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INVENTIONS PATENTED.

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

No. 31,024. Dyeing or Scouring Machine.

(Machine à dégraisser.)

Charles L. Klauer, Philadelphia, Penn., U.S., 2nd April, 1889; 5 years.

Claim.—1st. In a dyeing or scouring machine, the combination of a dye or liquor tank, a frame partly supported therein, inner and outer sets of cross bars carried by the frame upon which the skeins of yarn to be treated are hung, one of said sets of bars being adapted to rotate to gradually turn the yarn, projections moved with said rotatable cross bars, a pivoted stop in the path of said projections, and a spring to normally hold said stop in position, whereby as the frame carries the cross bars past the stop, the projections thereof strike the stop and impart to the bar a portion of a revolution, but when the bar is not free to rotate the pivoted stop is pushed aside by said projection and returns again to its normal position after the projection has passed it. 2nd. In a dyeing or scouring machine, the combination of a dye or liquor tank, a frame partly supported therein, inner and outer sets of cross bars carried by the frame upon which the skeins of yarn to be treated are hung, one of said sets of bars being adapted to rotate to gradually turn the yarn, projections moved with said rotatable cross bars, a pivoted stop in the path of said projections, a spring to normally hold said stop in position, whereby as the frame carries the cross bars past the stop the projections thereof strike the stop and impart to the bar a portion of a revolution, but when the bar is not free to rotate the pivoted stop is pushed aside by said projection, and returns again to its normal position after the projection has passed it, and an adjusting screw to regulate the tension of said spring. 3rd. In a dyeing or scouring machine, the combination of a dye or liquor tank, a frame partly supported therein, inner and outer sets of cross bars carried by the frame upon which the skeins of yarn to be treated are hung, one of said sets of bars being adapted to rotate to gradually turn the yarn, projections moved with said rotatable cross bars, a pivoted stop in the path of said projection, a spring to normally hold said stop in position, whereby as the frame carries the cross bars past the stop the projections thereof strike the stop, and impart to the bar a portion of a revolution, but when the bar is not free to rotate the pivoted stop is pushed aside by said projection and returns again to its normal position after the projection has passed it, and an indicator operated by said pivoted stop when moved. 4th. In a dyeing or scouring machine, the combination of a dye or liquor tank, a frame partly supported therein, inner and outer sets of cross bars carried by the frame upon which the skeins of yarn to be treated are hung, one of said sets of bars being adapted to rotate to gradually turn the yarn, projections moved with said rotatable cross bars, a pivoted stop in the path of said projection, a spring to normally hold said stop in position, whereby as the frame carries the cross bars past the stop the projections thereof strike the stop and impart to the bar a portion of a revolution, but when the bar is not free to rotate the pivoted stop is pushed aside by said projection and returns again to its normal position after the projection has passed it, an alarm or indicator consisting of a gong and hammer, and a connection between said pivoted stop and hammer. 5th. In a dyeing or scouring machine, the combination of a dye or liquor tank, a frame partly supported therein, inner and outer sets of cross bars carried by the frame upon which the skeins of yarn to be treated are hung, one of said sets of bars being adapted to rotate to gradually turn the yarn, star wheels loosely journaled in said frame acting as bearings for said rotatable cross bars, a stop in the path of the projections of said star wheel, whereby as the frame carries the cross bars past the stop the projections of the star wheels strike the stop and impart to the bar a portion of a revolution, ratchets connected with said star wheels and rotating with them, and pawls upon the frame to engage in said ratchet to prevent backward rotation of the cross bars. 6th. The combination of a dye or liquor tank, a frame partly supported therein, inner and outer sets of cross bars carried by the frame upon which the skeins of yarn to be treated are hung, and circular guides on the inner faces of said supporting

frame to keep the skeins away from said faces of the frame. 7th. The combination of a dye or liquor tank, a frame partly supported therein, inner and outer sets of cross bars carried by the frame upon which the skeins of yarn to be treated are hung, one of said sets of bars being adapted to rotate to gradually turn the yarn, suitable means to rotate the frame and move the cross bars through the liquor, and an indicator operated by said rotatable cross bars to indicate when through any accident one of said bars has not been rotated. 8th. The combination of a dye or liquor tank, a frame partly supported therein having its inner portions provided with concentric series of holes or bearings, inner and outer sets of cross bars carried by said frame, one of said sets of cross bars being adjustable to or from the other set in said concentric series of holes or bearings in the supporting frame, and suitable means to rotate said frame and move the cross bars through the liquor. 9th. In a dyeing or scouring machine, the combination of a rotatable frame, inner and outer sets of cross bars carried by said frame and removable therefrom, and having their ends projecting through one end of said frame, and upon which bars the yarn to be dyed or scoured is hung, a closed case for said rotating frame, the lower portion of which is adapted to contain the dye or other liquor, said case being provided with guiding surfaces adjacent to the ends of said bars, and doors located in the said guide surfaces and in the paths of the ends of said cross bars, through which doors said bars may be inserted in, or removed from, said frame, or adjusted in it. 10th. In a dyeing or scouring machine, the combination of a rotating frame supporting bars for the yarn adapted to rotate, and carried by said frame, a dye vat for the liquor through which said supporting bars are carried, and a spring stop arranged in the path of said rotatable supporting bars adapted to strike against them and impart to them a portion of a revolution, but if any of said bars is not free to rotate to be pushed aside and return again to its normal position after the bar has passed it. 11th. The combination of the dye tank or vat, a rotating frame having journals therein, longitudinally movable cross bars for carrying the yarn, whereby they may be removed or inserted in the rotating frame, a circular guide to prevent the longitudinal movement of the cross bars to lock them in operative position on the rotating frame. 12th. The combination of the dye tank or vat, a rotating frame having journals therein, longitudinally movable cross bars for carrying the yarn, whereby they may be removed or inserted in the rotating frame, a circular guide to prevent the longitudinal movement of the cross bars to lock them in operative position on the rotating frame, and removable doors or sections formed in said guides to permit the removal of the cross bars. 13th. The combination of the dye vat, a rotating frame, cross bars journaled therein for holding the skeins of yarn and carrying them through the liquor in the vat, mechanism for rotating said cross bars, and a gong or indicator to indicate when either of said cross bars becomes fast against rotation, and a connection between the gong or indicator and cross bar, adapted to be operated by the cross bar. 14th. The combination of the dye vat, a rotating frame, cross bars journaled therein for holding the skeins of yarn and carrying them through the liquor in the vat, mechanism for rotating said cross bars, and suitable means to prevent backward rotation to said cross bars.

No. 31,025. Method of Sorting Disintegrated Wood for the Manufacture of Cellulose and Apparatus therefor. (Mode et appareil de triage du bois trituré pour la fabrication de la cellulose.)

Ludwig Piette, Pilsen, Austria, 2nd April, 1889; 5 years.

Claim.—1st. A method of sorting disintegrated wood consisting in feeding the wood to a constantly moving sieve, on which a suction air current acts in such a manner that the lighter particles of the disintegrated wood are thereby held against the sieve while the heavier particles fall off, substantially as described. 2nd. In apparatus for sorting disintegrated wood, the combination, with endless travelling sieves, such as A and B, of a suction box or chamber, such as L, for drawing the lighter or less knotty particles of the wood from sieve A to sieve B, while the knotty and heavier particles remain on sieve A, substantially as specified. 3rd. In apparatus for sorting disintegrated wood, the employment of a suction box or chamber, such as L, partition N, second suction box or chamber, such as O, with reduced

air current for allowing any more or less knotty portions of the wood attracted to the upper sieve B to fall by its own weight, but of sufficient strength to retain the lighter particles, substantially as specified. 4th. In apparatus for sorting disintegrated wood, the combination, with endless travelling sieves, such as A and B, and suction boxes or chambers, such as L and O, of receptacles, such as M, P, O, for the reception of the sorted wood, substantially as specified. 5th. In apparatus for sorting disintegrated wood, the combination, with the lower sieve, of one or more air currents directed from a series of blast pipes against the wood, which throw the lighter particles against the upper sieve while the heavier particles remain on the sieve below, substantially as specified. 6th. In apparatus for sorting disintegrated wood, the employment of a rotating sieve drum onto which the wood is fed, in the interior of which a suction air current acts in such a manner that all lighter particles are attracted by it and held against the sieve drum until they arrive at a certain point where they are blown off by a current passing from the interior through the sieve, while the heavier particles fall at once off the drum partly by their own weight, partly in consequence of the centrifugal force, substantially as specified. 7th. In apparatus for sorting disintegrated wood, the employment of a rotating sieve drum T through the hollow axis of which passes a tube divided into two chambers by a partition Z, the interior of the drum being also divided in two chambers G, G', in one of which acts a suction air current, and in the other a blowing air current, substantially as specified.

No. 31,026. Machine for Bending Pipe.

(*Machine à courber les tuyaux.*)

Herbert E. Fowler, New Haven, Conn., U.S., 2nd April, 1889; 5 years.

