, a cross-head carrying a fellow threading die, having a reversely arranged rack, as *d2*, connected therewith, and a loosely mounted gear wheel, as *d1*, meshing into both racks, constructed and arranged substantially as described and for the purpose specified. 3rd. The combination of two oppositely mounted and reversely arranged cross-heads, each having a toothed rod or rack secured thereto, an idler gear-wheel intergearing with both tacks, and a crank-driven rod jointed to one of the cross-heads, whereby a continuous rotary motion is converted into a reciprocating movement to one cross-head, which latter imparts a like movement to the other cross-head, but in a reverse direction, substantially as set forth. 4th. In a machine for forming screw-threads upon blanks, the combination, with two supporting threading-dies mounted to travel in opposite directions, and a pick-up blade or finger mounted to pick up and guide the blanks to a runway, of a checking device having a pusher, as *p*, for forcing the blanks singly into slightly separated recessed jaws beneath, and having means for closing the jaws prior to the engagement of the threading dies with the blank, although when closed permitting a free axial movement of the blank, and means for separating the jaws in advance of the completion of the screw-thread, so that the threaded blank may readily drop from the dies after they have completed their work. 5th. The combination of two parallel cross-heads, carrying threading dies reversely arranged and connected with each other by racks and a gear-wheel intermeshing therewith and actuated by one of the cross-heads, an intermittingly operated pushing-plate arranged to uncover the lower end of the track to permit a blank to enter the feed-box, and then to force it therefrom, and intermittingly actuated jaws for receiving the blank and releasing it after being acted upon by the dies. 6th. In a machine for screw-threading screw blanks, the combination of oppositely mounted and reversely travelling dies having each a blank supporting strip, as *h1*, at its front end, a stationary feed-box or checking device, as E, communicating with the track leading from the hopper, a pusher-plate *p* mounted to travel in the checking-box, jaws mounted below the checking-box for receiving and releasing the blanks, and a cam-plate, as F, connected so as to reciprocate across the machine and cause the pusher plate and jaws to travel in unison, substantially as shown and described and for the purpose hereinbefore set forth. 7th. In a screw threading machine, the combination, with the screw-threading die, a die holder and a cross-head having said die and holder mounted thereon, of an adjustably mounted backing piece or thrust-block interposed between the holder and cross-head constructed and arranged, whereby a lateral adjustment of the die is effected, substantially as shown and set forth.

No. 30,214. Explosive Compound.
(*Composition explosible.*)

The Flameless Explosive Company, London, Eng. (assignee of Hermann Schoeneweg, Dudweiler, Germany), 17th November, 1888 5 years.

Claim.—1st. The production of an explosive compound, consisting of the mixture of dinitro-benzole or trinitrobenzole or dinitronaphthaline or trinitronaphthaline with ammonium nitrate. 2nd The method of regulating the action of the explosive compound, referred to in the preceding claim, by mixing together two or more of the compounds, consisting of ammonium nitrate, with one or other of the nitroderivations there enumerated. 3rd. The use in combination with the explosive compound, referred to in the preceding claims, of nitrated resin, for the purpose of protecting them against moisture and increasing their durability.

No. 30,215. Explosive Compound and Safety Cartridge for Blasting Purposes
(*Composition explosible et cartouche de sûreté pour tirer les coups de mines.*)

The Flameless Explosive Company, London, Eng. (assignee of Hermann Schoeneweg, Dudweiler, Germany), 17th November, 1888, 5 years.

Claim.—1st. An improved manufacture of explosive compounds, consisting of the combination of oxalic acid or salts thereof, with

blasting gelatine, dynamite or other known explosive, containing nitro-glycerine, nitro-benzole, nitrotoluol, di or tri-nitro naphthaline, substantially as herein described. 2nd. An improved manufacture of explosive compounds, consisting of the combination of oxalic acid or salts thereof, with explosives, containing nitro-glycerine, nitro-cellulose, nitro-benzole, nitro-toluol, or di or tri nitro-naphthaline, and with a large proportion of potassium nitrate, substantially as herein described. 3rd. An improved manufacture of blasting cartridges, consisting of a central charge of an explosive nitro-compound, such as referred to in the preceding claim, surrounded by an outer charge of oxalic acid, or of salts thereof, substantially as herein described.

No. 30,216. Concentric Piston Steam Engine. (*Machine à vapeur à piston concentrique.*)

Abner D. Baker, Francis P. Huyck, Swanton, and Albert E. Roberts, Norwalk, Ohio, U.S., 17th November 1888; 5 years.

Claim.—1st. In an engine, a cylindrical ring valve H, having ports cut through it, and adapted to move by steam pressure endwise on its seat, substantially as set forth 2nd. In an engine, a cylindrical ring valve H, having ports cut through it in line with each other endwise, and adapted to slide upon a seat by pressure of steam on its ends, substantially as set forth. 3rd. In an engine, a cylindrical ring valve H, having a series of oblong ports cut through it in line with its edges and near its centre of length, the valve being adapted to move endwise on its seat by direct steam pressure on each end alternately, substantially as set forth. 4th. In an engine, a cylindrical valve H mounted in the cylinder head and having a series of elongated slots made through it at intervals, the slots being located near the centre of length of the valve to serve as ports, the valve being adapted to reciprocate periodically endwise on its seat by direct steam pressure, substantially as set forth. 5th. In an engine, a valve H having its body of a cylindrical form, ports cut through the body, and cavities made in the body, substantially as set forth. 6th In an engine, the combination, with a main valve H of cylindrical form and a cylinder head E, ports in the valve and ports and steam passages in the head, of exhaust and live steam ports in the head and an auxiliary ring valve M, substantially as set forth 7th. In an engine, an auxiliary ring valve M rotated by the piston hub, and controlling steam which operates a main cylindrical valve to reciprocate it periodically, substantially as set forth. 8th In an engine, the combination, with a cylindrical main valve H, a cylinder head E, live steam and exhaust ports in the face of the head, and elongated ports in the main valve of a shaft A^2, a piston hub B and an auxiliary ring valve M, substantially as set forth. 9th. In an engine, the combination, with a cylindrical main valve H, a cylinder C, pistons C^1, a cylinder head E^1 and another cylinder head E, of a cylindrical ring H, a shaft A^2, a hub B with radial pistons D, and a means of controlling steam to reciprocate the cylindrical ring valve, which regulates the rotary movement of the cylinder and hub pistons, substantially as set forth. 10th. In an engine, the combination, with a hub B and pistons D, of an auxiliary ring valve M seated in the recessed end of the hub, substantially as set forth. 11th. In an engine, an auxiliary valve M, having a live steam port cut through its body endwise, and a channel cut in its face diametrically opposite the live steam ports to join a live steam passage, and an exhaust passage with which the groove is made to register, substantially as set forth. 12th. In an engine, the combination, with a cylinder head H, of an auxiliary valve M, a hub B, pistons D, a cylinder C, pistons C^1 and exhaust passages made endwise through these pistons, substantially as set forth. 13th. In an engine, a cylinder C having pistons or abutments C projecting radially towards its diametrical centre, which pistons are perforated throughout the length of their bodies, substantially as set forth. 14th In an engine, a clutch hub J attached to a projecting sleeve I and its hub, which has radial pistons projecting from its peripheral surface, substantially as set forth. 15th. In an engine, the combination, with a piston hub B, pistons D and an integral sleeve I that extends from one side of the piston hub, of a clutch hub J, having radial arms, and a hard cylindrical rim J^2 secured to or integral with the radial arms, substantially as set forth. 16th. In an engine, the combination, with a piston hub B, pistons D, and a sleeve I projecting from one side of the piston hub, of a clutch hub J provided with a cylindrical rim, a clutch disk, a series of wedge-shaped inclines on the inner surface of this disk, and a series of bracket and spring-actuated rollers that are adapted to lock the clutch hub and clutch disk together, substantially as set forth. 17th. In an engine, the combination, with a clutch hub J, of a stationary disk, and locking devices carried by the clutch disk, of a stationary clutch shell or case A and locking devices secured to the stationary clutch case A, to lock the clutch hub, substantially as set forth. 18th. In an engine, the combination, with a stationary clutch shell or case A, of a clutch hub J, a centre shaft A^2, and two clutch disks G, G^1, substantially as set forth. 19th In an engine, the combination, with a stationary clutch case or shell A, a cylinder C, a clutch hub J, and a series of locking devices secured to the stationary clutch case, to lock it to the clutch hub and cylinder, of a central shaft A^2, two clutch disks G, G^1, and a series of locking devices attached to these clutch disks, that are adapted to lock the clutch hub and cylinder oppositely to the locking devices secured to the stationary case, substantially as set forth. 20th. In an engine, the combination, with a base plate A^1, bracket stands A^3, and boxes to support a shaft, of a shaft A^2, a stationary clutch case A, and two clutch disks G, G^1, secured to the shaft, substantially as set forth. 21st In an engine, the combination, with a stationary clutch case A, of a base plate A^1, two bracket stands A^3 furnished with boxes, and a shaft A^2, of two series of locking rollers a^1, substantially as set forth. 22nd. In an engine, the combination, with a base plate A^1, bracket arms A^3, and a shaft A^2, of a stationary clutch case A, and two sets of self-adjusting locking rollers a^1, and an equal number of wedge-shaped inclines r, substantially as set forth 23rd. In an engine, a stationary clutch case A having live-steam and exhaust passages formed in it near its centre of length and breadth, substantially as set forth 24th In an engine, the combination, with a stationary clutch case A, and live steam and exhaust conduits formed in it near its centre, of two sets of locking rollers a^1, and two sets of inclines r, substantially as set forth. 25th. In an engine, the combination, with a stationary clutch case A, a base plate A^1, a shaft A^2, and clutch disks G, G^1, secured by their hubs to this shaft, of a cylinder C, pistons C^1, a hub B with radial pistons D, the piston, hub, and cylinder being concentric with each other, and the shaft on which they are loosely mounted, a clutch hub J, and locking rollers a, a^1 secured to the inner surfaces of the clutch disks, and stationary clutch case, substantially as set forth. 26th. In an engine, the combination with a stationary clutch case A, a cylinder C, a clutch hub J, and spring-actuated rollers a^1, and inclines r, of two clutch disks G, G^1, a center shaft A^2, and a set of self-adjusting spring-actuated rollers a, and inclines secured to the clutch disks substantially as set forth. 27th. In an engine, a ring-shaped cut-off valve R, adapted to control the flow of steam through the cylinder main valve of a concentric piston engine, substantially as set forth. 28th. In an engine, a ring-shaped cut-off valve R having steam ports cut through it, and adapted to cut off steam from the cylindrical main sliding valve of a concentric piston engine, substantially as set forth. 29th. In an engine, a ring-shaped cut-off valve R having live steam ports cut through it, and adapted to slide on a guide bar so as to throw it into, or out of service, as a cut-off, substantially as set forth 30th. In a steam engine, the combination, with a cylinder head E having steam ports it it, and a main cylindrical slide valve H, of a ring-shaped cut-off valve R, substantially as set forth. 31st. In an engine, the combination, with a cylinder head E having steam ports and passages in it, and an auxiliary valve M that controls the reciprocal movement of the main slide valve H, of a ring-shaped cut-off valve R adapted to cut off steam from the main cylindrical slide valve of a concentric piston engine, substantially as set forth. 32nd. In an engine, the combination, with a cylinder C, a cylinder head E having steam passages and ports formed in it, and an annular channel to receive a cylindrical ring, main slide valve H and an auxiliary annular valve M, of a ring-shaped cut off valve R, substantially as set forth. 33rd. In an engine, the combination, with a cylinder C, of a cylinder head E having an annular live steam passage through it, adapted to mate a similar passage in a hub piston, an annular exhaust channel which communicates with longitudinal exhaust passages in pistons of the cylinder, and two diametrically opposite pistons formed upon, or secured to the inner surface of the cylinder, substantially as set forth. 34th. In an engine, the combination, with a cylinder C, of a cylinder head E, a cylindrical slide valve H, and steam and exhaust passages in the head and valve, and another cylinder head E^1 secured to the opposite end of the cylinder, and provided with live steam and exhaust passages in it, substantially as set forth. 35th. In an engine, the combination, with a stationary clutch case A, of a revolving cylinder C, and integral live steam and exhaust conduits forming in the clutch case to register with an attached head of the cylinder, substantially as set forth. 36th In an engine, the combination, with a stationary clutch case A, a base plate A^1, and a shaft A^2, of integral live steam, and exhaust passages formed in the stationary clutch case, a cylinder C a hub piston B concentrally located in the cylinder, a cylinder head E, a slide valve H, and another cylinder head E^1 furnished with a live steam passage that is made to connect with the integral live steam passage in the stationary clutch case, and an exhaust channel that communicates with the exhaust conduit made in the clutch case, substantially as set forth. 37th. In an engine, a piston hub B having an annular steam passage formed in it from one end to the other, substantially as set forth. 38th. In an engine, a hub piston B having two opposite pistons D, each piston provided with self-adjusting packing strips, the hub also having an annular channel for live steam formed lengthwise of its body from end to end, substantially as set forth. 39th In an engine, the combination, with a stationary clutch case A, of a series of double inclines, so disposed as to lock a series of spring-actuated rollers upon a cylinder and clutch hub from motion either forward or backward, substantially as set forth. 40th In an engine, the combination, with a stationary clutch case A, and clutch disks G, G^1, of a cylinder C, a clutch hub J, and a series of spring-actuated locking rollers, substantially as set forth. 41st. In an engine, the combination, with a stationary clutch case A, two clutch disks G, G^1, and double inclined planes formed on the inner surface of the clutch case and disks, of a cylinder C, a clutch hub J, and a series of spring actuated locking rollers, substantially as set forth. 42nd In an engine, the combination, with a clutch disk G, a stationary clutch shell A, a cylinder C, and a clutch hub J, of a series of locking devices adapted to lock the working part and run the engine shaft in a forward or rearward direction, substantially as set forth. 43rd. In an engine, a series of spring-actuated rollers a, a^1, adapted to lock the stationary clutch shell A, and rotary clutch disks G, G^1, of a concentric piston engine upon the cylinder C, and clutch hub J, substantially as set forth. 44th. In an engine, a cylindrical main ring valve that is moved by steam, and controlled by an auxiliary valve M, substantially as set forth. 45th. In an engine, an auxiliary valve M to control a main cylindrical valve H, said auxiliary valve having one steam passage through it, and an exhaust channel formed on its face, substantially as set forth. 46th The combination, with a cut-off valve R, of a push-rod o^4, two rings d, d^1 connected by parallel rods d^2, and a lever V to slide the cut-off valve, substantially as set forth. 47th. The combination, with a cut-off valve R having a ring-shaped body, and two steam ports cut through it, and a guide rod attached to this valve, said rod engaging a rotary piston hub to transmit rotary motion to the cut-off valve, and allow the cut-off valve to slide longitudinally, of a lever mechanism to move the cut-off valve endwise off its seat and secure it in such a positional will, substantially as set forth. 48th. In an engine, the combination, with a stationary clutch shell or case A, a clutch hub J, a shaft A^2, and a base plate A, of a cylinder C, a clutch piston B, radial pistons C^1 and D, a cylindrical main slide valve H, an auxiliary ring-shaped valve M, and a cut-off valve R, substantially as set forth 49th. The combination, with a cylinder C having inwardly-projecting wings or abutments C^1, and a hub B having outwardly projecting wings or abutments D, of clutch devices for alternately locking the cylinder and hub to a shaft. 50th. The combination, with a hub B and a concentric cylinder C, the hub having outwardly projecting wings or abutments, the outer edges of which rest in close contact with the inner face of the cylinder, and the cylinder C having inwardly projecting wings or abutments resting in close contact with the outer

face of the hub of clutching devices for alternately locking the cylinder and hub to a shaft 51st An engine having piston wings D attached to the hub B and to the cylinder C, which alternately form abutments, and moving pistons, which pistons make a stroke forward, then form abutments, and the former abutments become moving pistons, which make strokes forward successively and changing their position from a fixed point indefinitely

No. 30,217. Art of Preparing Cattle Food.

(Art de préparer la nourriture des bestiaux)

Lee S. Harrison, Peoria, Ill., and Ira S. Millikin, Hamilton, Ohio, U.S., 17th November, 1888; 5 years.

Claim.—That improvement in the art of producing cattle-food from corn, which consists in first steeping the corn in water, having an initial temperature sufficiently high to partially soften the gluten and starch without gelatinizing the starch, and to absorb fungoid matter from the grain, next in withdrawing the water and repeating the steeping in a new water at a similar temperature, next in withdrawing again the steeping water, and finally grinding the product thus produced in the presence of warm water, whereby is produced a maximum quantity of warm food consisting of comminuted softened but ungelatinized gluten and starch free from vegatable acid and fungoid matter.

No. 30,218. Spoon. *(Cuiller.)*

Charles Langguth, Frank A. Luker, Boston, James L. Ripley, Somerville, and James R. Wood, Woburn, Mass., U.S., 17th November, 1888; 5 years.

Claim—1st. A medicine spoon having a longitudinally arranged duct in the handle opening into the bowl thereof, substantially as and for the purpose specified 2nd. A medicine spoon having a duct running longitudinally through its handle and opening into the bowl thereof, said bowl being provided with graduating lines on its inner face, substantially as set forth. 3rd. A medicine spoon provided with a V-shaped well or depression in its bottom, and having a longitudinally arranged duct in its handle opening into said well, substantially as and for the purpose specified. 4th A medicine spoon having its handle extended under the bowl thereof, and a V-shaped depression formed in the base of said handle and opening into said bowl, said handle being provided with a longitudinal duct opening into said depression, whereby the liquids may be withdrawn from the bowl, substantially as set forth. 5th. A medicine spoon comprising the bowl A provided with the graduating lines x, the handle B secured to said bowl, the depression z having the vertical wall f, and the duct m formed longitudinally in said handle, and opening through the wall f into said depression, substantially as and for the purpose specified.

No. 30,219. Plug Box Machine.

(Machine à boite Pallumettes.)

The E. B Eddy Manufacturing Company, (assignee of George H. Millen and Edouard Mousseau), Hull, Que., 17th November, 1888: 10 years.

Claim.—1st. In a plug box machine, the folding sections secured to a shaft so as to rotate with it, and each consisting mainly of a body B^5, swinging block D_3, stamper G_3, and end-folder C^6, in combination with the cam plate A^2 secured to the frame A and provided with the sloping margin g_3, segmental guides t_4, reversing blocks p_2, channel k^6, raised course f^6, receding slope k_6, sloping finger m^6, gap N^6, segmental ling O^6, cam T^6, intarning guide e^6, and slope i^6, substantially as and for the purpose set forth. 2nd. In a plug-box machine, the folding sections secured to the shaft E so as to rotate with it, each of which consists mainly of the body B^5, swinging block D_3, stock c_3, side-folders g_4, stamper G_3, and end-folder C^6, all operated by being moved over the several faces of the cam-plate, as above described. 3rd. In a plug-box machine, a glue-roll provided with movable radial stamps, constructed to remain substantially flush with the surface of the roll for a portion of its revolution, and then be projected, a cam in the roll for effecting said movements of the stamps, a glue-vat into which the roll projects, and a scraper for removing superfluous glue, substantially as described. 4th. In a plug-box machine, a roll T provided with radially arranged spurs t_5 said spurs constructed to be fixed at various distances radially from the axis of the roll. 5th In a plug box machine, the folding mechanism consisting of a stock c_3, a movable jaw f_4, and side-folders g_2 movable with the jaw f_4, and pivoted to fold against the sides of the stock c_3 when the jaw f_4 is moved against the same. 6th. In a plug-box machine, the combination of the fixed stock c_3, the movable jaw f_4, side folders g_2 movable with the jaw, and the stamper G_3, substantially as described. 7th. In a plug box machine, the combination of the fixed stock c_3, the movable jaw f_4, the folder C_6 pivoted to said movable jaw, the side folders g_4, and the stamper G_3, substantially as described. 8th. In a plug box machine, a folding mechanism consisting of a stock c_3, movable jaw f_4 and side-folders g_2 movable with and journalled adjacent to opposite corners of the jaw, for the purpose specified. 9th. In a plug box machine, the combination, with a movable folder, of shears movable with and adjacent thereto, and consisting of a fixed blade, and a movable blade provided with a spring for opening it, and a stationary cam engaging the movable blade to close it against the fixed blade, substantially as described.

No. 30,220. Combination Lock.

(Serrure à combinaison.)

Eugene C. Smith and Charles F. Brothingham, New York, N. Y., U. S., 17th November, 1888. 5 years.

Claim—1st. The combination of a slide, hasp, or bolt, a series of recesses and centrally pivoted primary cams, a recessed auxiliary cam on the same spindle, a tumbler operated by said primary cams, an oscillated and spring-actuating locking bar, operated by the auxiliary cam a longitudinally slotted key cylinder and a key having projecting wards adapted to engage the auxiliary and primary cams, substantially as herein set forth. 2nd. The combination of a series of recessed and centrally pivoted primary cams, a recessed auxiliary cam pivoted to the spindle of the primary cams, a spring actuated tumbler operated by the primary cams, a spring-actuated locking bar applied to the same spindle as the tumbler and operated by the auxiliary cam, a longitudinally recessed, key cylinder, and a key having projecting wards adapted to engage the recesses of the auxiliary and primary cams, substantially as set forth. 3rd. The combination, with a series of recessed and centrally-pivoted primary cams, a centrally-pivoted auxiliary cam having recesses, an oscillating and spring-actuated tumbler, operated by the primary cams, and an oscillating and spring actuated locking bar applied to the spindle of the tumbler, said locking bar being adapted to engage the recesses of all the cams, while the tumbler is adapted to engage only the recesses of the primary cam, substantially as set forth. 4th. The combination of a series of recessed and centrally-pivoted cams, a recessed auxiliary cam on the spindle of the primary cams, a spring-actuated tumbler engaged by the recesses of the primary cams, and a spring-actuated locking bar, engaging the recesses of the primary and auxiliary cams, substantially as set forth. 5th. The combination of a slide-hasp, or bolt, a series of recessed and centrally-pivoted cams, a spring-actuated locking tumbler operated by said cams, a longitudinally recessed key-cylinder, and a key having wards for turning the cams and throwing the tumbler into engagement with the hasp or bolt, substantially as set forth.

No. 30,221. Cigar Bunching Machine.

(Machine à lier les cigares.)

David J. Bochm, New York, N.Y., (co-inventor with Charles F. Reed Greene, Me.,) U.S., 17th November, 1888. 5 years.

Claim.—1st. In a cigar bunching machine, the combination of the table and apron, with an apron winding bunching roller and rotating and reciprocating mechanism, whereby the effective bearing surface of the roller is increased, and the bunch is rolled in a gradually tightening bight, substantially as and for the purposes set forth. 2nd. In a cigar bunching machine, the combination of the table and apron, the table having a pocket at its rear end, with an apron winding bunching roller and rotating and reciprocating mechanism, the rear end of the apron being secured, as shown, on the circumference of the roller, whereby the apron is first unwound and then wound up on the roller, substantially as and for the purposes set forth. 3rd. In a cigar bunching machine, the combination of the table and apron, with an apron winding bunching roller having a removable slotted sleeve at its apron winding part, and rotating and reciprocating mechanism, substantially as and for the purposes set forth. 4th. In a cigar bunching machine, the combination of the table and apron, with an apron winding bunching roller and reciprocating mechanism, the roller having two drums or pulleys, and with two roller rotating straps or bands secured as shown to the upper periphery of the two drums or pulleys, substantially as and for the purposes set forth. 5th. In a cigar bunching machine, the combination of the table and apron, with an apron winding bunching roller and reciprocating mechanism, the roller having two drums or pulleys, and with two roller rotating straps or bands secured at their outer ends to spring devices, and at their inner ends to the inner periphery of two drums or pulleys, substantially as and for the purposes set forth. 6th. In a cigar bunching machine, the combination of the four motion toothed feed-gripper having mechanism to give it the four right lined motions described, with the stationary closed feed-box, having longitudinal slots opposite the teeth of the feed-gripper, whereby the filling is fed bodily forward through the feed-box, longitudinally of the same, without disturbing its distribution, substantially as and for the purposes set forth. 7th. In a cigar bunching machine, the combination of the four motion toothed feed-gripper having mechanism to give it the four right lined motions described, with the stationary closed feed-box, cigar shaped in transverse section, and having slots opposite the teeth of the feed-gripper, whereby the filling is primarily distributed in the feed-box and is fed bodily forward without disturbing that distribution, substantially as and for the purposes set forth. 8th. In a cigar bunching machine, the combination of the four motioned teethed gripper, having mechanism to give it the four right lined motions described, with the stationary closed feed-box, having longitudinal side rails or shaping strips, and having slots opposite the teeth of the feed-gripper, whereby the filling is primarily distributed in the feed-box, and is fed bodily forward without disturbing that distribution, substantially as and for the purposes set forth. 9th. In a cigar bunching machine, the combination of the four motioned toothed feed-gripper, with the stationary closed feed-box increasing in depth towards the delivery end, and having slots opposite the teeth of the feed gripper, whereby the filling is fed bodily forward, and is loosened up without disturbing its distribution, substantially as and for the purposes set forth. 10th. The combination of a detachable feed-box, means for locking the same in position upon the machine frame, a vertically and longitudinally reciprocating feed-gripper operating in said box, a vertically reciprocating cutting knife, a retaining chamber having a hinged bottom gate, or gates, a vertically reciprocating plunger operating in said chamber, and a rolling device for rolling the binder around the filler delivered by the plunger, substantially as set forth. 11. The combination of a detachable feed-box, means for locking it in position on the frame of the machine, a vertically and longitudinally reciprocating feed-gripper operating in said box, a vertically reciprocating cutting knife, a retaining chamber having a hinged bottom gate or gates, a vertically reciprocating plunger operating in said chamber, a rolling table having a pocket vertically below the plunger, a rolling apron attached at one end to a stationary point of support and at the other end to the roller, and a horizontally reciprocating roller that is adapted to turn on its axis in a direction opposite to its reciprocating motion, substantially as set forth. 12th. The combination of a detachable feed-box having a longitudinally slotted top plate or cover, a vertically and longitudinally reciprocating feed-gripper operating in said box, and having teeth passing through said slotted top plate, a vertically reciprocating cutting knife at the front end of the feed-box, a retaining chamber having a hinged bottom gate

or gates, a vertically reciprocating plunger operating in said chamber, a rolling table having a pocket vertically below said plunger, a reciprocating roller and a rolling apron attached to the front end to a fixed point of support, and at the rear end to the roller, said roller having an axial motion in a direction opposite to its reciprocating motion, substantially as set forth. 13th. The combination of a detachable feed-box having laterally adjustable side rails and a slotted top-plate, a vertically and longitudinally reciprocating feed-gripper operating in said box, and having central stationary teeth and laterally and vertically adjustable side teeth, a vertically reciprocating cutting knife, a retaining chamber having a hinged bottom gate or gates, a vertically reciprocating plunger operating in said chamber, a rolling table having a pocket vertically below said plunger, a reciprocating and axially-turning roller, and a rolling apron attached at the front end to a stationary point of support and at the rear end to the roller, substantially as set forth. 14th. The combination of a supporting frame having a horizontal and longitudinally grooved bracket, a detachable feed-box, provided with a longitudinal bottom tongue, located in the grooved bracket and fulcrumed locking hook engaging said tongue, a vertically and longitudinally reciprocating feed-gripper operating in said box, a vertically reciprocating cutting knife, a retaining chamber having bottom gate or gates, and a vertically reciprocating plunger operating in said chamber, substantially as set forth. 15th. The combination of a supporting standard having a horizontal, longitudinally grooved bracket, a detachable feed-box located therein and having a longitudinal bottom tongue fitting into the groove of said bracket, a longitudinally slotted top-plate and laterally adjustable side rails, a pivoted and weighted locking hook for engaging the feed-box, and a vertically and longitudinally reciprocating feed-gripper operating in said box, having a central fixed row of teeth and laterally adjustable side rows of teeth, substantially as set forth. 16th. The combination of a detachable feed-box having laterally adjustable side rails, and a longitudinally slotted top-plate and a vertically and longitudinally reciprocating feed-gripper, operating in said box and having a row of fixed centre teeth and rows of adjustable side teeth, a vertically reciprocating cutting knife, a retaining chamber having a hinged bottom gate or gates, and a vertically reciprocating plunger operating in said chamber, the horizontal section of said retaining chamber and plunger corresponding to the vertical cross section of the feed-box formed by the bottom side rails and top-plate of the feed-box, substantially as set forth. 17th. The combination of a detachable feed box having laterally adjustable and tapering side rails, a vertically and longitudinally reciprocating feed gripper operating in said box, a vertically reciprocating cutting knife, a retaining chamber having a removable side wall and a hinged bottom gate or gates, a detachable plunger operating in said chamber, the horizontal cross section of the retaining chamber and plunger corresponding with the vertical transverse section of the feed box, substantially as set forth. 18th. The combination of a detachable feed-box, a vertically and longitudinally reciprocating feed-gripper operating therein, a vertically reciprocating cutting knife, a retaining chamber having a hinged bottom gate or gates, a vertically reciprocating plunger operating in said chamber, a rolling table having a pocket vertically below the plunger, a horizontally reciprocating roller, a rolling apron attached at the front end to a stationary point below the table and at its rear end to the roller, and tension belts applied in opposite directions to the axle of the roller, whereby an auxially rotary motion is imparted to the roller in a direction opposite to the direction of its reciprocating motion, substantially as set forth. 19th. The combination of a detachable feed box, a vertically and longitudinally reciprocating feed gripper operating therein, a vertically reciprocating cutting knife, a retaining chamber having a hinged bottom gate or gates, a vertically reciprocating plunger operating in said chamber, a rolling table having a pocket vertically below said plunger, spring actuated retaining fingers at the front of said rolling table, a horizontally reciprocating roller, a rolling apron attached at its front end to a fixed point of support below the table, and at its inner end to said roller, and spring actuated tension belts applied in opposite direction to the axle of the roller, so as to impart to the same an axially rotary motion in a direction opposite to the direction of its reciprocating motion, substantially as set forth. 20th. The combination of a supporting standard having a horizontal bracket provided with grooved upright arms, a detachable feed box locked to said bracket, longitudinally grooved guide pieces guided vertically in said arm, a reciprocating feed gripper guided by said guide pieces, cams on the driving shaft having cam grooves and intermediate levers connecting the feed grippers and the guide pieces of the same with said cams, so as to impart a vertically and longitudinally reciprocating motion to said feed gripper, substantially as set forth. 21st. The combination of a roller rolling table, a rolling apron, a forked oscillating lever, a rotary driving shaft, a cam having a cam groove engaging the upper end of said lever, and pivoted links connecting the forked lever with fixed points in the supporting standard, said points being respectively above and below the connection of the forked lever with the cam groove, for imparting horizontally reciprocating motion to the said roller over the rolling table, substantially as set forth. 22nd. The combination of a rolling table, a rolling apron, a roller attached to the rear end of said apron, hinged spring fingers at the front end of said table, tension belts applied in opposite direction to the axle of the roller springs arms attached to opposite ends of said belts, a forked oscillating lever applied to the roller, a rotary driving shaft and a cam having a cam groove engaging the upper end of said lever, so as to impart reciprocating motion to the roller simultaneously with an axially rotary motion in a direction opposite to the reciprocating motion, substantially as set forth.

No. 30,222. Knock Down Box or Package, (*Boîte ou paquet brisé.*)

Adelbert L. Ellis, Poncho Springs, Sidney McClanathan, Thomas H. Wygant, jr., Denver and Porter D Learnerd, Fort Collins, Col ,U. S., 17th November, 1888; 5 years.

Claim.—1st. A box in its knockdown condition consisting of the following elements, sideless rectangular top and bottom pieces, each having projections as described upon one of its faces, and a strip for forming the sides and ends, having side wings or extensions creased and adapted to be folded over upon the top and bottom pieces, substantially as set forth. 2nd. The combination, in the knockdown box, of sideless top and bottom pieces having projections upon their exterior faces, and a strip forming the sides and ends having wings or extensions folded over upon and secured to the top and bottom pieces, substantially as set forth. 3rd. The combination in a knockdown box, of sideless top and bottom pieces having projections upon their exterior faces, an interposed cellular structure and a strip forming the sides and ends, having wings or extensions folded over upon and secured to the top and bottom pieces, substantially as set forth.

No. 30,223. Head and Butt Board for Grain Binders (*Planche de tête et d'about pour lieuses à grains.*)

The Massey Manufacturing Company, Toronto, Ont., assignee of James N. Whiteley, Springfield, Ohio, U.S.) 17th November, 1888; 5 years.

Claim.—1st In an automatic grain binder, a grain-guiding board composed of two parts connected with each other by a spring hinge, one of the parts being also hinged or pivoted to the elevating apparatus, or some fixed part thereof. 2nd. In an automatic grain-binder, a butt board composed of two or more boards flexibly connected to each other, and controlled by springs which tend to keep the boards each in line with the other, one of the said boards being hinged or pivoted to the elevating apparatus or some fixed part thereof, the hinge of the said board being so constructed that it may be rendered rigid at any desired point, substantially in the manner and for the purposes shown and described.

No. 30,224. Multiple Cylinder Motor and Speed Governing Device therefor. (*Moteur à plusieurs cylindres et appareil régulateur de sa vitesse.*)

Edward K. Glezen, Providence, R.I., (assignee of Elijah B. Benham, Holyoke, Mass.), U.S., 17th November, 1888; 15 years.

Claim.—1st. The motor head constructed with a series of cylinders radiating from a common centre having a shaft passage therethrough, substantially as described, a series of water-passages therein extending from one side of said head to said cylinders, and the tubular projection *y* surrounding said shaft-passage, combined with the hollow valve 10 through which said shaft passes, having an annular recess in its end to receive said tubular extension, substantially as set forth. 2nd. In combination, the pitmen 30 having t. e arms 28 thereon extending in a line with the crank-pin, and the split-ring 29 surrounding said arms and crank-pin, and adjustable thereon to be enlarged or contracted, substantially as set forth. 3rd. In combination, the motor-head 12, the valve-case 6 secured to said head and having the valve-chamber therein, the valve 10 having the enlargement *e*, the ring-nut 9 surrounding said valve, having a screw-connection with the interior of said chamber, and engaging with said enlargement *e*, whereby said valve is held adjustably against said head, and said chamber is divided into the receiving and exhaust sections *c* and *b* respectively, and inlet and discharge passages in said case communicating with said valve-chamber sections, substantially as set forth. 4th. The valve-case 6 containing the valve-chamber, and having the inlet and discharge passages 7 and 8 respectively, leading to and from opposite ends of said chamber, combined with the ring-nut 9 screwed into said chamber, and dividing it into a receiving and an exhaust section, and the hollow valve 10 extending through said nut, and having openings through its walls communicating with the exhaust section of said valve-chamber, substantially as set forth. 5th. The motor-head 12, the valve-case 6 secured to the rear end of said head, combined with the valve-case extension 20 having the packing-thimble 21 therein, and secured to the valve-case, and the valves 10, substantially as set forth. 6th. The valve-case 6 containing the valve chamber having the opening *o* through its upper side into said chamber, combined with the ring-nut 9 screwed into said chamber, and having a notched border opposite said opening, substantially as set forth. 7th. A driving shaft of a motor, having a crank-disk substantially as described fixed thereon, a crank-pin having a pivotal connection on the face of said crank disk, whereby said pin may assume different positions relative to the axis of said driving shaft, a valve, substantially as described, capable of reciprocating rotary motion on said shaft having a disk 33 fixed on one end thereof, a disk 32 fixed on said shaft opposite the disk 33, combined with two weight-bearing levers pivoted to the face of disk 32, and having a link-connection, substantially as described, with the opposite disk 33, and retracting springs connected to said arms, substantially as set forth. 8th. Means for regulating the speed of motors by varying the stroke of the pistons thereof, consisting of a driving shaft having a disk 32 fixed thereon, and a crank-disk fixed on its end, two weighted levers pivoted near one end thereof on the face of said disk 32, extending tangential to the periphery of said disk, two retracting springs connected to said arms, a valve substantially as described, capable of a reciprocating rotary movement on said shaft, having a disk 33 fixed on one end thereof opposite said disk 32, combined with two links having a pivotal connection with the ends of said levers and with the disk 32, a crank-pin plate having a curved slot therein, and having the crank-pin fixed thereto pivoted to said crank-disk, and a pin fixed in said last-named disk, and entering said slot, substantially as set forth. 9th. The driving shaft 15 having a crank-disk, substantially as described, fixed thereon, a crank-pin having a pivotal connection on the face of said crank disk, whereby said pin is free to assume positions more or less removed from the axis of said shaft, a valve, substantially as described, capable of reciprocating rotary motion on said shaft, having a disk 33 fixed on one end thereof, a disk 32 fixed on said shaft opposite the disk 33, combined with two levers pivoted between said disks to the face of disk 32, and having a link-connection, substantially as described, with disk 33, a weight 38 adjustably attached to each of said levers, and a retracting spring, substantially as described, connected with one

or both of said levers, substantially as set forth. 10th. The combination, with the crank disk 34 having the projecting fixed pin 42, of the crank pin plate 40 having a slot in which said fixed pin engages, and an adjusting screw 44 in its border capable of engaging with said pin, substantially as set forth.

No. 30,225. Apparatus for Evaporating Liquids. (*Appareil évaporatoire des liquides.*)

Thomas Gaunt, Brooklyn, N.Y., U.S., 19th November, 1888; 5 years.

Claim.—1st. An evaporating apparatus including a liquid feeder, and a heated evaporating surface, such as described, the liquid feeder having a delivery or orifice, from which the substance to be evaporated flows by a force due to gravity, the said liquid spreading over and enveloping or covering the said evaporating surface with a liquid sheet, the evaporating surface being of such form as to maintain continuous or unbroken in its passage over it the said liquid sheet, the evaporating surface being acted directly upon by the heating medium, whereby a maximum evaporating effect is produced, substantially as described. 2nd. An evaporating apparatus including a liquid feeder, and a heated evaporating surface such as described, the liquid feeder having a delivery or orifice from which the substance to be evaporated flows by a force due to gravity, the said liquid spreading over and enveloping or covering the said evaporating surface with a liquid sheet, the evaporating surface being of such form as to maintain continuous or unbroken in its passage over it the said liquid sheet, the evaporating surface being acted directly upon by the heating medium, whereby a maximum evaporating effect is produced is and co-operating shelves to maintain the liquid sheet, substantially as described 3rd An apparatus for evaporating liquids and other substances, it including an undulatory evaporating surface, a feed or delivery for the liquid to be treated, and a series of shelves co-operating with the said surface to receive and return the liquid thereto, the said parts co-operating together to maintain a liquid sheet, substantially as described. 4th. An evaporating apparatus including a plurality of independent detachable sections, each consisting of an evaporating surface, a liquid feeder or delivery for each evaporating surface, and a supply pipe connected to and common to all of the said sections, and a cock or valve for each section, whereby a section of the apparatus may be cut off and rendered inoperative, substantially as described.

No. 30,226. Coupling Pin. (*Cheville de limonière*)

William Bruce, (assignee of William M Speer), Wellsville, N.Y., U.S., 19th November, 1888; 5 years.