Claim.—1st. In a machine for bending pipe, a roller provided with a gripping clamp or eye projecting radially from its periphery, in combination with an opposite roller having a groove or recess to receive the said gripping clamp or eye, substantially as specified. 2nd. In a machine for bending pipe, a bending roller comprising two separable sections, each carrying a part to form a gripping clamp or eye, in combination with a bending roller having a groove or recess adapted to receive the said clamp or eye, substantially as specified. 3rd. In a machine for bending pipe, a bending roll formed in two separable sections, and each having a circumferential curvilinear groove at their adjacent sides, and also having respectively a part which forms a gripping clamp or eye, in combination with a bending roller having a groove or recess to receive the said clamp or eye, and also a circumferential curvilinear groove to match the corresponding groove in the opposite roll, substantially as specified. 4th. In a machine for bending pipe, the combination of a shaft formed with a shoulder and with a reduced and screw threaded upper end, a roller which consists of two halves formed with grooved or recessed edges which form a nearly semi-cylindrical groove in the periphery of said roller, provided with two registering hook-shaped clamping jaws in their peripheries which form a projecting eye, and with a registering pin and hole in their facing sides, a wash upon said shaft and supported upon the top of said roller, and a nut upon the screw threaded end of said shaft and clamping said washer and roller halves against the shoulder upon said shaft, substantially as specified. 5th. In a machine for bending pipe, the combination with a bending roller, provided with a projecting eye at its periphery, of an opposite bending roller formed in its periphery with a notch or recess which registers with and receives said eye, substantially as specified. 6th. In a machine for bending pipe, the combination with a bending roller, provided with a projecting and adjustable clamp or grip at its periphery, of an opposite bending roller formed in its periphery with a notch or recess which registers with and receives said eye, substantially as described. 7th. In a machine for bending pipe, the combination, with a bending roller formed with slightly less than semi-cylindrical and circumferential groove, and provided with projecting and adjustable clamping jaws at its periphery, of an opposite bending roller formed with a similar circumferential groove, and in its periphery with a notch or recess which registers with and receives said eye, substantially as described. 8th. In a machine for bending pipe, the combination of a frame or table formed with a transverse slot and with a bearing at the inner end of said slot, and is formed with a lip at its outer end, and a bearing at its inner end, a screw which fits through a screw threaded perforation in a lip upon said table at the outer end of said slot, and bears against the lip upon said sliding block, a shaft or spindle journaled in the bearing in said sliding block, two meshing cog-wheels which are of the same diameter provided with long cogs, and secured upon said spindles or shafts, means for revolving one of said spindles or shafts, and interchangeable bending rollers upon said spindles or shafts, substantially as described. 9th. In a machine for bending pipe, the combination, with a circumferentially grooved bending roller, provided with a projecting clamping or gripping eye, a circumferentially grooved bending roller formed with a notch or recess in its periphery which registers with said eye, and a circumferentially grooved guide roller arranged in a line with the space between the bending rollers, and at right angles to a line drawn through the centres of said rollers, substantially as described. 10th. In a machine for bending pipe, the combination of the machine frame or table formed with the slot 9, the drive shaft 3 formed with the worm 4, the shaft or spindle 7 formed with the threaded end 23, and with the worm wheel 8, and cog wheel 18, and journaled in said frame or table, the divided and grooved roller 20 21 formed with the jaws 27 and 28, the washer 25, and handled nuts 23, 24, the sliding block 8 having the adjusting screw 11, the shaft or spindle 15 journaled in said sliding block, and provided with cog wheel 17, the roller 31 upon said shaft, and formed with the groove 32, and notch or recess 33, and the guide roller 34, substantially as described.

No. 31,027. Spray Producer.

(*Pulvérisateur d'eau.*)

Allen De Vilbiss, Toledo, Ohio, U.S., 2nd April, 1889; 5 years.

Claim.—A liquid-receptacle located upon an air tube into which it opens so that the two have interior connection, in combination with

a liquid or fluid tube passing out from the side of said receptacle, and a spray-point arranged and adapted to be turned at right angles to the line of the said tubes, substantially as shown and described,

No. 31,028. Road Scraper. (*Grattoir de rue.*)

John H. Wiles, Roseburg, Ore., U.S., 2nd April, 1889; 5 years.

Claim.—1st. The lever, in combination with the plates, and tongue-braces, substantially as set forth. 2nd. The connecting rod, the circular plate, in combination with plates, lever, scraper and tongue, substantially as described.

No. 31,029. Traction Engine.

(*Machine locomotive.*)

Henry D. Smith and Francois M. Walker, Newark, Ohio, U.S., 2nd April, 1889; 5 years.

Claim.—1st. The combination, in a traction engine, of the bevel wheels I, J, the wheel G carrying a bevel-pinion meshing with said wheels I, J, and having two sets of teeth, with a pinion F constructed and adapted to mesh with either set of teeth, substantially as described. 2nd. The combination, in a traction engine, of the bevel wheels I, J, the wheel G carrying a bevel pinion meshing with the said wheels I, J, and having two sets of teeth, with the pinion F, the shaft C, and the laterally moving box O carrying said shaft, substantially as described. 3rd. The combination, in a traction engine, of the wheel G having two sets of teeth, and mounted on the shaft D carrying the pinions K, K, with the pinion F, the shaft C, the laterally moving box O, the sleeve M carrying said box, and the frame carrying said sleeve, substantially as described. 4th. The combination, in a traction engine, of the wheel G having two sets of teeth, with the pinion F, the shaft C carrying said pinion, the laterally moving box O, the sleeve M carrying said box, and the small truss-frame L supporting said sleeve, all substantially as shown and described.

No. 31,030. Device for Measuring Cloth in Rolls. (*Appareil pour mesurer les draps en rouleaux.*)

Thomas Guilfoyle, Collingwood, Ont., 2nd April, 1889; 5 years.

Claim.—As an improved measuring device, a case A containing a roll of cord or tape B, and having a hollow projection C through which the cord or tape B passes as it is paid out around the roll of cloth, substantially as and for the purpose specified.

No. 31,031. Elevator Bucket.

(*Godet d'élevateur.*)

William G. Avery, Cleveland, Ohio, U.S., 2nd April, 1889; 5 years.

Claim.—An elevator-bucket consisting essentially of two parts, substantially valves, the meeting edges of which abut and are secured together by brazing or fusing, whereby the smoothness of the interior is preserved, substantially as set forth.

No. 31,032. Axle Bearing. (*Coussinet d'essieu.*)

Thomas Hayden, Port Hope, Ont., 3rd April, 1889; 5 years.

Claim.—The combination, with an axle A, of a sleeve B, caps D and F adjustably fitted onto the said axle, and forming a bearing for the hub C, substantially as and for the purpose specified.

No. 31,033. Art of Reflecting Pictures.

(*Art de réfléchir les images.*)

Charles E. O. Hager, Hagersville, Ont., 3rd April, 1889; 5 years.

Claim.—The process of enlarging a picture by a magnifying lense, which carries with it to the canvass every shade and color of the original picture, substantially as described.

No. 31,034. Sweat Pad Fastener.

(*Crochet de collier de cheval.*)

Ernest F. Pflueger, Akron, Ohio, U.S., 3rd April, 1889; 5 years.

Claim.—The pad, catch, or fastening having a body portion *g* provided with rivet-seats, and catch hooks or prongs having free or headed ends, in combination with a removable and adjustable C-spring having a series of apertures adapted to engage said catch hooks or prongs, substantially as specified.

No. 31,035. Car Axle Box. (*Boîte à graisse.*)

William E. Heffner, Huntingdon, Penn., U.S., 3rd April, 1889; 5 years.

Claim.—The combination, with the axle-box formed on its inner face with the cam surfaces, and with the top K between said surfaces, and having a notch *f*, of the cover, the cross-bar on the inner face thereof, and forming the lugs *h* and *i*, the inclined lug *g* on the outer face of the box, and the spring *b* on the outer face of the cover engaging the lug *g*, substantially as shown and described.

No. 31,036. Load-Lifting Sling Catch.

(*Crochet d'lingue de charge.*)

John W. Provan, Oshawa, Ont., 3rd April, 1889; 5 years.

Claim.—In a load-lifting sling, a clevis having a tongue pivoted in its mouth, the said tongue being provided with a hooked tail to receive the closed end of the sling, in combination with a chain fixed at one end to the releasing hook, and passed through the clevis, substantially as and for the purpose specified.

No. 31,037. Apparatus for Equalizing the Strain on Winding Gears used in Mining Shafts and Warehouse Lifts. (*Appareil pour égaliser la tension des monte-charge employés dans les puits de mines et les entrepôts.*)

George Lansell, Sandhurst, Victoria, 3rd April, 1889; 5 years.