Claim.—1st. The combination, with a clip provided with apertured ears, of a pin fitting in said apertured ears and provided with a stud, and a spring adapted to have one end secured to the axle, and provided with an aperture in its free end to receive the stud of the pin, substantially as described. 2nd. The combination, with the clip A provided with the apertured ears B, of the pin C having the stud D, the spring E provided with the eye a adapted to receive the stud D, and the the clip G, substantially as described.

No. 30,227. Shoe Lace Clasp. (*Agrafe de soulier*)

Frank A. Morrill and Henry M. Wilson, Somerset, Mass., U.S., 19th November, 1888; 5 years.

Claim.—The herein described lace clasp consisting of the side arms A provided with the extensions C at their outer ends, and the flattened bends at their inner ends, and the curved tongue B bending inward to a plane below the side arms, and then curving gradually outward to the outside of the arms, so that it makes one continuous curve from the flat ends to its point *b1*, and crosses the plane in which the side arms lie, substantially as specified.

No. 30,228. Feed Water Heater and Purifier. (*Réchauffeur et épurateur de l'eau d'alimentation.*)

Warren Webster, Philadelphia, Penn., U.S., 19th November, 1888; 5 years.

Claim—1st. In a feed water heater and purifier, the combination of a tank or receiver, a steam supply pipe leading from the tank or receiver to a pump, an air outlet pipe leading from the tank or receiver to the delivery pipe, whereby the action of the pump draws the water and air from the tank or receiver, and draws steam into the same, substantially in the manner and for the purpose described. 2nd In a feed water heater and purifier, the combination of a purifying and heating chamber, a steam supply pipe, a delivery pipe, a pump communicating with the delivery pipe, and an overflow branch pipe communicating with the delivery pipe, substantially in the manner and for the purpose described. 3rd. In a feed water heater and purifier, the combination, with a tank or receiver having means for supplying water thereto, of the steam supply pipes having valves, a delivery pipe provided with a cock or valve, and a discharge pipe leading from the tank or receiver to the delivery pipe, and provided with a valve, and a pump communicating with the delivery pipe, all arranged and operating substantially as described. 4th. In a feed water heater and purifier, the combination of the tank or receiver, a delivery pipe leading therefrom, and a branch pipe communicating with the delivery pipe, and having a check valve, substantially as described. 5th. In a feed water heater and purifier, the combination of the heating and purifying chamber, a delivery pipe leading therefrom provided with a valve, an air outlet pipe provided with a valve and communicating with the heating and purifying chamber, and the delivery pipe, and a pump communicating with the delivery pipe, all arranged and operating substantially in the manner and for the purpose described. 6th. In a feed water heater and purifier, the overflow pipe provided with a trap for preventing air from returning to the purifier, substantially as described. 7th. In a feed water heater and purifier, a chamber provided with water, and steam supply pipes, and containing perforated trays which are alternately inclined, substantially as described 8th. A feed water heater and purifier having a sediment well or mud chamber provided with plates for preventing agitation of the mud or sediment, substantially as described. 9th. A feed water heater and purifier, having a purifying chamber, water and steam supply pipes, and a chamber for purified water and sediment, and an oil deflector, substantially as described. 10th. A feed water heater and purifier, having a perforated tray therein, and a distributing device between said tray and the water supply pipe, substantially as described. 11th. A feed water heater and purifier having a purifying chamber, water and steam supply pipes, a chamber for purified water and sediment, and a gauge, and supply pipes, substantially as described. 12th. A feed water heater and purifier having a purifying chamber, a water supply pipe, a steam supply pipe with valve, a chamber for purified water and sediment discharge pipes for the purified water and sediment, and a relief valve in said sediment discharge, substantially as described. 13th. A feed water heater and purifier having a purifying chamber, a water supply pipe, a steam supply pipe with a valve, a chamber for purified water and sediment and discharge pipe, substantially as described. 14th. In a feed water heater and purifier, the combination with the purifying chamber of the steam heating coils for supplying steam to said chamber substantially in the manner and for the purpose described.

No. 30,229. Process and Apparatus for Tanning by Aid of Electricity. (*Procédé et appareil de tannage à l'aide de l'électricité.*)

Eugène Worms and Jean Balé, Paris, France, 19th November, 1888 5 years.

Claim.—1st. The herein described process for effecting rapid tanning of hides, by subjecting them to the action of tanning liquor in a rotating drum while an electric current is passed through the contents of the drum. 2nd. For conducting the process above referred to, the construction of the drum, with internal metallic rings connected electrically to external metallic rings, against which bear springs connected by conductors to the terminals of a suitable electric generator, substantially as herein described.

No. 30,230. Track Lifter. (*Cric de voie de fer.*)

Robert Kirkpatrick, De Bec, N.B., 19th November, 1888; 5 years.

Claim.—The combination, with the supporting frame 1 provided with post 2 at the apex, having pawls 3, 4, of the parallel ratchet bars 6, 7, connecting link 9 at top, and lever 10 at bottom, having a dependent bar 11, and provided with a hook or device to engage the rail to be lifted, substantially as set forth.

No. 30,231. Thill Coupling. (*Armon de limonière.*)

Marshall Spink, Hamilton, Ont., 19th November, 1888, 5 years.

Claim.—1st. In a thill coupling, the combination of a thill clip B securely fastened to axle A by means of nuts against plate *m*, and having an extension B1 with chamber B2 provided with a semicircular lip I, and projecting out from the opposite side, a rigid pin E, substantially as and for the purpose specified. 2nd. The thill brace H, the coupling end of which is provided with an extension G, having a semicircular lip J, and socket D, substantially as and for the purpose specified. 3rd. The combination of axle clip having extension formed with a chamber, semicircular lip, and coupling pin, and provided with a spring S, and thill brace H, having extension G formed with a semicircular lip I, and pin E, substantially as and for the purpose specified.

No. 30,232. Medicine for the Treatment of Diseases of the Liver, Loins, Bright's Disease of the Kidneys, Diabetes, Nervous Debility, Rheumatism, Insomnia, Dyspepsia, etc. (*Remède pour le traitement des maladies du foie, des reins, la maladie de Bright, le diabète, la débilité nerveuse, le rhumatisme, l'insomnie, la dyspepsie, etc.*)

Louis G. Bourret, St. François du Lac, Que., 19th November, 1888, 5 years.

Résumé.—Une composition formée de salsepareille du pays, d'agremoine, de nitre, d'huile de gaultheria, d'huile de conelle, de glycerine et d'alcool, dans les proportions et pour les fins décrites.

No. 30,233. Device for Heating Railway Cars by Steam. (*Appareil de chauffage des chars par la vapeur*)

William Martin, Dunkirk, N.Y., U.S., 19th November, 1888, 5 years

Claim.—1st. A system of pipes for heating railway cars, consisting of horizontal pipes within the car, communicating with a main supply pipe located beneath the car, said horizontal pipes communicating at each end with inclined pipes, which slope from the ends to the centre of the car, and communicate with a steam and water receptacle beneath the car, whereby the water of condensation is rapidly carried from the pipes. 2nd. In a system of heating railway cars, the combination, with a car, of a main supply pipe extending from end to end of the car, a horizontal pipe arranged within the car and extending along the side of the same, a pipe directly connecting the main supply pipe with the horizontal pipe only centrally of the car, a pipe connected at both ends with the horizontal pipe and inclining from its points of connection therewith toward the centre of the car, said horizontal and inclined pipe forming a continuous passage in both directions from the point of admission of the

steam to said horizontal pipe to the discharge outlet for the water of condensation, substantially as and for the purpose set forth. 3rd. In a system of heating railway cars, the combination, with a car, of a main supply pipe located beneath the car, a horizontal pipe located within the car and extending from end to end of the same, a pipe for connecting said horizontal pipe directly with the main supply pipe only, a pipe connected at both ends with the horizontal pipe, and inclining from its points of connection with the horisontal pipe, and inclining from its points of connection with the horizontal pipe toward the centre of the car, a valve for regulating the admission of steam from the main supply pipe to the horizontal pipe, and a trap with which the inclined pipe connects at its central or lowest point, substantially as and for the purpose set forth.

No. 30,234. Apparatus for Evaporating Liquids. (*Appareil évaporatoire des liquides.*)

John U. Lloyd, Cincinnati, Ohio, U.S., 19th November, 1888; 5 years.

Claim.—In an apparatus for evaporating liquids or solutions, the combination of the shell A, the worm or helix closed at its bottom and open upon the top, supply pipe C, outlet pipe D with removable cover E, having air entrance F and air outlet G, a steam space *a* being provided beneath said worm or helix, and supplied with suitable inlet and outlet pipes for the entrance and discharge of steam, substantially as and for the purpose specified.

No. 30,235. Mechanical Movement. (*Moteur à bras.*)

Thomas S. Barwis, Arthabaskville, Que., 20th November, 1888, 5 years.

Claim.—1st. An improved driving mechanism, consisting of a crank shaft, a long armed lever having a pivoted connection at one end with the crank of the crank shaft, and a short armed lever pivoted at one end to a support, and at its other end to the long armed lever adjacent to its connection with the crank shaft, the length of that portion of the long-armed lever from its pivotal point with the short armed lever to the axis of the crank-shaft when the long-armed lever and crank are parallel, being such that the lever 6 and the portion of long-armed lever between its pivotal connection with short-armed lever, and the axis of crank shaft from the sides of a square, substantially as described. 2nd. A driving mechanism, consisting of crank shaft 5 mounted in bearings 6 on the under side of platform 1, beneath slot 2 therein, a long-armed lever 3, projecting through the slot 2 and pivotally connected at its lower end to crank 4 of crank shaft 5, and a short armed vibrating lever 6 pivoted at one end to a bracket 7, on platform 1, adjacent to slot 2, and at its other end to lever 3 adjacent to the pivoted end of the latter, substantially as described. 3rd. A driving mechanism consisting of crank shaft 5 mounted in bearings 6 on the under side of platform 1 beneath slot 2 therein, and connected with axle 9 by large gear wheel 11 on shaft 5, gearing with pinion 10 on axle 9, in combination with long-armed lever 3 projecting through slot 2, and pivotally connected at its lower end with the crank 4, of crank shaft 5 and short armed vibrating lever 6, pivoted at one end to a bracket 7, on platform 1 adjacent to slot 2, and at its other end to lever 3, adjacent to the pivoted end of the latter, substantially as described. 4th. A mechanical movement, consisting of a crank shaft mounted on a support, a long-armed operating lever pivoted at one end to the crank of the crank-shaft, and a short-armed lever pivoted at one end to the support, and at its other end to the long-armed lever, substantially as described.

No. 30,236. Brush. (*Brosse.*)

Jerome Rich, Jackson, Mich., U.S., 20th November, 1888; 5 years.

Claim.—1st A a new article of manufacture, a brush, the stock of which is made of soap, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with a brush, of a cake of soap surrounding the roots of the bristles of said brush, substantially as and for the purpose herembefore set forth.

No. 30,237. Automatic and Portable Apparatus for Turning Malt. (*Appareil automatique et portatif pour faire tourner le malt.*)

Jules A Saladin, Nancy, France, 20th November, 1888. 5 years.

Claim.—1st. In automatic and portable apparatus for turning malt, two or more turning screws rotating in opposite directions, in such a manner as to turn the malt without crowding it up to one side of the floor, the driving gear of the said screws being carried by a movable frame, provided or not with means for regulating the tension of the driving cord, and obtaining a "dwell" or momentary stoppage of the turning screws at each end of their stroke, all substantially as herembefore described. 2nd. In an automatic and portable apparatus for turning malt, two or more turning screws rotating in opposite directions, the driving gear of the said screws being carried by a cylindrical frame, provided or not with means for regulating the tension of the driving cord, and obtaining a "dwell" at each end of the stroke, in combination with means for transferring the said turning screws and their driving gear from one case to another, substantially as hereinbefore described. 3rd. In an automatic and portable apparatus for turning malt, in which two or more screws are caused to rotate in opposite directions, the driving gear of the said screws being carried by a portable frame, provided with means for regulating the tension of the driving cords, obtaining a "dwell" at each end of the stroke, and preventing lubricating oil from descending to the malt, substantially as hereinbefore described. 4th. In automatic and portable apparatus for turning malt, the combination of two or more turning screws G8 rotating in opposite directions, cylindrical frame A, tension pulleys I2 and I3, driving pinion E with the rack D provided with a triangular piece D2, substantially as and for the purposes hereinbefore described and illustrated in the accompanying drawings. 5th. In automatic and portable apparatus for turning malt, two or more turning screws rotated in opposite directions by driving gear carried by a movable frame rendered portable by the combination of a travelling carriage or support, with means for transferring the said turning screws from the malt cases to the carriage and *vice versa*, substantially as hereinbefore described. 6th. In automatic and portable apparatus for turning malt, two or more turning screws rotating in opposite directions, in combination with a stationary rack D, travelling track M2, carriage M, N, O, and adjusting screw T, or its mechanical equivalent, substantially as hereinbefore described and illustrated in the accompanying drawings.

No. 30,238. Kitchen Table and Cabinet. (*Table-buffet de cuisine.*)

Susie Brack, El Paso, Texas, U.S., 20th November, 1888, 5 years.

Claim.—A kitchen table, comprising the frame having a water compartment H in its upper part, and having its front a cut away below the compartment, hinged front section D above the upper edge of said compartment, a partition I forming a wash-bassn J adapted to receive the overflow from said compartment and outlet for said basin, and the cover E hinged to the rear edge of the table, substantially as set forth.

No. 30,239. Horse Power. (*Manège à un cheval.*)

Samuel M Armstrong, Tilbury East, Ont., 20th November, 1888; 5 years.

Claim.—1st. The vertical shaft A, suitably journalled and carrying the arms C, in combination with gearing arranged to connect the vertical shaft A with the tumbling shaft M, substantially as and for the purpose specified. 2nd. The vertical shaft A, suitably journalled and having the driver's seat fixed to its upper end, the arms C fixed to the vertical shaft, in combination with gearing arranged to connect the vertical shaft with the tumbling shaft M and the fly-wheels K and N, arranged substantially as and for the purpose specified.

No. 30,240. Printing Machine. (*Machine à imprimer.*)

Joseph C. Fowler and Edward A. Henkle, Washington, D. C., U. S., 20th November, 1888; 5 years.

Claim.—1st. In a printing press, the combination, with the frame having an orbit or race of elongated horizontal diameter and circular ends, of intermeshing gears arranged within said orbit, and a series of press beds travelling therein, having racks upon their lower faces, which mesh with said gears, the latter being concentric with the circular ends of the orbit or race, said press beds being carried around in the race or orbit, with the bottom of said beds at all times adjacent to the propelling gears, substantially as described. 2nd. The combination, with the frame having an orbit, the ends whereof are circular, and the parts between the ends horizontal and parallel, of shafts having their axes in the major axis of the orbit, the outer shafts being concentric with the circular ends of the orbit, gears carried by said shafts and revolving in the same vertical planes, similar gears on the central shaft arranged in different vertical planes intermediates, by which the trains of gears are meshed together, and press beds travelling in said orbit and provided upon their lower faces with two racks, near each end, whereof one is plain or straight and the other concaved throughout its central portion, substantially as described. 3rd The combination, with the press frame, having an elongated orbit with circular ends, of gearing arranged within said orbit and driven from a single shaft, press beds travelling in said orbit, and having racks on their lower faces which mesh with said gears, by which the beds are driven in the orbit, racks upon the upper faces of said beds, and an impression cylinder revolving above the central portion of the orbit, and having annular racks which mesh with the racks on the upper faces of the press beds, substantially as described. 4th. The combination, with the press frame, having an elongated orbit with circular ends, of a central shaft having gears inside of the orbit and near the frame, a shaft near and concentric with each end of the orbit, said shafts having gears rotating in vertical planes inside the gears of the central shaft, intermediates of double width connecting said gears, and driving pinions above and below said intermediates, press-beds, having straight and concaved racks on their lower faces, and provided with trunnions running in the race racks on the upper faces of said beds, an impression cylinder having annular racks engaging therewith, a gear on the shaft of said cylinder, and a gear on the central shaft of the orbit gears meshing therewith, substantially as described. 5th. The combination, with a press frame, having an elongated orbit, of press beds having racks on their upper and lower faces, gearing arranged within the orbit and meshing with the racks on the lower faces of said beds, an impression cylinder having annular racks meshing with the racks on their upper faces, and gearing by which the central power shaft of the orbit gears is positively connected with the shaft of the impression cylinder, substantially as described.

No. 30,241. Printing Machine. (*Machine à imprimer.*)

Joseph C. Fowler and Edward A. Henkle, Washington, D.C U.S., 20th November, 1888; 5 years.

Claim.—1st. The combination, with a rotary printing press, and with a series of separate press beds carrying the forms, of mechanism, substantially as described, for giving a constant feed to the continuous web gripping devices moving upon the press table, a frame in which said devices have support, a driving disk and a pitman having one end connected to the frame and the other end to the disk, and adjustable toward and from the centre thereof, substantially as described. 2nd. The combination, with a rotary printing press, and a series of press beds carrying the forms, of a margin regulator reciprocating upon the press table behind the impression cylinder, said regulator being composed of gripping devices, whereof one is movable toward and from the other to vary the friction or grasp upon the

web, a support for said devices moving upon the press table, a pitman driving said support, whereby a definite retrograde movement is given the web between the successive impressions, and means, substantially as described, for varying the extent of such retrograde movement, substantially as described. 3rd. The combination, with a rotary printing press, and with a series of press beds passing successively under an impression cylinder, of a margin regulator consisting of a vibrating frame, a pair of rolls journalled therein, and means, substantially as described, for varying the bite or grasp of the rolls upon the paper, said margin regulator being arranged between the reel of paper and the printing mechanism, substantiallyas described. 4th. The combination, with a rotary printing press, and with a series of press beds traveling in an orbit beneath an impression cylinder, of a margin regulator composed of a pair of rolls journalled in a frame, and having a variable tension or bite upon the continuous web, a pitman reciprocating said regulator, a revolving disk having a central or diametrical slot, and a plate adjustable in said slot to which the pitman is connected, substantially as described. 5th. The combination, with a rotary press and with a series of press beds traveling in an orbit, of stripper plates lying above the press beds, and laterally adjustable to accommodate forms of varying sizes, substantially as described. 6th. The combination, with a rotary press, and with a series of press beds traveling in an orbit beneath an impression cylinder, of marginal feed bars locked up in the chase outside the ends of the form, and a margin regulator reciprocating upon the press table between the reel and the impression cylinder, substantially as described. 7th. The combination, with a printing press adapted to print upon a continuous web, of shearing devices for separating the impressions, and a continuously rotating gear having an eccentric wrist pin which runs in a semicircular slot in the end of the movable shear blade, substantially as described. 8th. The combination, with a rotary press, and with a series of press beds traveling in an orbit beneath an impression cylinder, of a margin regulator consisting of a reciprocating frame with a pair of rolls of variable tension journalled therein, a guide bar rigid with said frame and parallel with the press table, and means for unreeling the continuous web before it enters the margin regulator, the reciprocating frame of the latter being provided with a feed plate sliding upon the press table for feeding cut cards, substantially as described 9th. The combination, with a printing press, of inking mechanism driven from the power shaft through an intermediate removably journalled on a stud, whereby the inking mechanism may be at once disconnected from the printing mechanism, the shaft of the distributing roll being provided with a squared end to receive a crank, whereby the inking mechanism may be actuated to spread the ink upon the rolls without operating the printing mechanism, substantially as described. 10th. The combination, with a printing press, of inking mechanism, of a fount roller having intermittent rotation, a ductor roll, an evening roll, a distributing roll continually in contact with said evening roll, and form rollers running on the top of the distributing roll, a gear on the shaft of the distributing roll, and an intermediate removably journalled on a stud, and communicating power from the driving shaft to the shaft of the distributing roll, substantiolly as described. 11th. The combination, with a printing press, of an inking mechanism consisting of a distributing, an evening and a fount roll, with a ductor roll vibrating between the two latter, parallel slotted plates in which the journals of the ductor rolls reciprocate, said plates being pivoted at one end and adjustable up and down at the other, and an eccentric having arms connected to the journals of the ductor roll, and pawl carrying pitman which turn the ratchets on the ends of the fount rollers, substantially as described 12th. The combination, with a printing press, having an ink fount and an adjustable clearer mounted thereon, of a fount roller having movement in the fount, a ductor roll vibrating against said fount roller at intervals, and slotted plates supporting and guiding the journals of the ductor roll, said plates being pivoted at one end, and adjustable upward or downward at the other to vary the degree of contact between the said ductor and fount rollers, substantially as described. 13th. In combination with a printing press adapted to print upon a continuous web, a shearing mechanism composed of an outwardly spring pressed stationary blade, a movable blade, a frame on which said blades are mounted, said frame having parallel arms and brackets upon the press frame which receive said arms, and in which they are adjustable, said frame being removable with all parts of the shearing mechanism, substantially as described. 14th. In combination with a printing press, and with a series of press beds traveling in an orbit beneath, an impression cylinder, transverse bars beneath the press table on the sides of the impression cylinder, stripper plates adjustable on said bars, and a plate mounted on one of the latter, and curved over toward the impression cylinder till its edge lies between the stripper plates, substantially as described. 15th. The combination, in a rotary printing press, with the impression cylinder, and with a series of press beds traveling in an orbit beneath the same, and each having at or near each end of the bed a single rack of teeth, whereof the central part is set in, or concaved of gears rotating within said orbit, and meshing with said racks, those gears lying at the curved ends of the orbit being concentric with said ends, substantially as described.

No. 30,242. Web Turning and Reversing Device for Printing Machines.

(Appareil à tourner et renverser la papier continu pour les machines à imprimer.)

Joseph C. Fowler and Edward A. Henkle, Washington, D.C., U.S., 20th November, 1888; 5 years.

Claim.—1st. In a printing press, a web turning and reversing device consisting of a metallic body of substantially conoidal form, flatened upon one side and mounted upon a plate having pivoted adjustment, substantially as described. 2nd. In a printing press, the combination, with the press bed, of a web-turning and reversing device consisting of a hollow stationary body of substantially conoidal form, having one side flattened and provided with a pivotally mounted plate, a set screw adjustably connecting said plate to the press bed, and means, substantially as described, for giving pivotal adjustment to said plate, substantially as described. 3rd. In a printing press, the combination, with the press bed having a longitudinal slot, of a bracket having a set screw moving in said slot, a plate pivotally mounted on said bracket and having a curved slot through which a set screw passes into the bracket, and a web-turning and reversing device mounted on the end of said plate, substantially as described. 4th. The web-turning and reversing device described, consisting of the metallic body I2 of substantially conoidal form, having one side flattened and prolonged in the direction of the base of the device, substantially as described.

No. 30,243. Steam Engine. (*Machine à vapeur.*)

Edward G. Shortt, Carthage, N.Y, U.S., 20th November, 1888, 5 years.

Claim.—1st. In a steam engine, the combination, with a cylinder having a centrally arranged valve-seat provided with two ports in the same transverse line, and a steam-port leading therefrom t oeach end of the cylinder, of a valve having two steam and two exhaust ports alternating one with another, the exhaust ports having communicating with a central opening, and a valve stem passing through said opening and connected to the piston, substantially as described. 2nd. In a steam engine, the combination, with a cylinder having a steam chest, and provided with live-steam and exhaust ports, of a valve seated within said chest, a piston reciprocoting within the cylinder, and a valve stem passing through an opening therein, and in the valve-seat, and having a sliding connection with the piston, substantially as described. 3rd. In a steam engine, the combination, with a cylinder having a central exhaust opening, of a piston moving therein, and having an exhaust passage between its ends, a valve having exhaust ports cut in, but not through, its body and communicating with a central common exhaust opening, and a valve stem connected to said piston, substantially as described. 4th. In a steam engine, the combination, with a cylinder having a central exhaust, and provided with steam ports which enter the cylinder at the ends, of a piston having an exhaust passage through its body, and provided with flanges on its heads, and a valve having steam ports cut through its body, and exhaust ports cut into, but not through, and communicating with, a common exhaust passage cut centrally in the seating face of said valve, substantially as described. 5th. In a steam engine, a valve consisting of a substantially semi-cylindrical body having steam ports cut through on opposite alternate ends, and exhaust ports similarly arranged and cut into, but not through, the body, and communicating with a central exhaust passage formed transversely, and communicating with the inner ends of the alternately arranged exhaust ports, substantially as described. 6th. In a steam engine, a valve consisting of the substantially semi-cylindrical body 7, having live-steam and exhaust ports formed alternately upon opposite sides of a central transverse exhaust opening 9, having communication at its ends with the ends of the exhaust port, and provided with a valve stem 14, substantially as described. 7th. In a pumping engine, the combination, with duplex steam cylinders having a central exhaust opening, and provided with a concaved valve-seat extending centrally in front of each cylinder, of semi-cylindrical valves having two exhaust and two live-steam ports arranged upon opposite alternate portions of the transverse centre of the valve, and a central exhaust opening having communication with both the exhaust ports, substantially as described. 8th. The combination, with the cylinders having a centrally arranged transverse double valve-seat concave in cross-section, and provided with a central line of ports with transverse openings through the seat between each pair of ports of semi cylindrical valves moving independently on the double seat, each valve having exhaust ports arranged alternately upon opposite sides of a central transverse exhaust opening and communicating with the latter, and also having alternating steam ports upon opposite sides of the central exhaust, substantially as described.

No. 30,244. Duplex Pumping Engine.

(Machine d'épuisement duplexe.)

Edward G. Shortt, Carthage, N. Y., U. S., 20th November, 1888, 5 years.

Claim.—1st. In a pumping engine, the combination, with a duplex pumping mechanism, of duplex valve casings having separate inflow and outflow chambers, valve stems arranged vertically and passing through both, a valve rigidly mounted on the lower end of said stem, and opening to permit inflow, and a valve loosely mounted on the upper end of said stem, and opening to permit outflow, substantially as described. 2nd The combination, with duplex valve casings, and with an inflow chamber and outflow chamber separated by a diaphragm 8 and having communication with said valve casings, of the vertical valve stems 12, the valves 16 rigidly mounted on the lower ends of the same, the valve 17 loosely mounted on the upper ends of said valve stems, the springs 20 interposed between said valves 17 and the ends of the valve stems, the cylinders 1, the pistons 2, and actuating mechanism giving alternate action to said pistons, substantially as described. 3rd. The combination, with a valve casing having a diaphragm separating the same into an inflow and outflow chamber, of a central valve stem arranged with said casing, and a valve opening to the suction of the pump cylinder, and closed by the force of the outgoing current on the same stem above the forcing chamber, and closing to the inflow and opening to the outgoing current, both valves being normally closed by a spring acting upon the adjustable valve and on the valve stem, substantially as described.

No. 30,245. Pumping Engine.

(Machine d'épuisement.)

Edward G. Shortt, Carthage, N. Y., U. S., 20th November, 1888, 5 years.

Claim.—1st. In a pumping engine, the combination, with duplex steam-cylinder having their ports crossing each other, of independent valves opening and closing said ports, a valve-seat arranged centrally and transversely in front of the cylinders, and valve stems projecting through openings in the seat, and connected with the pistons,

substantially as described. 2nd. The combination, with duplex steam-cylinders, having the steam ports from the same ends crossing each other between said ends, and the steam-chest of semi cylindrical valves sliding independently upon a transversely arranged seat, having a central line of ports, and valve stems projecting through openings in the valve-seats between the ports, and connected with the pistons, the valves each having a central transverse exhaust opening, and a steam and exhaust port upon each side thereof, alternating with the ports upon the other side, and both exhaust ports having communication with the central exhaust opening, substantially as described. 3rd. The combination, with cylinders having steam ports which are divided or forked at the points where they enter the cylinders, of pistons having flanged heads and provided with interior exhaust passages, and valves and valve-seats having exhaust ports communicating with the interior of said pistons, the cylinders having a central exhaust opening closed by the flanged heads of the pistons just before the entire completion of each stroke, substantially as described. 4th. The combination, with the duplex cylinders having a central exhaust, and steam ports which cross each other between the ends of the cylinders and the steam-chest, of a valve-seat in which the ports are arranged in a central horizontal line, pistons having interior exhaust passages, and valves having stems projecting through the valves-seat, and telescoping within tubes pivotally mounted in the pistons, said valves having the exhaust and live-steam valves on opposite sides and alternating with each other, and being provided with a central opening communicating with both exhaust ports, substantially as described.

No. 30,246. Chicken Brooder. (*Incubateur.*)

John D. Wingert, Fayetteville, Penn., U.S., 22nd November, 1888; 5 years.

Claim.—1st. The heat-distributing apparatus for chicken-brooders, consisting of the sheet-metal plate G having a central opening, and provided on its upper surface with the transverse metal ridges, extending partially across it, and a thick deflecting plate resting on said ridges, and held in place by an upper sheet metal plate secured at its ends to the said ridges, substantially as shown and described. 2nd. The heating apparatus for chicken-brooders, consisting of the top plate F secured to the transverse partition C, and the inner walls of the compartment B, the plate G having a circular central opening and provided with the transverse ridges g, said ridges being hollowed out on their upper edges and having the shoulders g^1, the deflecting plate H bent upward and outward at its ends, and resting on the said shoulders g^1, and the top plate I secured to the ridges g, in combination with the heating lamp, substantially as shown and described. 3rd. A chicken brooder, consisting of a rectangular box, having the transverse partition extending to within a short distance of the top of said box, and forming two lower compartments, the plate F secured to the upper edge of the said partition and to the edges e, forming the heating chamber B, the swinging gang-board E hinged to the upper front edge of the transverse partition, the cord or chain f for raising said gang-board to a horizontal position, and means, substantially as described, for holding the gang-board to its horizontal position, whereby a continuous upper chamber is formed, as specified. 4th. In a chicken-brooder, the combination, with the compartment A having the swinging gang-board E, of the brooding-chamber B1, the brace D provided with the curtain d^1, and the ventilating perforations d and the heating chamber B, substantially as shown and described. 5th. In a chicken-brooder, the combination, with the heating chamber B provided with a heat-distributing apparatus, of the front compartment A provided with the entrances e, e, and having the swinging gang-board E hinged to the partition C, the cord or chain f for raising the gang-board, and the spring-latch K for holding the said gang-board in its raised position, substantially as shown and described.

No. 30,247. Collar Pad. (*Collier de cheval.*)

Rodolph Schwahn, Eau Claire, Wis., U. S., 22nd November, 1888; 5 years.

Claim.—1st. As a new article of manufacture, a cast glass horse collar pad, as set forth. 2nd. As a new article of manufacture, a cast glass horse collar pad made thickest at its middle portion, as set forth.

No 30,248. Attachment to Blacksmith's Anvils. (*Enclume à potence.*)

Humphrey B. Young, Brockville, Ont., 22nd November, 1888; 5 years.

Claim.—1st. An anvil attachment, comprising an arm D, leg F, finger K, wedge H and spring M, in combination with an anvil having a horizontal transverse perforation G through the body, and a hole L in the side, as set forth. 2nd. The combination, with a blacksmith's anvil, having bevelled depressions E, E1 and perforation G, of the arm D having a leg F, provided with a longitudinal slot A, wedge-key H in said slot, and in frictional contact with the side of the anvil, and a spring M, as set forth. 3rd. The saddle N, having a flat surface at top, flush with the face of the anvil, and provided with a slot P and clamping screw A, in combination with an anvil having a break or horn B, provided with a square portion C, as set forth

No. 30,249. Running Gear of Railway Cars. (*Train de char de chemin de fer.*)

James N. Weikly, Jersey, N.J., U.S., 22nd November, 1888; 5 years.

Claim.—1st. The combination, with a railway car axle and wheels, of a metallic safety frame, consisting of arches over the wheels, and an intermediate connecting part over the axle, and constructed with supernumerary bearings, normally embracing the axle, but out of contact with it, and adapted in case of breakage to fall into contact therewith. 2nd. The combination, with a railway truck of a metallic safety frame connected thereto, extending transversely thereof over the axle and wheels, and consisting of arches over the wheels and an intermediate connecting part over the axle, constructed in one piece and formed with supernumerary bearings normally embracing the axle, but out of contact with it, and adapted in case of breakage to fall into contact therewith. 3rd. The combination, with a railway truck, of a safety frame fixed thereto, extending transversely thereof over the axle and wheels, and constructed with supernumerary bearings just outside of the wheels, between them and the axle boxes, normally embracing the axle, but out of contact with it, and adapted in case of breakage, to fall into contact therewith. 4th. The combination, with a railway truck, of a safety frame fixed thereto, extending over the axle and wheels, and constructed with arches over the wheels and an intermediate portion over the axle, and with supernumerary bearings on opposite sides of each of the wheels, said bearings normally embracing the axle, but out of contact with it, and adapted in case of breakage to fall into contact therewith. 5th. A safety frame for railway trucks, consisting of arches to pass over the wheels, an intermediate connecting portion, and braces connecting with the upper parts of said arches to stiffen the frame. 6th. A safety frame for railway trucks, consisting of arches over the wheels, an intermediate connecting portion, and forked supernumerary bearings forming downward, continuations of the arches, and adapted to embrace the wheels while normally out of contact therewith. 7th. The combination, with a railway truck, of a safety frame extending transversely thereof over the wheels and axle, and constructed with a channelled portion or hood extending over and partly enclosing the axle, with a strap connected thereto and passing beneath the axle. 8th. A car axle, constructed with supernumerary journals outside of the wheels, and between them and the usual journals. 9th. A car axle, constructed of increased diameter, where it passes through the wheels, and with this increased diameter extended to each side of the wheels a distance sufficient to constitute supernumerary journals in addition to the usual journals. 10th. The combination, with a railway truck, of a safety frame extending over the axle and wheels, constructed with thrust bearings adapted to limit the lateral movement of the wheels and axle relatively to the truck, thereby relieving the brasses of thrust. 11th. The combination, with a railway truck, of a safety frame extending over the axle, and wheels constructed with thrust bearings, coming closely adjacent to and laterally facing the wheels, and adapted to limit the lateral play of the latter relatively to the truck, thereby relieving the brasses of thrust.

No. 30,250. Registering and Recording Scale. (*Balance à régistre.*)

Edmund G. Fisher, Minneapolis, Minn., U.S., 22nd November, 1888; 5 years.

Claim.—1st. The combination, with a scale beam and a sliding poise, of a registering mechanism upon the sliding poise, connecting means between said registering mechanism and said scale-beam, whereby said registering mechanism is operated automatically as the poise is moved over the beam, and the weight is indicated by the registering mechanism, a ticket, and means for forming on said ticket a record of the weight indicated by the registering mechanism, substantially as described. 2nd. The combination, with a scale-beam of a registering mechanism, a sliding poise, connecting means between said registering mechanism and the scale-beam, whereby said mechanism is operated automatically as the poise is moved over the scale beam, and showing thereon the weight indicated by the position of the poise on the scale beam, a spaced ticket, and means for forming on said ticket a record of the reading of the registering mechanism, substantially as described. 3rd. The combination, with the scale beam and poise, of the dial upon said poise, the ticket having spaces corresponding with the spaces on said beam, and means for puncturing said ticket to record the weight indicated by the position of the poise, substantially as described. 4th. The weight-recording ticket, having a circular scale, with its divisions marked by one series of figures indicating pounds, and a second series of figures indicating bushels, in combination with a scale-beam and a registering mechanism, and means for forming on said ticket an impression showing the weight indicated by said registering mechanism, substantially as described. 5th. The weight-recording ticket, having a circular scale with its divisions marked by one series of figures indicating pounds, and a second series of figures indicating bushels, in combination with the scale dial, having a corresponding series of divisions, a pointer, means for moving said pointer over said dial, and means for forming pictures in said ticket to record the position of said pointer on said dial. 6th. The weight-recording ticket, having a series of concentric scales marked thereon, in combination with a weight-registering mechanism, and means for forming on said ticket a record of the reading of said registering mechanism, substantially as described. 7th. The combination, with a registering mechanism, having an indicating dial, of a spaced recording ticket, and means for forming on said ticket a record of the reading of said dial, substantially as described. 8th. The combination, with a scale-beam and sliding poise, of a registering mechanism upon the sliding poise provided with an indicating dial, connecting means between said registering mechanism and the scale beam, whereby said mechanism is operated automatically as the poise is moved over the scale-beam, whereby the weight is indicated on said dial, a ticket, and means for forming on said ticket a record of the weight indicated by said registering mechanism. 9th. The combination, with a scale and sliding poise, of a registering mechanism upon the sliding poise provided with an indicating dial, connecting means between said registering mechanism and the scale-beam, whereby said mechanism is operated automatically, as the poise is moved over the scale-beam, whereby the weight is indicated on said dial, a spaced circular ticket, and means for formins on said ticket a record of the reading on said dial. 10th. The combination, with a scale-beam, having a sliding poise and a suspended counterpoise, of a registering mechanism connected with said sliding poise, whereby the weight indicated by said poise is also indicated on said registering mechanism, a sliding follower on said counterpoise, and a registering mechanism connected with said follower, whereby the weights on said counterpoise are indicated upon said registering mechanism, substantially as described. 11th. The combination, with a scale-beam, having a sliding poise, and a suspended counterpoise, of a registering mechanism connected with said sliding poise, whereby the weight

is indicated on said registering mechanism, a sliding follower on said counterpoise, a registering mechanism connected with said follower, whereby the weights on said counterpoise are indicated on said registering mechanism a recording ticket and means for forming on said ticket a record of the reading of said registering mechanism, substantially as described. 12th. The combination, with the scale beam and the suspended counterpoise having the removable weights 60, of the follower 72 arranged to rest on the upper weight, and a registering mechanism connected with and operated by the movement of said follower, substantially as described. 13th The combination, with the scale beam and the suspended counterpoise, having the removable weights 60, of the follower resting on the upper of said weights 60, a registering mechanism connected with said follower, a recording ticket and means for forming on said ticket a record of the reading of said registering mechanism, substantially as described. 14th. The combination, with the scale beam of the suspended counterpoise having the removable weights 60, the standard 64, having the rack 70, the follower 72 adapted to rest on said weights, and the registering mechanism carried by said follower and provided with a gear-wheel engaging said rack 70, substantially as described.

No. 30,251. Wheelbarrow. (*Brouette*)

William Sleicher, Jr., Troy, N. Y., U. S., 22nd November, 1888; 5 years.

Claim.—1st. The combination, in a wheelbarrow, of two side stringers, each formed of a single malleable casting, having longitudinal ribs, and flanges with laterally-projecting attaching lugs and lubricant chamber at one end of the stringers, open on one side to the wheel axle, and a handle at the other end, supporting legs bolted upon the stringers and a traction wheel, all combined and organized substantially as and for the purposes set forth. 2nd. The combination, with stringers, having the strut E and flanges *b*, of a truss cable wire or spring D, bent down at D^1 against said strut, resting in a groove formed by said flanges, held by a bolt at its forward end, and bearing with its middle against said strut, as and for the purposes set forth. 3rd. The wheelbarrow axle boxes, combined with flanged stringers B, to form a chamber for lubricants, as shown and described.

No. 30,252. Stove. (*Poêle.*)

John Findlay, Montreal, Que., 22nd November, 1888; 5 years.