Claim.—The combination, with such gears, of an auxiliary spider bearing a counterbalance, consisting of a chain attached to a rope, such chain being made in lengths of gradually increasing weight from the rope downwards, and so arranged as that the whole of said rope will be unwound when the loaded cage or lift has risen half way to the top, and so as that said rope will then automatically reverse and commence to be wound up, and preferably with a chamber or receptacle in which such counterbalance will coil and uncoil itself, substantially as herein described and explained.

No. 31,038. Folded Paper for Carpet Lining and other Purposes. (*Papier plié pour le soufflage des tapis et autres fins.*)

Austin Gibb, Chicago, Ill., U.S., 3rd April, 1889; 5 years.

Claim.—1st. A carpet lining composed of a strip of paper board A or other like material, bent or crimped as described to produce elastic folds, and one or more unattached and removable strips B of thinner paper folded with the thick sheet A but readily separable therefrom, substantially as and for the purposes specified. 2nd. In a carpet lining, a strip of paper board A or other like material folded as described, in combination, with one or more unattached sheets of thinner paper B folded therewith but readily detachable therefrom, and tying strips C secured to the back of the main strip A, substantially as and for the purposes specified.

No. 31,039. Sheat Carrier and Band Cutter. (*Porte-gerbe et coupe-hart.*)

Donald McEwen, Jr., Massagaweya, Ont., 3rd April, 1889; 5 years.

Claim.—A series of fingers D connected to the travelling endless chains C carried by sprocket-wheels connected to revolving shafts properly journaled in the frame B, in combination, with the revolving knife G, arranged substantially as and for the purpose specified.

No. 31,040. Apparatus for Charging the Cisterns of Railway, Signal, Carriage, Ship and other Lamps and for Regulating the Supply of the same. (*Appareil pour remplir les lampes des chemins de fer, signaux, voitures, navires et autres, et en régler l'alimentation.*)

Samuel T. Dutton, Worcester, Eng., 4th April, 1889; 5 years.

Claim.—1st. The construction and arrangements of the parts of the apparatus hereinbefore described and illustrated in the accompanying drawing, for charging with oil (or other liquid) the oil cisterns of railway signal, carriage, ship, and other lamps, and other vessels. 2nd. The arrangements or combination of the parts of the apparatus hereinbefore described and illustrated in the accompanying drawings, for regulating the charge of oil (or other liquid) supplied to the oil cisterns of railway, signal, carriage, ship, and other lamps, and other vessels. 3rd. The construction and combination of the parts of the delivery valves, and pendant spouts of the apparatus hereinbefore described and illustrated in Figs. 1, 4, 7, 9, 12 and 13 of the accompanying drawings.

No. 31,041. Telephone and Analogous Electric Systems. (*Système de téléphone électrique et autres semblables.*)

Anthony B. Ferdinand, Oshkosh, Wis., U.S., 4th April, 1889; 5 years.

Claim.—1st. In a telephone or analogous electric system, the combination, with the main line and instruments or stations thereon, of supplemental generators adapted to be electrically connected to said main line, and generating stronger currents than those which operate the instruments, electro-magnets and armatures attracted thereby under the action of a current from one of said supplemental generators, and mechanism connected to said armatures and adapted for automatically cutting out the instruments or stations on the line other than those which are to communicate with each other and eliminating their resistance, substantially as set forth. 2nd. In a telephone analogous electric system, the combination, with the main line, and instruments or stations thereon, of supplemental generators adapted to be electrically connected to said main line, and generating stronger currents than those which operate the instruments, electro-magnets and armatures attracted thereby under the action of a current from one of said supplemental generators, and mechanism connected to said armatures and adapted for automatically cutting out for a predetermined time, the instruments or stations on the line other than those which are to communicate with each other, and automatically restoring their circuits to their normal condition at the expiration of said period, substantially as set forth. 3rd. In a telephone or analogous electric system, the combination, with the main line and instruments or stations thereon, of a supplemental generator adapted to be electrically connected to said main line, and capable of generating a current of electricity greater than the ordinary currents used to operate the instruments on said line, electro-magnets normally electrically connected to said main line and the instruments thereon, and armatures within the field of attraction of said electro-magnets only when the latter are acted upon by the said strong current, mechanism mechanically connected to said armatures for automatically cutting out said instruments, and bearing a device for making a shorter and more direct temporary circuit on the main line at any

point where an instrument is cut out practically free from resistance at such point, suitable switches and electric circuits and other mechanism mechanically connected to the last-named mechanism for restoring the normal circuits at such point or points at the expiration of a predetermined time, substantially as set forth.

No. 31,042. Sulky. (*Désobligeante.*)

Joseph Barsalou, St. John, Qué., 4th April, 1889; 5 years.

Claim.—1st. In sulkies, the spring S placed under or above and in the same direction as the axle B, substantially as described. 2nd. In sulkies, the supports O, O and the arms r, r articulated to the cross bar e, all substantially as and for the purpose set forth.

No. 31,043. Catamenial Sack. (*Sac cataménial.*)

Emma A. Wiley, Los Angeles, Cal., U.S., 4th April, 1889; 5 years.

Claim.—As an improved article of manufacture, the catamenial sack having the thin rubber body portion A, adapted to fit snugly round the lower portion of the trunk of the wearer, and provided near its bottom on opposite sides of the centre with thigh openings B, B, the loose depending sponge-containing pocket F located between the thigh-openings and integral with the body portion, and the drawing strings or tapes C at the upper edges of the body portion, substantially as and for the purpose specified.

No. 31,044. Watchman's Time Detector.

(*Contrôleur de garde de nuit.*)

Etna H. Davis and Reuben Westervelt, Elmira, N.Y., U.S., 4th April, 1889; 5 years.

Claim.—1st. The combination, with a series of markers located within a box and operating magnets therefor, of an additional marker and levers for operating the same, and a device connected with the door of the box for co-operating with the said levers. 2nd. The combination, with a series of markers located within a box and operating magnets therefor, of an additional marker, and levers for operating the same, and a device connected with the door of the box for co-operating with the said levers, all in combination with a recording strip having columns corresponding to the markers. 3rd. The combination, with a clock-work and a circuit controlling segment normally operated thereby, of a magnet whose armature is connected with the segment, and a circuit controller in the magnet circuit, as and for the purpose set forth. 4th. The combination, with an electro-magnet for operating a marker, of a circuit controller and a separate electro-magnet in the same circuit, a circuit controlling segment pivoted to the armature of the second magnet, the said segment being normally in frictional contact with a moving portion of a controlling clock, as and for the purpose set forth.

No. 31,045. Machine for Bending Pipe.

(*Machine à courber les tuyaux.*)

Herbert E. Fowler, New Haven, Conn., U.S., 4th April, 1889; 5 years.

Claim.—1st. In a machine for bending and coiling pipe, the combination, with a pair of feed rollers, of a pair of bending rollers formed with moulded ends journaled one above the other, and arranged to project into the space between said feed rollers, and together with one of said rollers to force the pipe to follow the contour of the opposite feed roller for a portion of its periphery, and to form a continuation of the periphery of said first-named roller, substantially as specified. 2nd. In a machine for bending and coiling pipe, the combination, with a pair of feed rollers, of a pair of bending rollers formed with moulded ends journaled one above the other, and arranged to project into the space between said feed rollers, and together with one of said rollers to force the pipe to follow the contour of the opposite feed roller for a portion of its periphery, and to form a continuation of the periphery of said first-named roller, and means for adjusting said rollers toward and from said feed rollers, substantially as described. 3rd. In a machine for bending and coiling pipe, the combination, with a pair of feed rollers, of a pair of bending rollers formed with moulded ends journaled one above the other, and arranged to project into the space between said feed rollers, and together with one of said rollers to force the pipe to follow the contour of the opposite feed roller for a portion of its periphery, and to form a continuation of the periphery of said first-named roller, and a slide which forms bearings for said bending rollers and is provided with a feed screw for adjusting it toward or from said feed rollers, substantially as specified. 4th. In a machine for bending and coiling pipe, the combination, with a pair of feed rollers, of a slide provided with a screw for adjusting it toward and from the space between said feed rollers, a plate or frame pivoted upon said slide, a screw for tilting or laterally adjusting said plate or frame, and a pair of bending rollers which are journaled one above the other at the inner end of said plate frame, and formed with moulded ends and together with one of said feed rollers force the pipe to follow the contour of the opposite feed rollers for a portion of its periphery, substantially as described. 5th. In a machine for bending and coiling pipe, the combination of a pair of grooved feed rollers, a slide provided with a screw for adjusting it toward and from the space between said feed rollers, a plate or frame pivoted upon said slide, a screw for laterally adjusting said plate or frame, and a pair of bending rollers which are journaled upon said plate or frame, and formed with moulded ends which correspond to the grooves in the feed rollers, force the pipe to follow the contour of the opposite feed roller for a portion of its periphery, substantially as specified. 6th. In a machine for bending and coiling pipe, the combination, of the machine frame or table formed with the diagonal slot 24, the feeding rollers 19 and 21 formed with the registering circumferential grooves 20 and 22, the guide rollers 23, the guide 41, the slide 25 in said slot 24, the screw 27 for adjusting said slide, the plate or frame 31 pivoted upon said slide and formed with the uprights 32 which are provided with the horizontal bearings 33, the screw 38 which bears against the outer upright 32, the shafts 34 in said bearings 33, and the bending rollers 35 upon the inner ends of said shafts, and formed with the moulds, grooves or rabbets 36 which correspond in shape to the grooves in said feed rollers, substantially as specified.