Claim.—1st. The combination, in a stove, of the casing *b*, having ash pit and fire-box therein, extended casing *c*, oven plate *d*, having openings b^1 and d^1, oven *e*, outwardly extended up-takes *f* and flue *g*, the whole substantially as described and for the purposes set forth. 2nd. The combination, in a "double box stove," of the oven *e* having fire-box situated below it, with outwardly-extended up-take flues *f*, and with oven-plate *d*, provided with openings d^1 and b^1, the whole substantially as described.

No. 30,253. Harvesting Machine. (*Moissonneuse.*)

James Howard and George Gibbs, Bedford, Eng., 22nd November, 1888; 5 years..

Claim.—1st. In a sheaf-binding harvesting machine, the frame comprising the end portions A, and the cross-portions B, each consisting of a single bar having its ends brought together and welded, butted, or otherwise connected, substantially as set forth. 2nd. In a sheaf binding harvesting machine, the frame-work of the platform comprising the finger-bar C formed of angle iron or steel, and having its inner end turned up and united to one of the cross-portions B, arranged in combination with the brace C^1 and the rear and outer bars D and E, substantially as set forth. 3rd. In a sheaf binding harvesting machine, a frame formed of bars of H section, the cross-portion or web of each of said bars being out of centre, substantially as and for the purpose set forth. 4th. In a sheaf binding harvesting machine, a packer M provided with a plurality of prongs M^1, substantially as described 5th. In a sheaf-binding harvesting machine, the combination, with the bracket P, of the removable or detachable combined cam, bushed bearing, and shield or guard, substantially as and for the purposes set forth. 6th. In a sheaf-binding harvesting machine, in combination, with the knotter mechanism, the combined guard, shield or cover, and lubricator, substantially as and for the purposes set forth. 7th. In a sheaf-binding harvesting machine, the combination, with the axle-bracket, of the drop latch or button, substantially as and for the purpose set forth. 8th. In a sheaf-binding harvesting machine, the combination of the sheaves-carrying table or cradle, the treadle and the locking toggle-joint connecting the said table or cradle with the said treadle, substantially as and for the purposes set forth. 9th. In a sheaf-binding harvesting machine, the combination, with the sheaves-carrying table rod a^7, lever b^7, rod d^7, lever e^7, and treadle e^7 for actuating the same, of arms or prongs *g* for holding the sheaves while the said table or cradle moves from under them, substantially as described.

No. 30,254. Fitting for Use in Hot Water and other Heating Systems. (*Appareil de chauffage à l'eau et autres.*)

David L. Dwinnell, Montreal, Que., 22nd November, 1888, 5 years.

Claim—1st. In hot water and other heating systems, fittings composed of a main portion of pipe for insertion in the mains, and one or more elbows cast in one with such main portion, substantially as and for the purposes set forth. 2nd. The fittings composed of main portion *m*, and elbow or elbows *e*, all cast together as shown and described. 3rd. The fitting composed of main portion *m*, elbows *e*, and intervening metal e^4, cast together as shown and described.

No. 30,255. Brick Kiln. (*Four à briques*)

Lawarance Manning, Nokomis, Ill., U.S., 22nd November, 1888, 5 years.

Claim—1st. In a brick kiln, the combination of an arch or furnace of two sets of draft-pipes or flues, of which one set placed in close proximity to the arch leads from the outside to the centre of the furnace or arch, and the other shorter set leads to the furnace or arch between the outside and the centre, substantially as shown and described. 2nd In a brick kiln, the combination, with the arch or furnace B having an ash-pit opening into trenches E, E^1, of the doors F closing the arch B and ash-pit D, the said doors F being provided with dampers F^1, the draft pipes or flues G situated in close proximity to the arch, conducting air into the said arch or furnace B, the shorter pipes H opening into the said furnace near the doors F, the stoppers or doors I adapted to close or open the said draft pipes or flues G, H, substantially as described. 3rd. In a brick kiln, the combination, with a furnace or arch B, of the doors F closing the ends of the said furnace, the longer draft pipes or flues G leading from the outside to the centre of the said furnace, the shorter draft pipes or flues H leading from the outside to the furnace about one-third the width of the kiln, the said draft pipes or flues being built in close proximity to the said furnace or arch B, and closed by the stopper or door I, substantially as set forth.

No. 30,256. Velocipede. (*Vélocipède*)

Elias Weeks, What Cheer, Iowa, U.S., 22nd November, 1888; 5 years.

Claim.—A velocipede comprising the main frame having the side bars *a*, *a* connected at their rear ends by the transverse bar a^1, the rear axle journalled in the depending ends of the bar a^1, and having the gear-wheel F, and the conveyor wheels B, B thereon, the seat mounted on the bar a^1, the transverse shaft D mounted on the side bars *a*, *a*, and carrying the treadles *d*, *d*, and the gear wheel E, the gear-wheel *e* connecting and meshing with the wheels E and F, the lever mounted on the shaft D, and provided with a pawl engaging a ratchet on the side of the wheel E, the front axle swivelled on the front end of the frame, and having the steering wheels mounted thereon, the standard comprising the vertical rods L, L, and the transverse bar *t* connecting their upper ends, and the steering handle connected to the front axle, and engaging at its rear end in a notch in the bar *l*, substantially as specified.

No. 30,257. Combined Pocket Piece, Match Safe, etc. (*Necessaire de poche, boîte à allumettes, etc.*)

William F. Bowen, Detroit, Mich., U.S., 22nd November, 1888, 5 years.

Claim.—1st. The combination, with the outer casing divided into interior compartments for the reception of stamps, matches, comb, and pins, of the stamp case having the hinged lid O, and the case P, substantially as described. 2nd The combination of the covers A formed in one piece with the back B, the frame C secured between the covers and provided with the partition E, and having the pin holes H, and slot I, the comb pocket J secured therein, and the looking glass secured between the comb pocket and cover, substantially as described. 3rd The combination, with the outer casing divided into compartments, of the stamp case G provided with the hinged cover, the pin receptacle F provided with a series of pin holes, the comb pocket J, the looking glass K backed by the comb pocket, and the match safe L, all substantially as described.

No. 30,258. Head Rest. (*Appui-tête*)

William S. Burgess, Montreal, Que., 22nd November, 1888; 5 years.

Claim.—1st. A head-rest provided with the hook piece E, strap *f* and hook *g* by which it may be secured to the back of a railway coach seat, substantially as shown and described. 2nd. A head-rest provided with the extension *b* having the slit *c*, the tongue *h* formed on the hook piece E, and arranged to hold in the slit *c*, and the strap *f*, and hook *g* for holding the other parts of the device to the seat back, all substantially as shown and described.

No. 30,259. Suspender. (*Bretelles*)

Mayer Rubin, Baltimore, Md., U.S., 22nd November, 1888; 5 years

Claim.—1st. Suspenders for pants having one continuous piece of web for both shoulder straps, and provided with three hooks *d*, each having a two jaw gripper attached to it, an adjuster D on the front of each shoulder strap, and an adjustable back-clamp. 2nd. Suspenders for pants having one continuous piece of web for both shoulder straps, and provided with detachable grippers, each having two jaws pivoted together, said jaws provided at their upper part with a loop *m* and with balls *n*, attached by shanks, as set forth. 3rd Suspender for pants having one continuous piece of web for both shoulder straps, and provided with adjusters D having front and rear walls, one of which has teeth and an extension bar *r*, said two walls and bar being one piece, folded or bent as described, and each wall provided with a ball attached by a shank, as set forth.

No 30,260. Atmospheric Stamp. (*Pilon atmosphérique*)

Henry C. Krause, (assignee of Charles H. Krause), Lake Linden, Mich., U.S., 22nd November, 1888; 5 years.

Claim.—1st. In an atmospheric stamp, the combination of a cylinder a reciprocating piston fitted to the cylinder, a stamp-moving piston also fitted to the cylinder, and a body of air included between the two pistons for transmitting motion from one piston to the other, substantially as specified 2nd. In an atmospheric stamp, the combination of the cylinder I, the piston N, F fitted to the cylinder I the hollow rod M connected with the piston N, and provided with the compartments *h*, *i*, the exhaust valve P, and the discharge pipe Q, substantially as specified. 3rd In an atmospheric stamp, the combination, with the movable exhaust pipe Q, of the fixed exhaust pipe R adapted to receive the exhaust pipe Q, substantially as specified. 4th In an atmospheric stamp, the combination, with the cylinder I provided with holes *r*, of the perforated movable ring S adapted to regulate the passage of air through the holes *r*, substan-

tially as specified. 5th. In an atmospheric stamp, the combination, with the exhaust valve P, of the spring p and the adjustable sleeve o for regulating the pressure of the spring, substantially as specified. 6th. In an atmospheric stamp, the combination of the driving piston N, connecting rod L, crank shaft E, and driving shaft G arranged to turn on different centres, the crank disks H, H^1 attached to the said shafts, and the link H^3 for imparting to the piston N a slow upward and quick downward movement, substantially as specified. 7th. In an atmospheric stamp, the combination of the cylinder I provided with holes r, the perforated ring S, the piston N, the piston T, the stamp rod V, stamp B^1, and the mortar C^1, substantially as specified. 8th. The combination of the base piece F^1, the posts h^1, perforated sides j^1, and the top plate i^1, substantially as specified. 9th. In an atmospheric stamp, the combination, with the mortar C^1, and piston T, of the pivoted chute H^2, the lever K^1, the lever O^1, connecting rod N^1, and the rod l^1, provided with the buffer m^1 adapted to be engaged by the piston T, substantially as specified. 10th. In an atmospheric stamp, the combination, with the mortar C^1, of the pivoted chute H^2, the chute G^2 adapted to receive ore from the chute H^2, and the water pipe n^1 entering the outer end of the chute G^2, substantially as specified. 11th. The combination, with the stamp rod V, of the pulley D^1, and the bolt E^1 for rotating the stamp rod, substantially as specified.

No. 30,261. Folding Box. (*Boîte brisée.*)

William S. Hunter and John Lance, Belleville, Ont., 22nd November, 1888; 5 years.

Claim.—1st. In a folding box, the combination of the sides A, A^1 hinged to the bottom C, and provided with grooves a, a, and the removable ends B, B^1 having clamps E, E^1 to engage and support the sides when the box is adjusted for use, as set forth. 2nd. A folding box comprising the bottom C, the side A^1 hinged thereto to fold outwardly, the side A hinged to said bottom to fold inwardly, the top D hinged to side A to cover the box and fold outwardly, and the removable ends B, B^1 sliding in grooves in the sides A, A^1, and provided with clamps E, E^1 to engage said sides when the box is adjusted for use, as set forth.

No. 30,262. Construction of Railroad Cars. (*Construction des chars de chemins de fer.*)

Pullman's Palace Car Company, Chicago, (assignee of Henry H. Sessions, Pullman), Ill., U.S., 22nd November, 1888; 15 years.

Claim.—1st. The combination, with the ends of a railway car, of a frame plate, or equivalent series of buffers, backed by springs arranged with its face in a vertical plane, and normally projecting beyond the end of the car, whereby upon the coupling of two cars, a spring-buffer will be interposed between the superstructures of such adjacent cars above their platforms, and also frictional surfaces under opposing spring-pressures to prevent the racking of the car frames upon sudden stoppages, and to oppose the tendency of the cars to sway laterally when in motion, substantially as hereinbefore set forth. 2nd. The combination of a spring-buffer, or friction plate, with the ends of each of the adjacent cars of a train, said buffers being located on the ends of the superstructures of the cars respectively, and substantially at the tops of the same, and so arranged that when the two cars are coupled the faces of the buffers will bear against each other in contact under pressure, substantially as and for the purposes specified.

No. 30,263. Bridge. (*Pont.*)

Lewis Barnes, Bloomsbury, N.J., and William A. Nichols, Philadelphia, Penn., U.S., 22nd November, 1888, 5 years.

Claim.—1st. A bridge or ditch covering consisting of longitudinal sills A, girders or trusses B rising therefrom, and covering pieces C and D, D supported thereon, substantially as described. 2nd. A bridge or ditch covering consisting of longitudinal sills A, girders or truss pieces rising therefrom and arranged in pairs, separated at the bottom but abutting at their upper portions, whereby they brace each other, and a covering piece C supported upon said trusses, substantially as described.

No. 30,264. Bridle-Bit. (*Mors de bride.*)

Benjamin P. Roberts, Boston, Mass., U. S., 23rd November, 1888; 5 years.

Claim.—1st. A bridle-bit, provided with a surface or surfaces, practically unyielding, and arranged upon the bit and otherwise adapted for direct contact with or pressure from one jaw only of the animal, and under such contact or pressure to be capable of rotating or rolling without lateral pressure or force, that is in the direction of the length of the bit, or from side to side of the animal's mouth or jaws, to any practical degree, substantially as described and for the purpose specified. 2nd. A bridle-bit, provided with surfaces practically unyielding, located in separate and distinct lines or rows, and the surface or surfaces of each line or row of surfaces arranged upon the bit and otherwise adapted for direct contact or pressure from one jaw only of the animal, and under such contact or pressure to be capable of rotating or rolling, without lateral pressure or force, that is, in the direction of the length of the bit, or from side to side of the animal's mouth or jaws, to any practical degree, substantially as described for the purpose specified. 3rd. A bridle bit, composed of end pieces B and parallel rods F, each carrying rollers E, substantially as described for the purpose specified. 4th. A bridle-bit, having a rolling or rotating surface or surfaces, in and along separate and distinct lines thereof, in combination with a bar or bars J located at the side or sides of said separate and distinct lines or rolling or rotating surface or surfaces, substantially as described for the purposes specified. 5th. A bridle bit, composed of end pieces B, parallel rods F, each carrying rollers E and bars J, connecting ends B, and at the side of parallel rods F and their rollers E, substantially as described for the purpose specified. 6th A bridle bit, composed of end pieces B and intermediate block D, in combination with a rolling or rotating surface or surfaces between said end pieces and said block, substantially as described for the purpose specified. 7th. A bridle-bit, composed of end pieces B, intermediate block D and parallel rods F, each carrying rollers E, substantially as described for the purpose specified. 8th. A bridle bit, composed of end pieces B, intermediate block D, parallel rods F, each carrying rollers E and bars J, connecting end pieces and intermediate block D, and at the sides of rods F and their rollers, substantially as described for the purpose specified.

No. 30,265. Safety Stop and Lock for Doors, Windows, etc. (*Arrête-porte, arrête-croisée, etc.*)

Edward Wicks, Brooklyn, N. Y., U. S., and Albert Wicks, Guelph, Ont., 23rd November, 1888, 5 years.

Claim.—1st. As a safety stop for doors, windows, etc., a T-shaped bar with narrowed shank hinged upon the fixed object, in combination with two straight right catches, with inturned ends, one on each side of said bar, and fixed upon the moving object at an outward angle of about forty-five degrees, all constructed and co-operating in the manner and for the purpose substantially as specified. 2nd. As a combined safety stop and lock for doors, windows, etc., a T-shaped bar with narrowed shank hinged upon the fixed object, in combination with companion catches at an outward angle, and a single catch at right angles, between and behind the others fixed upon the moving object, said bar being provided with a single slot or series of slots along its length, adapted to fit over and hold against the single catch, in the manner and for the purpose substantially as specified.

No. 30,266. Printing Machine. (*Machine à imprimer.*)

Edward Carney (Co-inventor with John H. Dixon), Toronto, Ont., 23rd November, 1888; 5 years.

Claim.—1st. A type or embossing die, suitably supported at a point in the machine where it may be brought in contact with the reverse side of the paper, during the period that the said paper is being printed on its opposite side by the ordinary printing mechanism of the machine, in combination with mechanism for operating an inking roller to ink the type or die during the period that the paper is being moved to the next point where the printing takes place, substantially as and for the purpose specified. 2nd. The type box E, carried on the arm D, which is fixed to the rolling shaft H, b, having an arm F connected to it, in combination with the pivoted arm H, connected to the arm F by the rod G, and carrying an inking roller J, the whole being arranged to operate substantially as and for the purpose specified. 3rd. The pivoted arm H, the spring N, arranged to elastically hold the roller J, and the spring O arranged to elastically hold the pivoted arm H, in combination with the rod G arranged to connect the pivoted arm H to the rocking arm F, a longitudinal slot being made in the said rod, so that the arm F may move a given distance, without rocking the arm H, substantially as and for the purpose specified.

No. 30,267. Apparatus for Treating Molten Slag or Material from Smelting Furnaces. (*Appareil pour le traitement des scories en fusion ou des matières provenant des fourneaux de fusion.*)

Orrin B. Peck, Chicago, Ill., U.S., 24th November, 1888; 5 years.

Claim.—1st. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel, means for revolving the same, and means for cooling the exterior of the slag receiving vessel while containing molten slag, by which means the metal and other substances may be separated from the molten slag by the action of centrifugal force, substantially as described. 2nd. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel separable in the plane of its largest diameter, and having its interior sloped or inclined toward such plane, whereby solidified, or partially solidified, slag may be removed on the separation of the vessel, means for revolving the slag receiving vessel, and means for cooling the exterior of sech vessel, substantially as described. 3rd. In an apparatus for separating metal and other substances from the molten slag, the combination of a revoluble slag receiving vessel, separable in the plane of its largest diameter, and having its interior sloped or inclined toward such plane, a lining for such vessel, having its exterior of a size and shape to fit the interior of the covering shell and correspondingly separable, whereby solidified, or partially solidified, slag may be removed on the separation of the vessel, means for cooling the exterior of such vessel and means for revolving the slag receiving vessel, substantially as described. 4th. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel, separable in the plane of its largest diameter, and having its interior sloped or inclined toward such plane, a lining for such vessel, having its exterior of a size and shape to fit the interior of the covering shell, and correspondingly separable, whereby solidified, or partially solidified, slag may be removed on the separation of the vessel, means for cooling the exterior of the slag-receiving vessel while containing molten slag, and means for revolving the slag-receiving vessel, substantially as described. 5th. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel, consisting of a shell and a lining thereto adapted to receive molten slag, and having its exterior of a size and shape to fit the interior of the shell, means for cooling the exterior of the slag-receiving vessel while containing molten slag, and means for revolving the slag receiving vessel, substantially as described. 6th. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel, means for cooling the exterior of the slag receiving vessel while containing molten slag, projecting flanges or ribs extending out from the exterior of such vessel, and means for

revolving such vessel, substantially as described. 7th. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag-receiving vessel, means for revolving the same, and means for cooling the slag as it is discharged from the top of the slag-receiving vessel by the action of centrifugal force, substantially as described. 8th. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel, a curb against which the slag is thrown, as it is discharged from the top of the slag-receiving vessel by the action of centrifugal force, and means for preventing such curb from becoming over heated by the heat of the molten slag, substantially as described. 9th In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel, having an outer and an inner shell, with an annular space between them, means for revolving such slag-receiving vessel, and means for introducing water or wet steam into the annular space between the walls of the slag-receiving vessel, whereby the same is prevented from becoming overheated by the heat of the molten slag, substantially as described. 10th. In an apparatus for separating metal and other substances from molten slag, the combination of a revoluble slag receiving vessel, means for revolving the same, a rotating slag-removing table, receiving the slag as it is discharged from the top of the slag receiving vessel by the action of centrifugal force, and carrying it to an opening or exit, means for scraping the slag from the table and directing it into the opening or exit, and means for rotating the slag-removing table, substantially as described.

No. 30,268. Process of Separating Metals, Matte or Metallic Compounds from Molten Slags. (*Procédé de séparation des métaux, de la matte ou des composés métalliques, des scories en fusion*)

Orrin B. Peck, Chicago, Ill., U.S., 24th November, 1888, 5 years.

Claim.—1st. The process of separating metals, matte, or metallic compounds from molten slag, or like molten materials, which consists in subjecting the same to centrifugal action, substantially as described. 2nd. The process of separating metals, matte, or metallic compounds from molten slag, or like molten materials, which consists in subjecting the same to centrifugal action and discharging the lean slag, substantially as described.

No. 30,269. Process of Desulphuring Ores and Decomposing Metallic Salts (*Procédé de désulfuration des minerais et de décomposition des sels métalliques.*)

Orrin B. Peck, Chicago, Ill., U.S., 24th November, 1888; 5 years.

Claim.—1st. A process of desulphurizing materials, which consists in bringing such materials to a state of fusion, and subjecting them to a sufficiently powerful centrifugal force to overcome wholly or in part the chemical affinity of the combination, substantially as described. 2nd. The process of decomposing metallic salts, or salts of metals and like compounds, which consists in subjecting them to a highly-developed centrifugal action, while in a molten state, substantially as described.

No. 30,270. Millstone Dressing Machine.

(*Machine à piquer les meules.*)

Joseph Lagûe, West Farnham, Que., 24th November, 1888, 5 years.

Claim.—1st. The combination in a millstone dressing machine, of a revolving shaft *b*, pulley 30, having cam-projections *a*, lever *c*, having adjustable friction pulley *i*, connected therewith and arranged to be acted upon by the said cam-projections, also having tool-carrier *k*, tool *l*, adjustable spring *a1*, and being further provided with screw *e1*, cushion *g1*, with a traveling slide C, the whole arranged and operating together substantially as and for the purposes described. 2nd. The combination, in a millstone dressing machine, of the revolving shaft *b*, pulley 30, having cam-projections *a*, lever *c*, having friction pulley *i*, tool-carrier *k* and tool *l*, with pinion 12, swinging shaft 7, having gear wheels 9 and 11, slides C and 14, slide B, having racks 13, shaft 10, having eccentric 18 and gear wheel 25, screw 23, pinion 24, slide-nut 26, slide-bars 27 and bed A, the whole arranged and operating together substantially as and for the purposes set forth.

No. 30,271. Fastening Device.

(*Renfort de joint.*)

Ferdinand W. Starr, Springfield, Ohio, U.S., 24th November, 1888, 5 years.

Claim.—A corrugated metal fastening device, having an entering edge, substantially as and for the purpose set forth.

No. 30,272. Reed Organ. (*Orgue.*)

Gustav R. Newman, Chicago, Ill., U. S., 24th November, 1888; 5 years.

Claim.—1st. In a reed organ, the combination, with the usual cells, of supplemental cells, the usual cells being provided with ports communicating with the supplemental cells at front and rear thereof, substantially as described. 2nd. In a reed organ, the combination, with the usual cell-board, of a supplemental cell board having a series of cells closed at their ends, and arranged above the cells of the cell-board, the top of the usual cell-board being provided with the front and rear perforations leading into the cells of the supplemental cell-board, substantially as described 3rd. In a reed-organ, the combination, with the reeds A2 and the cell-board B having cells *b* and having perforations *b1* and *b2*, of the supplemental cell board D, having a series of cells *d* communicating at their outer ends with the cells *b* of the usual cell-board B, substantially as described.

No. 30,273. Coupling for Water Closet.

(*Joint de tuyau de latrines.*)

John P. Putnam, Boston, Mass., U.S., 24th November, 1888; 5 years

Claim.—A water-closet, or similar fixture, of earthenware, provided with an opening, having an inwardly-projecting annular shoulder, in combination with a threaded metal pipe inserted in said opening, and having an outwardly-projecting annular shoulder, a clamping nut on said threaded pipe, and an elastic gasket clamped between said annular shoulders and between the rim of the said opening in the earthenware and the nut, substantially as described.

No. 30,274. Paper File. (*Serre-papier.*)

Augustus C. A. Perkes, Portland, Ore., U.S., 24th November, 1888; 5 years.

Claim.—1st. In a paper file, the combination, with a main frame provided with upwardly-projecting pins, of a top frame hinged to the rear of the said main frame, and springs wound around the main frame and bearing on the top frame, whereby said top frame is pressed toward the main frame, substantially as shown and described. 2nd. In a paper file, the combination, with a main frame provided with upwardly-projecting pins, of a top frame hinged to the rear of the said main frame, and springs wound around the main frame and bearing on the top frame, whereby said top frame is pressed toward the main frame, and a spring catch for holding the top frame in place until the paper is placed on the said pins, substantially as shown and described. 3rd. In a paper file, the combination, with a main frame, of a top frame hinged on the said main frame, springs for pressing the said frame toward the main frame, pins projecting upward from the said main frame, and shields held on the said top frame for covering the pointed ends of the said pins, substantially as shown and described 4th. In a paper file, a main frame consisting of side rods connected at their ends by cross-bars, and a central bar secured to the said end bar by T pieces, in combination with a raised stop secured to the main frame, a top frame hinged on the said step, springs for pressing the said top frame toward the main frame, pins projecting from the said main frame, and shields held on the said top frame for covering the pointed ends of the said pins, substantially as shown and described. 5th. In a paper file, the combination, with a main frame provided with an apertured plate, and pins projecting upward from the said main frame, of a top frame hinged on the said main frame, springs for pressing the said top frame toward the said main frame, recessed shields secured to the said top frame and adapted to receive the pointed ends of the said pins, and a finger piece held on the said top frame, and serving to operate the said top frame, substantially as shown and described.

No. 30,275. Date Indicator.

(*Calendrier mécanique.*)

Henry J. Meixell, Pottstown, Penn., U.S., 24th November, 1888, 5 years.

Claim—1st. In a date indicator, the case A, the grooves B, the slide or plate I, the slot or opening K, the rollers C, E, and the sheet H having inscribed thereon the table herein described for the purpose set forth. 2nd. In a date indicator, the case A, and slot or opening K, combined with the rollers C, E, G, and sheet H having inscribed thereon the table herein shown and described, the slot or opening K in the case being of the length and width, substantially as set forth. 3rd The case A, the grooves B, the slide or plate I, the slot or opening K, the rollers C, E, the sheet H, and the spring arms L, M, substantially as specified.

No. 30,276. Self-Expanding Drill Blade.

(*Foret à mèche variable.*)

Tollef Herberg and Olaf Herberg, Hendrum, Minn., U.S., 24th November, 1888; 5 years.

Claim.—1st. The combination of the drill-rod having the ears B at its lower end, the drill-blades arranged in the lower end of the drill-rod and pivoted between the ears B, said drill-blades having the upwardly extending arms F, and being provided with the shoulders H adapted to come in contact with the shoulders at the lower end of the drill-rod, and the vertically movable plunger L in the lower end of the drill-rod, and adapted to expand the drill-blades by forcing their arms F apart between the ears and relieve the pivotal bolt or pin of strain, substantially as described. 2nd. The combination of the drill-rod having the discharge openings D, the drill-blades pivoted in the lower end of the drill-rod adapted to be expanded, said drill-blades having the upwardly extending arms F, and the vertically movable plunger arranged in the drill-rod, and adapted to be forced downward therein by the pressure of the water in the drill-rod, so as to expand the drill-blades by forcing their arms apart, substantially as described. 3rd. The combination of the drill-rod having the discharge openings D and the ears B at its lower end, the drill-blades pivoted between the said ears B, and having the upwardly extending arms F entering the lower end of the drill-rod, and provided with the oppositely extending lugs G, and the vertically movable plunger arranged in the drill-rod, and having the conical end adapted to force the drill blades apart by entering in the space between the lugs, substantially as described.

No. 30,277. Medical Compound for Rheumatic and other Pains. (*Composition medécinale pour les douleurs rhumatismales et autres.*)

John Saunders, Montague, Ont., 24th November, 1888; 5 years.

Claim.—The liquid composed of soda, turpentine, spirits of salt, and brandy, in the proportions described for the purposes herein set forth.

No. 30,278. Method of Filtering and Apparatus therefor. (*Mode et appareil de filtration.*)

Herbert F. Clayton and George H. Holdroyd, Lockwood, Eng., 24th November, 1888, 5 years.

Claim.—1st. The herein described method of filtering water, consisting in first partially, or roughly, filtering it, the mud or sediment thereby separated being retained below the filtering material and periodically discharged by flushing, and then causing the partially filtered water to rise into cloth-covered perforated tubes to be still further filtered by being forced through the cloth covering, which can be easily removed in order to renew the same. 2nd. In filtering apparatus, the combination, of a primary filtering chamber with filtering tubes covered internally or externally with cloth, the said chamber being provided with top and bottom gratings, and a channel in which the sediment accumulates and which is adapted to be readily cleansed, substantially as hereinbefore described. 3rd. The combination, with cloth-covered filtering tubes, of a primary filtering chamber, a channel to receive the sediment, top and bottom gratings, a blow-out valve through the medium of which the sediment accumulated in the said channel is discharged, a girder and standards to support the filter tubes, and a receiving tank R, substantially as and for the purpose hereinbefore described and illustrated in the accompanying drawing. 4th. The general arrangement of filtering apparatus herein described and represented in the accompanying drawing.

No. 30,279. Medical Injector. (*Injecteur médical.*)

Andrew Mess, Kilbourne, Wis., U.S., 24th November, 1888, 5 years.

Claim.—1st. The combination of the chamber for containing the medical substances, a nozzle at the front end of the chamber, a valve at the rear end, the plug in rear of the valve having an extension passing through the valve, and the bellows secured to the plug, substantially as set forth. 2nd. The combination of the cylindrical body having a chamber for containing the medicine substances, the front piece, the perforated partition between the front piece and the cylindrical body and at the front end of the chamber, the removable nozzle on the end of the chamber, the removable nozzle on the end of the front piece having a smooth round collar on its outer end, the hinged valve at the rear of the chamber, the screw-plug behind the valve, and the bellows secured to the plug, substantially as set forth.

No. 30,280. Cannon. (*Canon.*)

John J. Loud, Weymouth, Mass., U.S., 24th November, 1888; 5 years.

Claim.—1st. An automatically closing breech-loading cannon, consisting of two parts A and B hinged together, the part A formed of the breech portion of the barrel and the rear portion of the carriage, and the part B formed of the remainder of the barrel and carriage, substantially as and for the purpose hereinbefore set forth. 2nd. An automatically closing breech-loading cannon made in two parts A and B, in combination with a spring hinge S, substantially as and for the purpose hereinbefore set forth. 3rd. A breech-loading cannon made in two parts A and B hinged together, provided with holes D_1, D, in combination with the locking ram-rod D, substantially as and for the purpose hereinbefore set forth. 4th. An automatically closing breech-loading cannon made in two parts A and B hinged together, whereby the carriage portion of one of said parts A and B embraces the carriage portion of the other, substantially as and for the purpose hereinbefore set forth. 5th. A breech-loading cannon made in two parts A and B hinged together, and divided through the vent, in combination with a spring, substantially as and for the purpose hereinbefore set forth. 6th. A breech-loading cannon provided with a split vent *a*, substantially as and for the purpose hereinbefore set forth. 7th. In a breech-loading cannon, a barrel provided at the breech with a wide vent *a* cut across the whole face of the end of the barrel, or of the breech block above the centre, substantially as and for the purpose hereinbefore set forth. 8th. In a breech-loading cannon, a barrel provided with a wide vent *a*, in combination with a breech block provided with the boss a^1, substantially as and for the purpose hereinbefore set forth. 9th. A folding breech loading cannon provided with a split vent *a*, and consisting of a barrel rigidly secured to the carriage cheeks, in combination with a breech block hinged to said cheecks and a stock A^1 rigidly secured to said breech block, whereby the said stock may be folded between the wheels, substantially as and for the purpose hereinbefore set forth. 10th. In a breech-loading cannon, a breech block provided with a boss a^1, substantially as and for the purpose hereinbefore set forth.

No. 30,281. Thill Coupling. (*Armon de limonière.*)

George C. Frisbie, Ceases Mills, Penn., U.S., 24th November, 1888, 5 years.

Claim. 1st. As an improvement in combined thill couplings, and devices for detaching horses, the two sliding rods or arms, the lever fulcrumed upon a centrally disposed plate, and the yoke plate or arm having a bent or hooked end, substantially as shown and described, said rods or arms being secured to said lever, as stated. 2nd. The combination, with the axle and the clips, having apertured ears, of the rods or arms, the centrally disposed lever, the yoke plate or arm having a bent or hooked end, the clips, and the yoke plates secured by said latter clips, and having outer eyes or loops, substantially as described. 3rd. The combination, with the axle, and the yokes having eyes or loops, of the sliding rods or arms, the lever to which said rods or arms are secured, the fulcrum stud or pin, the plate secured to said axle, and from which said pin projects, and the yoke plate having a bent or hooked end, substantially as shown and described.

No. 30,282. Metallic Ceiling. (*Plafond métallique.*)

William R. Kinnear, Columbus, Ohio, U. S., 27th November, 1888; 5 years.

Claim.—1st. In a ceiling such as described, the panels thereof constructed from continuous sheets having margins raised above the body, and a connecting portion between the body of the panel, and the margins which extend across the corners formed by the prolongation of the inner edge of the margins, substantially as described, whereby tearing of the material in the said corners where the panels are stamped is prevented. 2nd. In a ceiling such as described, the panels thereof constructed from continuous sheets, and having margins raised above the body and a connecting portion between the body of the panel, and the margins having rounded corners, substantially as described. 3rd. In a ceiling such as described, the combination, of the panels thereof constructed from continuous sheets, and having margins raised above the body, and provided at the corners with angular recesses cut therein, and a connecting portion between the body of the panels and the margins which extend across the corners formed by the prolongation of the inner edges of the said margins, and ornamental drops fitted to the angular recesses in the corners of the panels, provided with extensions at the base for extending under the margins of the panels, substantially as described. 4th. In a cornice such as described, the combination of the separate pieces composing the cornice, a skeleton for maintaining the shape of the meeting ends of the said pieces, a shield for concealing the junction, and suitable fastenings for connecting the skeleton and shield, substantially as described. 5th. In a cornice such as described, the combination of the separate pieces composing the cornice, a skeleton for maintaining the shape of the meeting ends of the said pieces, being rigidly attached to the walls of the structure to which the cornice is applied, and having an undercut portion and a shield for concealing the junction of the said pieces shaped to fit the undercut portion of the skeleton for being retained in position thereby, substantially as described. 6th. In a cornice such as described, the combination of the separate pieces composing the cornice, a skeleton for maintaining the shape of the meeting ends, and being partly cut away to form stops, and a shield shaped to correspond to the form of the skeleton for concealing the junction of the said pieces, and provided with lugs to engage the said stops on the skeleton for adjustment of the parts, substantially as described. 7th. In a ceiling such as described provided with a styling, a cross-bar, the sides of which are adapted to receive the ends of the separate pieces of which the styling is composed, provided with end extensions for suspending the same and thereby supporting the ends of the said styling pieces, substantially as described. 8th. In a ceiling such as described provided with a cornice and styling, a bracket for concealing the junction of the pieces composing the cornice, and the styling corresponding to the shape of the former, and provided with an extension passing over the latter and under the edge of the adjoining panels for concealing and supporting the ends of the separate pieces composing the said styling, substantially as described. 9th. In a ceiling such as described provided with a cornice and styling, the combination of brackets for concealing the meeting ends of the pieces composing the cornice, and cross-bars extending across the styling for supporting the ends of the pieces composing the same, and provided with end extensions adapted to extend under the top of the said bracket and the edge of the adjoining panels, substantially as described.

No. 30,283. Photograph Case. (*Etui de photographie.*)

Peter T. Kavanagh, Chicago, Ill., U.S., 27th November, 1888, 5 years.

Claim.—1st. A tilting photograph case, comprising in combination a body portion a^1, open at one end and provided with a cover *a* for closing the open end, an endless series of frames flexibly connected together and supported with the case and provided with means for turning them, a suitable supporting frame and journals E extending from opposite sides of the body portion a^1 and supporting it pivotally on the frame, whereby the body portion is oscillatory on its support and adjustable thereon, to bring the open end through which the photograph frames are projected to a desired angle for convenience of display, substantially as described. 2nd. A tilting photograph case, comprising in combination a body portion a^1, rounded toward its base and open at its upper end, and provided with a cover *a* for closing the open end, an endless series of frames flexibly connected together and supported within the case, and provided with means for turning them, a suitable supporting frame and journals E extending from opposite sides of the body portion a^1, and supporting it pivotally on the frame, whereby the body portion is oscillatory on its support and adjustable thereon, to bring the open end through which the photograph frames are projected to a desired angle for convenience of display, substantially as described. 3rd. A tilting photograph case, comprising in combination a body portion a^1, open at its upper end, and provided with a hinged cover *a*, an endless series of frames flexibly connected together and supported within the case and provided with means for turning them, a stand G, a yoke F supported on the stand, and journals E extending from opposite sides of the body portion a^1 and supporting it pivotally on the yoke, whereby the body portion is oscillatory on its support and adjustable thereon, to bring its open end through which the photograph frames are projected to a desired angle for convenience of display, substantially as described.

No. 30,284. Automatic Car Coupler. (*Attelage de chars automatique.*)

John D. Clark, Clare, Mich., U.S., 27th November, 1888, 5 years.

Claim.—1st. The herein described draw-bar, constructed in the form of a rectangular box, having the sides and ends constructed of wrought iron plate, and of the cast iron top secured thereto and provided with the draw head for link and pin coupling, substantially as described. 2nd The combination of the draw-head forming substantially a rectangular box, of the counter weighted coupling hook pivotally secured thereto with a lateral play, and projecting forwardly and rearwardly below the draw-bar, and free to move in a vertical plane of the draw-hook *b*, projecting forwardly and having the bevelled ends, substantially as described. 3rd. The combination of the draw head, the counter weighted coupling hook pivotally mounted in the longitudinal centre of that draw-bar, and adapted to play in a vertical plane on the under side of the draw-hook, and

provided with a lateral play of the bevelled hook of the draw-bar, substantially as described. 4th. In a car coupling, the combination of the draw-bar consisting substantially of the rectangular box formed of the sides and ends *a*, and the top *b*, provided at its forward end with the draw-head for link and pin coupling, the counter weighted coupling hook pivotally mounted in said draw-bar in the longitudinal centre thereof, and adapted to play in a vertical plane below the draw-bar and provided with a lateral play, the hook D bevelled at its forward end, the lip or reinforcement formed on the forward end of the draw-bar to engage with the hook, substantially as described. 5th. In a car coupling, the combination of the draw-bar, substantially in the form of a rectangular box formed of the sides and ends *a*, and top plate *b*, of the stirrup F, provided with the guides *h*, with which the draw-bar slidingly engages, substantially as described. 6th. In a car-coupling, the combination of the draw-bar A, substantially in the form of a rectangular box formed of the sides and ends *a*, and the top plate *b*, provided with the draw-head *c*, the recess *d* formed in the forward end of the draw-bar, the counter weighted coupling hook pivotally mounted in said draw-bar in the longitudinal centre thereof, and adapted to move in a vertical plane below the draw-bar, and provided with a lateral play of the upturned hook D bevelled at its forward end, the counter weighted rear end of the draw-bar, the lip *e* formed at the forward end of the draw-bar, the coupling chain M secured near the rear end of the draw hook and the coupling levers L, all arranged to operate substantially as and for the purpose described.

No. 30,285. Machine for Setting Band Saws.

(*Machine à donner la voie aux scies à ruban*)

James Robinson, Toronto, Ont., 27th November, 1888, 5 years.

Claim.—1st. The combination, with the vise B, of the oblique punches F, F, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the vise B and the oblique punches F, F, of the feeding pawl K, substantially as and for the purpose hereinbefore set forth.

No. 30,286. Chair. (*Fauteuil.*)

Julius L Knieper, Grand Rapids, Mich., U.S., 27th November, 1888; 5 years.