No. 31,046. Machine for Bending and Coiling Pipe. (*Machine à courber et lover les tuyaux.*)

Herbert E. Fowler, New Haven, Conn., U.S., 4th April, 1889; 5 years.

Claim.—1st. In a machine for bending and coiling pipe, the combination, with a grooved feed roll, of a feed roll having a groove of greater depth, and a bending and shaping roll having its periphery extending into the periphery of said deeply grooved roll, substantially as specified. 2nd. In a machine for bending and coiling pipe, the combination, with a grooved feed roll, of a feed roll having a groove of greater depth, and an adjustably arranged bending and shaping roll having its periphery extending into the periphery of said deeply grooved feed roll, substantially as specified. 3rd. In a machine for bending and coiling pipe, the combination, with a pair of feed rollers, of a bending roller which projects into the space between said feed rollers to a point within the periphery of one of them, and a slide which forms a bearing for said roller, and is provided with a feed screw for adjusting it toward and from said feed rollers, substantially as described. 4th. In a machine for bending and coiling pipe, the combination, with a pair of feed rollers, of a slide provided with a screw for adjusting it toward and from the space between said feed rollers, a plate or frame pivoted upon said slide, a screw for tilting or laterally adjusting said pivoted plate or frame, and a bending roller which is journaled upon the inner end of said plate or frame, and together with one of said feed rollers forces the pipe to follow the contour of the opposite feed roller for a portion of its periphery, substantially as specified. 5th. In a machine for bending and coiling pipe, the combination of a feed roller, an opposite feed roller formed with a deep groove in its periphery, and a bending roller which is journaled to project with its edge into the deep groove of said feed roller, and together with said roller to force the pipe to follow the contour of said other feed roller for a portion of its periphery, substantially as described. 6th. In a machine for bending and coiling pipe, the combination, of a feed roller formed with a circumferential groove, and a deeper groove in the bottom of said groove, and a narrow bending roller which is journaled to project into said deeper groove and formed with a circumferential groove of the same diameter as the grooves in said feed rollers, and which together with said deeply grooved roller forces the pipe to follow the contour of the opposite feed roller for a portion of its periphery, substantially as described. 7th. In a machine for bending and coiling pipe, the combination, of a circumferentially grooved feed roller, an opposite feed roller formed with a circumferential groove, and with a deep groove in the bottom of said circumferential groove, a circumferentially grooved bending roller which is journaled to project into said deep groove, and together with said deeply grooved feed roller to force the pipe to follow the contour of the opposite feed roller for a portion of its periphery, and means for adjusting said bending roller to project more or less into said deeply grooved roller and toward said opposite feed roller, substantially as described. 8th. In a machine for bending and coiling pipe, the combination of a circumferentially grooved feed roller, an opposite feed roller formed with a corresponding circumferential groove and with a deep groove in the bottom of said groove, a slide which projects with its inner end toward the space between said feed rollers, a screw for adjusting said slide toward or from said rollers, and a circumferentially grooved bending roller which is journaled at the inner end of said slide to project into the deep groove of said feed roller, and together with said feed roller to force the pipe to follow the contour of the opposite feed roller for a portion of its periphery, substantially as described. 9th. In a machine for bending and coiling pipe, the combination of the machine frame or table formed with the diagonal slot 25, the circumferentially grooved feed roller 19, the opposite feed roller 21 formed with the corresponding circumferential groove 22, and with a deep groove 23 in the bottom of said groove, the guide roller 24, the oblique guide 39, the slide or block 26 in said diagonal slot, the screw 28 for adjusting said slide, the plate or block 32 pivoted upon said slide, the screw 36 for laterally adjusting said plate or block, and the narrow bending roller 33 which is journaled at the inner end of said pivoted plate or block and projects into the groove 23 of said feed roller 21, substantially as described.

No. 31,047. Miner's Pick. (*Pic de mineur.*)

Fredrick Sohuman, Springhill Mines, N.S., 4th April, 1889; 5 years.

Claim.—A pick head such as described having holes of any form in the ends of the arms *a* to receive picks, points *b* having correspondingly shaped shanks to fit the holes *a*, as shown and described for the purposes set forth.

No. 31,048. Balanced Slide Valve.

(*Tiroir de vapeur équilibré.*)

Pierre L. Lafrance, Detroit, Mich., U.S., 5th April, 1889; 5 years.

Claim.—1st. In a slide-valve, the combination, with the lower diaphragm forming the face of the valve, of an upper plate the one having a vertically adjustable engagement with the other, substantially as set forth. 2nd. In a slide-valve, the combination, with the lower diaphragm forming the face of the valve, of an upper plate supported by screw posts thereupon, said posts provided with jam nuts, substantially as and in the manner set forth. 3rd. In a slide-valve, the combination, with the lower diaphragm forming the face of the valve, of a vertically adjustable plate, said plate provided with laterally adjustable sides, substantially as set forth. 4th. In a slide-valve, the combination, with the lower diaphragm forming the face of the valve, of a vertically adjustable plate made in sections and provided with adjustable sides, substantially as set forth. 5th. The combination, with a steam-chest of a slide-valve, said valve consisting of a lower diaphragm and upper plate having an adjustable engagement the one with the other, whereby any wear of the valve seat may be taken up, substantially as set forth.

No. 31,049. Compound for Roofing Purposes. (*Composition de toiture.*)

Frank T. Tinning, Toronto, Ont., 8th April, 1889; 5 years.

Claim.—A compound for the purpose of roofing composed of asphalt, petroleum residuum, oil and resin in combination with cement, sand, gypsum, and asbestos fibre in the hereinbefore stated proper quantities and treated as specified and described.

No. 31,050. Machine relating to the Cutting of Bevelled Rubber Soles and other Materials. (*Machine à tailler les semelles de caoutchouc biseautées et autres matériaux.*)

Willard F. Wellman, Boston, Mass., U.S., 8th April, 1889; 5 years.

Claim.—1st. In a sole cutting machine, the combination, of stock clamp B, D, track *f* corresponding to the form of article to be cut, knife E₁, and means substantially such as described for causing the knife to travel in a path determined by the track *f*, substantially as and for the purpose set forth. 2nd. In combination, the support B, foot D, knife carrier E, knife E₁ secured in the carrier, the foot D being formed with a track *f* and rack *d*, and the carrier being provided with pins *m*, *n*, and spur gear *i*, substantially as and for the purpose set forth. 3rd. The support B, foot D, knife carrier E, and knife E₁ secured in carrier E, foot D having a track *f*, and rack *d*, and carrier E having pins *m*, *n*, and gear *i*, in combination with arms *d*, F hinged at *b* and provided with pulleys *ar*, *az*, *bt*, *bz*, *ht*, and shafts *a*, *b*, *h*, all substantially as and for the purpose set forth. 4th. The knife carrier E herein described made up of two sections *e*, *e*₁, hinged together and provided with pins *m*, *n*, and gear *i*, substantially as and for the purpose set forth.

No. 31,051. Incandescent Lamp and Socket Holder therefor. (*Lampe et support de lampe incandescente.*)

The Thomson-Houston International Electric Company, Boston, (assignee of Elihu Thomson and George H. Alton, Lynn), Mass., U.S., 8th April, 1889; 5 years.

Claim.—1st. In an electric lamp support, a contact terminal fixed on one face of a plate of insulating material, and having a bent free end depressed below the opposite face. 2nd. In an electric lamp support, a metallic frame made in one piece and having insulating blocks or washers secured to its top and bottom, the top washer carrying the contact terminals. 3rd. In a lamp support, a metallic frame carrying an insulating plate or block for the contact terminals, and provided with a lateral tubular socket for the spindle of the lamp switch, as and for the purpose described. 4th. In an electric lamp support, the combination, with the intermediate metallic frame, made in one piece, of the two attached insulating pieces, a contact terminal mounted on the upper block and having a spring end, a spring mounted on the other block and in connection with the frame, and an intermediate rotary connecting piece secured to a spindle borne by the frame. 5th. The contact terminal blank E, consisting of metallic bushing provided with a shoulder at one end and tapered at the other, as and for the purpose described. 6th. A blank for a ring contact terminal, having the ears or extensions projecting radially inward and integral with the ring. 7th. An electric lamp base having a contact terminal composed of a screw-threaded bushing, eyeletted in a non-conducting washer secured to the lamp collar. 8th. The lamp contact terminal consisting of an eyeletted bushing having a perforation extending through it to receive a lamp wire, as and for the purpose described. 9th. The combination, with the insulating plate fastened to the lamp neck, of a ring contact terminal having extensions integral with it, and extending through and fastened upon, the opposite side of said plate. 10th. In an electric lamp support, the combination of a metallic frame made of a single piece of metal, having means for attachment of one of the leading in wires, two insulating washers or plates fastened respectively to the top and bottom of the frame, two contact terminals secured to the upper plate, a switch spring and means for attachment of a leading in wire in connection respectively with said terminals, and a rotary contact mounted in the metallic frame. 11th. In an electric lamp support, the combination, with the metallic frame made in one piece, of the insulating plate mounted thereon and carrying a contact terminal, a spring connected with said terminal, a second spring fastened to the base of the frame, a sleeve or bushing extending transversely from the frame, and a switch spindle mounted thereon and having a metal head between the two springs, as and for the purpose described. 12th. In an electric lamp support, a metal frame made in one piece carrying the contact terminals insulated therefrom, and provided with a horizontal sleeve forming the socket or bearing for the lamp switch. 13th. In an electric lamp support or holder, a metal frame made in one piece carrying an insulating plate, two contact terminals secured to said plate, one of which terminals has an extension forming a means for attachment of a leading in wire, and means upon the metallic frame for attachment of the other leading in wire. 14th. A blank for the metallic frame of a lamp support, consisting of a plate forming the base of the frame, and provided with an arm or extension perforated to receive a tube or socket for a rotary switch, as and for the purpose described. 15th. The combination, with the insulating plate or washer, of the metal bushing eyeletted therein, and having an internal screw thread adapted to engage with a screw contact terminal. 16th. The screw contact terminal seated in the insulating plate, in combination with the arm or extension fastened by the upset or rivetted end of the screw, as and for the purpose described.

No. 31,052. Sewing Machine. (*Machine à coudre.*)

The Commercial Over-Seaming Sewing Machine and Manufacturing Company, San Francisco, Cal., U.S., (assignee of Morris Lachman, London, Eng.), 8th April, 1889; 5 years.

Claim.—1st. In a machine constructed for over-seaming and provided with a vertically reciprocating eye pointed needle, the combi-

nation therewith, of a reciprocating curved hook or looper actuated by the means above described, such looper serving to take the loop of the needle thread when the needle is below the work, and present it to the needle on its next descent for the purpose of its receiving and being secured by the thread of the next formed loop. 2nd. In combination with the vertically reciprocating needle of an over-seaming machine, the eye pointed thread needle actuated by the mechanism described. 3rd. In combination with a curved looper or curved eye-pointed needle acting in conjunction with a reciprocating needle, as described, the elastically mounted finger *e* which puts an elastic tension on the loop of the thread taken up by the looper or curved needle for the purpose of retaining that loop on the looper or curved needle, until the thread lapped over the edge of the work is secured by the descent of the vertical needle. 4th. The arrangement of tension apparatus as above described, whereby an intermittent bite is put upon the thread supplied to the vertical needle. 5th. The application to an over-seaming machine of the device above described, for taking up the slack as each loop is secured by the descent of the vertical needle. 6th. The arrangement of feeding device above described in which the feed plate is actuated by two eccentrics, the one being capable of sliding transversely over the other to adjust the length of feed to the requirements of the work.

No. 31,053. Vacuum Arrow. (*Flèche à vide.*)

Philip W. Pratt, Abington, Mass., (assignee of Frank White, Philadelphia, Penn.), U.S., 8th April, 1889; 5 years.

Claim.—1st. The combination of an arrow shaft, and a vacuum or pneumatic arrow head secured to one end thereof. 2nd. The combination of a vacuum arrow head, an arrow shaft, and a connecting device secured to one end of the arrow shaft, and having a flange or head secured in the vacuum arrow head, as set forth. 3rd. The combination of a vacuum arrow head, an arrow shaft, a shank connecting the same and a ferrule surrounding the head of the arrow shaft, as set forth. 4th. An elastic arrow head having a concave front side, a yielding lower edge, and an attaching device whereby it may be secured to a shaft, as set forth.

No. 31,054. Folding Door Lock.

(*Serrure de porte brisée.*)

Hugo Bonninghausen, Detroit, Mich., and Charles L. Spier, Brooklyn N.Y., (assignees of Charles Bouchard, Detroit, Mich.), U.S., 8th April, 1889; 5 years.

Claim.—In a lock for folding doors, the bolt C, and crank H in the path of the second door, substantially as described.

No. 31,055. Lubricating Apparatus.

(*Appareil graisseur.*)

Henry O'Connell and Stephen A. Cahill, Manistee, Mich., U.S., 8th April, 1889; 5 years.

Claim.—1st. A lubricating apparatus having the reservoir and feeding devices stationary, and connecting the jointed or flexible pipe or pipes with the wrist or other part of a moving member to be lubricated. 2nd. The above, in combination with devices for automatic operation of the feed. 3rd. In combination with an engine, a stationary grease cup for feeding thick lubricant, and jointed pipes leading therefrom to the crank pin. 4th. In combination with an engine, a stationary lubricator thereon, a pipe connected with the crank pin and supported on the cross-head, and jointed pipes connecting the same with the grease cup, substantially as set forth. 5th. The combination of grease cup 1, jointed pipes 14 and 16 connected thereto and supported on cross-head 17, pipe 18 connected with the crank pin, and the pipe 16, and also supported on said cross-head, and a branch pipe 19 connected with the cross-head pin, substantially as set forth. 6th. The combination, with the engine, of grease cup 1, pipe 4, stationary joint 7, connecting said pipe 4 with pipe 14 and supporting same, swing joint 15 connecting pipes 14 and 16, stationary joint 71 fixed to cross-head 17, connecting and supporting pipes 16 and 18, and the branch pipe 20 from pipe 10, all arranged and adapted to operate substantially as and for the purposes set forth.

No. 31,056. Oil Feed for Lamps.

(*Alimentateur de lampe.*)

Christian Sieghold and Moses O. Meyer, Salinas, Cal., U.S., 8th April, 1889; 5 years.

Claim.—1st. The combination, with the lamp body or vessel A having an inlet in its bottom, of the float D within the body, a depending tube *d* extending down through the said inlet and having an opening *g* through one side, and a cup on its lower closed end, substantially as set forth. 2nd. The combination, with a lamp body A having a depending tube *b*, of a float D within the body, a pipe *d* closed at its lower end suspended from the float passing down through the tube *b*, and provided in its side with an opening *g*, said opening being below the lower end of the tube *b* when the float is lowered, substantially as set forth.

No. 31,057. Urethral Powder Applier.

(*Cathéter à poudre.*)

Carlton E. Sage and Chelius S. Pixley, Elkhart, Ind., U.S., 8th April, 1889; 5 years.

Claim.—1st. In a urethral powder applier, the combination, with shell A, of the interchangeable devices D and E, and a retaining device for the same. 2nd. In a urethral powder applier, the combination, with shell A, of the rod D, and a retaining device for the rod. 3rd. In a urethral powder applier, the combination, with the shell A, of a conveyor E provided with a groove, and a retaining device permitting rotary motion, but not longitudinal motion of the conveyor. 4th. In a urethral powder applier, the combination, with the shell A, and head B, of the conveyor E provided with an agitator or stirrer F.

No. 31,058. Toy. (*Jouet.*)

Ebenezer F. Lane and George W. Willis, Swansey, N.H., U.S., 8th April, 1889; 5 years.

Claim.—1st. In a toy of the character described, the body A provided with a series of wheels of different sizes arranged in regular gradation, as B, C, D, the stock E, and the double cord *m*, combined and arranged to operate substantially as set forth. 2nd. In a toy of the character described, a body, as A, provided with a series of graded wheels secured thereon, as B, C, D, said wheels being ornamented or provided with figures, etc., to adapt them to produce kaleidoscopic effects when rotated, in combination with a stock, as E, and a double string *m* connecting said body and stock, all being arranged to operate substantially as specified.

No. 31,059. Fireproof Gas Machine.

(*Appareil à gaz à l'épreuve du feu.*)

Perry Yarrington and Dudley S. McDonald, Boston, Mass., U.S., 8th April, 1889; 5 years.