Claim.—1st. In a chair of the class described, the combination of the legs having vertical slots and pins I, I, the rockers provided each with the openings E, E, said rockers adapted to be vertically adjusted in the slots in the rockers, and the pins adapted to engage with the upper part of the openings E, E, in the rockers, substantially as described. 2nd. In a chair of the class described, the combination of the vertically slotted legs, the pins J, J, the rockers provided with openings E, E, the eccentric levers D, D, for locking the rockers, substantially as described.

No. 30,287. Apparatus for Converting Crude Iron into Malleable Iron. (*Appareil pour convertir le fer cru en fer ou acier malléables.*)

John W. Bookwalter, Springfield, Ohio, U.S., 27th November, 1888; 5 years.

Claim—1st. The combination, with a converter such as described, of a core such as D, situated about the centre of motion of the circulating mass of metal, substantially as and for the purpose described. 2nd. The use of a core such as described within a converter, so situated as to occupy the space which would otherwise be occupied by a comparatively inert mass of metal, for the purpose of ensuring a more perfect contact between the blast and the whole of the charge of metal, substantially as described.

No. 30,288. Curry Comb. (*Etrille*)

Levi M. Devore, Freeport, Ill., U.S., 27th November, 1888; 5 years.

Claim.—1st. In a curry comb, a strap or handle fastened to the back and extending across its upper face, and a series of strips fastened to the lower face of the back in lines approximately parallel to the line of the handle, and provided with teeth arranged in lines transverse to the line of the handle, substantially as and for the purpose set forth. 2nd. The combination, with the back A, of a series of parallel webs, D, secured thereto, each bent laterally in each direction, and provided with teeth upon its exposed edges, substantially as set forth. 3rd. The combination, with the back A and the handle O crossing its upper face, of the rigid nave-like strips, B, B, fastened to the lower face of the back in lines parallel to said handle, and the webs D formed integrally with said strips, and having their exposed edges toothed, substantially as set forth.

No. 30,289. Process for Preserving Perishable Merchandise. (*Procédé de conservation des marchandises*)

John A. McAlpine, Glencoe, Ont., 28th November, 1888, 5 years.

Claim.—The process of preserving perishable merchandise, which consists in immersing packages closed to exclude the water and containing the perishable merchandise, in flowing water, as described.

No. 30,290. Nap Raising Machine.

(*Machine à faire le poil du drap.*)

Ferdinand Martinot, Sedan, France, 28th November, 1888; 5 years.

Claim.—1st. In a nap-raising machine, raising rollers clothed with metallic cards adapted to raise the desired nap, and constructed and operated substantially as hereinbefore described 2nd In a nap-raising machine, having reciprocating raising rollers, gearing or arranging the rollers in such a manner that the leading roller derives its motion from contact with the fabric, and imparts similar motion at a different speed to the following roller, substantially as hereinbefore described. 3rd. In a nap-raising machine, the combination, with each raising roller, of a clearing roller arranged below the raising roller, and operating substantially as hereinbefore described 4th In a nap-raising machine, a brake, in combination with two rollers, such as *a* and *b*, Fig 1, and constructed and arranged substantially as and for the purpose hereinbefore described. 5th. In a nap-raising machine, an apparatus or device for cutting or removing knots, loose ends and the like, from the fabric, before raising, substantially as hereinbefore described. 6th. In a nap-raising machine, an apparatus or device, such as a jet or a saturated sponge for supplying water to or damping the fabric operated on, substantially as hereinbefore described.

No. 30,291. Paper Reel. (*Rouleau à papier.*)

The Merchants' Roll Paper, Printer and Cutter Company, Lexington (assignee of Homer T. Wilson, Harrodsburg), Ky., U.S., 28th November, 1888; 5 years.

Claim.—1st. In a paper reel, the combination, with standards A adapted to receive paper rolls of different widths, of shelves B, B1 uniting said standards and approximately parallel to a plane tangent to the lower side of said rolls, and vertically-adjustable tearing bars fixed upon the upper surfaces of said shelves respectively, whereby paper from said rolls passing along the surfaces of the shelves and beneath the bars, may be drawn forward to any desired extent and then be torn off along the edge of the bar. 2nd. In a paper reel, the combination, with a paper roll revolubly mounted in suitable supports, of a support for the paper when unrolled, a suitably mounted printing roller approximately tangent to said support, and adapted to be revolved by the paper passing between it and said support, and to imprint designs upon said paper, and inking rollers revolubly mounted in contact with said printing roller. 3rd The combination, with a paper roll C1 mounted in supports, provided with grooves P, of the shelf B1 for supporting the unrolled paper, the open box K hinging to said shelf and containing the revolubly mounted printing roller L and ink-pad rollers N, the auxiliary roller M and the tearing bar E mounted upon said shelf, between springs G and wing-nuts H, substantially as set forth 4th. In a paper reel, the combination, with a paper roll mounted upon a rotary axis, and a support for the paper coming from said roll, of a swinging printing roller adapted to rest upon the paper passing over said support to be rotated by the movement of the paper, and to be swung out of contact with the paper when desired.

No. 30,292. Machine for Producing Press Cakes. (*Machine à faire des gâteaux pressés.*)

August C. Magel, Reinhold H. Kaemp and Adolf Linnenbrügge, Hamburg, Germany, 28th November, 1888; 5 years.

Claim.—1st. The combination, with the cylinder 3, provided with means for feeding the same with comminuted materials, of a jacket 2 connected to a steam supply pipe, one or more perforated horizontal plates 4, and one or more rotating stirrers 6, substantially as and for the purpose specified. 2nd. The combination, with the cylinder 3 and jacket 2 connected to a steam supply pipe, of a valve or valves 13 for establishing communication between the jacket and the cylinder, and one or more perforated plates 4 and stirrers 6, substantially as and for the purpose described. 3rd. The combination, with the cylinder 3, jacket 2 connected to a steam-pipe, a valve or valves 13, and one or more perforated plates 4 and stirrers 6, of the fixed inclined blades 7, and the rotating inclined blades 8, substantially as set forth and for the purpose specified. 4th. The combination, with the cylinder 3, steam-jacket 2, perforated plates 4 and stirrers 6, of the press A, having the receiving chamber *a*, reciprocating piston c, and mouth-piece *b*, substantially as and for the purpose set forth. 5th. The combination, with the receiving chamber *a* and reciprocating piston *c*, of a mouth-piece *b*, having the perforations *g*, substantially as and for the purpose described. 6th. The combination, with the receiving chamber *a* and reciprocating piston *c*, of a mouth-piece increasing in width at its discharge end, substantially as and for the purpose specified. 7th. The combination, with the receiving chamber *a* and mouth-piece *b*, of a reciprocating piston, composed of two operating parts *h* and *i*, one of the said parts being resilient or yielding in respect to the other one, substantially as and for the purpose set forth. 8th. The combination together of the receiving chamber *a*, the mouth-piece *b*, having perforations *g* and increasing in width at its discharge end, and a reciprocating piston, composed of two operating parts *h* and *i*, one of the said parts being resilient or yielding in respect to the other one, substantially as hereinbefore specified and for the purpose set forth.

No. 30,293. Pastry Pie Guard.

(*Garde-tourtière*)

Lamira Lucas and Elvander W. Dodge, Lowel, Mich., U.S., 28th November, 1888; 5 years.

Claim.—1st. A pastry pie guard, constructed with an annular rim A, provided with an offset *a*, and with arms C attached to the upper edges of its rim, and extending across from side to side, a handle D attached to the centre of the arm, and tubes *c* depending from the arm, substantially as and for the purpose set forth 2nd. The combination, in a pie guard, of the rim A, B, connected by or provided with an offset *a*, arms C and a tube or tubes *c* supported by the arms, substantially as and for the purpose set forth.

No. 30,294. Fluid Pressure Automatic Brake Mechanism. (*Mécanisme de frein atmosphérique et automatique.*)

George Westinghouse, Jr., Pittsburgh, Penn., U. S., 28th November, 1888, 15 years.

Claim—1st. In a brake mechanism, the combination of a chamber or casing, having direct connections to a brake cylinder and to a

brake pipe respectively, a valve-controlling communication between said connections, and a piston or diaphragm, which is independent of and unconnected with a triple-valve piston, and is actuated by pressure from an auxiliary reservoir in direction to impart opening movement to said valve, substantially as set forth. 2nd. In a brake mechanism, the combination of a chamber or casing, having direct connections to a brake cylinder, and to a brake pipe respectively, a valve-controlling communication between said connections, a piston or diaphragm, which is independent of and unconnected with a triple valve piston, and is actuated by pressure from an auxiliary reservoir in direction to impart opening movement to said valve, and a check or non-return valve controlling communication between said valve and the brake-pipe passage of the chamber, substantially as set forth. 3rd. In a brake mechanism, the combination, with a triple valve, of a supplemental chamber or casing having passages leading to a brake cylinder and to a brake pipe respectively, a supplemental valve controlling communication between said passages, a supplemental piston operating independently of the triple-valve piston and adapted to impart opening movement to said supplemental valve, and a passage establishing communication between said supplemental piston and an auxiliary reservoir, substantially as set forth. 4th. In a brake mechanism, the combination, with a triple valve, of a supplemental chamber or casing, having passages leading to a brake cylinder and to a brake-pipe respectively, a supplemental valve controlling communication between said passages, a piston adapted to impart movement to said valve, and a passage establishing communication between said piston, and an auxiliary reservoir through the main slide-valve of the triple-valve mechanism, substantially as set forth. 5th. In a brake mechanism, the combination of a triple valve having its main slide-valve and valve bushing provided with ports, and passages for the admission and exhaust of air from an auxiliary reservoir, to and from a brake cylinder and to and from a supplemental valve-chamber, a supplemental valve-chamber connected to the slide-valve chamber of the triple-valve, and having passages leading to the brake-cylinder and to the brake-pipe respectively, a supplemental valve governing a port or opening in a partition of said chamber said passages, a piston fitting said chamber above a port leading to the main slide-valve chamber in position to impart movement to the supplemental valve, a check-valve governing the brake-pipe passage of the supplemental valve-chamber, and a spring or springs acting to seat the supplemental and check-valves, substantiantially as set forth. 6th. In a brake mechanism, the combination of a triple-valve casing, a supplemental valve-chamber composed of an inner section, which is formed integral with the triple-valve casing and a separable outer section, each having a lateral air-pipe or passage and a supplemental valve-seat formed in a division plate or partition interposed between and secured to the two sections of the supplemental valve chamber, substantially as set forth.

No. 30,295. Process of Roasting Coffee.

(*Mode de torréfaction du café.*)

Antoine L. St. Aubin, Reims, France, 28th November, 1888; 5 years.

Claim.—1st. The process of treating coffee berries, cacao beans and the like, which consists in roasting said berries in one vessel, placing them in a separate vessel, condensing the vapours and aromas which escape from the roasted berries, and then re-uniting said berries and said condensed vapours in the presence of heat in said separate vessel, substantially as specified. 2nd. The process of treating coffee, herein described, which consists in first roasting the coffee, and collecting and condensing the vapors, and in boiling said condensed vapors, and eliminating the deleterious volatile substances therefrom, substantially as described. 3rd. The process of treating coffee, herein described, which consists in first roasting the coffee and collecting and condensing the vapors, in then boiling said condensed vapors, and eliminating the deleterious volatile substances therefrom, and in then filtering the remaining liquid to separate tar, substantially as set forth. 4th. The process of treating coffee, herein described, which consists in first roasting the coffee and collecting and condensing the vapors in then boiling said condensed vapors, and eliminating the deleterious volatile substances therefrom, in then filtering the remaining liquid to separate tar, and in then adding the remaining liquid to the roasted coffee, while at a temperature differing from the temperature of the coffee, substantially as herein shown and described.

No. 30,296. Check Plate for Draw-Woods in Railroad Cars. (*Plaque de friction pour barres d'attelage des chars de chemins de fer.*)

William A. Hovey, Brazil, Ind., U.S., 28th November, 1888; 5 years.

Claim—1st. The check-plates for draw-woods, provided with eyes for the reception of the longitudinal bolts, in combination with the longitudinal bolts, as and for the purpose set forth 2nd. The combination of the check-plates for draw-woods, provided with the resistance plates and buttresses, and the eye for the reception of the longitudinal bolt, as and for the purpose described. 3rd The combination of the check-plates in pairs with the longitudinal bolts, as described. 4th The combination of the check-plates A, having the ribs *a*, wings *b*, eyes B, and resistance plates a^1, with the longitudinal bolt C, as and for the purposes described.

No. 30,297. Machine for Paring, Coring and Slicing Apples. (*Machine à peler, vider et trancher les pommes.*)

Lyron D. Tabor, Wilson, N.Y., U.S., 28th November, 1888; 5 years.

Claim.—1st. In an apple paring machine, the combination, with a frame A and a sliding table B, having a rack B^1, of a gear shaft C^1, a swinging bracket C^9, and paring devices F, substantially as set forth. 2nd. In an apple paring machine, the combination, with a main frame A and a sliding table B, having a rack B^1, of a gear shaft C^1, a swinging bracket C^9, a gear shaft C^{10}, a spring, or similar means It and paring devices F, substantially as set forth. 3rd In an apple paring machine, the combination, with a main frame A and a sliding table B, said table having rack-teeth B^1, of a main gear shaft C^1, a swinging bracket C^9, a shaft C^{10} journalled in this bracket B^{10}, and provided with a pinion B^2, a spring H, device G and paring mechanism F, substantially as set forth. 4th. In a paring machine, the combination, with a main frame A and a sliding table B, having rack teeth B^1, of a main driving shaft C^3, a swinging bracket C^5, said bracket having a shaft C^{10} journalled therein, gear wheels C^4, C^{11}, pinion B^2, a spring H, a switch bar G and paring mechanism F, substantially as set forth. 5th. In an apple paring machine, the combination, with a main frame A and a main driving shaft C^3, of a swinging bracket C^5, said bracket having upwardly-projecting arms a^3 and a shaft C^{10}, of a sliding table B, said table having rack teeth B^1, a switch bar G, said bar having a bearing finger M^1 and paring device F, substantially as set forth. 6th. In an apple paring machine, the combination, with a main frame A, a forked spindle D and gearing C^6, D^4, of a sliding table B, a coring tube J carried by the table, an apple remover I^4 depending from the frame device 2^1, and a spring or equivalent means I^2, substantially as set forth. 7th. In an apple paring machine, the combination, with a main frame A and a sliding table B, said table carrying a coring tube J, of an apple remover I^4 depending from the frame, a device 20 for adjusting said apple remover and a spring or similar means I1, substantially as set forth. 8th. In an apple parer, the combination, with a frame A, of a depending apple remover I^4, I^5 and a device 20, substantially as set forth. 9th. In an apple parer, the combination, with a frame A, and a sliding table B, of a coring tube J, said tube being removably secured to the table, and adjusting screws r^1, substantially as set forth. 10th. In an apple coring machine, the combination, with a frame A, and a sliding table B, of an arm J^3 pivoted to one end of the table, said arm being forked at one end and provided with screws r^1, and a coring tube J removably secured in the arm, substantially as set forth. 11th. A coring device consisting essentially of a tube J and an arm J^3 in which this tube is removably secured, said arm having adjusting screws r^1, substantially as set forth. 12th. In an apple paring machine, the combination, with a frame A, and a sliding table B, of a coring tube J extending from the latter, an apple remover I^4 depending from one end of the frame and provided at its lower end with a loop r^5, and a device 20 for adjusting said apple remover, substantially as set forth. 13th. In an apple parer, the combination, with a main frame A, and a guide rod A^{11} extending the length of the latter, of a sliding table B mounted on this guide rod, said table having rack-teeth B^1 thereon, paring mechanism F, a swinging bracket C^9, a shaft C^{10} journalled in this bracket, and provided with a pinion B^2, and a spring H, and switch-bar C, substantially as set forth. 14th. In an apple parer, the combination, with a main frame A, a guide rod A^{11}, a sliding table B, this table having rack-teeth B^1, a cam plate thereon B^4, a coring tube J at one end, and a main driving shaft journalled in the frame, of a swinging bracket C^9, a shaft C^{10} journalled therein, said shaft having a pinion B^2 on one end, a spring H, a switch bar G loosely secured to the sliding table, this switch bar having cams thereon, a paring knife *f*, and mechanism for operating said knife, substantially as set forth. 15th. In an apple parer, the combination, with a main frame A, a guide rod A^{11} secured thereto, and a sliding table B mounted on this rod, said table having an upwardly projecting arm a^2 rigidly secured thereto, of an apple remover I^4 adjustably secured on the guide rod, and having an arm I^5 projecting therefrom, and a spring I^2 yielding connecting said arm, with the arm projecting from the sliding table, substantially as set forth. 16th. In an apple parer, the combination, with a sliding table B, of an apple slicing knife N pivoted to the table and lugs *s* by which the knife is automatically locked in position, substantially as set forth. 17th. In an apple parer, the combination, with the main frame A, a sliding table B, and paring mechanism F, of a removable switch bar G composed of an elongated bar of metal having arm M, finger M^1, arm K, ear *n*, lug n^3, depending arm n^1, and bearing pad 8, substantially as set forth. 18th. In an apple parer, the combination, with the main frame A, a sliding table B, and paring mechanism F, of a removable switch bar G composed of an elongated bar of metal, having arm M, finger M^1, arm K, ear *n*, lug n^3, depending arm n^1, and bearing pad 8, cams L, G^1, 6, and shoulder 7, substantially as set forth. 19th In an apple parer, the combination, with a sliding table B having arm n^2, offset *x*, and notch *v*, and paring mechanism F, of a removable switch bar G having a depending arm K, laterally extending lug n^3, and depending arm n^1, for the purpose substantially as set forth. 20th. In an apple parer, the combination, with a sliding table B having rack-teeth B^1, cam h, h^2, arm n^2, off-set *x*, and notch *v*, and a paring mechanism F, of a removable switch bar G having a depending arm K, laterally extended lug n^3, and depending arm n^1 for the purpose substantially as set forth. 21st. In an apple parer, the combination, with a frame A and a shaft box E^1 supported thereon, of a rocking table frame E^3 supported in said box, a turn-table E^5 pivoted in the rocking table frame, connected gearing E^4, E^6, and paring mechanism F yielding supported in the turn-table, substantially as set forth. 22nd, In an apple parer, the combination, with a main frame A, and a shaft box E^1 supported thereon, of a rocking table E^3 supported in said box, a turntable E^5 pivoted in the rocking table frame, connected gearing E^4, E^6, paring mechanism F yieldingly supported on the turn-table, and an arm E^7, adjustably secured to said rocking frame, substantially as set forth. 23rd In an apple parer, the combination, with a main frame A, a rocking table frame E^3 supported thereby, and a toothed segment E^6 pivoted to the table frame, of a turntable E^5 pivoted also to the rocking frame, substantially as set forth. 24th. In an apple parer, the combination, with a main frame A, rocking table frame E^3 supported thereby, and a toothed segment E^6, of a turn-table E^5 also pivoted to the rocking table and provided with a toothed arc E^4 adapted to mesh with the teeth of the segment, and a knife stock F pivoted to this turntable, substantially as set forth. 25th. In an apple parer, the combination, with a main frame A, a rocking table frame E^3 supported thereby, and a toothed segment E^6 pivoted in said frame, of a turntable E^5 having a toothed arc E^4 thereon, which meshes with the teeth of the segment, a paring knife stock F pivotally and yieldingly supported on the turntable, and cam mechanism for operating the paring mechanism. 26th. In an apple parer, the combination, with a main frame A, and a sliding table B, the latter having an

elongated cam flange B_4 thereon, of a rocking table frame E_3 supported by the main frame, a toothed segment E^6 thereon, a paring knife stock F, pivotally and yieldingly supported on the turntable, and an arm E_7 secured to the rocking table frame, substantially as set forth 27th In an apple parer, the combination, with a main frame A, a sliding table B mounted thereon, the latter having an elongated cam flange B_4 on its side, and a movable switch bar G having arms and cams thereon, of a rocking table frame E_3, supported by the main frame, a toothed segment E^6 pivoted on said frame, this segment having a toe M_2 adapted to be engaged by an arm M, the switch bar G, a turntable E_5 having a toothed arc E^6 thereon, which meshes with the teeth of the segment, a paring knife stock F, pivotally and yieldingly supported on the turn-table, an arm E_7 adjustably secured to the rocking table frame, and provided with a notch which receives the cam flange c on the sliding table, and a cam on the switch bar, whereby the rocking table frame is rocked, substantially as set forth 28th In an apple parer, the combination, with a main frame A, a rocking table frame E_3, said frame having an incline K_4, a toothed segment E^6 pivoted on this rocking frame, and a turntable E_5 carrying a yieldingly pivoted knife stock F, of a spring-actuated latch bar E^9 pivoted to the rocking table, and provided with a hook K_5 adapted to travel up the incline K_4 and to be engaged by the shoulder K_4 formed at the upper end of this incline, substantially as set forth 29th In an apple parer, the combination, with a main frame E, a sliding table B mounted thereon, this table having an elongated cam flange B_4, and a removable switch bar G, having projecting arms and cams thereon, of a rocking table frame E_3 pivotally supported on the main frame, a toothed segment E^6 pivoted on this rocking frame, a spring-actuated latch E^9 pivoted to the segment and provided with a hook k adapted to ride over an incline on the rocking table frame and be engaged there by shoulder K_4, a turntable E_5 pivoted in the rocking frame, and an arm E_7 adjustably secured to the rocking table, substantially as set forth. 30th. In an apple parer, the combination, with a main frame A, a sliding table B, said table having a laterally projecting lug P, a hollow forked spindle D journalled in the main frame, and a core ejector E_1 therein, of a pusher bar O having a hook Q, and a lug U, substantially as set forth

No. 30,298. Pump. (*Pompe.*)

Peter Babcock, Oil Springs, Ont., 29th November, 1888; 5 years.

Claim.—1st. In a pump, the working tube F, having on its upper end a ball valve and working over a standard I, also provided with a ball valve, substantially as shown and described. 2nd. The combination of the working tube F, with its ball valve and bush nut H, and the standard I with the pit valve J, and the pit valve socket B attached to the tube A, substantially as shown and described. 3rd. The combination of the standard I, having attached to its upper end a ball valve, and provided with the packings N, with the pit valve J, provided with the packing K and resting in the pit valve socket B, substantially as described 4th In a pump, the combination of the outer or fixed tube A and the working tube F, and standard I provided with ball valves, with the pit valve socket B and strainer C, substantially as shown and described and for the purpose set forth.

No. 30,299. Motor. (*Moteur*)

John M. Brosius, Atlanta, Ga., U.S., 29th November, 1888; 5 years.

Claim.—1st. In a spring-motor, the shaft E, the springs and gearing to drive said shaft, and a second shaft provided with a wheel, in combination of the speed regulating mechanism, consisting of the pipe P, the friction plate p bearing on said wheel, the springs s_{11} and rod R provided with stirrups S, for the purpose set forth. 2nd. In a spring motor, the combination of the shaft B, the sleeve G, said shaft and and sleeve provided respectively with the seats I and J for the winding key, the ratchets b and g, pawls b_1 and g_1, the springs L and M, the ratchets l and m, the pawls l_{11} and m_{11}, and the brakes by which the action of the springs may be stopped, substantially as shown and described. 3rd. In a spring motor, the shaft E, and mechanism for driving the same, in combination with the arm d_1 journalled on the shaft D, and adapted to permit the variation of the height of shaft E, the nut e and the slotted casing for allowing the adjustment of said shaft E, substantially as set forth. 4th. In a sewing machine motor, the combination of the spring-driven gearing, the arm d_1, the pinion shaft E, the socket-coupling connecting the pinion shaft and the sewing machine shaft, and the casing having the slots h, and screws h_1, for the purpose specified.

No. 30,300. Mowing Machine. (*Moissonneuse*)

Frank S. Jackson, John T Jackson, Thomas Jackson and Alfred Jackson, Toronto, Ont., 29th November, 1888, 5 years.

Claim.—1st. A mowing machine in which the frame which carries the working part is supported by ball bearings in open centre carrying wheels, and the knife driving mechanism is flexibly connected with the knife shoe by an oscillating tubular arm, which swings from a driving shaft, substantially as herein shown and for the purpose set forth 2nd. A mowing machine having open centre carrying wheels, of which the inner hand C and the cylindrical band F of the machine frame have formed in them the grooves a_1, in which the bearing balls roll and are held at regular intervals by the perforated pitch band H, substantially as herein shown and for the purpose set forth. 3rd In the open centre carrying wheels of a mowing machine, the grooved inner rim of band C having the flange c_1 extending inward, and the grooved cylindrical band F of the machine frame having the flange d_1 extending outward, substantially as herein shown and for the purpose set forth. 4th. A device for tilting the cutting edge of the machine knife upward and downward, consisting of the draft pole f_{11} pivoted to the front bar D, the lever a_{11} also pivoted to said bar and connected by the rod d_{11} to one arm of the bell crank e_{11}, which has its other arm attached to the rear bar E, and its angle pivoted to the rear end of the draft pole, substantially as herein set forth. 5th. The combination in a mowing machine of the circular gear rack I, attached to the carrying wheel with a pinion and clutch mechanism on the shaft F, consisting of the pinion J having wings j, j, box hub M having an inner rose clutch face, the disk N having also a rose clutch face, and the wings s, s, and the spring j_{11}, substantially as described and for the purpose set forth. 6th. The spectacle frame R secured to the front bar D, and rear bar E, and support S in adjustable bearings the shaft Q which carries the pinion l_1, the gear wheel m_1 having a rose clutch face, fixed collar n_1 having projecting clutch wings, grooved sliding collar o_1 having a rose clutch face, and projecting clutch wings to engage with those on collar o_1, substantially as specified. 7th. The shaft a_1 journalled in the radial shaft tube S which swings from the shaft Q geared to the bevel wheel m_1 by the pinion t_1, and to the pinion y_1 on the crank shaft T by the bevel wheel v_1, substantially as herein shown and described. 8th. The device for connecting or disconnecting at will the knife-driving mechanism, consisting of the double forked lever q_1 and the handled eccentric r_1, both being pivoted to the spectacle frame R by moving the rose faced sliding collar o_1 into or out of gear with the bevel wheel m_1 on the shaft Q, all substantially as herein shown and described and for the purpose set forth.

No. 30,301. Track Device for Handling Cars.

(*Voie de garage de chemin de fer.*)

Ephraim Profontaine, Chicago, Ill., U.S., 29th November, 1888, 5 years.

Claim.—1st. The combination of the unobstructed rails of a main line with the rails of a secondary line, one of which latter abuts against, and the other for a distance runs parallel with one of the main line rails, and both higher than, but neither crossing, the main line rails. 2nd. The combination of the unobstructed rails of a main line with the rails of a secondary line, one of which latter abuts against, and the other for a distance runs parallel with one of the main line rails, and both higher than the main line rails, and the short and elevated rails between, and abutting against neither of the main line rails, and parallel with said secondary rail which abuts against the main rail. 3rd. The combination of the rails of a main line, with the elevated rails of a secondary line, one of them lying for a considerable distance parallel with and near to one rail of the main line, and a plate which lies on the inside of the other rail of the main line.

No. 30,302. Metal Wheel. (*Roue métallique.*)

Ambrose A. Phillips, Toledo, Ohio, U. S., 29th November, 1888, 5 years.

Claim.—1st. In a metal wheel, a nub consisting of a solid body of metal having cross bars formed within the ends of the same, in combination with spokes engaged with the cross bars and wheel rim, as and for the purpose set forth. 2nd In a metal wheel, a hub having end portions formed with quadrant-shaped openings, and correspondingly shaped cross bars integral therewith, in combination with return spokes having their bent portions engaged with the cross bars, and their free ends attached to the rim, as and for the purpose set forth. 3rd. The herein described metal wheel comprising a circular rim, spokes attached thereto, and the fastenings formed integral with the hub, in combination with filling pieces inserted within openings in the hub, and held in place by the spread of the end portions of the same, as and for the purpose set forth.

No. 30,303. Self-Binding Harvester.

(*Moissonneuse-lieuse.*)

Andrew Stark, Chicago, Ill., U.S., 29th November, 1888; 5 years.

Claim—1st. In a self-binding harvester, the cutter-bar, in substantially the same vertical plane with the axis of the driving wheel, a moving platform adapted to convey the grain in a direction parallel with the cutter-bar, a grain receiving platform at the delivery end of the grain carrying platform, having its front side longer than its rear side, means for clearing the grain from the carrying platform and transferring it to the receiving platform, and packing, binding and discharging mechanism, adapted to pack, bind and discharge the bundle obliquely to the direction of motion of the platform conveyor, substantially as set forth. 2nd. In a self-binding harvester, in combination, the cutter-bar platform and the receiving platform adjacent to the delivery side thereof, the mechanism for removing the grain from the former and lodging it upon the latter, mechanism to turn the grain upon the receiving platform into position oblique to the cutter-bar, and a binder mounted upon the harvester frame in a position oblique to the cutter-bar. 3rd. In a self-binding harvester, in combination, the cutter-bar, platform and the receiving platform adjacent to the delivery end thereof, the mechanism for removing the grain from the former and lodging it upon the latter, mechanism to turn and advance the grain over the receiving platform, in direction obliquely backward from the line of its first motion. 4th. In a self-binding harvester, in combination, an endless conveyor in the rear of the sickle, a receiving platform adjacent to the endless conveyor and receiving the grain therefrom, mechanism to advance the grain over the receiving platform and deflect it obliquely backward from the line of motion of the endless conveyor, and a binder adapted to receive and bind it in such oblique course. 5th. In a low self-binding grain harvester, the combination of a system of packers, with mechanism for delivering the grain thereto, the path of motion of the packers being oblique to the path of the grain-delivering mechanism, substantially as set forth. 6th. In a self-binding harvester, a butt evener and a grain deflecting device, consisting of a roller on a vertical shaft revolving in contact with the butts of the grain, in combination with a swinging and reciprocating butt board acting against the same ends of the grain, in the same direction as the roller. 7th In a self-binding harvester, a butt evener and grain-deflecting device, consisting of a vertically ribbed or corrugated roller on a vertical shaft, revolving in contact with the butts of the grain, in combination with a vertically-ribbed or corrugated swinging and reciprocating vertical butt board acting against the same ends of the grain, in the same direction as the roller 8th. In a self-binding harvester, in combination, substantially as hereinbefore set forth, a grain-carrying platform adapted

to convey the grain from behind the sickle in a direction parallel thereto, a grain-receiving platform located at the delivery end of the grain-carrying platform, having its front side longer than its rear side, and its delivery end oblique to its receiving end, and terminating at the delivery end in an upward sloping binder platform, and mechanism located and adapted to act upon the grain between the butts and the middle to advance it across the receiving platform and onto the binder platform, the upward slope of the binder platform operating to obstruct the heads of the grain, while it is freely advanced at the butts across the longer side of the receiving platform, substantially as set forth. 9th. In a self-binding harvester, in combination, substantially as hereinbefore set forth, a grain-carrying platform adapted to deliver the grain from behind the sickle in a direction parallel thereto, a grain-receiving platform located at the delivery side of the grain-carrying platform, having its front end longer than its rear end, and its delivery side obliqne to its receiving side, and merging at its delivery side in an upward sloping binder platform, and mechanism for advancing the grain across the receiving platform, and onto the binder platform, and additional mechanism for advancing the grain across the longer end of the receiving platform. 10th. In a self-binding harvester, in combination, substantially as hereinbefore set forth, a grain-carrying platform adapted to convey the grain from behind the sickle in a direction parallel thereto, a grain-receiving platform located at the delivery side of the grain-carrying platform, having its front end longer than its rear end, and its delivery side oblique to its receiving side, and merging at its delivery side in an upward sloping binder platform, mechanism for advancing the grain across the receiving platform, and onto the binder platform, and additional mechanism for advancing the grain across the longer end of the receiving platform. 11th. In a self-binding harvester, in combination, substantially as hereinbefore set forth, a grain-carrying platform adapted to convey the grain from behind the sickle, in a direction parallel thereto, a grain-receiving platform located at the delivery side of the grain-carrying platform, having its front end longer than its rear end and its delivery side oblique to its receiving side, and merging at its delivery side in an upward sloping binder platform, packing mechanism adapted to actuate it alternately with the binder, and continuously actuated mechanism to advance the butts of the grain across the longer end of the receiving platform. 12th. In a grain harvester, in combination with a main frame, formed substantially as described, whereby its inner side constitutes a lower inside divider, the grain guard sustained above said part of the main frame and extending back across the cutter-bar platform, substantially as and for the purpose set forth. 13th. In a self-binding harvester, in combination with mechanism adapted to bind and discharge the bundle in a position oblique to the direction of motion of the grain carrying platform, mechanism for turning the grain flowing from the grain carrying platform into such oblique position, sustained wholly in front of the line of butts of the flowing grain, substantially as set forth. 14th. In a low self-binder, in combination with the packing and binding mechanisms, the grain guard L supported solely above and in front of the binder platform, to permit the grain to flow to the binder without obstructing the heads of the grain by the supports of such guard, substantially as set forth. 15th. In a grain harvester, in combination with the cutter-bar platform, mechanism for delivering the grain sidewise therefrom, and the binder platform, and a guard pivoted forward of said platform, overhanging the delivery end of the cutter-bar platform, and having grain-retaining fingers extending downward and stubbleward therefrom toward the binder platform. 16th. In a grain harvester, in combination with the cutter-bar platform, mechanism for delivering the grain sidewise therefrom, a binder platform and packing mechanism operating obliquely above the same, and the floating guard comprising the vertically oscillating frame overhanging the delivery end of the cutter-bar platform, and provided with the retaining fingers extended downward and stubbleward therefrom toward the binder platform, the fingers toward the front being longer than those toward the rear. 17th. In a harvesting machine, in combination with the conveying platform, a receiving platform at the delivery end thereof, slotted at its adjacent end, a clearing rake operating from below the receiving platform, and moving its teeth upward and stubbleward through the slots, and a guard pivoted forward of said platforms overhanging the delivery end of the cutter-bar platform and oscillating vertically, and having grain retaining fingers extending downward and stubbleward therefrom toward the binder platform. 18th. In a harvesting machine, in combination with the conveying platform, a slotted receiving platform at the delivery end thereof, a revolving clearing rake, provided with eccentric stripping disks, revolved in the same direction as the rake operating from beyond the receiving platform, and revolving its teeth up through the slots thereof, and a floating guard comprising a vertically oscillating frame overhanging the delivery end of the conveying platform, and retaining fingers extending downward and stubbleward therefrom, the forward fingers being longer than the rear. 19th. In a grain harvester, in combination with the conveying platform, the receiving platform adjacent thereto, the floating guard comprising the vertically oscillating frame overhanging the delivery end of the conveyor platform, and the retaining fingers extended downward and stubbleward therefrom, and an overhanging clearing rake, having its grain-actuating teeth moving from above the delivery end of the conveying platform, stubbleward above the receiving end of the receiving platform between the retaining fingers of the floating guard. 20th. In a grain harvester, in combination, the conveying platform, the receiving platform at the delivery end thereof, an overhanging floating frame, having its grain retaining fingers extended downward and stubbleward over the receiving platform, and a clearing rake, having its rear end journalled in, and oscillating vertically with such floating frame, and having its front teeth longer than its rear teeth, and means for actuating it to cause its grain-actuating teeth to move between the retaining fingers from above the delivery end of the conveying platform stubbleward over the receiving platform. 21st In a grain harvester, in combination, the conveying platform, the slotted receiving platform at the delivery end thereof, an underclearing rake operating from below the receiving end of the receiving platform, and moving its teeth upward through the slots thereof, an overhanging floating frame, having the grain-retaining fingers extended downward and stubbleward therefrom over the receiving platform, a clearing rake, having its rear end journalled in the floating frame and oscillating vertically therewith, and means for actuating it to cause its grain actuating teeth to move from above the delivery end of the conveying platform over the receiving end of the receiving platform. 22nd In a grain harvester, in combination, the conveying platform, a slotted receiving platform at the delivery end thereof, an underclearing rake operated from below the receiving end of the receiving platform, and moving its teeth upward and stubbleward through the slots thereof, an overhanging floating frame, having the grain retaining fingers extended downward and stubbleward therefrom over the receiving platform, a clearing rake having its rear end journalled in and oscillating vertically with the floating frame, and having its front teeth longer than its rear teeth, and means for actuating such rake, to cause its teeth to move from above the delivery end of the conveying platform stubbleward over the receiving end of the receiving platform. 23rd In a grain harvester, in combination, the cutter-bar, platform mechanism for delivering the grain sidewise therefrom, a floating guard overhanging the delivery end of the cutter-bar platform and retaining fingers extended downward and stubbleward therefrom, the front fingers being longer than the rear fingers, and mechanism for advancing the butts of the grain while still restrained under the said retaining fingers. 24th. In a grain harvester, in combination, the cutter-bar platform mechanism for delivering the grain sidewise therefrom, a floating guard overhanging the delivery end of the cutter-bar platform, having retaining fingers extended downward and stubbleward therefrom, a butting device, having its grain-actuating face moving in a plane crosswise of the length of the grain in front of the butts, and extending grainward beyond the stubbleward limit of the movement of the mechanism which delivers the grain from the cutter-bar platform. 25th. In a grain harvester, in combination, the cutter-bar platform and the binder platform, and mechanism for moving the grain positively from the former toward the latter, a floating guard overhanging the delivery end of the cutter-bar platform, and having the grain-retaining fingers extended downward and stubbleward therefrom, a butting device, having its grain actuating face moving in a plane crosswise of the length of the grain and in front of the butts, and extended grainward beyond the limit of the movement of the mechanism which delivers the grain off the cutter-bar platform. 26th. In a grain harvester, in combination, the conveying platform, the receiving platform at the delivery end thereof, the overhanging guard, having the retaining fingers extending from above the delivery end of the conveying platform, over the receiving end of the receiving platform, an overhanging clearing-rake having its teeth operating between the floating fingers, and butting devices carried on vertical shafts, having grain-actuating surfaces moving from a point in front of the platform conveyor obliquely rearward across the front end of the receiving platform. 27th. In a grain harvester, in combination, the conveyor platform, the receiving platform at the delivery end thereof, a floating frame overhanging the delivery end of the conveying platform and having the retaining fingers extended downward and stubbleward therefrom over the receiving platform, a clearing rake, having its rear end journalled in said floating frame and oscillating vertically therewith, and having its front teeth longer than its rear teeth, and a butting device, having its grain actuating surface moving in a vertical plane extending obliquely back from the heel of the sickle across the receiving platform 28th In a grain harvester, in combination, the conveying platform, the slotted receiving platform adjacent to the delivery end thereof, the underclearing rake, having its teeth moving upward and stubbleward through the slots, the overhanging floating frame and the upper clearing rake having its rear end journalled in the rear end of said frame and oscillating vertically therewith, and the butting device with its grain-actuating surface moving obliquely back across the front end of the receiving platform. 29th. In combination with the slotted deck, the grain rake, comprising a revolving shaft under the deck, having parallel sets of radial teeth, and stripping disks mounted on bearings eccentric to, and independent of, the shaft, and revolved laterally adjacent to the several sets of parallel teeth respectively, and protruding through the slots of the deck. 30th. In combination with the slotted deck, a grain rake, comprising a revolving shaft under the deck, and having parallel sets of radial teeth, stripping disks mounted on bearings eccentric to, and independent of, the shaft, and provided with laterally projecting studs, whereby the teeth engage and drive the disks eccentrically to the shaft in the same direction. 31st. In a grain harvester, a revolving grain-rake comprising a revolving shaft, having parallel sets of equally spaced radial teeth, stripping disks arranged in pairs, each pair embracing one set of equally spaced teeth, said stripping disks mounted in rigid bearings eccentric to the rake shaft, and provided with studs connecting the two disks of each pair in the angles between the consecutive teeth of the set. 32nd. In combination with the slotted deck, the rake, comprising the revolving shaft under the deck, having parallel sets of equally spaced radial teeth, the fixed eccentric blocks pierced by the shaft, the stripping disks revolved upon the eccentric blocks and protruding through the slots of the deck, and having lateral studs, whereby they are engaged and driven by the teeth. 33rd. In a grain harvester, in combination with the conveying platform and the receiving platform, wider at the front than at the rear, a revolving toothed rake, having its shaft below the level of the receiving platform eccentric stripping disks revolved in the same direction as the rake adjacent to its teeth and an overhanging toothed rake, having its front teeth longer than its rear teeth. 34th. In combination, substantially as set forth, the cutter-bar platform, and mechanism for delivering the grain sidewise therefrom, and a revolving packer having two sets of teeth, whose planes of rotation are oblique to the direction of motion of the platform conveyor, each set having the same number of teeth, the teeth of the forward set being located in their path of rotation in advance of the corresponding teeth of the rear set. 35th. In combination, substantially as set forth, the cutter-bar platform and means for moving the grain sidewise therefrom toward the packer, the packer comprising two sets of teeth revolving in vertical planes oblique to the motion of the platform conveyor, and having each the same number of teeth, the teeth of the forward set being longer than those of the rear. 36th. In combination, substantially as set forth, the cutter-bar platform, and mechanism which delivers the grain side-