Claim.—1st. In a gas-machine, the combination of a body or tank, a carburetor disposed therein and provided with a guard plate, a perforated pan for the gas generating material supported on said plate, and provided with guard flanges, a bell supported on said plate and enclosing said pan, a pipe from the carburetor opening into said bell, and a supply tube leading from said carburetor through said body, substantially as described. 2nd. In a gas-machine, the combination of a body, a reservoir for carbonaceous material so disposed in said body that it may be surrounded by fire-extinguishing liquid, a wooden guard plate on said reservoir, perforated pan supported on said plate and provided with guard flanges, a bell supported on said plate and enclosing said pan, said bell having guard flanges, a pipe from the reservoir opening into the bell above said pan, and a supply tube leading from the reservoir through said body, substantially as described. 3rd. In a gas-machine, a body provided with a gutter near its mouth, a cover for said body, a carburetor disposed in the bottom of the body, a wooden guard plate on said carburetor, a perforated pan provided with guard flanges supported on said plate, a bell enclosing said pan and resting on said plate, guard flanges on said bell, a pipe from the carburetor opening into the bell above said pan, and a supply tube leading from said carburetor through the body wall, substantially as described. 4th. In a gas-machine, a carburetor so disposed in the body thereof that it may be surrounded by non-flammable acid solution, and provided with a wooden guard plate for supporting the gas generating apparatus, in combination with an induction pipe opening into said carburetor, and an eduction tube leading therefrom, substantially as described. 5th. In a gas-machine, the body A, in combination with the reservoir D, having the guard plate *h*, and legs *g*, the perforated pan K, provided with legs *g*, and flanges *h*, the bell E, provided with legs *g*, and flanges *h*, the pipe H opening into said reservoir, and the tube Z leading therefrom, substantially as described. 6th. In a gas-machine, the combination of the body A provided with the gutter *g*, the cover B, the reservoir D having legs *g*, the guard plate *h* on said reservoir, the perforated pan K provided with the legs *g*, guards *h*, and sleeve *g*, the bell E having legs *g*, and guards *h*, the rods *m* securing said bell to said body, the pipe H opening into said reservoir and bell, and the tube *z* leading from said reservoir through said body, all being arranged to operate substantially as described.

No. 31,060. Machine for Laying Electric Wires Underground. (*Machine à poser les fils électriques sous terre.*)

Alexander M. Brown and Archibald Wright, Winnipeg, Man., 8th April, 1889; 5 years.

Claim.—1st. An automatic machine for laying subterranean electric wire, operated by animal, steam, or other power, substantially as and for the purpose above set forth. 2nd. An automatic subterranean electric wire laying machine, coating the wire with indestructible composition, substantially as and for the purpose above set forth. 3rd. An automatic subterranean electric wire laying machine having plough share 1, with hole 2 for securing same to beam 3, pin for same 4, revolving pulley 5, axle pin 6, tubular aperture in plough share 1, 7, revolving cutter 8, shank 9, axle pin 10, beam hinged to front axle tree 11, 11, covering disks, axle pins 12, 12, 13, colter gauge 14, lifting link 15, lifting lever 15 $\frac{1}{2}$, lever beam 16, lever arm 16 $\frac{1}{2}$, knuckle joint 17, 17, fulcrum 18, lever rod 18 $\frac{1}{2}$, knuckle joint 19, hand lever 20, fulcrum to same 21, wagon box 22, foot board 23, seat 24, 24, spring supports 25, slot in bottom of wagon box 21, 26, clamp for hand lever 19, 27, wire coil roller 28, 28, standards for same 29, connecting or tall tale pin 30, indicator 30 $\frac{1}{2}$, standard for galvanometer and electric bell 31, shell 32, striking arm with or without 33, tank for composition 34 34, apertures 35, spindle and roller 36, furnace 37 37, flue pipes 38, lid 39, furnace door 40, ash pit 41, door to same 42 42, grate bars 43, material non-conductive of heat 44, false bottom 45, insulated wire 46, revolving pulley 47, hole through beam 10, 48, roller 49 49, lifting levers 50, lever beam 51 51, fulcrum 52, lever arm 52 $\frac{1}{2}$, knuckle joint 53, connecting rod 54, hand lever for roller 54 $\frac{1}{2}$, knuckle joint 55, fulcrum for same 56, guards for 53, 57, 57, front wheels 58, front axle tree 58 $\frac{1}{2}$, bolster 59, hounds 60, rear axle tree 61 61, front wheels 62, main reach 63 63, guide wheels 64, guide wheel reach 65, guide slots for colter beam 10, 66, guide slot attached to rear axle tree 60, 67, electric connector 68, pole 69, stays 70, axle tree for guide wheels 63, 63, 71, holder for hand lever 54, 72, indicator arm 73, fulcrum for indicator, substantially as and for the purpose above set forth.

No. 31,061. Cultivator. (*Cultivateur.*)

Ellen M. Gaylord, (assignee of Edwin Case), Ironville, Ohio, U.S., 8th April, 1889; 5 years.

Claim.—1st. In a cultivator, the combination, with the beam A provided with elongated slots, of jointed wings D pivotally connected to the beam, and parallel braces D $\frac{1}{2}$ pivoted to said wings, and at right angles to the beam, the clips D $\frac{1}{2}$ passing through the elongated

slots in the beam, and embracing the parallel braces D', and clamping screws D³ forlamping the said braces to the beam, substantially as described. 2nd. In a cultivator, the combination, with standard E¹ made adjustable about a vertical pivot, of a cultivator attachment, the upright arm of which is engaged therewith by a single horizontal bolt about which it may be tilted, the upper end of said arm provided with serrations adapted to engage corresponding serrations upon the standard E¹, substantially as and for the purposes described. 3rd. In a cultivator, the combination, with standards E¹, of a cultivator attachment having its upright arm engaged therewith, substantially as described, and carrying on its horizontal portion a concave blade G, and side hoe R, substantially as described. 4th. In a cultivator, the combination, with a top-lifter H adjustably supported and adapted to travel just beneath the soil, of the soil-gauge K, vertically-adjustable blade K¹, leveler L located just beyond said gauge, half-hiller G, and clod-fender J, substantially as described. 5th. The combination, with a cultivator, of the raker attachment for raking the top of the row, the extremity of said raker adjustable forward and backward about its support, and the rake itself adjustable up or down at either end, substantially as and for the purposes described. 6th. The combination, with a cultivator, of the raker attachment and clod-scraper P, said scraper serving to deflect between the rows, clods, stalks, etc., that may be thrown aside by the rake, substantially as described. 7th. The combination, with a cultivator, of a potato-bug attachment, the same consisting of a bug-receptacle M, and deflecting and agitating arms M¹, M², substantially as described. 8th. The combination, with a cultivator, of a draft trace or chain secured to the cultivator near the rear end of its beam, so as to draw therefrom in a direct line, and loosely engaged to the forward end of the cultivator, and the trace or chain Q² engaging the forward end of the draft trace or chain, and having its other end secured to the forward end of the cultivator-beam, substantially as shown and for the purpose specified.

No. 31,062. Horse Release. (*Chasse-cheval.*)

Alonzo R. Brown and Justus Swanson, San Francisco, Cal., U.S., 8th April, 1889; 5 years.

Claim.—1st. As a new article of manufacture, the horse-release described composed of the bed or attaching plate A, the guide catch box B, with cover B¹, slot M, guide groove N, receiving notch C and the hinge bracket F, in combination, with the lock tongue G, the hinge or pivot H, the catch bolt C having the eye C², constructed substantially as and for the purposes set forth. 2nd. The combination, with the bed plate A having the hinge bracket F, and guide catch box B, the lock tongue G, and catch bolt C, constructed and operated substantially as and for the purposes set forth.

No. 31,063. System of Electric Distribution.

(*Système de distribution électrique.*)

The Thomson-Houston International Electric Company, Boston, (assignee of Edwin W. Rice, Jr., Lynn), Mass., U.S., 8th April, 1889; 5 years.

Claim.—1st. The herein described system of electrical distribution, comprising alternating current mains leading from a point of alternating current supply, one or more converters or transformers of the ordinary description connected to said mains, leading wires or mains connected with the secondaries of said converters, and one or more induction transfer coils connected across said leading wires, and having connected with them three or more sub-circuits or distributing wires, each two sub-circuits having a fraction of the transfer coil included between them, as and for the purpose described. 2nd. The herein described system of alternating current distribution, comprising alternating current mains leading from a suitable source of current supply, converters or transformers connected in multiple across said mains, leading wires or mains connected to the secondaries of said converters, induction transfer coils connected across said leading wires, and sub-circuits or distributing wires leading from and including a fraction of said transfer coils, said leading wires supplying current to still other transfer coils for the purpose of still further subdividing the potential, as and for the purpose described.

No. 31,064. Envelope Tablet. (*Porte-enveloppe.*)

Hiram Phillips and Simeon B. Kirtley, Columbia, Mo., U.S., 8th April, 1889; 5 years.

Claim.—1st. A package of envelopes, gummed and secured together at one edge forming an envelope tablet, substantially as shown and described. 2nd. An envelope-package consisting of the following elements, to wit: the envelopes provided at one edge with a gummed backing, and a stiff cover hinged thereto and freely moving thereon, and a thin cover hinged to the backing on the opposite side of the stiff cover passing around the bottom and front edge, and having a blotter attached to its edge so as to be freely moved thereon. 3rd. A package of envelopes gummed and secured at the rear edge to a backing L, and also at its front edge gummed and secured to a retaining-piece A, whereby the package is held securely together in a very compact form. 4th. In combination, with a package of envelopes secured together at the front and rear, but so that each envelope can be easily separated from the pack, a hinged cover or piece adapted to be turned down in front and afford a hand rest when addressing the envelope. 5th. An envelope-package provided with a wrapper to which it is attached at the front and rear edges, and whereby it is completely surrounded and protected from dust etc., at all points except at the side edges, substantially as described. 6th. The envelope-package provided with a hand-rest to aid in addressing the envelopes, and also with a blotter, substantially as described.

No. 31,065. Feed Regulator for Spinners.

(*Régulateur de l'alimentation des fileuses.*)

The Brantford Cordage Company, (assignee of George Ryan), Brantford, Ont., 8th April, 1889; 5 years.

Claim.—1st. An adjustably-supported nipper held in position to receive the sliver by a spring of suitable tension, in combination

with levers arranged to connect the adjustable nipper with the driving mechanism of the sliver feed roller, in such a manner that the movement of the nipper shall instantly stop the motion of the sliver feed, substantially as and for the purpose specified. 2nd. The nipper L supported by the pivoted bar M, and held in position by the spring T, in combination with the pivoted lever K, arranged to connect the nipper to the bell-crank J, which is connected to the adjustable clutch I, substantially as and for the purpose specified. 3rd. The nipper L supported by the pivoted bar M and held in position by the spring T, the pivoted lever K arranged to connect the nipper to the bell-crank J which is connected to the adjustable clutch I, in combination with the lever H, the bevelled flange a on the clutch I, the pawl F pivoted on the pulley E, and the ratchet-wheel G, all arranged substantially as and for the purpose specified. 4th. The nipper L supported by the pivoted bar M, and held in position by the spring T, the stops O adjustably held to the spindle P, the pivoted lever K arranged to connect the nipper to the bell-crank J which is connected to the adjustable clutch I, in combination with the lever H, the bevelled flange a on the clutch I, the pawl F pivoted on the pulley E, and the ratchet-wheel G, all arranged substantially as and for the purpose specified.

No. 31,066. Electric Battery. (*Pile électrique.*)

The Potter-Compton Electric Company, New York, N.Y., (assignee of James Serson, Boston, Mass.), U.S., 8th April, 1889; 5 years.

Claim.—1st. In an electric battery of the character described, the combination of a containing jar, a porous cup supported on legs within said jar, two detachable foraminous cylinders within said cup, and a porous jar within said cylinder, substantially as and for the purpose set forth. 2nd. In an electric battery, the combination of a containing jar, a porous cup supported on legs within said jar, a gutter for the zinc pole disposed on legs around said cup, two foraminous cylinders within said cup, a porous cup within the inner cylinder, and a porous cup within said inner cup, all being arranged to operate, substantially as described. 3rd. In an electric battery, the combination of a containing jar provided with a cover, a porous cup in said jar provided with legs, a gutter surrounding said jar and containing mercury, said gutter having legs, a zinc cylinder in said gutter, an acid solution for said zinc, a perforated cylinder in said cup, broken carbon between said cup and cylinder, a perforated cylinder within said first cylinder, a carbon plate between said perforated cylinders, a porous cup within the inner cylinder surrounded with bi-chromate of potash and containing sulphuric acid, and a porous cup immersed in said acid and containing nitric acid, substantially as and for the purpose set forth. 4th. In an electric battery, the containing jar A, in combination with the porous cup D having legs f, and the detachable foraminous cylinders H, K within said jars, for separating the carbon from the excitants, substantially as described. 5th. In an electric battery, the containing jar A, in combination with the cup D having legs f, the perforated cylinder H, K, and the porous cups P, R, all being arranged substantially as described. 6th. In an electric battery, the gutter C provided with legs g and adapted to contain free mercury, in combination with the zinc cylinder M and containing jar A, substantially as described. 7th. In an electric battery, the containing jar A and porous cup D disposed therein on legs f, in combination with the detachable perforated cylinders H, K within said jar, and the carbon cylinder M disposed between said cylinders and provided with the arms l, m, substantially as described. 8th. In an electric battery, the combination of the jar A having the cover B, the cup P provided with legs f, the gutter C having legs g and disposed around said cup, the zinc cylinder E in said gutter, the perforated cylinders H, K, the carbon plate M between said cylinders and provided with arms l, m, the porous cup P within the cylinder K, and the cup R within the cup P, substantially as described. 9th. In an electric battery, the combination of the jar A provided with the cover B, the cup D having legs f, the gutter C containing free mercury and having legs g, the zinc M, said mercury, an acid solution for said zinc, the cylinders H, K in said cup, the carbon M between said cylinders and having arms l, m, broken carbon between the outer cylinder and said cup, the porous cup P surrounded by bi-chromate of potash, and the cup R surrounded by sulphuric acid and containing nitric acid, all being arranged to operate substantially as described.

No. 31,067. Telegraphic Relay.

(*Relais télégraphique.*)

The American Semaphore Company (assignee of Frederick Stitzel and Charles Weindel), Louisville, Ky., U.S., 8th April, 1889; 5 years.

Claim.—1st. In a relay, the combination, with a stationary magnet and a pivoted lever, of a weight on said lever at one side of its fulcrum, and an electro-magnetic armature on the opposite side of said fulcrum, and having its pole in a plane with the pole of the stationary magnet, substantially as set forth. 2nd. In a relay, the combination, with an electro-magnet and a pivoted lever, of an adjustable weight on said lever at one side of its fulcrum, and an electro-magnetic armature carried by the lever at the opposite side of its fulcrum, substantially as set forth.

No. 31,068. Refrigerator. (*Garde-manger.*)

The Trotter Refrigerator Company, Newark (assignee of Charles W. Trotter, Rochester), N.Y., U.S., 8th April, 1889; 5 years.

Claim.—1st. In a refrigerator, the combination, with a provision chamber, a chamber for containing the cooling medium and air-circulating passages between said chambers, of a door affording access to the chamber containing the cooling medium, and a door or partition forming when in normal position one of the walls of said chamber, and when open projecting across and closing one of the circulating passages, substantially as described. 2nd. In a refrigerator, the combination, with a provision chamber, a chamber for containing the cooling medium and air-circulating passages between said chambers, of a door affording access to the chambers containing the cooling medium, and a door or partition hinged on horizontal pivots forming when in normal position one of the walls of the chamber containing the cooling medium, and, when turned down, constituting a projecting support for the ice, and closing one of the air-circulating flues, substantially as described.

No. 31,069. Milk Purifier. (Garde-lait.)

Richard H. Casswell, Ingersoll, Ont., 9th April, 1889; 5 years.

Claim.—1st. A milk purifier, comprising a vessel A having an internal strainer B, and provided with a neck C having a disk D suspended therefrom, offset from the outlet, whereby the milk will escape in an annular thin film, as set forth. 2nd. The adjustable deflector H, in combination with the tubular neck C, having a disk D offset from the outlet, and connected to a straining vessel A, for the purpose set forth.

No. 31,070. Plough. (Charrue.)

John J. Collins, Ottawa, Ont., 9th April, 1889; 5 years.

Claim.—1st. Revolving wheels B, arms D and spades C, all arranged and combined substantially as and for the purpose hereinbefore set forth. 2nd. In a revolving plough dumpers E, for reversing the spades D, substantially as and for the purpose hereinbefore set forth.

No. 31,071. Portable Steam Boiler.

(Chaudière à vapeur portative.)

Edward S. Winnett, London, Ont., 9th April, 1889; 5 years.

Claim.—The mud collector C attached under the front part of a portable steam boiler beneath the fire-box, and provided with hand holes covering plates and blow-off pipe, substantially as shown and specified.

No. 31,072. Pipe Wrench. (Clé à tuyaux.)

Daniel R. Porter, Chelsea, Mass., U.S., 9th April, 1889; 5 years.

Claim.—1st. In a pipe wrench, the combination of the shank *a* having the jaw *b* projecting from one side, and the ratchet-teeth *c* formed on its back or opposite side, the movable jaw *d* having the arm *e* and yokes *f, g*, the dog *i* pivoted to the yoke *g* at the opposite side of the shank *a* from the jaws *b, d*, and a spring whereby the dog is normally held yielding in engagement with the ratchet teeth of the shank *a*, the arrangement of the pivot connecting the yoke of the movable jaw with the dog *i*, being such that said jaw in swinging inwardly is also moved toward the fixed jaw, as set forth. 2nd. In a pipe wrench, the combination of the shank *a* having the jaw *b* projecting from one side, and the ratchet teeth *c* formed on its back or opposite side, the movable jaw *d*, having the arm *e* provided with a bevelled seat *e'* and yokes *f, g*, the dog *i* pivoted to the yoke *g* at the opposite side of the shank *a* from the jaws *b, d*, and a spring whereby the dog is normally held yielding in engagement with the ratchet teeth of the shank *a*, and the bevelled seat *e'* is held against the front edge of the shank, thereby holding the arm *e* in an inclined position with the jaw *d* thrown outwardly, as set forth.