wise therefrom, the packer comprising two sets of teeth revolving in planes oblique to the direction of motion of the conveyor, and having each the same number of teeth, those of the forward set being longer than those of the rear set, and located in their path of rotation in advance of the corresponding teeth of the rear set. 37th. In a binder placed obliquely to the line of the cutter-bar of the harvester to which it is attached, the combination, of the grain-packing mechanism, and the grain-binding mechanism driven by bevel gears on one shaft lying at right angles to the cutter-bar, substantially as set forth. 38th. In a self-binding harvester, in combination with the binder gear standard, the binder shaft journalled in the upper arm of the binder gear standard, the binder mechanism driving shaft oblique to said arm and journalled therein, and the intermeshing bevel gears on said shafts respectively, substantially as set forth. 39th. In a self-binding harvester, in combination, the main frame, the binder frame sustained thereon and located obliquely to the line of draught, and movable over the main frame in a direction parallel with the line of draught, the binder shaft journalled at one end in the binder frame, and having its other end carried by its actuating wheel journalled on the main frame, substantially as set forth. 40th. In a self-binding harvester, in combination with the main frame, a binder frame which is supported on the main frame having its shaft-bearing arms which overhang and underlie the binder table, and the binder actuating shafts journalled in said arms oblique to the line of draught, and adapted to be moved back and forward over the main frame in a direction parallel with the line of draught, a wheel sustained upon the main frame, and revolved about a horizontal axis, and a shaft whose axis coincides with that of the wheel and is revolved thereby, and adjustable in the direction of its axis, and mechanism for communicating motion from such shaft to the oblique shafts journalled on the binder frame. 41st. In a self-binding grain harvester, in combination with a binder whose shaft-bearing arms and the shafts journalled therein which drive the packing and binding mechanisms, are oblique to the line of draught of the machine, and which is adapted to be moved over the main frame in a direction parallel with the line of draught, a horizontal shaft parallel with the line of draught sustained on the main frame, and revolved by the main driving train, and adapted to slide endwise in its bearings on the main frame, and mechanism by which said shaft communicates motion to the oblique shafts on the binder frame. 42nd. In a self-binding grain harvester, in combination with the main frame, a binder which has its shaft-bearing arms, which overhang and underlie the binder table oblique to the line of draught, suitable supports for the binder frame adapted to bear and move upon said ways, and means for moving the binder frame back and forward over said ways in a direction parallel to the line of draught. 43rd. In a self-binding harvester, in combination, the main frame having horizontal ways for the binder frame, the binder frame adapted to rest upon and move over such ways, a horizontal rock shaft journalled on the main frame, a crank arm on said shaft, a link connecting said crank arm to the binder frame, and means for rocking said shaft at will in its said bearings, whereby the crank is made to actuate the binder frame as desired. 44th. In a self-binding harvester, a binder frame whose horizontal arms, overhanging and underlying the table, are oblique to the line of draught, and which is adapted to be moved over the main frame in a direction parallel with the line of draught, a base frame comprising two horizontal bars joined respectively to the front and rear ends of the under oblique arm of the binder frame, and united to each other as integral at one end, and at both ends bearing upon the main frame, and adapted to move back and forward over suitable ways thereon, substantially as set forth. 45th. In a self-binding harvester, in combination, with the receiving and binding platforms, constructed substantially as described, whereby they comprise a substantially horizontal portion at the delivery end of the conveying platform wider at the front than at the rear, and an upward sloping portion of substantially uniform width in front of the needle rift, and packing mechanism operating above the platform in an oblique direction, to gather the grain upon and advance it over the upward sloping portion of the platform, substantially as set forth. 46th. In a self-binding grain harvester, in combination, the receiving and binding platforms, constructed substantially as described, whereby they comprise a substantially horizontal portion at the delivery end of the conveying platform wider at the front than at the rear, and in an upward sloping portion lying oblique to the horizontal portion, and of substantially uniform width in front of the needle rift, forwarding mechanism operating across the wider end of the horizontal portion, and packing mechanism operating in an oblique direction over the narrower end of the horizontal portion, and over the upward sloping portion, whereby the grain is gathered upon said upward sloping portion in a position parallel with its said oblique direction, and advanced upward over it in the direction of the motion of the said packing mechanism. 47th. In a self-binding grain harvester, in combination with the main frame, the receiving platform, the binder frame adapted to slide back and forward over the main frame in a direction parallel with the line of draught, the binder platform sloping upward and obliquely backward from the receiving platform, and moving back and forward with the binder frame. 48th. In a self-binding harvester, in combination, with the main frame, and the binder frame adapted to move back and forward thereon in a direction parallel with the line of draught, a horizontal receiving platform, a binder platform sloping upward and obliquely backward therefrom, and of substantially uniform width in front of the needle rift, and narrowing rearward from said needle rift, and moving back and forward with the binder frame. 49th. In a grain binder, in combination, with the binder mechanism, driving shaft, a rigid arm extending therefrom in front of the accumulating bundle, whereby the pressure of the bundle shall tend to impart motion to the shaft, the binder driving wheel, its continuously moving driving train, and mechanism whereby the driving wheel at one position in its revolution is disengaged from its driving train and, re-engaged after passing that position, substantially as set forth. 50th. The combination, substantially as hereinbefore set forth, of the lever arm H^9 on the binder shaft, the rock shaft H^8, and its lever arms, the yielding trip h^{11}, and the stop pin h^8, and the packing and binding mechanisms, whereby the pressure of the grain accumulated by the packers against the lever arm H^9 is prevented from starting the binding mechanism until it is sufficient to actuate said mechanism, and operate the trip to effect the engagement with the driving power. 51st. In combination with the driving wheel n^5, the cam n^{51} thereon, the double trip lever n^7, the spring n^{70}, the bevel gears n^3 and n^4, having upon their hubs the annular flanges, the spring retracted pawls n^{31} and n^{32}, the continuously revolving shaft n^3, and its collar having the rib h^{30}, and mechanism adapted to be actuated by the pressure of the bundle, to start the binder driving wheel n^5, and the packer driving wheel n^2, substantially as set forth. 52nd. In combination with the driving shaft, n^3 the clutch rib n^{30}, the gears n^3 and n^4, and the spring retracted pawls n^{31} and n^{32}, revolving with said gears respectively, the lever n^7, the driving wheel shaft n^5, and lever arm h^9 connected thereto, the breast plate h^{71}, and yielding trip h^{71}, the rock shaft h^8, and its lever arms, its operating spring, and the stop join h^9, all co-operating substantially as set forth. 53rd. In a grain binder, in combination with a rocking binder arm having its rock shaft journalled in the frame, a compressor pivoted on a fixed pivot on the binder frame, and a line directly connecting said compressor and needle, and constituting the sole means of actuating the compressor, to cause it to co-operate with the needle, to compress and release the bundle and withdraw out of the path of the bundle in its discharge 54th. In a grain binder, in combination with the rocking binder arm having its rock shaft journalled in the binder frame, a compressor rocking over a fixed pivot on said binder frame lower than the needle rock shaft bearings, and a link connecting said needle and compressor, and solely actuating the latter both in its advance and in its retreat. 55th. In a grain binger, in combination, with a rocking needle, and with a rocking compressor, the binder deck platform slotted in the path of oscillation of the needle, and also in the path of oscillating of the compressor, and link connected to said needle, and to said compressor below the pivot of one, and above the pivot of the other, and constituting the sole means of actuating the compressor, to cause said needle and compressor simultaneously to advance and retreat through said slots respectively, substantially as set forth. 56th. In a harvesting machine, the combination of a rigid main frame adapted to carry the driving mechanism, the inner segment axle guide and a rigid finger-bar, each of said parts secured rigidly to both the others, substantially as and for the purpose set forth. 57th. In a harvesting machine, the combination, of an iron frame around the front outer side and rear of the drive wheel, a cross-bar at the inner side of said wheel rigidly secured at front and rear to said iron from the inner guiding segment for the main axle secured rigidly to said cross-bar, and the finger-bar rigidly secured to both said cross-bar, and said guiding segment, substantially as set forth. 58th. In a harvesting machine, the combination, of an inner main frame rigidly secured to the finger-bar, and extending thence around the front outer side, and rear of the drive wheel, a cross-bar at the inner side of said wheel rigidly secured at front and rear to said iron frame, the inner guiding segment for the main axle rigidly and directly secured to both the finger-bar, and said cross-bar, substantially as set forth. 59th. In a harvesting machine, the combination, of an iron frame extending around the front outer side and rear of the drive wheel, a cross-bar at the inner side of the drive wheel and rigidly secured at front and rear to said iron frame, the inner inner guiding segment for the main axle secured rigidly and directly both to the said finger-bar, and the cross-bar, substantially as set forth. 60th. In a harvesting machine, the main frame consisting of the continuous iron bar B, having the portion b extending diagonally from a point near the intersection of said bar, with the draught pole to a point near the finger-bar, rigidly secured to the said iron bar near the end of the diagonal portion b, and to the said cross-beams, substantially as and for the purpose set forth. 61st. In a harvesting machine, the main frame consisting of the continuous iron bar B secured at one end to the finger-bar near the heel of the cutter-bar, thence extending in an approximately direct course to the intersection with the draught pole, and thence around the front, outside and rear of the drive wheel, in combination with the cross-beams B^2, B^3, secured to the front and rear of said iron bar B, the finger-bar B^{10}, and the rear sill B^1, the last two being secured to both of said cross-beams, substantially as and for the purpose set forth. 62nd. In a harvesting machine, the rigid main frame supported at one end directly upon the main axle segment, axle guides rigidly secured to the frame, the finger-bar rigidly and directly secured to the inner segment guide, and a pole locked and rigid with the main frame connected to the finger-bar, all combined and operating as and for the purpose set forth. 63rd. In a harvesting machine, in combination with the platform and the cutter-bar, the bracket B^{30} adapted to be rigidly secured at the end of the cutter-bar, and having integrally the front and rear attachments for the outside divider, the pivot for the grain wheel levers, and the segmental guide, substantially as set forth. 64th. In a harvesting machine, in combination with the main frame, the cross-bar rigid therewith extending from front to rear inside the drive wheel, the inner segment rigidly secured to the cross-bar, the finger-bar rigidly secured to both main frame, and the lower end of the inner segment, and the upper frame-bar secured rigidly to the upper end of the inner segment, and to the inner side of the main frame, and thereby bracing the segment, substantially as set forth. 65th. In a harvesting machine, in combination with the main frame secured rigidly to the finger-bar, and extending thence forward around the front, outside and rear of the driving wheel, and the cross-bar inside the driving wheel rigidly secured front and rear to the main frame, and the inner segment secured to the cross-bar, and to the finger-bar, the upper frame-bar secured rigidly to the upper end of the inner segment and to the inner side of the main frame. 66th. In a harvesting machine, in combination, substantially as hereinbefore set forth, the inner segment, the finger-bar, and the grain wheel guide, the segment, and the grain wheel guide, being both rigidly and directly secured to the finger-bar. 67th. In a harvesting machine, in combination the inner segment, the grain wheel guide, and the finger-bar, the segment and grain wheel guide, being both secured directly and rigidly to the finger-bar, and having respectively the inside and outside guides for the platform supporting cable. 68th. In a harvesting machine, in combination, as set forth, the iron main frame secured to the finger-bar, and extending thence forward around the front, outside and rear of the driving wheel, a cross-bar rigidly secured to the front and rear sides of the main frame inside the wheel, the inside segmental axle guide rigidly secured to the finger bar, and to the

cross-bar, and the main driving pinion frame rigidly secured to the segmental axle guide and to the cross-bar 69th. In a grain harvester, in combination with the finger-bar, and the outside divider the castings rigidly and directly secured to both, and forming the connection between them, and having both bearings, and the guide for the grain wheel guiding lever, substantially as set forth 70th. In a grain harvester, in combination, with the finger-bar, the casting B^{36}, having integrally the supports for the outside divider, and the outside finger of the sickle guard, substantially as set forth. 71st. In a harvesting machine, the combination, of a rigid main frame adapted to carry the driving, cutting and conveying mechanism, and supported at one end directly upon the main axle, mechanism for raising and lowering the stubble end of said frame on the axle, the finger-bar, the grain wheel lever pivoted at the grain end of the finger-bar, and a cable or chain loosely connected on the main axle extending under the finger-bar, and attached to the grain wheel lever, whereby the raising and lowering movement of the stubble end of the platform is transmitted to the grain end of the same, substantially as set forth. 72nd. In a harvesting machine, the combination, of the main axle, the main frame, the finger-bar secured to the main frame in the vertical plane of the lower end of the said axle guide, the sector guard b^{38} attached rigidly to the finger-bar, the lever B^{9}, pivoted at the end of the finger-bar, the grain wheel journalled to said lever, and the cable b^{32} loosely connected to the main axle and running over suitable guide pulleys, and under the finger-bar to and actuating the free end of the lever, substantially as set forth. 73rd. In a harvesting machine, the cable or chain for communicating the raising and lowering movement from the stubble end to the grain end of the frame, arranged to be under the finger-bar, in combination with the grain wheel lever B^{9} pivoted at the end of the finger-bar, substantially as set forth. 74th. In a grain harvester, for the purpose of raising and lowering the frame on the driving wheel, the windlass and cable the ratchet and hand lever having the pawl shoulder C^{40}, the detaining pawl trip c^{61}, the bell crank lever c^{62}, all combined and co-operating substantially as set forth. 75th. In a grain harvester, in combination, with the rigid main frame, and a draught pole connected thereto at two points of its length, a windlass and cable for raising and lowering the frame, the helical plate b^{36} secured to said windlass, and the the rack B^{34} secured to the pole, substantially as set forth 76th. In a grain harvester, the combination, with the rigid main frame, of a draught pole rigidly connected to such frame at two points, mechanism for adjusting the height of said frame, and mechanism connected to such adjusting mechanism, and to one of the draught pole connections, whereby the angle of said draught pole is automatically adjusted in the act of raising and lowering the frame

No. 30,304. Railway. (*Chemin de fer.*)

Eben M. Boynton, West Newbury, Mass., U. S., 29th November, 1888; 5 years.

Claim.—1st. A railway line constructed with a single supporting or bed rail, and an overhead guide rail supported by a suitable structure for retaining the rolling stock on the bed rail. 2nd. A railway structure open on one side, and adapted to support and guide rolling stock, substantially as set forth 3rd. A railway structure adapted to support and guide rolling stock formed of bent rails or beams to encircle the train, substantially as set forth. 4th. A railway structure adapted for a quadruple single rail line, two of which are elevated, and two of which are surface tracks, substantially as set forth 5th. A railway structure adapted to support and guide "bicycle" rolling stock, the overhead guide rail being so placed at the curve as to tilt the train towards the radius of the same, for the purpose and substantially as set forth. 6th. A railway switch constructed and operated to shift the bed rail and guide rail simultaneously, substantially as set forth.

No. 30,305. Railway. (*Chemin de fer.*)

Eben M. Boynton, West Newbury, Mass., U. S., 29th November, 1888; 5 years.

Claim.—1st. In "bicycle" locomotives and "bicycle" carriages, the combination of two or more supporting wheel, and two or more overhead guide wheels, substantially as set forth. 2nd. In "bicycle" locomotives and railway carriages, an overhead guide wheel in combination with supporting wheels, and two safety wheels, substantially as set forth. 3rd A "bicycle" locomotive provided with a single driving wheel, and one or more supporting wheels, and two or more overhead guide wheels, substantially as set forth. 4th. In a "bicycle" locomotive, in combination with a bed frame, an upper framing to support the overhead guide wheels, substantially as set forth 5th. In a bicycle" locomotive, a coal supply box provided with incline chutes arranged on opposite sides of the driving wheel, substantially as set forth.

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

1266. THE ROYAL ELECTRIC CO., (assignee), 2nd 5 years of No. 18,051, from the 10th day of November, 1888. Improvements on Electric Arc Lights, 2nd November, 1888.

1267. THE ROYAL ELECTRIC CO., (assignee), 2nd 5 years of No. 18,052, from the 10th day of November, 1888. Improvements on Regulation of Electric Currents, 2nd November, 1888.

1268. J. LEVISEY and JOSHUA and JAMES KIDD, 2nd 5 years of No. 18,182, from the 26th day of November, 1888. Improvements in Apparatus for Incarcting Illuminating Gas, 6th November, 1888.

1269. THE WILLIAMS MANUFACTURING CO., (assignee) 2nd and 3rd 5 years of No. 18,500, from the 21st day of January, 1887. Improvements in Sewing Machines, 6th November, 1888.

1270. T. PHILIPS, 2nd 5 years of No. 18,107, from the 17th day of November, 1888. Improvements in Tubular Lanterns, 9th November, 1888.

1271. J. W. and E. M. Wyant, 2nd 5 years of No. 21,509, from the 22nd day of April, 1888. Improvement on Curtain Fixtures, 10th November, 1888.

1272. T. ENGLISH, 2nd 5 years of No. 18,114, from the 17th day of November, 1888. Improvements on Apparatus for Subaqueous Boring, 12th November, 1888.

1273. A. M. H. MOSS, 2nd 5 years of No. 18,089, from the 16th day of November, 1888. Improvements in Dust Pans, 12th November, 1888.

1274. P. HENRICKS, 2nd 5 years of No. 18,099, from the 17th day of November, 1888. Improvements on Sectional Show Cases, 12th November, 1888.

1275. P. HENRICKS, 2nd 5 years of No. 18,100, from the 17th day of November, 1888. Improvements on Sectional Show Cases, 12th November, 1888.

1276. P. HENRICKS, 2nd 5 years of No. 18,101, from the 17th day of November, 1888. Improvements on Sectional Cases, 12th November, 1888.

1277. THE AMERICAN SCREW CO., (assignee) 2nd and 3rd 5 years of No. 21,093, from the 19th day of May, 1891. Improvements in Gimlet Pointed Rolled Wood Screws, 13th November, 1888.

1278. THE AMERICAN SCREW CO., (assignee) 2nd and 3rd 5 years of No. 21,094, from the 19th day of May, 1891. Improvements in the Method of Manufacturing Rolled Wood Screws, 13th November, 1888.

1279. THE AMERICAN SCREW CO., (assignee), 2nd and 3rd 5 years of No. 25,254, from the 28th day of October, 1891. Improvements on Machines for Rolling Screw Threads, 13th November, 1888.

1280. J. COOPER and F. FAIRMAN, 2nd 5 years of No. 18,192, from the 27th day of November, 1888. Improvements on Apparatus for Coating Metals with Metal in Melted State, 16th November, 1888.

1281. J. COOPER and F. FAIRMAN, 2nd 5 years of No. 18,318, from the 18th day of December, 1888. Improvements on Wire Wiping Apparatus, 16th November, 1888.

1282. J. COOPER and F. FAIRMAN, 2nd 5 years of No. 18,320, from the 18th day of December, 1888. Improvements on Apparatus for Feeding Wire, 16th November, 1888.

1283. J. COOPER and F. FAIRMAN, 2nd 5 years of No. 18,321, from the 18th day of December, 1888. Improvements on Apparatus for Pickling Wire, 16th November, 1888.

1284. THE SOUTH BEND IRON WORKS, 2nd 5 years of No. 18,312, from the 15th day of December, 1888. Improvements on Ploughs, 16th November, 1888.

1285. T. GINGRAS, 2nd 5 years of No. 18,154, from the 22nd day of November, 1888. Improvements on Fly Nets, 16th November, 1888.

1286. J. McCORMICK, 2nd 5 years of No. 18,120, from the 20th day of November, 1888. Improvments in Four Wheeled Vehicle Springs, 16th November, 1888.

1287. J. WARIN, 2nd 5 years of No. 18,150, from the 22nd day of November, 1888. Improvements in Oars, 19th November, 1888.

1288. L. R. MEDBURY, 2nd and 3rd 5 years of No. 20,339, from the 9th day of October, 1888. Sheet Metal Fabric, 19th November, 1888.

1289. W. H. WORTMAN and F. WARD, 2nd 5 years of No. 18,139, from the 21st day of November, 1888. Improvements in Harpoon Hay Forks, 19th November, 1888.

1290. E. MACK, 2nd 5 years of No. 18,133, from the 20th day of November, 1888. Improvements on Door Hangers, 20th November, 1888.

1291. J. DURANCE, 3rd 5 years of No. 9,389, from the 22nd day of November, 1888. Improvements on Cocks, 21st November, 1888.

1292. SPRATT'S PATENT (America), 2nd 5 years of No 18,158, from the 22nd day of November, 1888. Improvement on Preparation of Food for Animals Game and Poultry, 21st November, 1888.

1293. J. B. HARRIS, 2nd 5 years of No 18,153, from the 22nd day of November, 1888. Improvements in Heaters for Dwelling Houses and other Buildings, 22nd November, 1888.

1294. THE J. B. ARMSTRONG MANUFACTURING CO., (assignee), 3rd 5 years of No. 9,459, from the 10th day of December, 1888. Improvements in Springs, 23rd November, 1888.

1295. C. L. ROBINSON and F. H. NICOLAYSEN, 2nd 5 years of No 18,269, from the 8th day of December, 1888. Medical Compound for the Treatment of Fever and Ague, 24th November, 1888.

1296. N. H. GREENE, 2nd 5 years of No. 18,172, from the 24th day of November, 1888. Improvements in Convertible Freight Cars, 24th November, 1888.

1297. E. N. HENEY (assignee), 2nd 5 years of No. 18,193, from the 27th day of November, 1888. Improvements on Jump Seat Carriages, 26th November, 1888.

NOVEMBER LIST OF TRADE MARKS.

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

3294. LAMBERT PHARMACAL COMPANY, of St. Louis, Missouri, U.S.A. Medicinal Preparations, 5th November, 1888.

3295. HYDROLEINE COMPANY LIMITED, 75 High Holborn, London, England. Soap Powders, 6th November, 1888.

3296. BENJAMIN YOUNG, of Canoe Pass, Fraser River, B.C. Canned Salmon, 8th November, 1888.

3297. BEARDMORE & CO., of Toronto, Ont. Leather, 10th November, 1888.

3298. PHILLIP BEST BREWING CO., of Milwaukee, Wisconsin, U.S.A. Tonic Beverage, 10th November, 1888.

3299. JAMES EPPS & CO., of London, England. Cocoa, Chocolate, Chocolate Essence, etc. 10th November, 1888.

3300. DE GRUCHY & RAPHAEL, of Montreal, Que. Hosiery, 16th November, 1888.

3301. ARNOLD CORNELIUS ALOISIUS NOLET, of Schiedam, Holland. Spirits. 16th November, 1888.

3302. ZOTIQUE MERINEAU, de Montreal, Que. Graisse pour conserver les harnois et les chaussures, 16 Novembre, 1888.

3303. FRANK HATHEWAY, of Saint John, N.B. Wheaten Flour in Barrels or Sacks, 16th November, 1888.

3304. WILLIAM GODKIN BEACH, of Toronto, Ont. Lamp Chimneys, 17th November, 1888.

3305 JAMES EPPS & CO., of London, England. Cocoa, Chocolate, Chocolate Essence, etc., 17th November, 1888.

3306. DAVID MORTON & SONS, of Hamilton, Ont. Washing Soap, 17th November, 1888.

3307 E. S. McCOMAS, J. L. FULLER, H. L. CHAPIN and J. T. McCOMAS, doing business under the name, style and firm of E. S. McCOMAS & CO., of London, Ont. Any and every goods, article, medicine or product compounded or manufactured out of, or used in connection with, Medical Lake Water, or any reduction or condensation thereof, 21st November, 1888.

3308. BIRMINGHAM VINEGAR BREWING COMPANY, (LIMITED), of Ashted Row, Birmingham, Warwickshire, England. Substances used as food, or as ingredients in food, including Vinegar, Sauce and Pickles, 21st November, 1888.

3309. CHARLES WATKINS & SON, of The Hereford Brewery, Hereford, Herefordshire, England. Fermented Liquors and Spirits, 27th November, 1888.

3310. STEPHEN E. GARRETT, of Bedford, Que. Chopping Axes, 27th November, 1888.

3311. THE MANHATTAN THERAPEUTIC COMPANY, of New York, U.S.A. Certain Medical Compound, 30th November, 1888.

3312. BURROUGHS, WELLCOME & CO., of Snow Hill Buildings, Holborn Viaduct, London, England. Medicinal, Nutritive and Confection Preparations, in lozenge or solid form for human use, 30th November, 1888.

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4510. THE ASTONISHING HISTORY OF TROY TOWN. By Q. Wm. Bryce, Toronto, Ont., 3rd November, 1888.

4511. A New and Original Opera, in two Acts, entitled, "THE YEOMEN OF THE GUARD, OR THE MERRYMAN AND HIS MAID." Written by W. S. Gilbert. Composed by Arthur Sullivan. Librotto. The Anglo-Canadian Music Publishers' Association (L'd.) London, England, 3rd November, 1888.

4512. MANUEL DE DROIT PARLEMENTAIRE, OU COURS ELEMENTAIRE DE DROIT CONSTITUTIONNEL. Par P. B. Mignault, P. B. Mignault et Amedée Periard, Montreal, Que., 3 Novembre, 1888.

4513. LIGHTLY, LIGHTLY. Boat Song and Chorus, from the Opera of "Nadgy." Words by Alfred Murray. Music by F. Chassaigne. The Anglo-Canadian Music Publishers' Association (L'd.) London, England, 5th November, 1888.

4514. WE ARE THE DEITIES DRAMATIC. Song from the Opera of "Nadgy." Words by Alfred Murray. Music by F. Chassaigne. The Anglo-Canadian Music Publishers' Association (L'd.) London, England, 5th November, 1888.

4515. PRACTICAL EXERCISES IN ENGLISH COMPOSITION. By H. I. Strang, B.A. The Copp, Clark Co (L'd.) Toronto, Ont., 5th November, 1888.

4516. PAPA, WHAT WOULD YOU TAKE FOR ME? Composed and sung by H. T. Crossley. Wm. Briggs, Toronto, Ont., 5th November, 1888.

4517. PROMISSORY NOTES AND DRAFTS (book). John Wesley Johnson, Belleville, Ont., 6th November, 1888.

4518. THE ROGUE. By W. E. Norris (book) The National Publishing Co., Toronto, Ont., 6th November, 1888.

4519. SEND OUT THY LIGHT. An Anthem adapted to Music of Ch. Gounod. Sydney Ashdown, Toronto, Ont., 7th November, 1888.

4520. LE ROSAIRE SANS DISTRACTIONS. Une pensée pour chaque Ave. Congregation de Notre Dame. Maison Mère. Jas. A. Sadlier, Montreal, Que., 7th November, 1888.

4521. LE CALENDRIER DU DIOCESE DE QUEBEC POUR 1889. J. A. Langlais, Quebec, Que., 7th November, 1888.

4522. THE MERCANTILE TEST AND LEGAL RECORD, NOV. 1st, 1888 (publication). Dun, Wiman & Co., Toronto, Ont., 9th November, 1888.

4523. THE MERCANTILE AGENCY NOTIFICATION SHEET, NOV. 7th, 1888 (publication). Dun, Wiman & Co., Toronto, Ont., 9th November, 1888.

4524. FEUILLET d'ALBUM. Op. 116. Par Stephen Heller (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4525. REVERIE. Op. 46. No. 27. By Stephen Heller. (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4526. TARANTELLA. Op. 90. No. 22. Par Stephen Heller (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4527. ANXIÉTE. Op. 90. No 14. Etude. Par Stephen Heller (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4528. PENSEE. Op. 47. No. 23. By Stephen Heller (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4529. ESQUISSE. Op. 16. No. 22. Par Stephen Heller (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4530. EINFALT. Op. 90. No. 3. Etude. By Stephen Heller (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4531. JAGDLIED. Op. 90. No. 7. By Stephen Heller (Music). Sydney Ashdown, Toronto, Ont., 12th November, 1888.

4532. THE LAND OF NO-WHERE. Words by Ella Wheeler Wilcox. Music by John M. Whyte. John Marchant Whyte, Fenwick County, Welland, Ont., 12th November, 1888.

4533. PHOTOGRAPHIE REPRESENTANT L'ACCIDENT ARRIVÉ AU PARC LANSDOWNE, LE 26 SEPTEMBRE, 1888, DURANT L'ASCENSION DU BALLON. Edouard Aubé, Ottawa, Ont., 12th November, 1888.

4534. A SUMMER NIGHT IN MUNICH. Waltz. By Alfred Cellier. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 12th November, 1888.

4535. L'INTERIEUR DE L'ÉGLISE ST. ROCH DE QUEBEC (photo). Marc A. Montminy, Quebec, Que., 12 Novembre, 1888.

4536. THE KINDLY YOKE, OR HIS COMMANDMENTS ARE NOT GRIEVOUS. A Text for Every Week in the Year (book). Wm. Briggs, Toronto, Ont., 14th November, 1888.

4537. THE BOND STREET PULPIT. Being a series of discourses delivered by Rev Joseph Wild, M.A., D.D. Yeigh & Co., Toronto. Ont., 14th November, 1888.

4538. EDITHA'S BURGLAR. By Frances Hodgson Burnett (book). Wm. Bryce, Toronto, Ont., 16th November, 1888.

4539. PUBLIC SCHOOL TEMPERANCE. By Benjamin Ward Richardson (book). G. W. Ross, Minister of Education for the Province of Ontario, 17th November, 1888.

4540. THE CREEPING BABY. (pictorial representation), Pugsley, Dingman & Co., Toronto, Ont., 19th November, 1888.

4541. THE ONTARIO REPORTS. VOLUME XV. Containing Reports of Cases decided in the Queen's Bench, Chancery and Common Pleas Divisions of the High Court Justice for Ontario. The Law Society of Upper Canada, Toronto, Ont., 19th November, 1888.

4542. STIRRING INCIDENTS IN THE LIFE OF A BRITISH SOLDIER. An Autobiography. By Thomas Faughnan, late Colour Sergeant, 2nd Battalion, 6th Royal Regiment. Enlarged and illustrated. Thos. Faughnan, Picton, Ont., 21st November, 1888.

4543. THE DAIRYING INDUSTRY. ITS INFLUENCE IN CANADA. Which is now being preliminarily published in separate articles, simultaneously in the various newspapers of the different Provinces of the Dominion. (Temporary Copyright). Wm. H. Lynch, Danville, Que., 23rd November, 1888.

4544. CIRCULAR REFERRING TO DINGMAN'S ELECTRIC SOAP. Pugsley, Dingman & Co., Toronto, Ont., 23rd November, 1888.

4545. CABLE QUAKERISMS (pamphlet). Charles Henry Binks, Montreal, Que., 26th November, 1888.

4546. CANADA'S CHRISTMAS, 1888 (book). Wm. Bryce, Toronto, Ont., 26th November, 1888.

4547. A New and Original Opera in two Acts, entitled, THE YEOMEN OF THE GUARD, OR, THE MERRYMAN AND HIS MAID. Written by W. S. Gilbert. Composed by Arthur Sullivan. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 26th November, 1888.

4548. PASTORELLA. Waltz. By P. Bucalossi Chappell & Co., London, England, 27th November, 1888.

4549. PICK-A-BACK. Polka. By P. Bucalossi. Chappell & Co., London, 27th November, 1888.

4550. DOLLIE. Rustic Dance. By Seymour Smith. Chappell & Co., London, England, 27th November, 1888.

4551. RECORD (form). The Mercantile and Reporting Association, St. Catharines, Ont., 28th November. 1888.

4552. AGREEMENT REPORT (form). The Mercantile and Reporting Association, St. Catharines, Ont., 28th November, 1888.

4553. A GRAVE IN THE SUNSHINE. Words by The Khan. Music by Dr. J. Max Mueller. Winifred Ann Battle, Ottawa, Ont., 29th November, 1888.

4554. THE HIGH SCHOOL DRAWING COURSE, in five books. By Arthur J. Reading. The Grip Printing and Publishing Co., Toronto, Ont., 30th November, 1888.

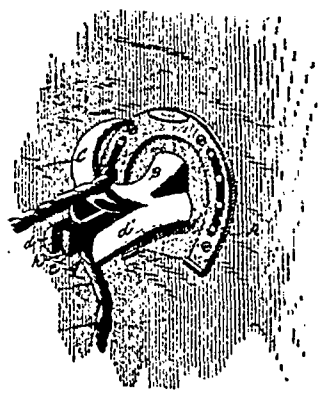
4555. THE MERCANTILE TEST AND LEGAL RECORD, NOV. 29TH, 1888 (publication). Dun, Wiman & Co., Toronto, Ont., 30th November, 1888.

THE

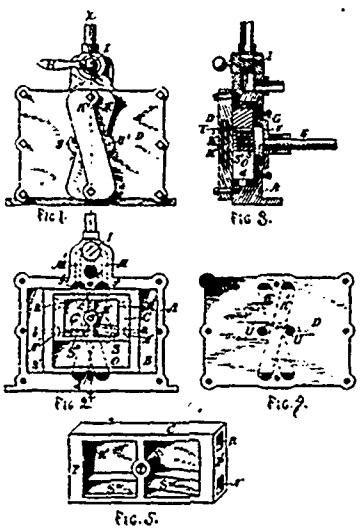
CANADIAN PATENT OFFICE RECORD.

ILLUSTRATIONS.

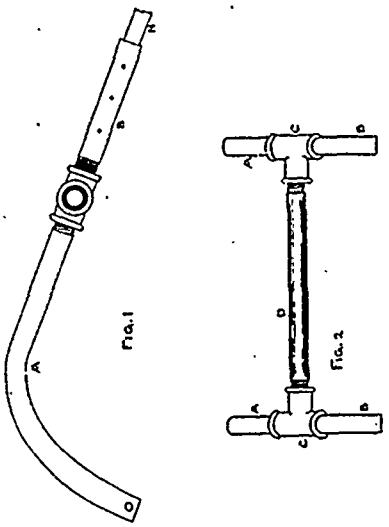
Vol. XVI. NOVEMBER, 1888. No. 11.



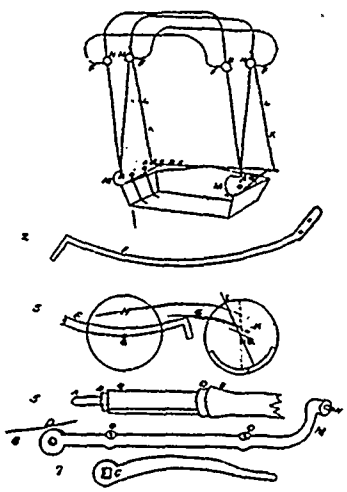
30074 Perry's Hook for Fastening Ropes.



30075 Dake's Steam Engine.

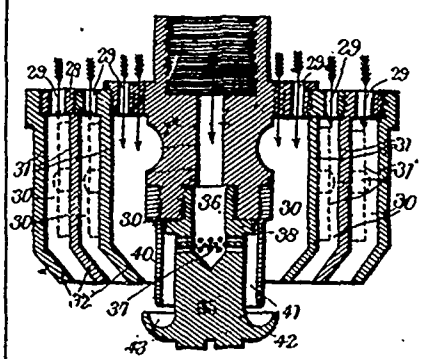


30076 Brown's Carriage Shaft.

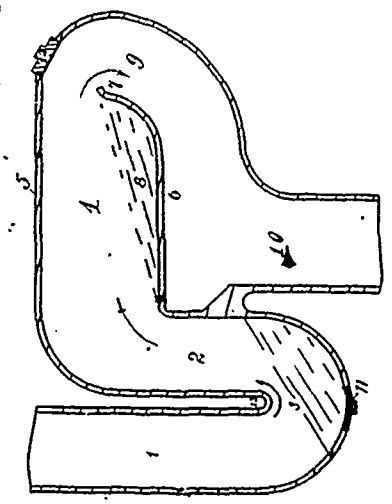


30077 Robson's Carriage Top Bar.

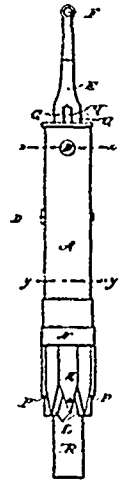
FIG. 3.



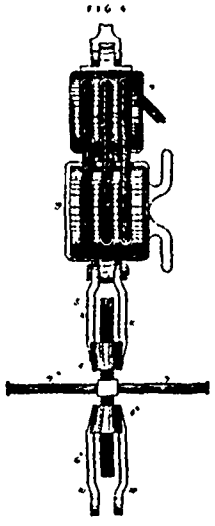
30078 Thomas' Gas Lamp.



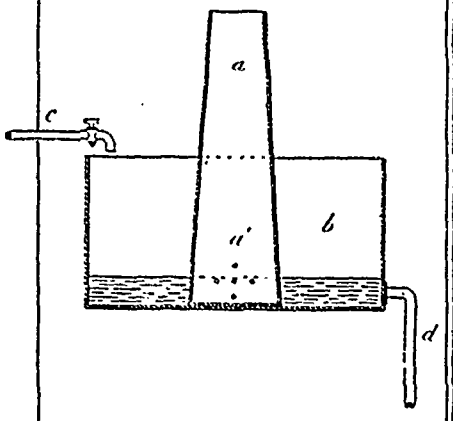
30079 Paradice's Anti-Siphoning Trap.



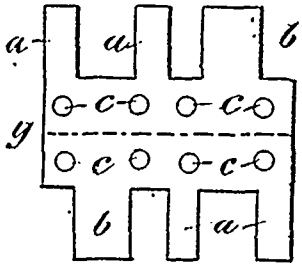
30080 Gourley, Weney and Hertzler's Core Drill.



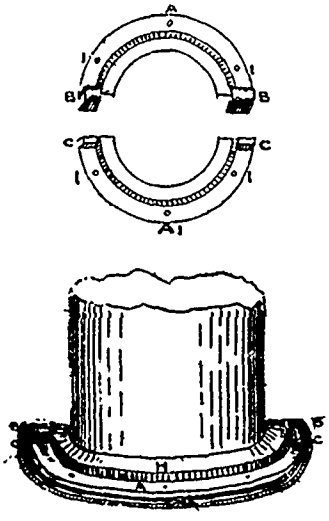
30081 DeGruyter's Apparatus for raising and lowering ship's boats.



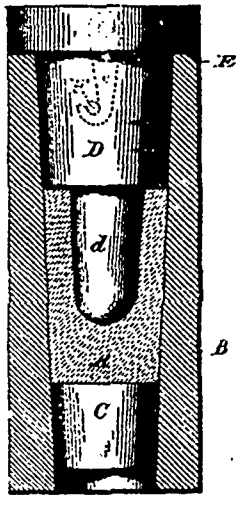
30082 Condor's Purification of Water, etc.



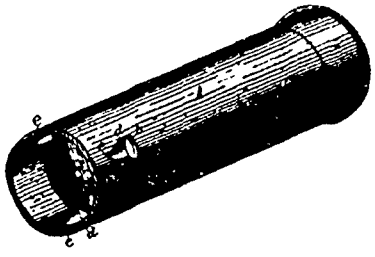
30083 Hart's Making of Hinge Leaves.



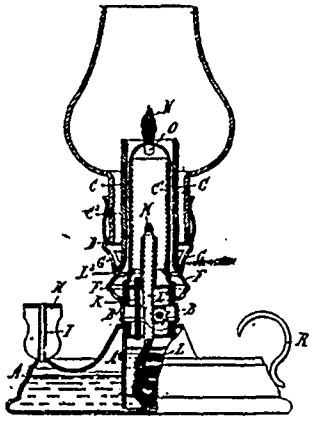
30084 Elliott's Securing Sanitary Earthen Closets to Floors.



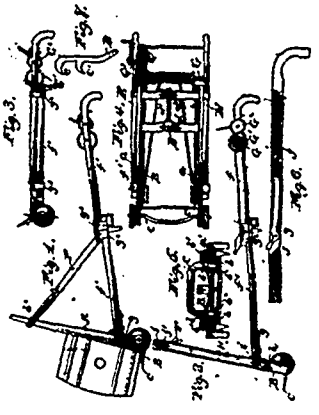
30085 Ruth's Tobacco Pipe, etc.



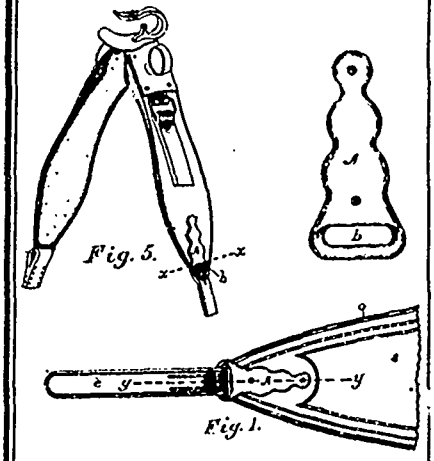
30086 Peters' Cartridge Shell.



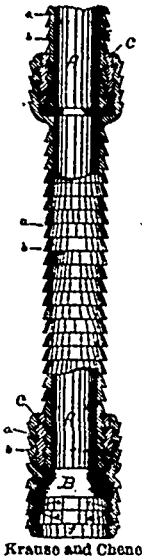
30087 Chandor's Apparatus for Burning Hydrocarbon, etc.



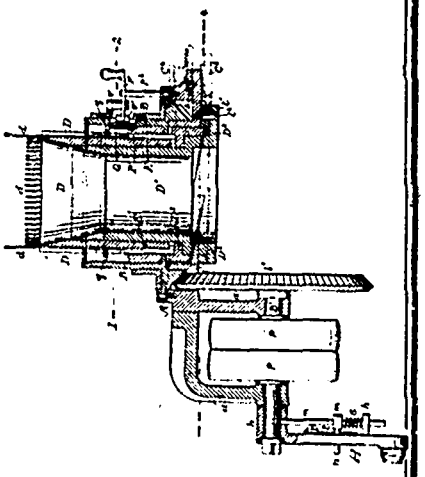
30088 Hahn's Hand Truck.



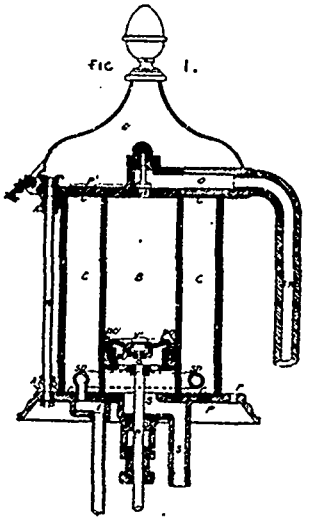
30089 Larkin's Harness Saddle.



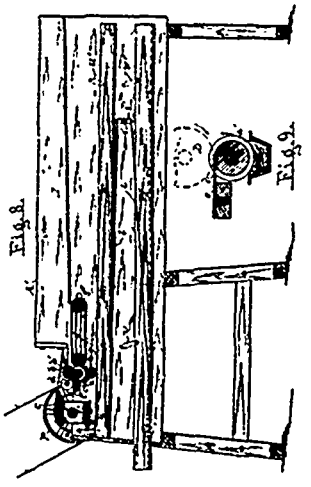
30090 Gleich, Krause and Cheney's Soil, Gas, Water, Sewer Pipe and Fittings.



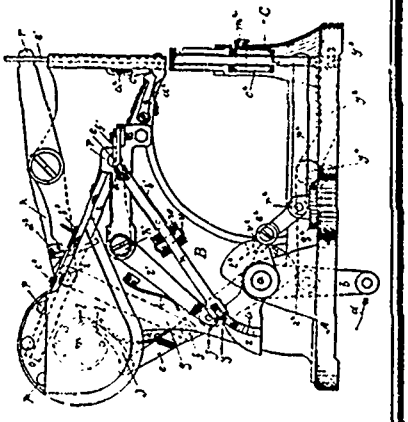
30091 Bellis' Knitting Machine.



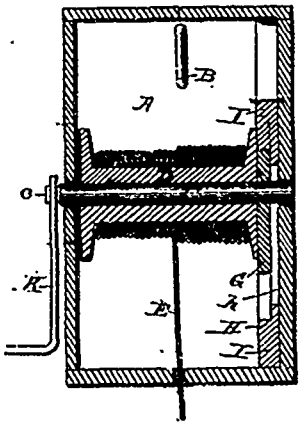
30092 Bigelow's Beer Engine.



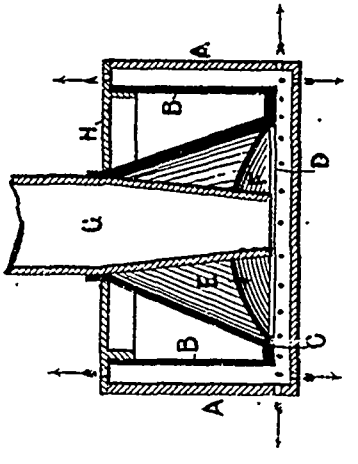
30093 LeClair's Tobacco Cutting Machine.



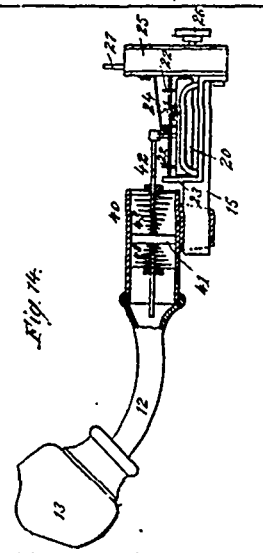
30094 Merwin and Bennett's Button Attaching Machine, etc.



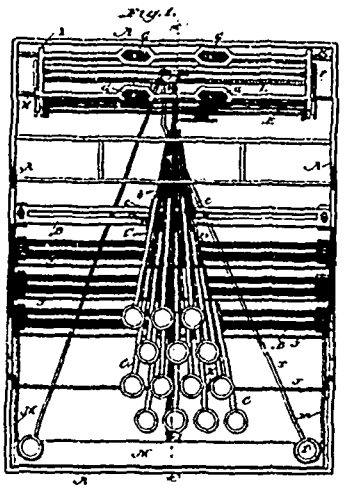
30095 Barber's Fire Escape.



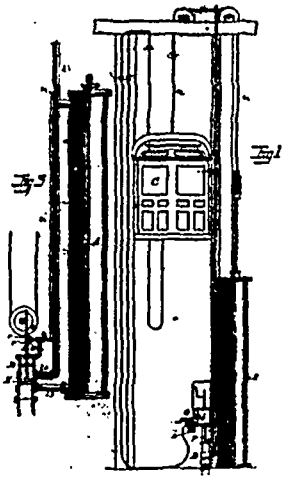
30096 Aldou's Apparatus for Spraying Water.



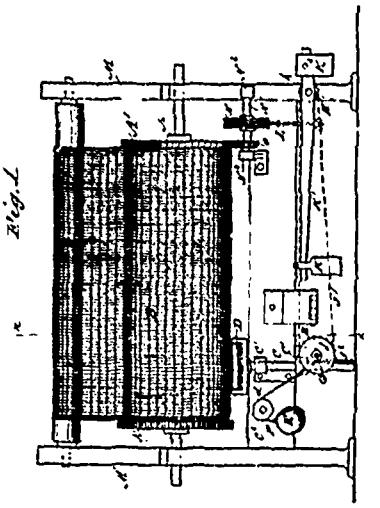
30097 Tata's Apparatus for Indicating and Registering the Respirations of the Body.



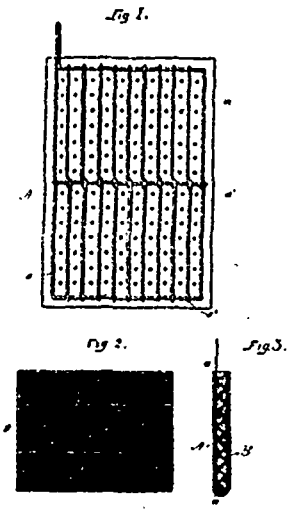
30098 Granville's Type-Writing Machine.



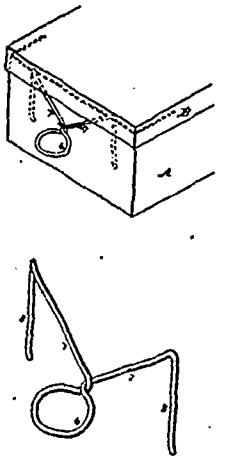
30099 Otis' Elevating Apparatus.



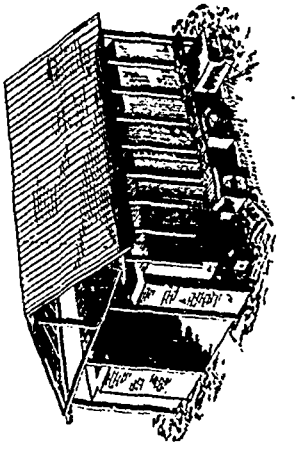
30102 Bailey's Tension Device for the Warp Beams of Looms.



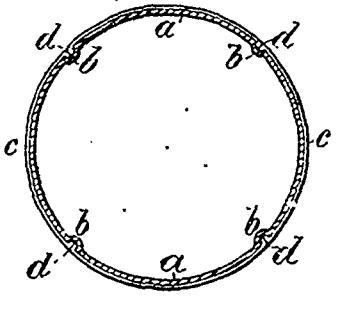
30103 Tippe's Electrode for Secondary Electric Batteries.



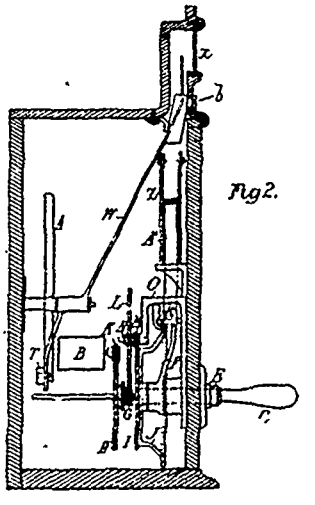
30104 Traut's Box Handle.



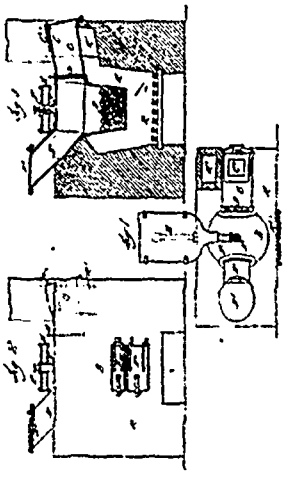
30105 Sharer's Brick Kiln.



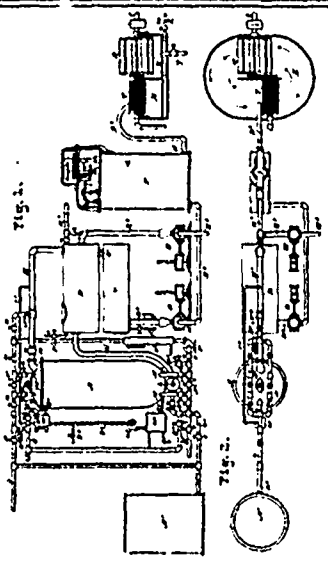
30106 Waddington's Manufacture of Lawn Tennis Balls.



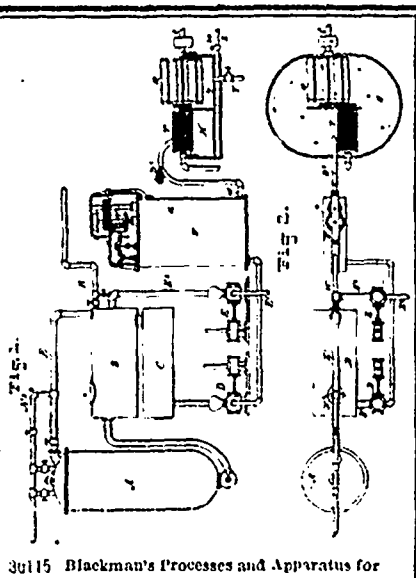
30107 Everitt's Coin Operated Electrical Apparatus.



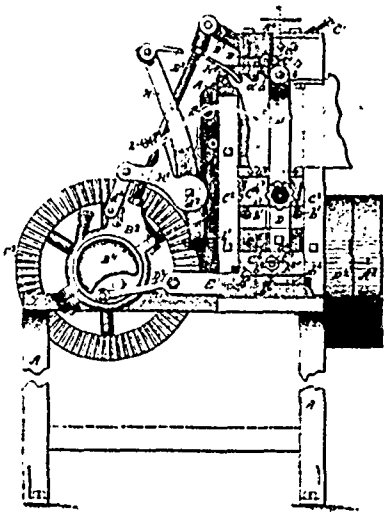
30110 Thowless' Apparatus for Producing Sodium, etc.



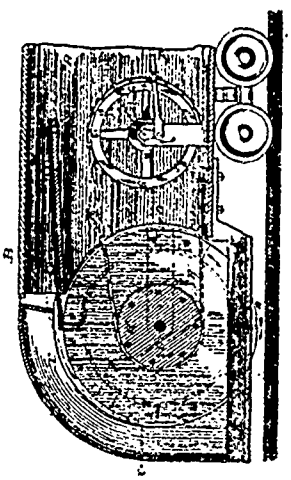
30114 Blackman's Paper Pulp.



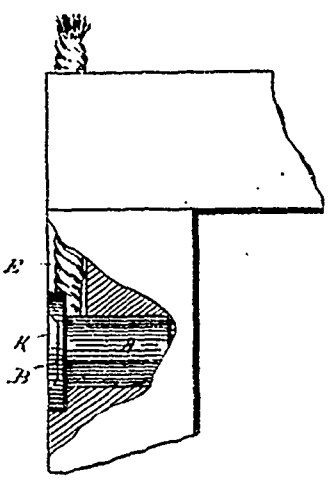
30115 Blackman's Processes and Apparatus for Manufacturing Paper Pulp



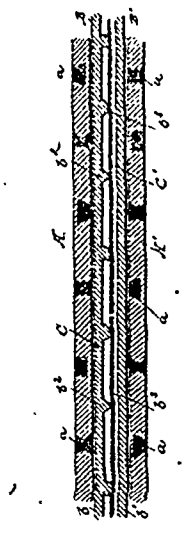
30116 Covel's Saw Swaging Machine.



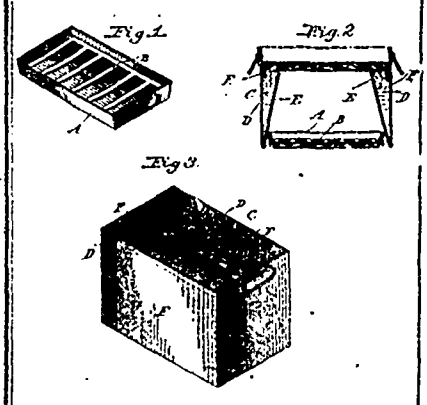
30117 Woolford's Snow Plough.



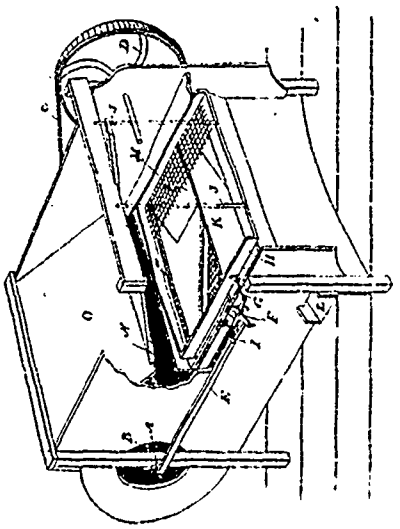
30118 Bohannan's Sash Cord Fastener.



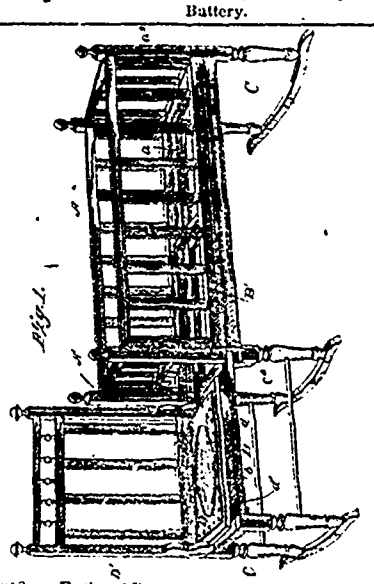
30119 Askew and Pumpellery's Secondary Battery.



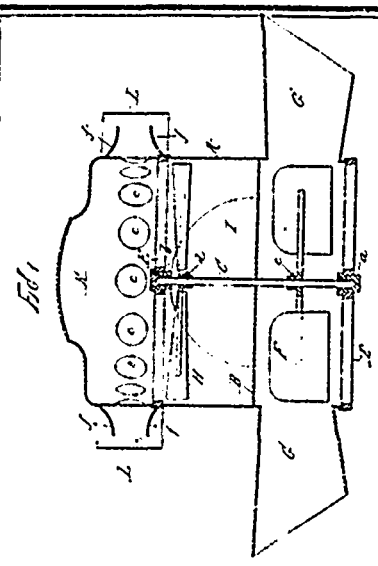
Bicknell's Baking Pan.



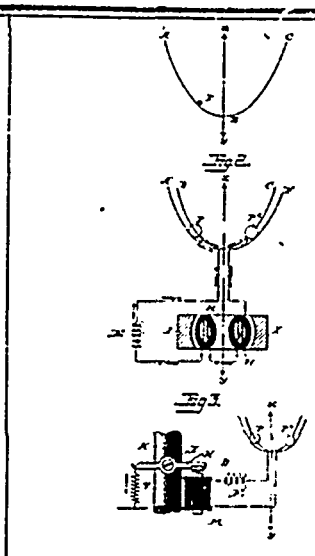
30122 Sommerfeld's Fanning Mill.



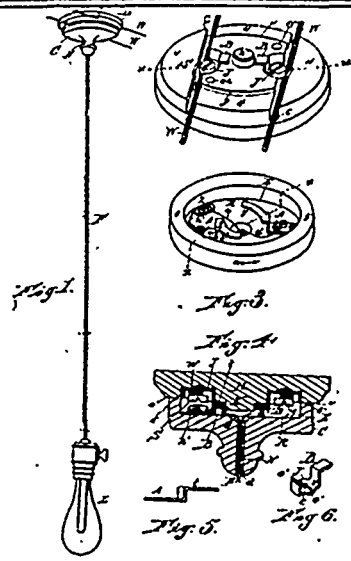
30123 Furl and Fraenzel's Cradle and Rocking Chair.



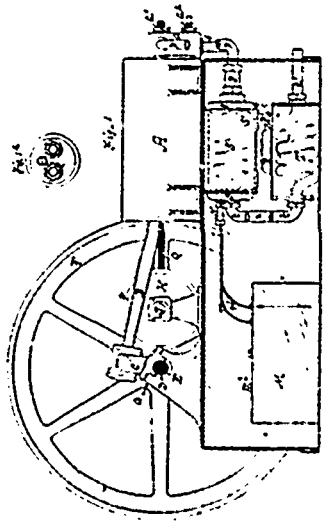
30124 Richard and Mignault's Ventilator.



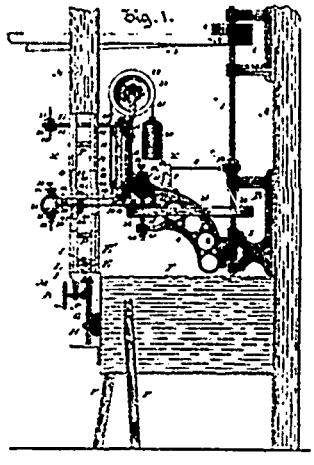
30125 Van Ryssellerghe's Art of Governing or Regulating Revolving Machines.



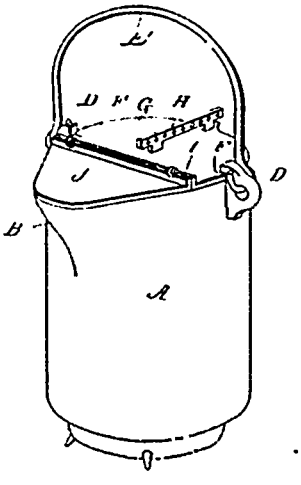
30126 Stoddard's Electrical Cut Out.



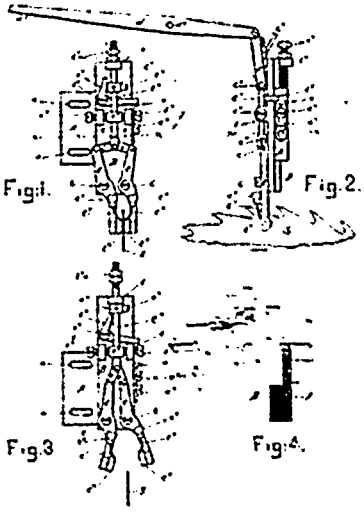
30127 Humes' Hydro-Carbureted Air Engines.



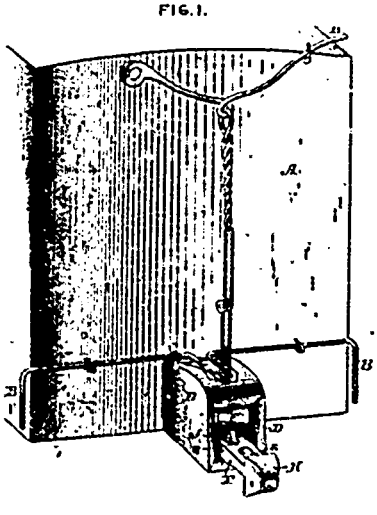
30128 Moore's Carving Machine.



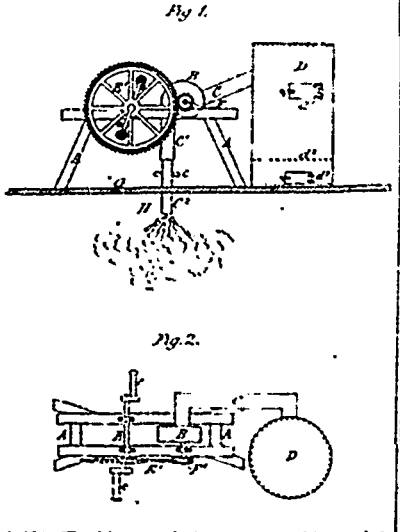
30129 McKee's Dinner Pot.



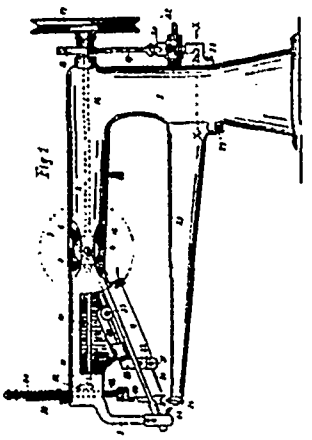
30130 Sleeper and Woodard's Saw Guide.



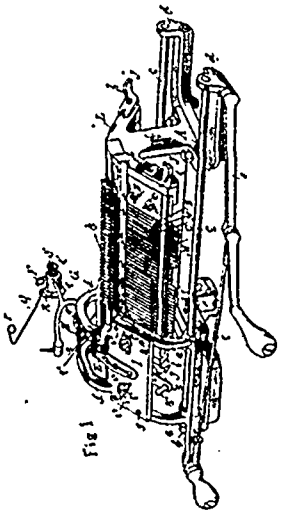
30131 Hound's Automatic Coupler.



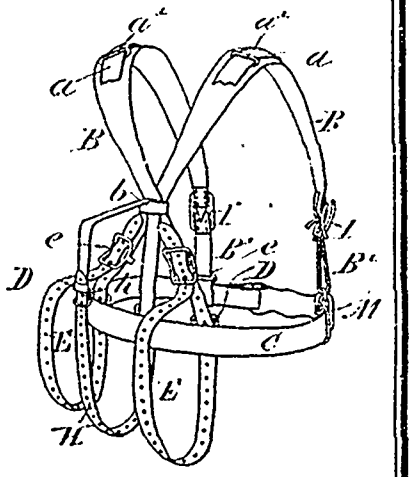
30132 Thorbloronsen's Apparatus for Discovering Leaks.



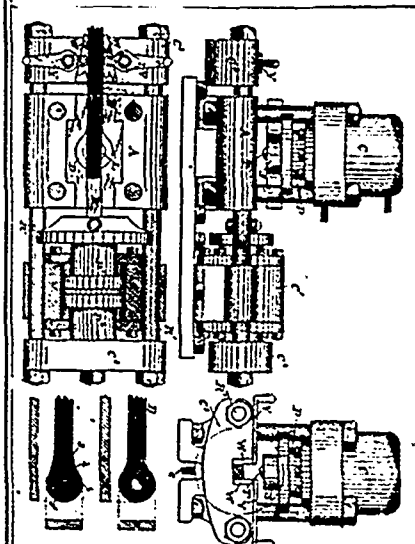
33133 Humphrey's Tufting Machine.



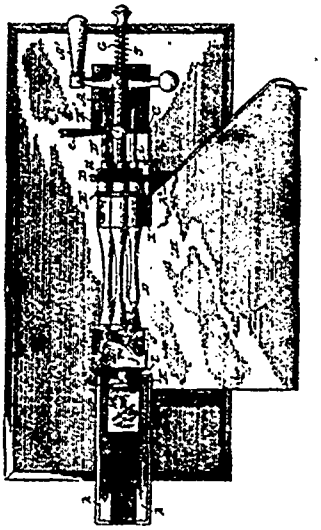
30134 Humphrey's Knitting Machine.



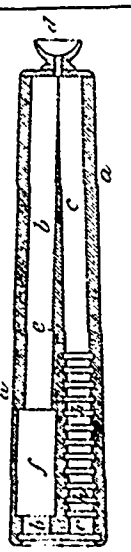
33135 Slade and Wallace's Accoutrements.



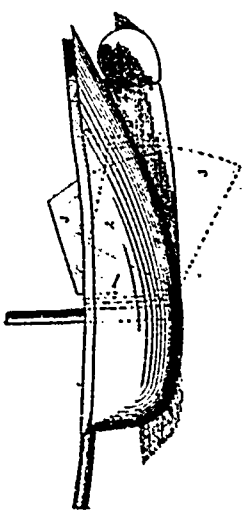
33136 Smith's Upsetting and Die Forging Enlarged Ends on Metal Bars



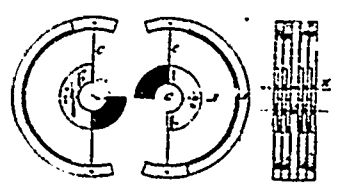
33137 Boman's Machine for Rolling and Wrapping Cigars.

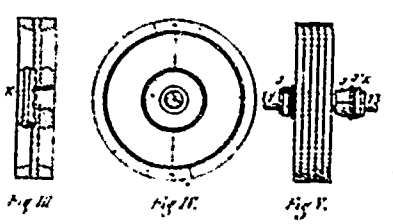


33138 Lovibond's Apparatus for Standardising and Measuring Intensity of Color.

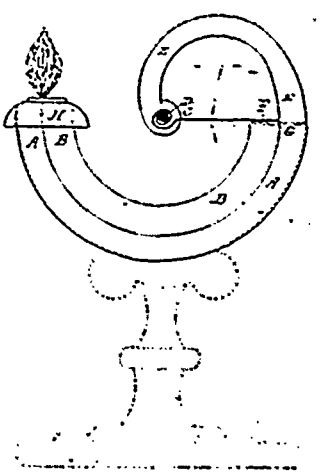


33139 Wells' Centreboard for Vessels

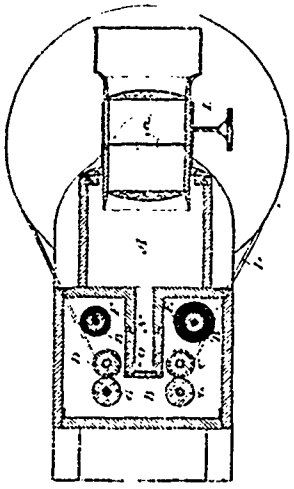




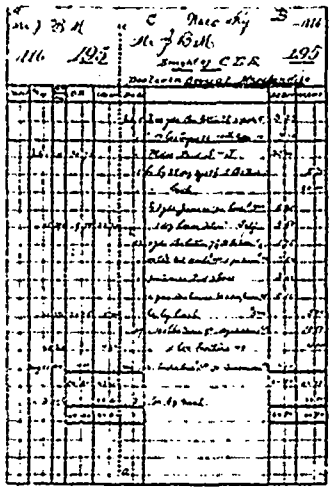
30131 Poe's Wood Split Pulley



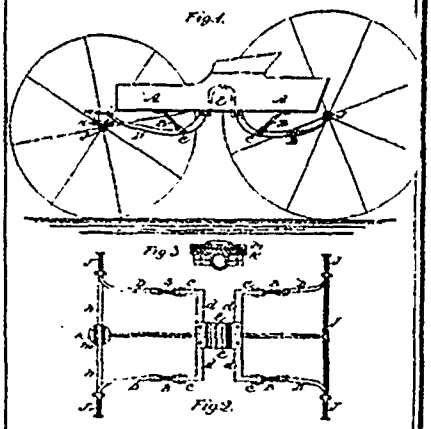
33132 Kew's Candle Lamp



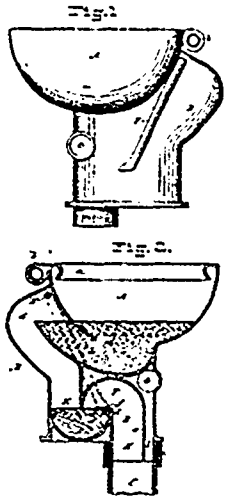
30143 Connon's Photographic Instrument.



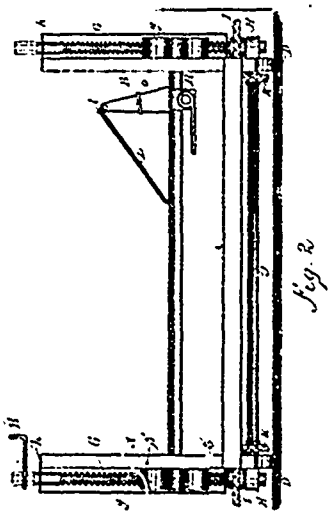
30144 Searcy's Ledger and Bill Book.



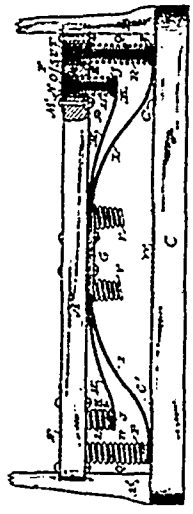
30145 Culp's Spring Light Carriage.



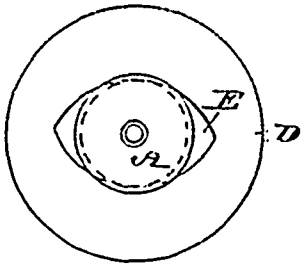
30146 Boyle's Siphon Water Closet.



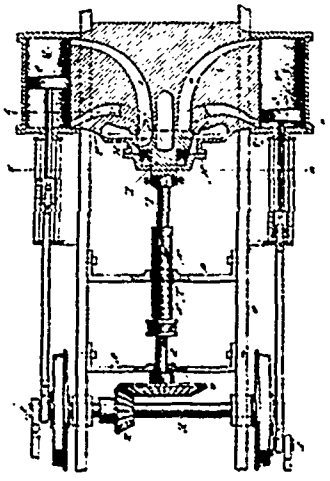
30147 Ethier's Invalid Bedstead.



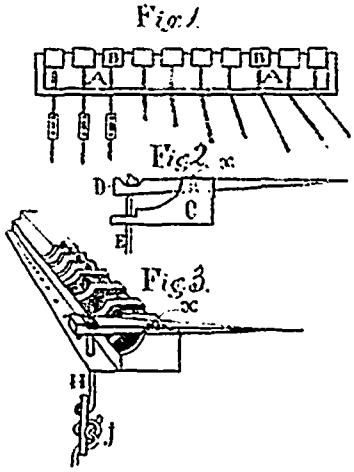
30149 Crocker and Diehl's Vehicle Spring.



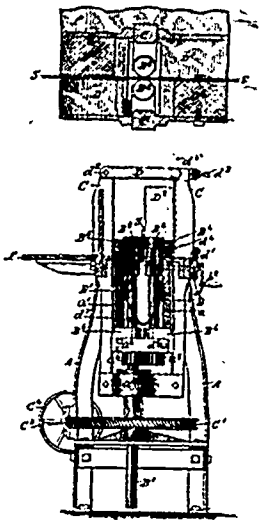
30150 Smith's Spool Guard.



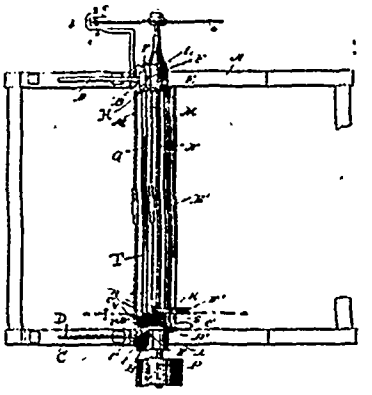
30151 DesBrisay's Valve Gear for Steam Engines.



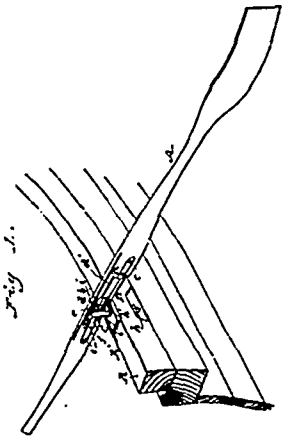
30152 Kerrison's Organ Pedals.



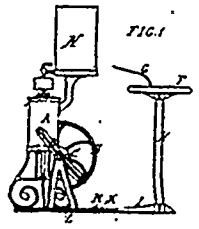
30153 Covel's Machine for Straightening and Hammering Saws.

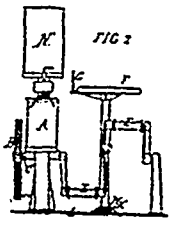


30154 Wiley's Saw Mill.

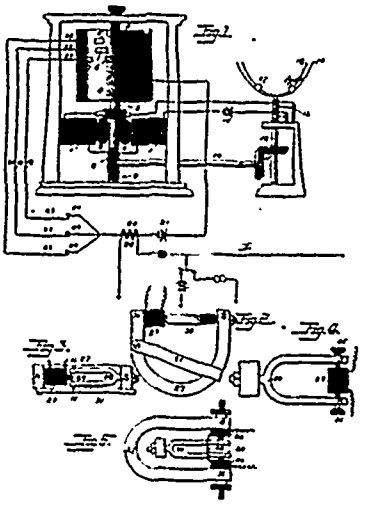


30155 Pheatt's Oar and Oar Lock.





30156 Burmeister's Motive Power.



30158 Van Rysselberghe's Phono-multiplex Telegraphy.

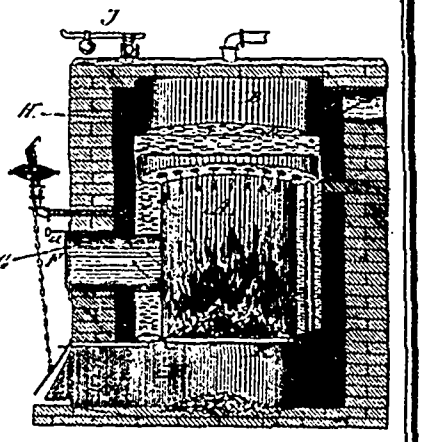
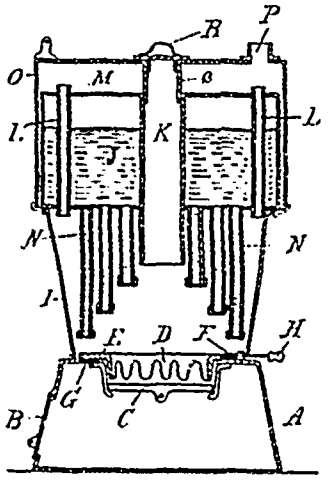
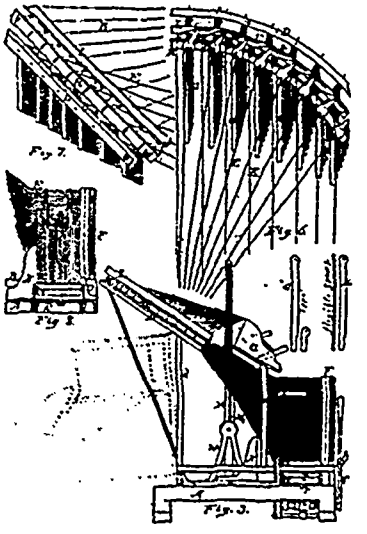


Fig. 1

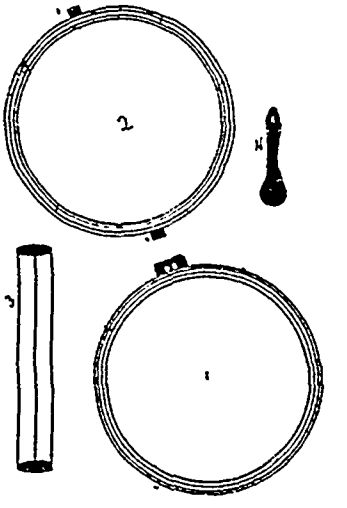
30159 Dunning's Boiler.



30160 Turner's Steam Generator.



30161 Rogers' Machine for Making Stereotype Matrices.



30162 Curry's Churn.

FIG. 1.

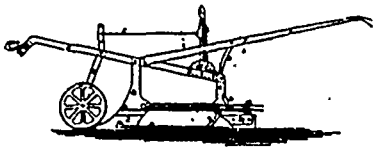
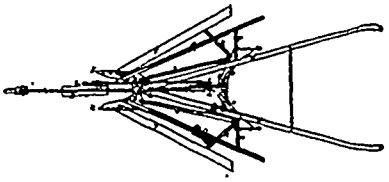
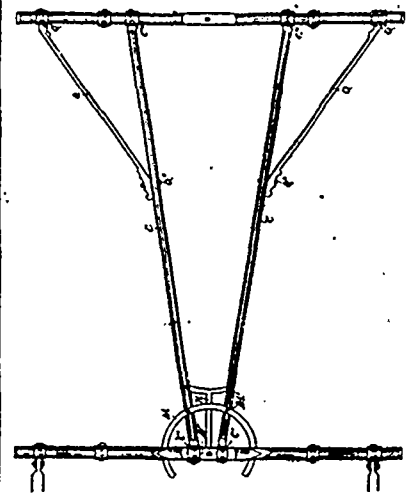


FIG. 2.

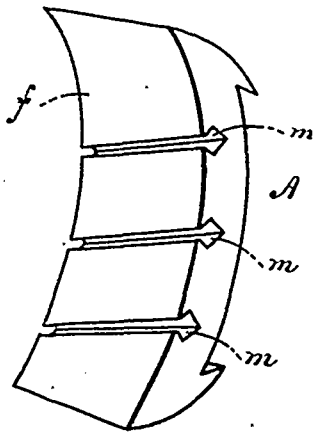


30163 Yocom's Machine for Harvesting Beans.

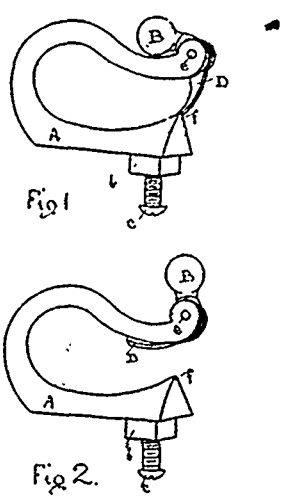


30164 Munz's Running Gear for Vehicles.

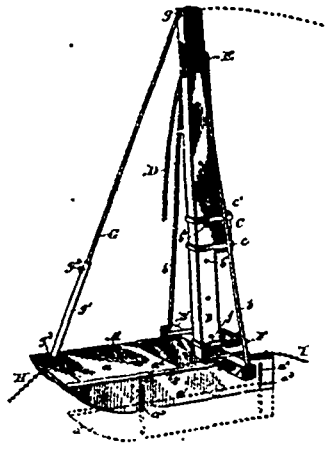
Fig. 1.



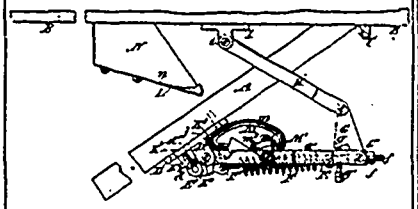
30165 Brownley's Brake Shoe.



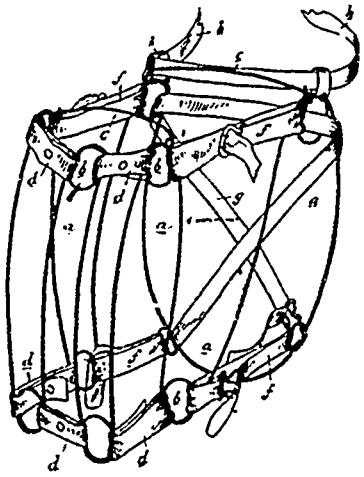
30166 Hutchinson's Rein Hook.



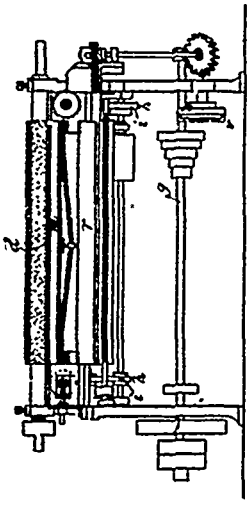
30167 Bristol's Pile Driver.



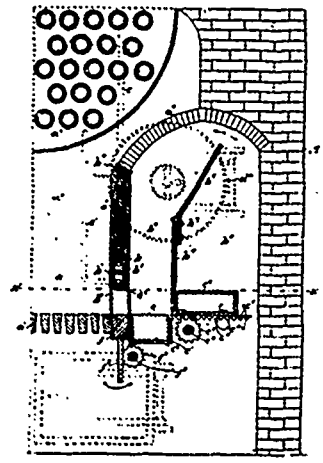
30168 Becker's Door-Closing Apparatus.



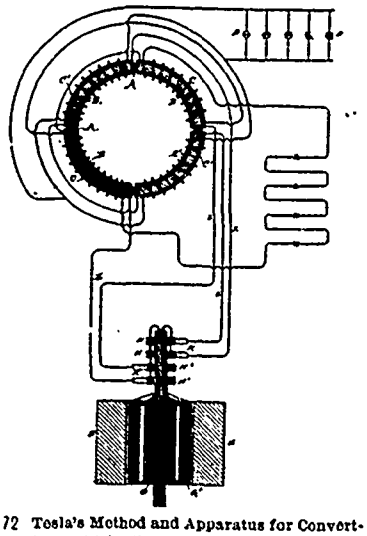
30169 White's Bustle.



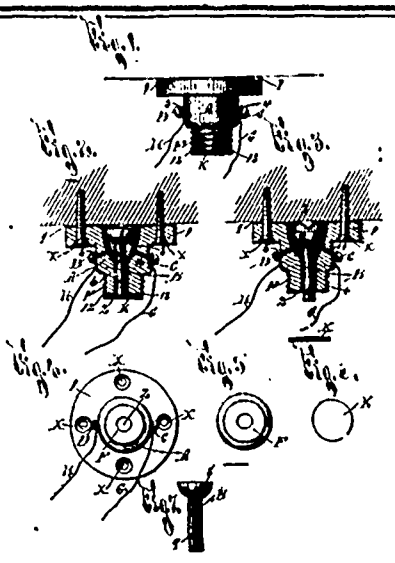
30170 Behnisch's Apparatus for Producing Patterns or Designs on Cloth.



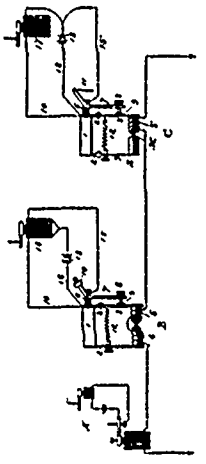
30171 Clark's Furnace.



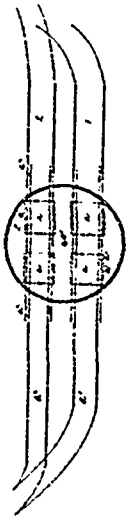
30172 Tesla's Method and Apparatus for Converting and Distributing Electric Currents.



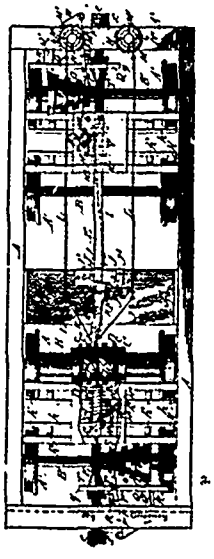
30173 Mackey's Thermostat.



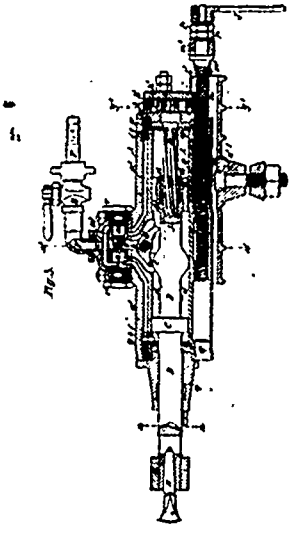
30174 Selden's Telegraph Receiver.



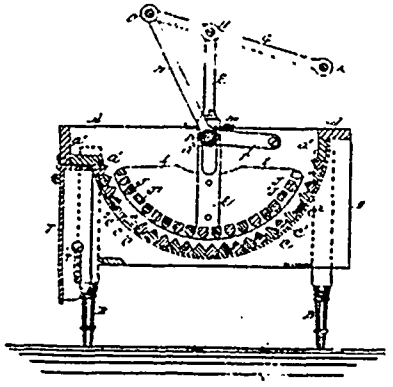
30175 White's Appliance for Effecting the Change of Gauge of Railway Vehicles.



30176 Luce's Car Brake.

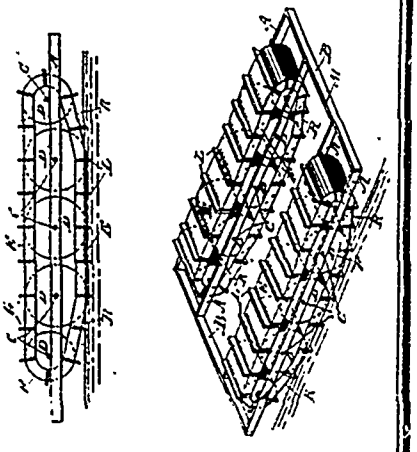


30177 McCulloch's Valve and Valve Gear.

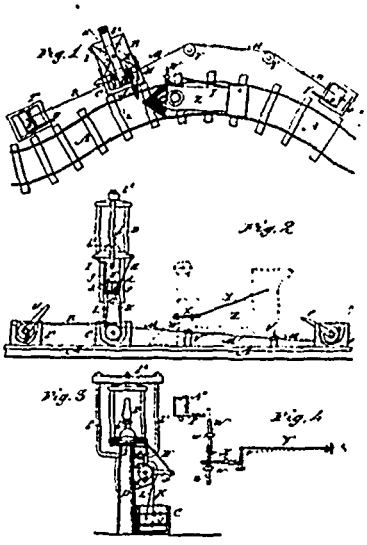


30179 Burke's Washing Machine.

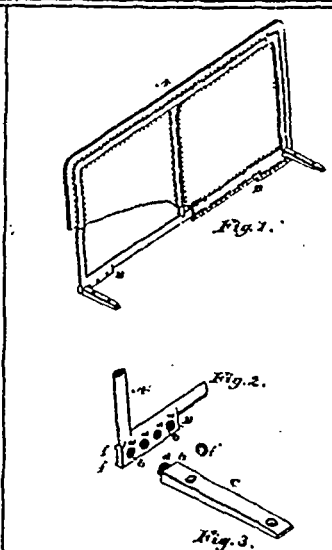
30180 Covel's Device for Holding and Dressing Saws.



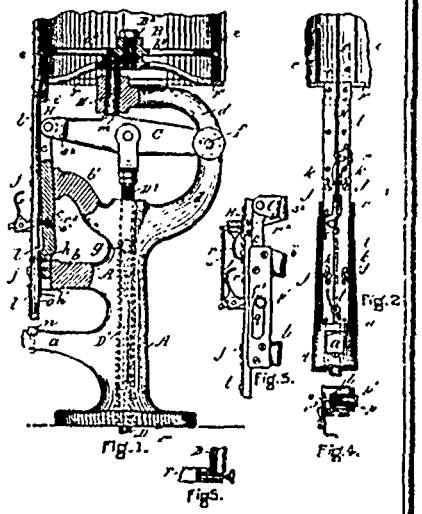
30181 Pond's Water Craft.



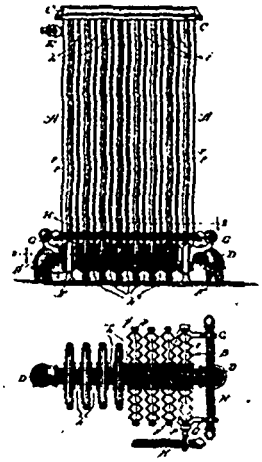
30182 Vinton's Railroad Signal.



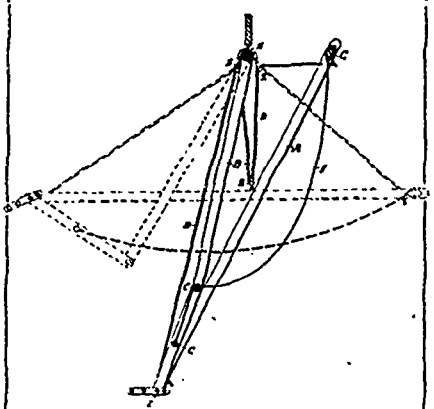
30183 Gross' Dashboard.



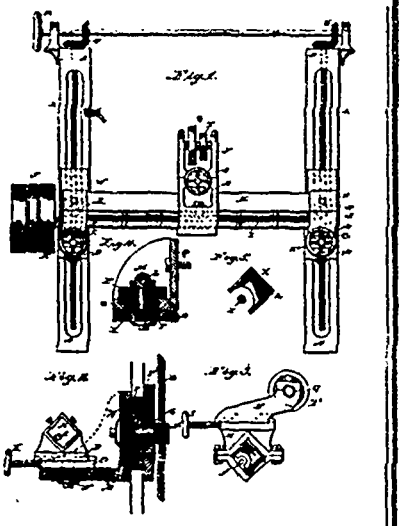
30184 Saunders and Taylor's Machine for Attaching Buttons.



30185 Brown's Radiator.



30186 Mosier's Lawn Chair.



30187 Dooley's Machine for Grinding Rolls

FIG. 1.

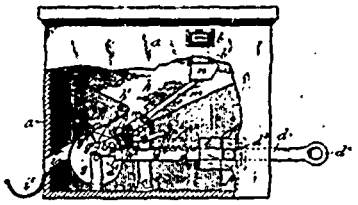
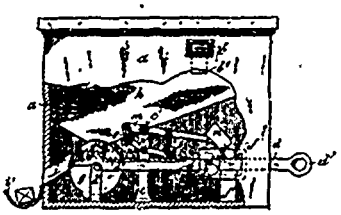
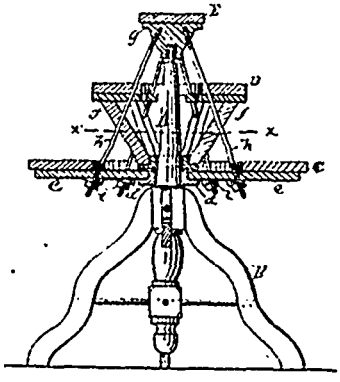


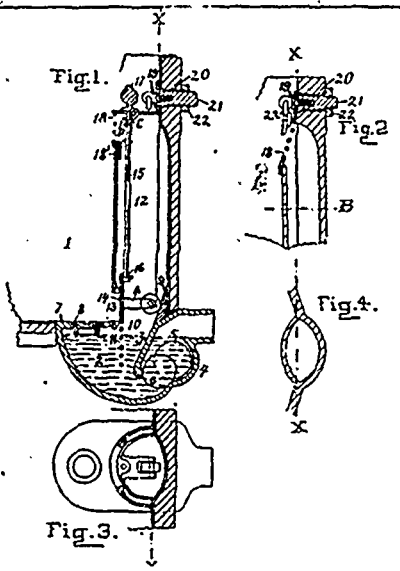
FIG. 2.



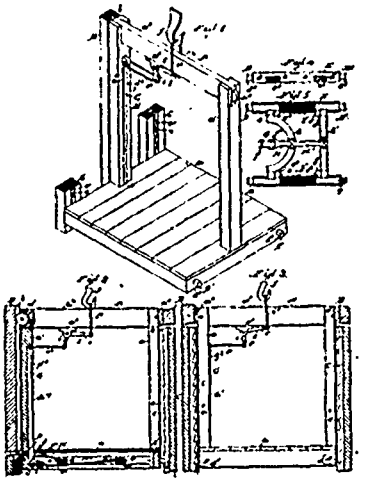
30188 Bingham's Vending Apparatus.



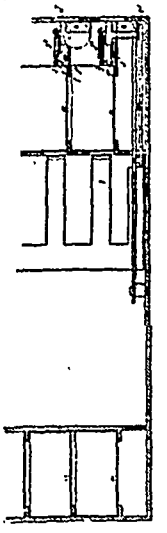
30189 Starke's Flower Stand.



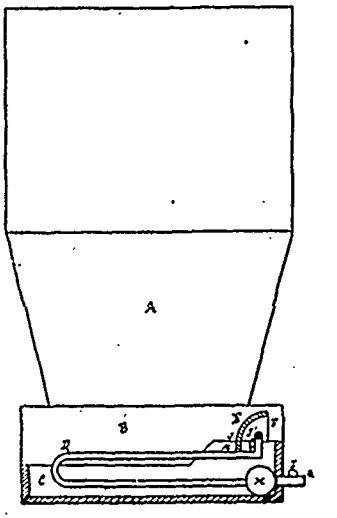
30190 Moore's Wash Basin, etc.



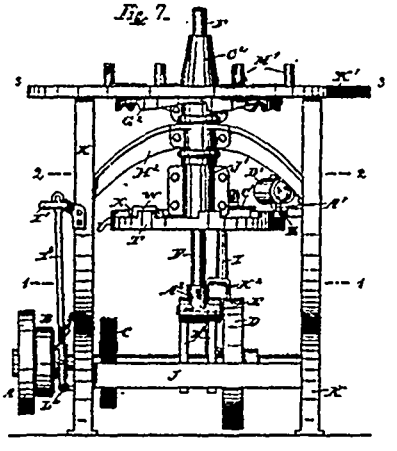
30191 Gélinoau's Elevator.



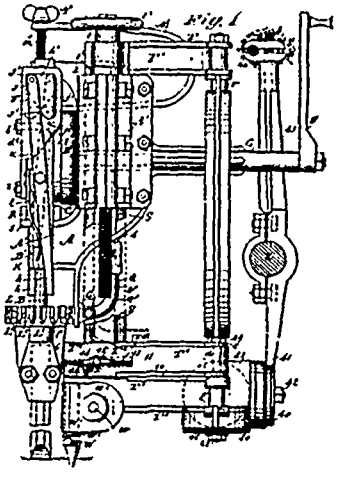
30192 Powell's Apparatus for Automatically Delivering Goods



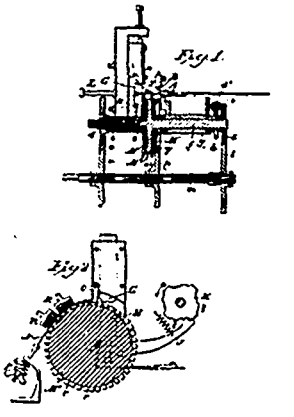
30193 Gulney's Hydro-Carbon Burner.



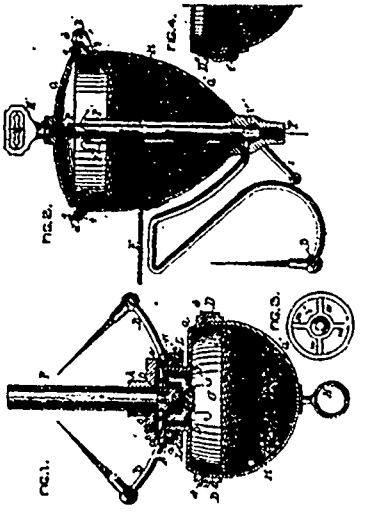
30194 Peters' Cartridge Loading Machine.



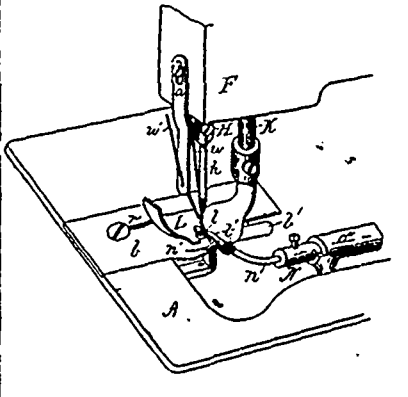
30195 Jenkin's Rock Drill.



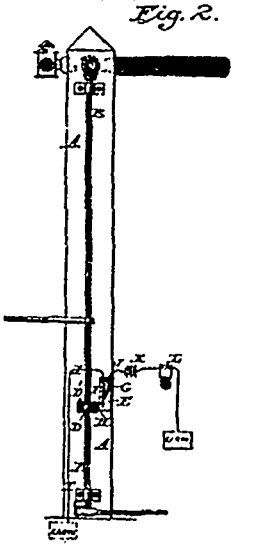
30196 Fontaine's Wire Nail Machine.



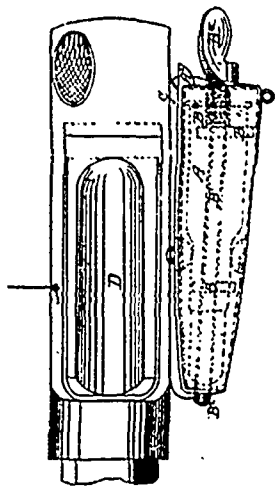
30197 Kitson's Carburetting Gas Lamp.



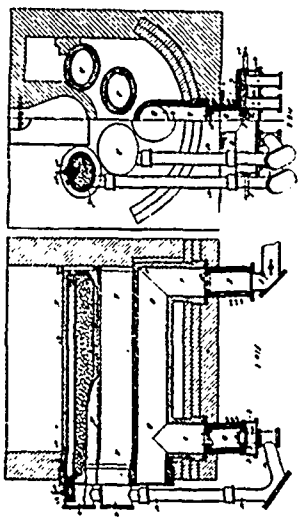
30198 Morrow's Machine for Crocheting



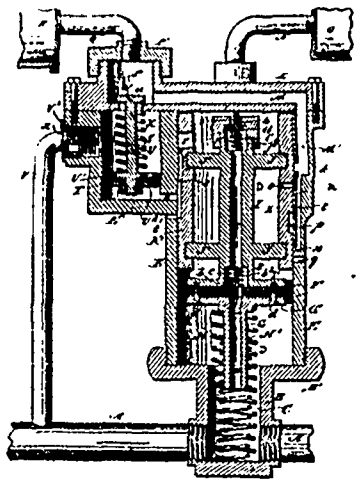
30199 Martel's Switch Signal.



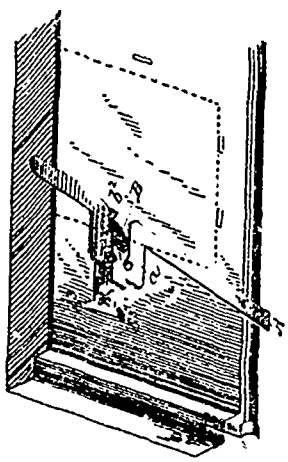
30200 Colley's Cartridge Magazine.



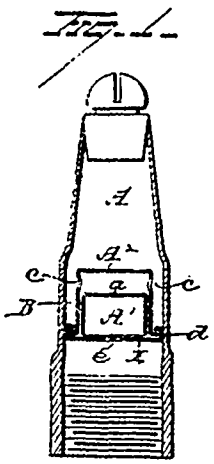
30201 Dinsmore's Manufacture of Gas.



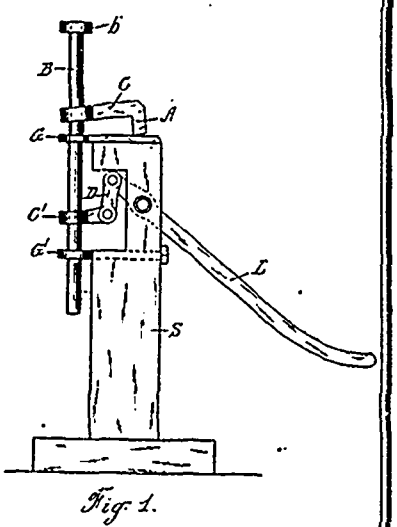
30202 Park's Air Brake.



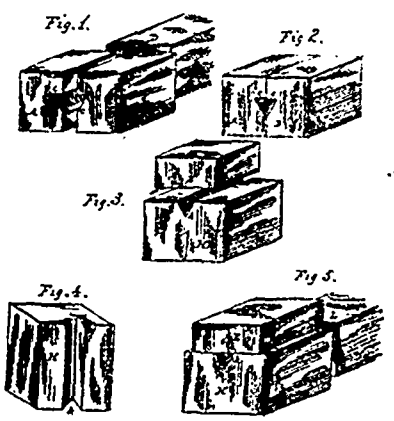
30203 Bagley's Feed Gauge for Platen Printing Machines.



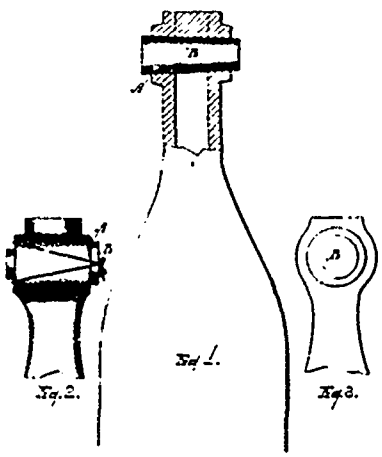
30204 Jackson's Gas Burner.



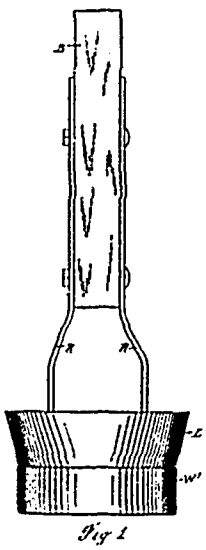
30205 Baker's Waggon Lifter.



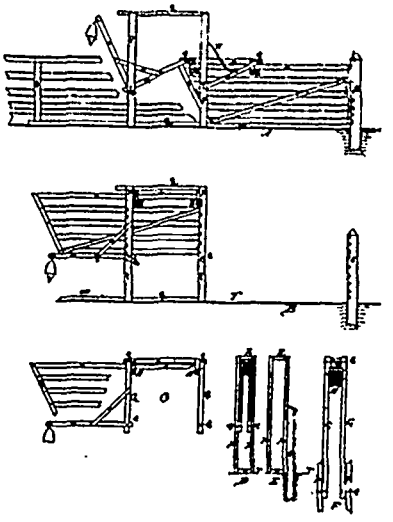
30206 Taylor's Die for Holding Triangular Wire.



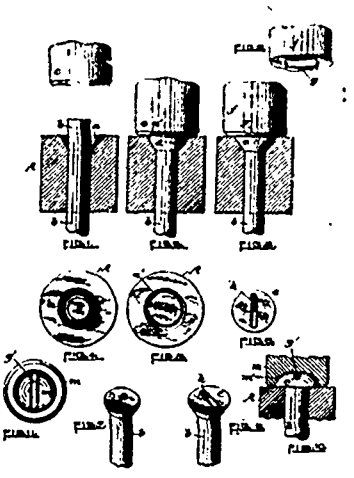
30207 McKee's Bottle.



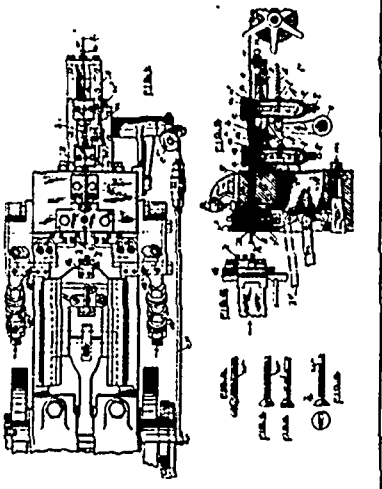
30208 Martin's Pump Sucker.



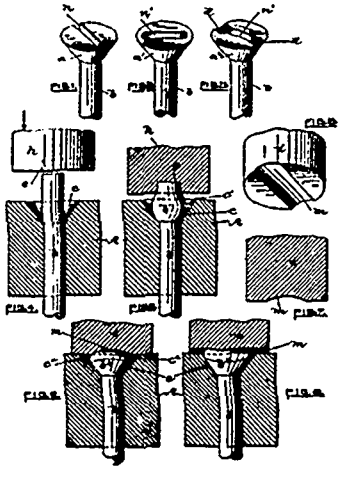
30209 Green's Slide Hoisting Roller Gate.



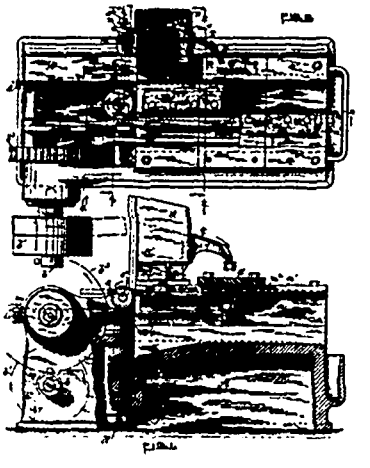
30210 Rogers' Method for Making Wood Screw Heads.



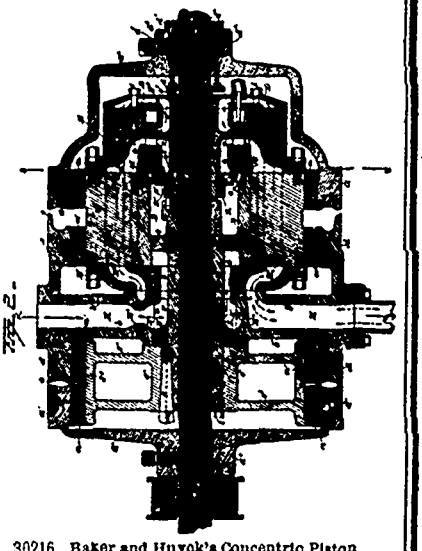
30211 Rogers' Feeding Mechanism for Machines for Making Screw Blanks.



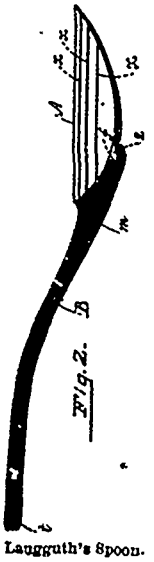
30212 Rogers' Hammer for Forming the Heads of Screws.



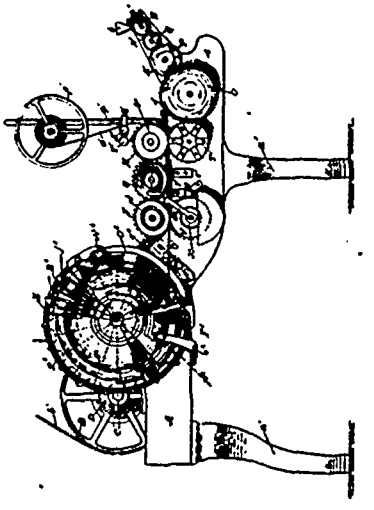
30213 Rogers' Screw-Threading Machine.



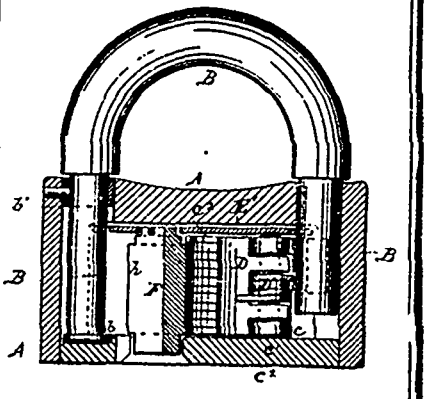
30216 Baker and Huyck's Concentric Piston Steam Engine.



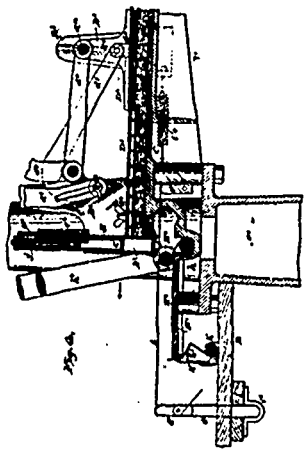
30218 Laugguth's Spoon.



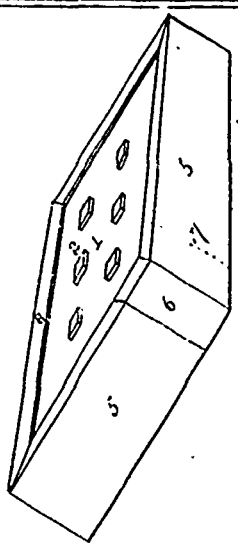
30219 Millon and Mousseau's Plug Box Machine.



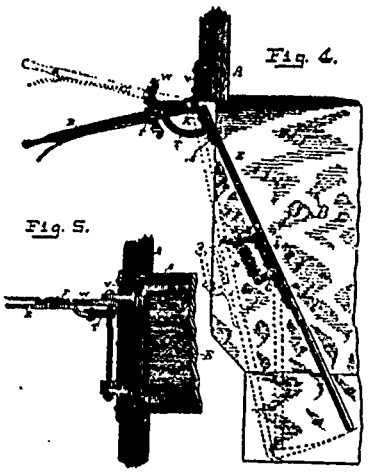
30220 Smith's Combination Lock



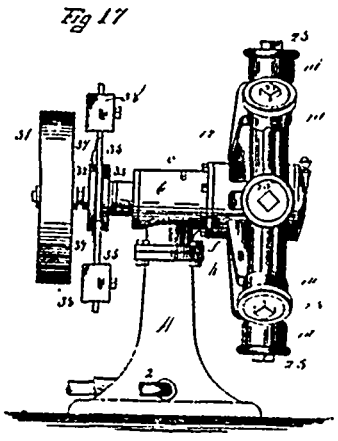
30221 Boehm and Reed's Cigar Bunching Machine.



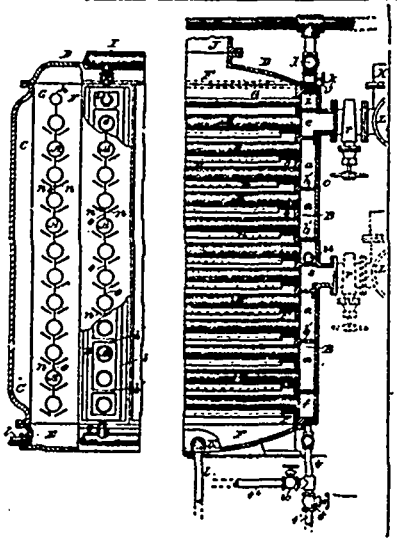
30222 Ellis' Knockdown Box or Package.



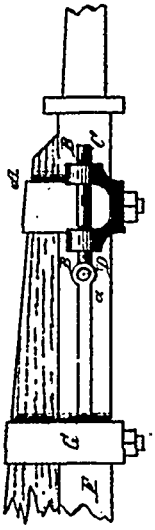
30223 Whiteley's Head and Butt Board for Grain Binders.



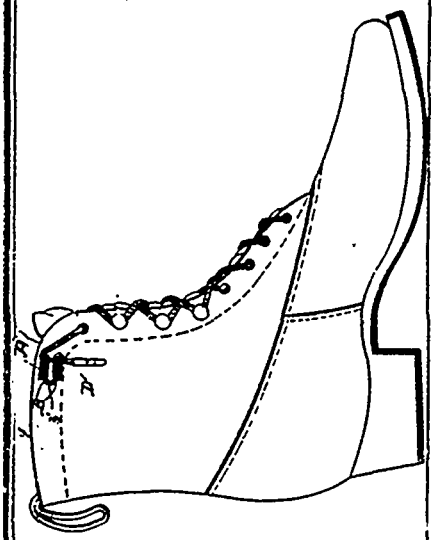
30224 Benham's Multiple Cylinder Motor and Speed Governing Device therefor



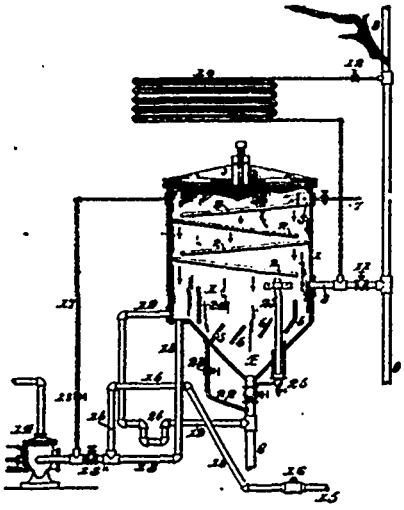
30225 Gaunt's Apparatus for Evaporating Liquids.



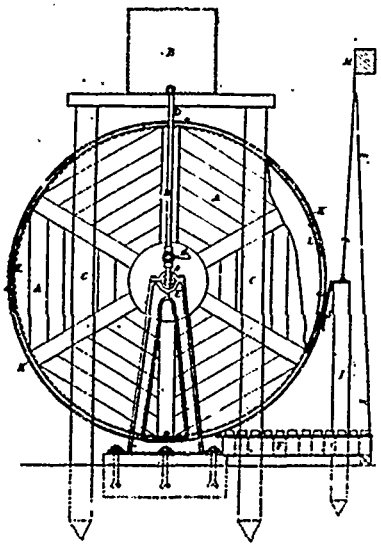
30226 Spicer's Coupling Pin.



30227 Morrill and Wilson's Shoe Lace Clasp.



30228 Webster's Feed Water Heater and Purifier.



30229 Worms and Balé's Apparatus for Tanning by Aid of Electricity

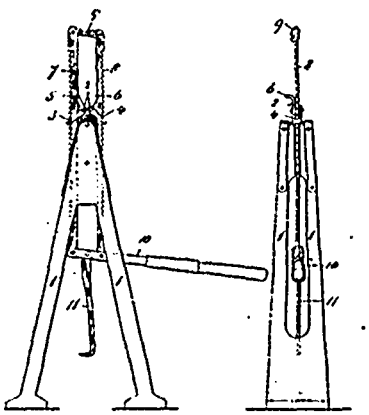


Fig. 1. Fig. 2.

30230 Kirkpatrick's Track Lifter.

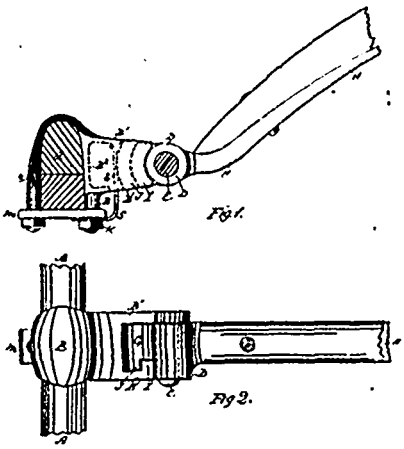
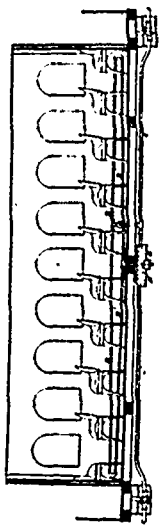


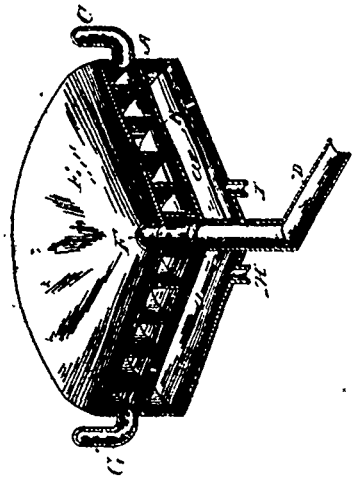
Fig 1.

Fig 2.

30231 Spink's Thill Coupling.



20233 Martin's Device for Heating Railway Cars by Steam.



30234 Lloyd's Apparatus for Evaporating Liquids.

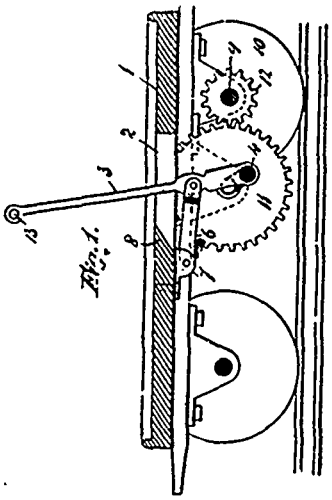


Fig. 1.

30235 Barwis' Mechanical Movement.

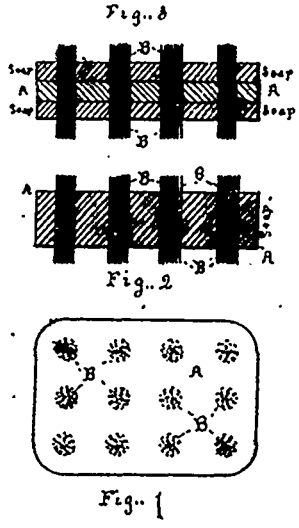
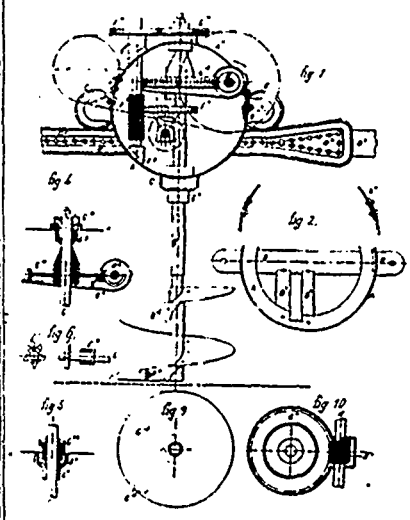


Fig. 3

Fig. 2

Fig. 1

30236 Rich's Brush.



30237 Salsdin's Apparatus for Turning Malt.

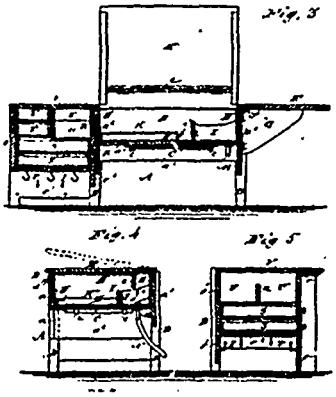
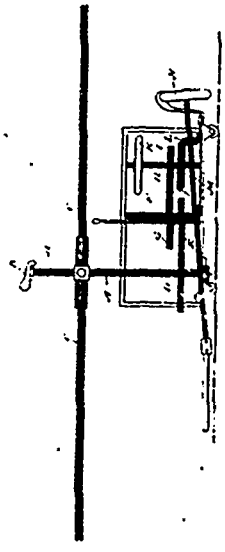


Fig. 3

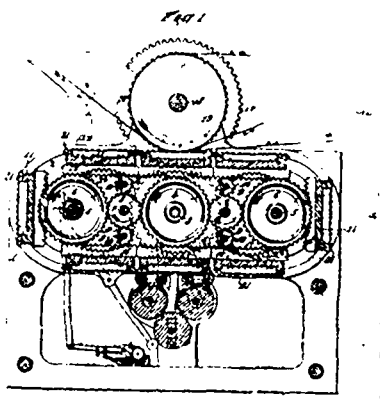
Fig. 4

Fig. 5

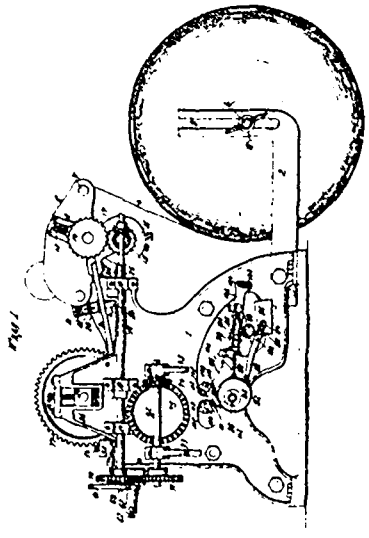
30238 Brack's Kitchen Table and Cabinet.



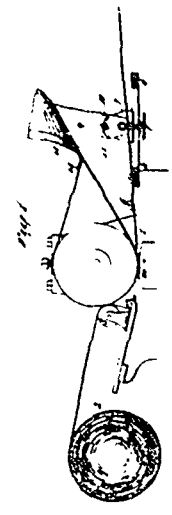
30239 Armstrong's Horse Power



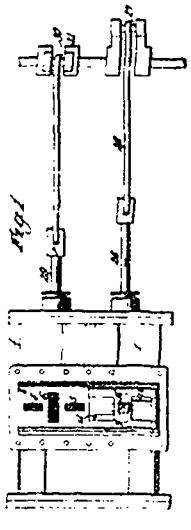
30240 Fowler and Henkle's Printing Machine.



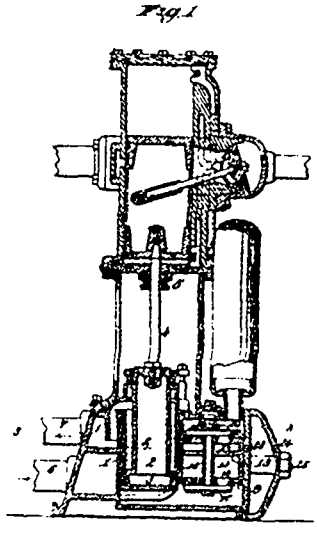
30241 Fowler and Henkle's Printing Machine.



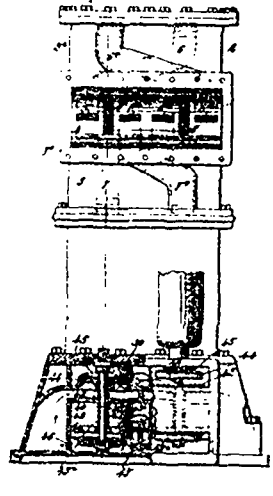
30242 Fowler and Henkle's Web Turning and Reversing Device for Printing Machines.



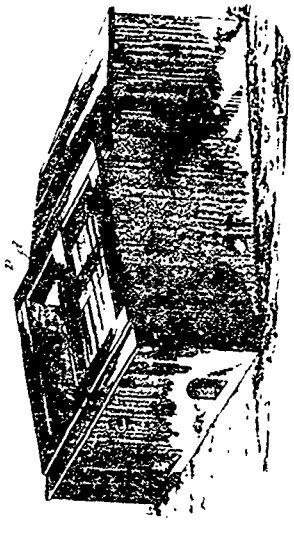
30243 Shortt's Steam Engine



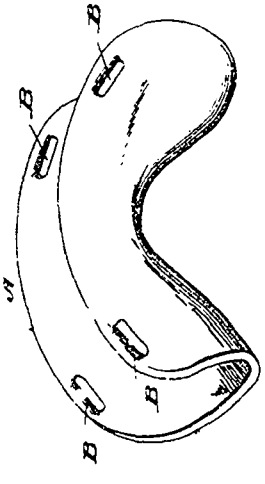
30244 Shortt's Duplex Pumping Engine



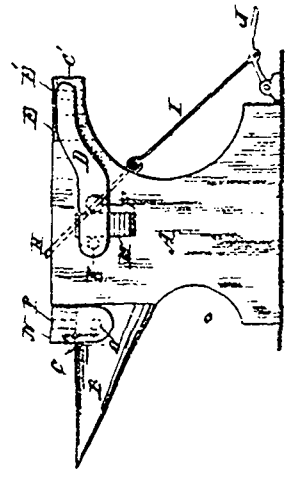
30245 Shortt's Pumping Engine



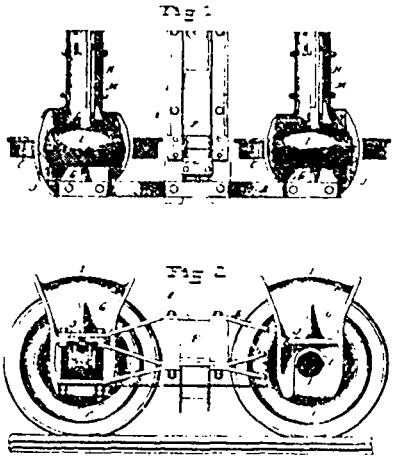
30246 Wingert's Chicken Brooder.



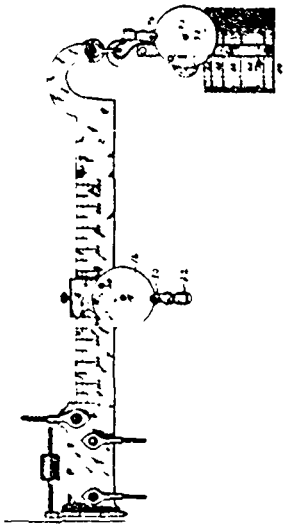
30247 Schwahn's Collar Pad



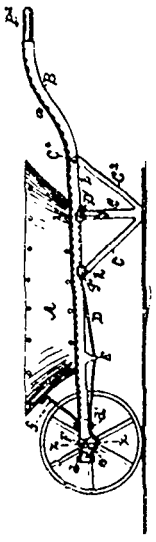
30248 Young's Attachment to Blacksmiths' Anvils.



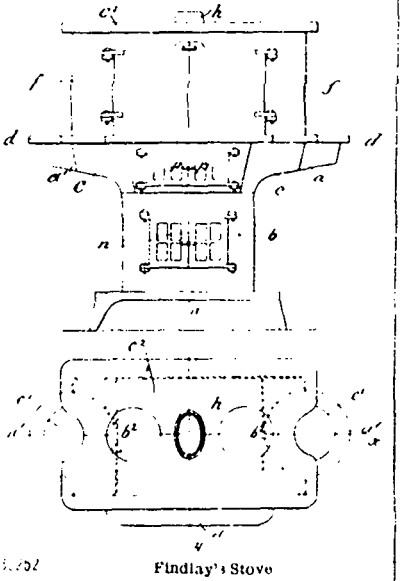
30,249 Welkley's Running Gear of Railway Car.



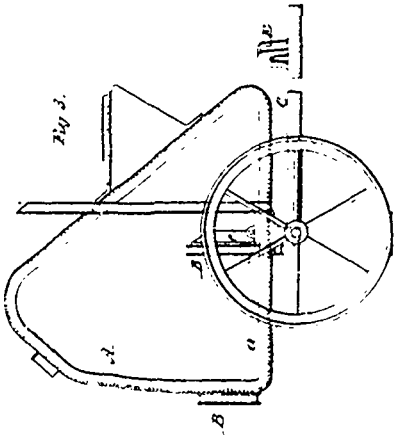
3,250 Fisher's Registering and Recording Scales.



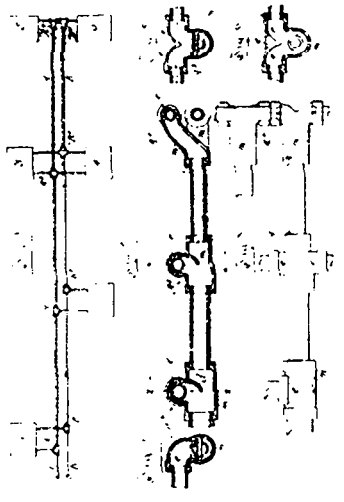
3,251 Sletcher's Wheelbarrow



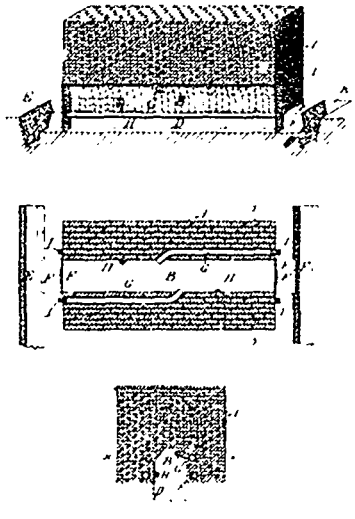
3,252 Findlay's Stove



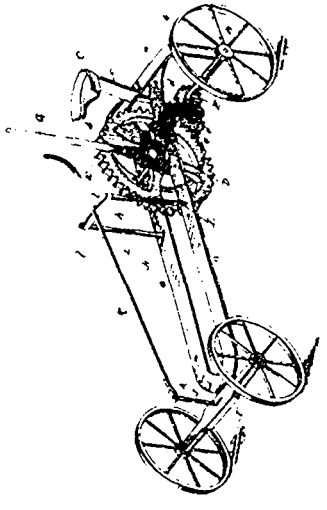
3,253 Howard and Gibbs' Harvesting Machine.



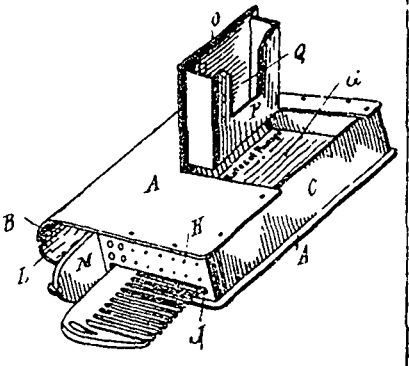
3,254 Dwinnell's Fittings for Heating Systems



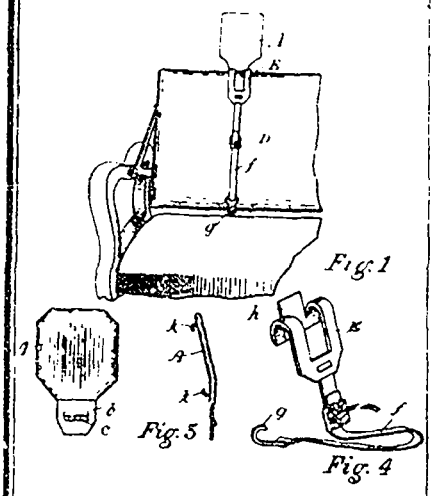
Manning's Brick Kiln.



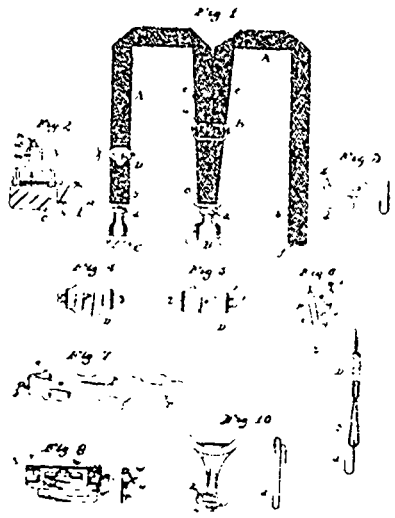
3,256 Weeks' Velocipede



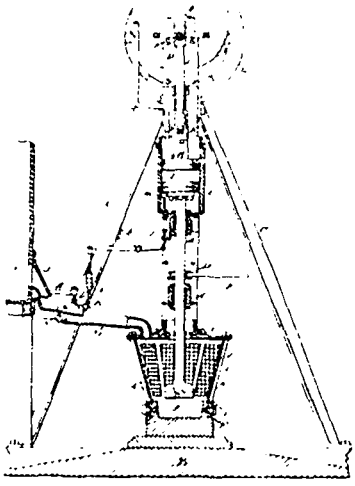
3,257 Bowen's Pocket Piece, Match Safe, etc



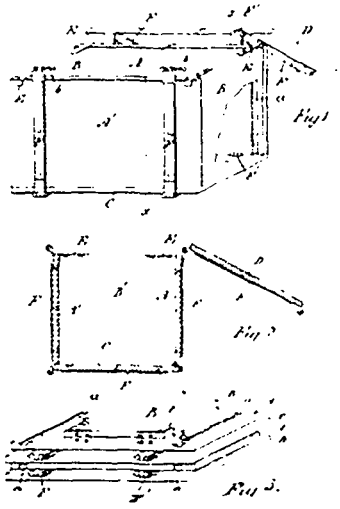
Burgess' Head Rest



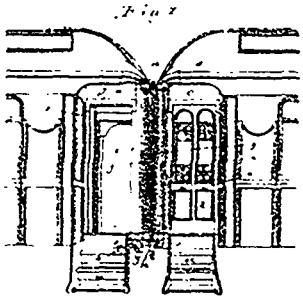
Rubin's Suspender



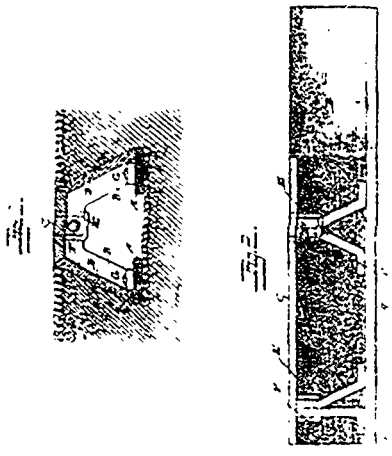
Krause's Atmospheric Stamp.



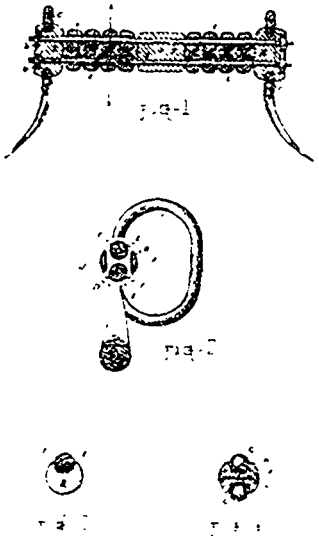
Hunter's Folding Box



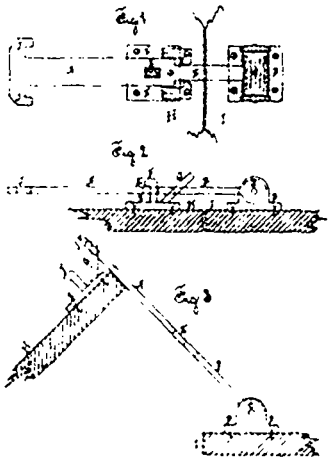
Sessions' Construction of Railroad Cars



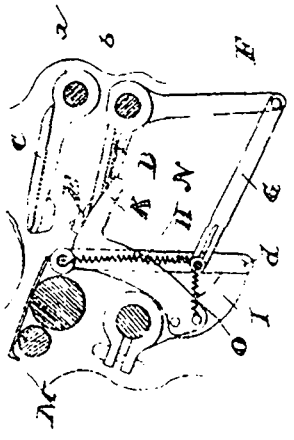
Barnes' Bridge



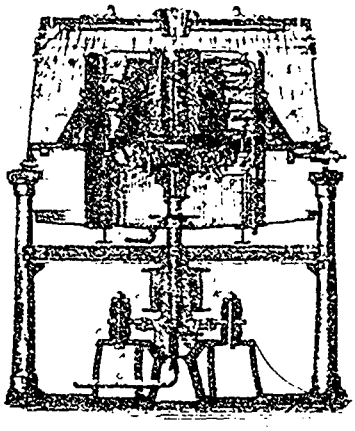
Roberts' Cradle



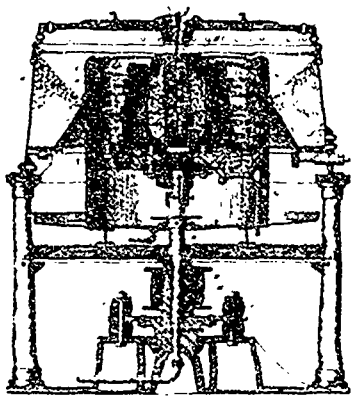
Wicks' Safety Stop and Lock for Doors, etc



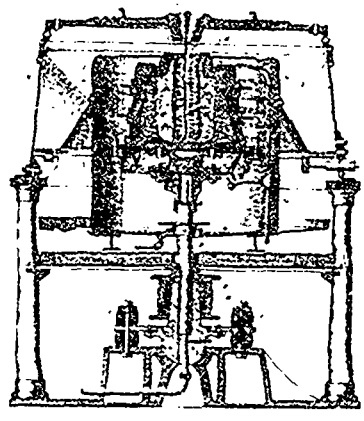
Carney's Printing Machine



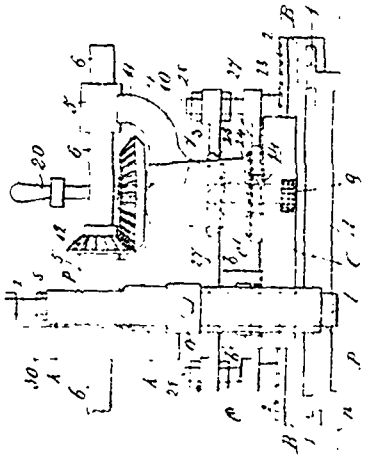
Peck's Apparatus for Treating Molten Slag, &c



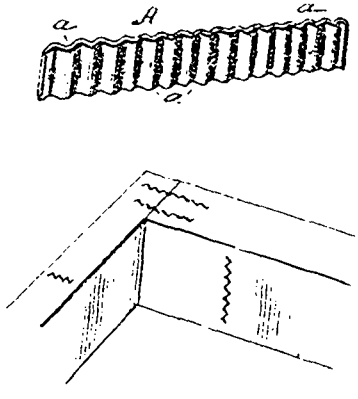
Peck's Process of Separating Metals, &c



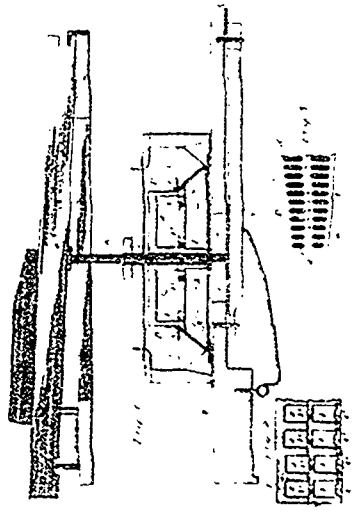
Peck's Process of Desulphuring Ores, &c.



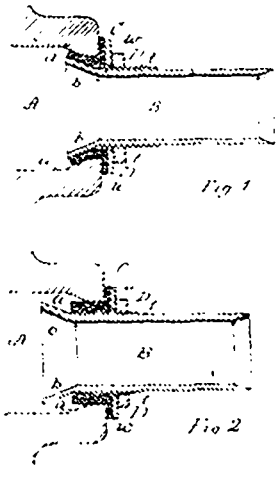
Lasbe's Millstone Dressing Machine



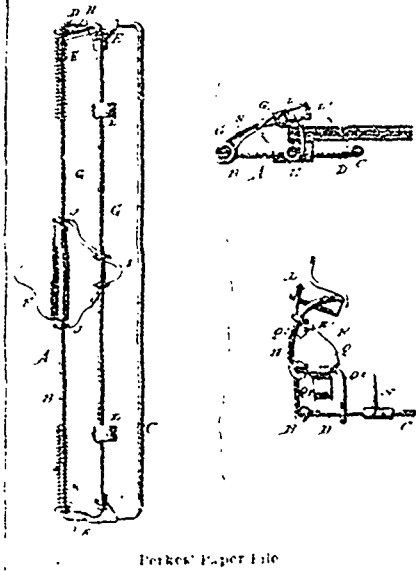
Starr's Fastening Device



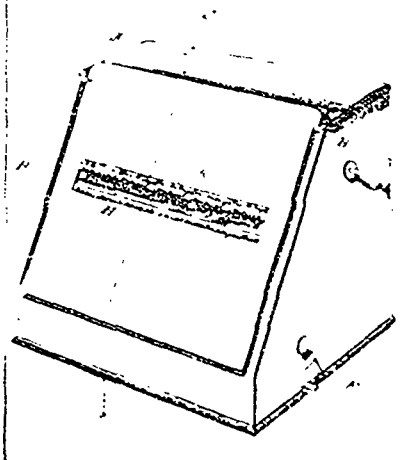
Newman's Reed Organ



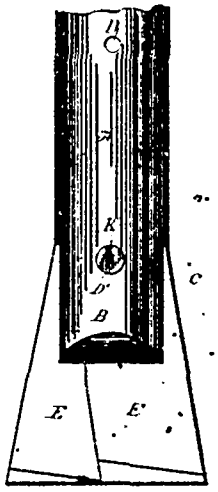
Putnam's Coal Sack for Water Closets



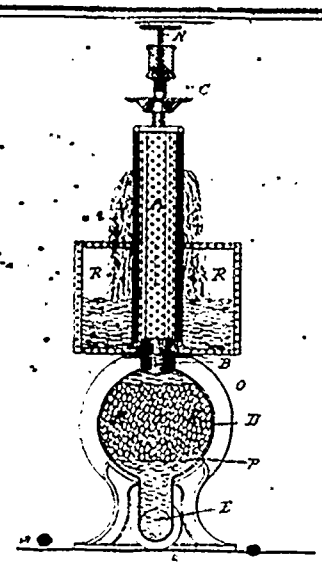
Perkes' Paper File



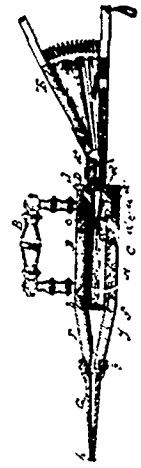
Moseley's Date Indicator



30276 Herberg's Self-Expanding Drill Blade.



30278 Clayton & Holdroyd's Filter.



30279 Meas' Medical Injector.

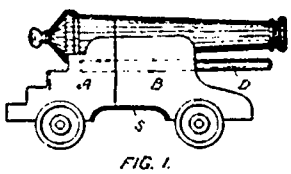


FIG. 1.

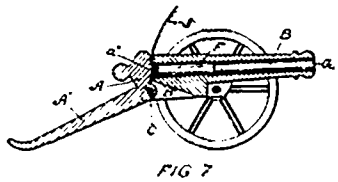
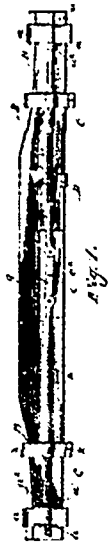
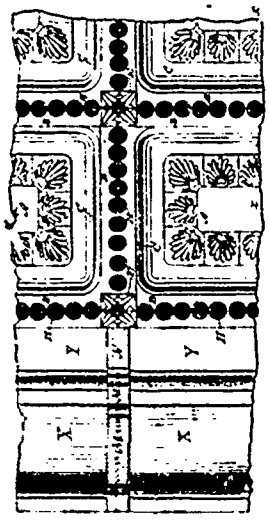


FIG 7

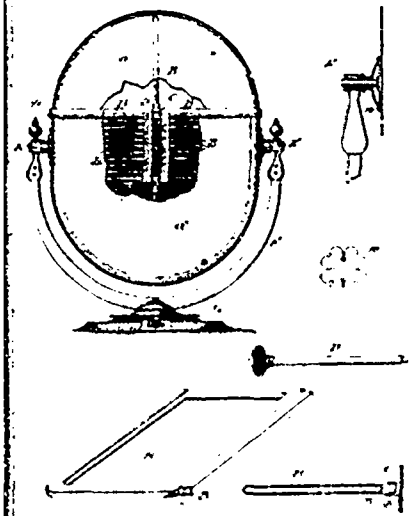
30280 Loud's Cannon.



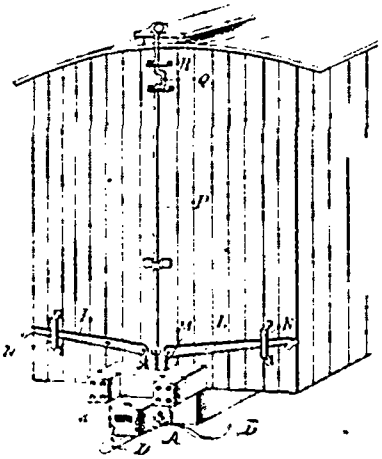
30281 Frisbie's Thill Coupling.



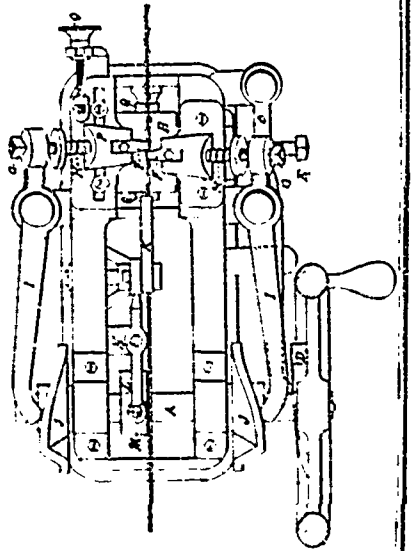
30282 Kinnear's Metallic Ceilings.



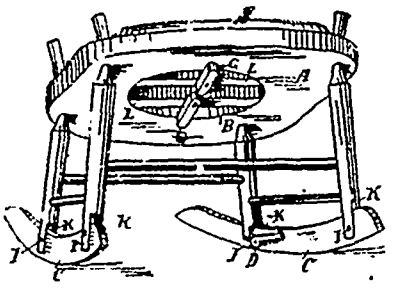
[illegible] Kavanagh's Photograph Case.



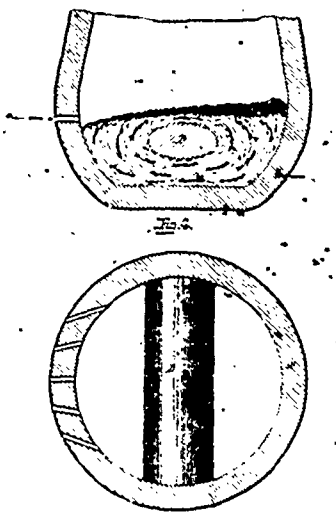
[illegible] Clark's Car Coupler.



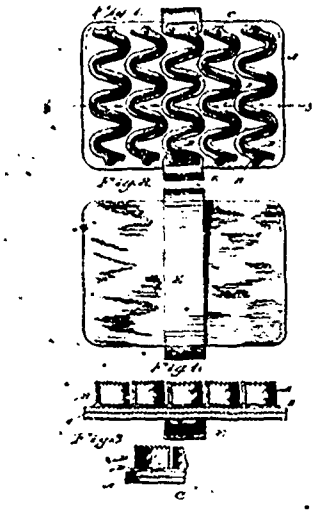
[illegible] Robinson's Machine for Setting Band Saws.



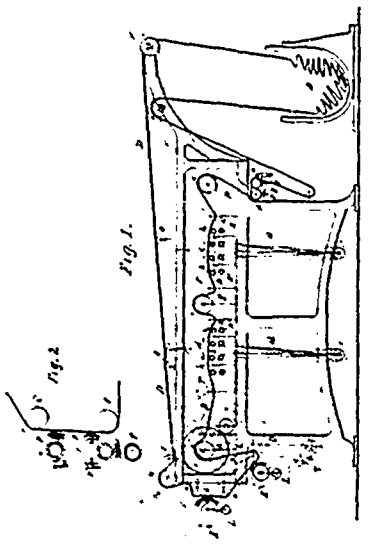
30286 Kuleper's Chair.



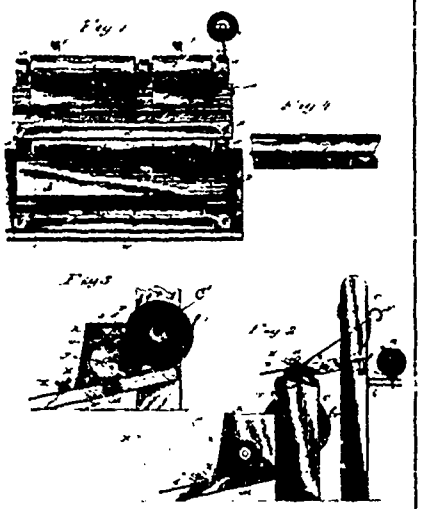
30287 Bookwalter's Apparatus for Converting Crude Iron into Malleable Iron or Steel.



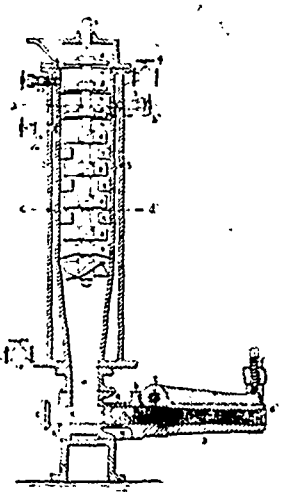
30288 Devore's Curry Comb.



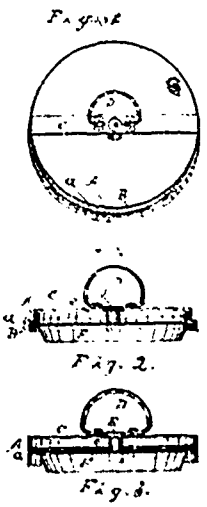
30290 Martinot's Nap Raising Machine.



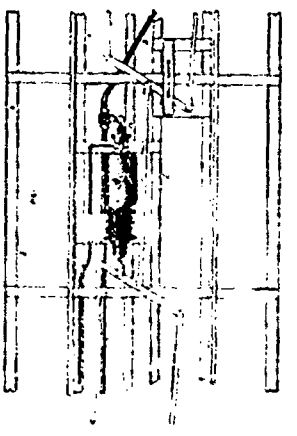
30291 Wilson's Paper Reel.



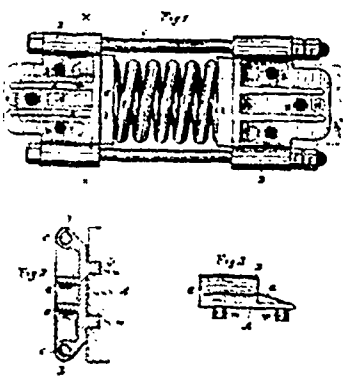
30292 Nagel, Kaemp & Linnenbrugge's Machine for Producing Press Cakes.



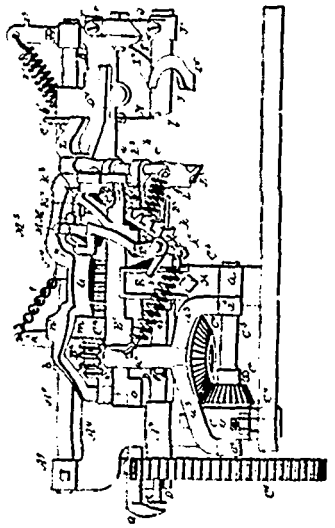
30293 Lucas & Dodge's Pastry Pie Guard



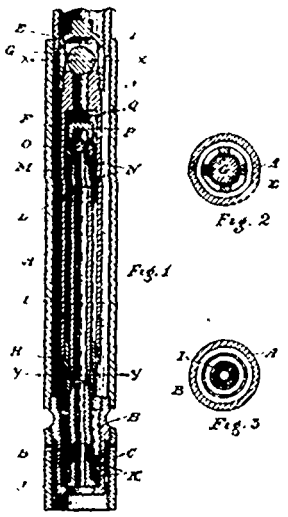
30294 Westinghouse's Fluid Pressure Brake.



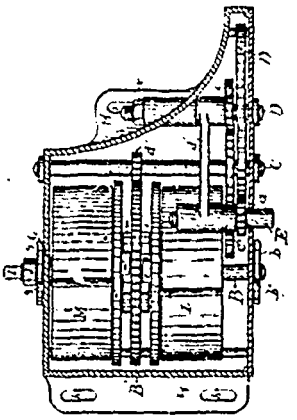
30295 Hovey's Check Plate for Draw Woods in Railway Cars



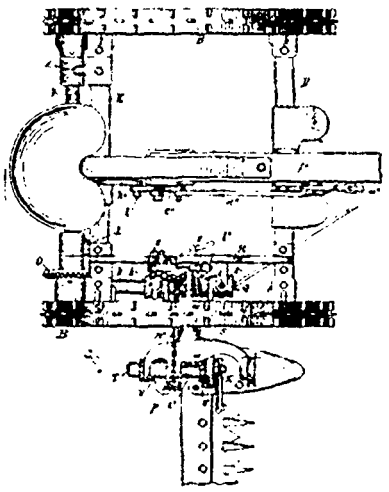
30297 Tabor's Machine for Paring, Coring, and Slicing Apples.



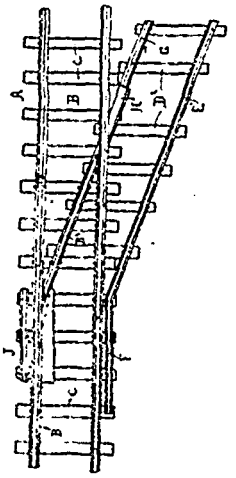
30298 Babcock's Pump.



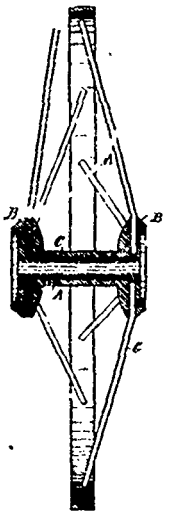
30299 Brosius' Motor.



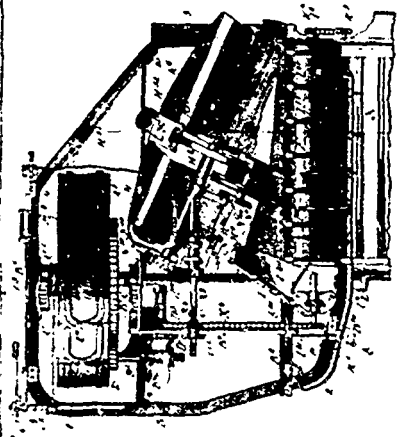
30300 Jackson's Mowing Machine.



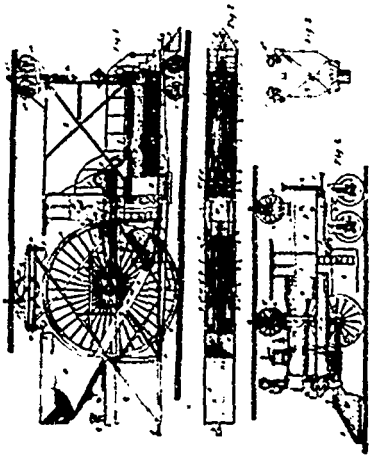
30301 Préfontaine's Track Device for Handling Cars.



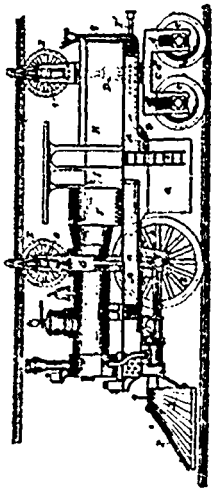
30302 Phillips' Metal Wheel.



30303 Stark's Self-Binding Harvester.



30304 Boynton's Railway.



30305 Boynton's Railway.