No. 31,073. Steam Heater.

(Calorifère à vapeur.)

Henry Sperl, Susquehanna, Penn., U.S., 9th April, 1889; 5 years.

Claim.—1st. In a steam heater, the combination, with the tubular base and crown rings, of pipes connecting and communicating with said rings, a reservoir E mounted above the said base ring, said reservoir being provided with a central opening and a series of flues, a series of pipes E₁ connecting the reservoir and pipes aforesaid, and a furnace, substantially as described. 2nd. In a steam heater, the combination, with the tubular base and crown rings, of pipes connecting said rings and communicating therewith, a reservoir mounted above said base ring, said reservoir being provided with a central opening and a series of flues, a series of pipes E_{1, E₂} connecting the reservoir and pipes aforesaid, and a furnace, substantially as described. 3rd. In a steam heater, the combination, with a tubular base and crown rings, of pipes connecting and communicating with said rings, a reservoir, provided with a central opening and a series of flues, a series of pipes E_{1, E₂} connecting and communicating with the reservoir and pipes aforesaid, a magazine, and a furnace, substantially as described. 4th. In a steam heater, the combination, with the tubular base and crown rings, of pipes connecting and communicating with said rings, a reservoir provided with a central opening and a series of flues, a series of pipes E_{1, E₂} connecting and communicating with the reservoir and pipes aforesaid, an inner and outer jacket, a series of dampers, a magazine and a furnace, substantially as described.

No. 31,074. House Door.

(Vantail de porte.)

John Ettles, Bridgen, Ont., 9th April, 1889; 5 years.

Claim.—The construction and arrangement of the several parts of the frame-work of a door, so as to permit of the free removal and exchange of the panels.

No. 31,075. Harness Pad.

(Cousinet de harnais.)

John Pendergast, Franklin, Mass., U.S., 9th April, 1889; 5 years.

Claim.—1st. A pad or cushion A for harness, made of felt, and an open and elastic knitted covering B surrounding and enclosing all sides of the felt, substantially as described for the purpose specified. 2nd. The combination of the abutments E with the pad or cushion A, substantially as and for the purpose set forth.

No. 31,076. Car Coupling.

(Attelage de chars.)

James M. Mason, Glasgow, N.S., 9th April, 1889; 5 years.

Claim.—1st. A car coupling, comprising a flaring mouth, draw-head A, having a longitudinal slot *b* in the top, and cheeks *a, a'* behind the front flange, the gravitating latch *c* in said slot and pintled to said cheeks, and having a downwardly and inwardly inclined edge *c* and the lever D connected to the rear of said latch, as set forth. 2nd. The coupling bar E, having a half arrow-head *f* at both ends, as set forth.

No. 31,077. Composition of Matter to be used in the Cure of Rheumatism. (Composition de matières pour guérir les rhumatismes.)

David Scott, Eastford, Me., U.S., 9th April, 1889; 5 years.

Claim.—A compound, composed of the above-named materials, in the proportions and for the purposes set forth.

No. 31,078. Railway Evolving Light and Indicating Hand Target for Railway Switch Signals. (Feu tournant et cible à main indicatrice pour les signaux des aiguilles de chemin de fer.)

Michael Hurly, Québec, Que., 9th April, 1889; 5 years.

Claim.—1st. The combination of stationary lamps *c* and revolving jacket lantern *a*, substantially as and for the purpose hereinbefore set forth. 2nd. In a railway switch, indicator hand *n*, substantially as and for the purposes hereinbefore set forth.

No. 31,079. Organ Pedal. (Pédale d'orgue.)

Edward G. Thomas, Woodstock, Ont., 9th April, 1889; 5 years.

Claim.—1st. The combination of the folding platform C, and the hinged pedals E, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the folding platform C and hinged pedals E, of inclined planes G, substantially as and for the purpose hereinbefore set forth.

No. 31,080. Car Coupling. (Attelage de chars.)

John M. Clark, Hebron, N.Y., U.S., 9th April, 1889; 5 years.

Claim.—1st. In a car coupling, the hollow draw-bar 1, formed with projection 11 extending upward from its outer end, and having hole 12 in line with hole 13 in casing 1, the slide 3, having friction roller 10, and guide rod 4 and spring 8 located in said draw-bar, a bar 17 adapted to move in slot 18 and connected by pivoted link 16, with lever 16, having teeth 15₁ and pivoted to bracket 15 on draw bar 1, post 18₁, having pawl 17₁, engaging teeth 15₁, and the casing 22 having slots 23, through which projects lever 16 and hinged to draw-bar 1, substantially as described. 2nd. In a car coupling, the combination of hollow drawheads 1, 2 with links 19, having projections 20 and coupling pins 14, the drawheads having upward projection 11 with hole 12 and coupling pin hole 13, and containing slide 3, guide-rod 4, spring 8 and perforated end 6 containing the end of rod 4 and the drawhead 1, having slot 18 near its forward end, bar 17 adapted to slide in said slot, lever 16 pivoted to bracket 15 on draw-bar 1 and connected by link 16₁ with bar 17, and hinged casing 22 having slot 23, substantially as described.

No. 31,081. Fire Escape. (Sauveteur d'incendie.)

Leonard J. Mesner, Buffalo, N.Y., U.S., 9th April, 1889; 5 years.

Claim.—1st. In a fire escape, consisting in part of a system of pivoted levers or arms in the form of a lazy tongs, the lower pairs of the pivoted arms pivoted to the main shaft in bearings in the supporting frame, their curved or semi-circular sliding bars and curved holding ribs and gear-teeth, in combination with correspondingly grooved semi-circular guide-ways, in which the curved holding ribs move or slide, gear wheels on the shafts 49 and 50 for gearing in with the teeth on the curved sliding bars, and a means, consisting of hand wheels on said shafts for operating them, whereby all the parts are securely held in place while free to be easily moved, substantially as described. 2nd. In a fire escape, consisting in part of a system of pivoted lever arms in the form of a lazy-tongs, the two lower pairs of arms pivoted to the main shaft in bearings in the supporting frame, in combination with their curved or semi-circular sliding bars, curved holding ribs and gear teeth, corresponding semi-circular slide-ways, and holding the said sliding bars and mechanism for gearing in with the teeth on the curved sliding bars, a means, consisting of hand wheels for operating them, and a means, consisting of the ratchet wheels and detent pawls for holding the apparatus at any point it may be elevated, substantially as described. 3rd. In a fire escape, the pairs of pivoted bars composing the extensible frame, in combination with the strengthening and wearing plates 68, 69 and 70, the plate 70 having the projecting portion 71 and the plate 69 having the projecting rim 72, as and for the purposes described.

No 31,082. Door Bell. (Timbre de porte.)

Charles L. Livingston, Battle Creek, Mich., U.S., 9th April, 1889; 5 years.

Claim.—1st. The combination and relative arrangement of parts, as shown and described, of a door bell or gong adapted to be operated by means of a push button, and wire connection serving to wind a spring which imparts motion to a rotating spindle, and an escapement mechanism, actuated by such rotating spindle, whereby a rapid vibration is imparted to the hammer, for the purpose specified. 2nd. In a door bell, the combination of the base A, rotating spindle D, spring S, lever N, rack *c*, spring pawl *p*, gear O, lantern wheel and escapement pallet K, hammer and gong or bell, arranged to operate as and for the purpose specified. 3rd. In a door bell, the gear O, rack *c* and spring pawl *p*, the escapement mechanism, the gear M, having on its end the hammer M, the spring S, the spindle D passing through the door B and having on its outer end, the wheel or disk C, by means of said disk the spindle D may be rotated, as and for the purpose specified. 4th. The angle-arm R, pivoted to the base A, said arm carrying the pin *e*, the small coiled spring *e'*, and extended arm *d*, said parts arranged to operate in conjunction with the bell mechanism, as herein described and for the purpose specified.

No 31,083. Heating Furnace and Stove.*(Foyer et poêle de chauffage.)*

Gottlieb Schreyer, Columbus, Ohio, U.S., 9th April, 1889; 5 years.

Claim.—A stove, having the superposed parts A and B forming a contracted oblong passage B₁ at their junction, and having lateral air flues A₂ and B₂ formed by grooved flanges on said parts fitting together and supporting the upper part, said flues communicating laterally with the contracted passage B₁, and being open at the ends, substantially as and for the purpose described.

No. 31,084. Process and Apparatus for Burning Oil and Tar by Hydraulic Pressure.*(Procédé et appareil pour brûler l'huile et le goudron par la pression hydraulique.)*

John White, London, Ont., 10th April, 1889; 5 years.

Claim.—1st. The above described process for burning oil and tar by hydraulic pressure, consisting of confining the oil or tar in a tank, and submitting it to the pressure of a body of water beneath, which causes it to be ejected in a vaporized condition, substantially as shown and specified. 2nd. An oil supply and pressure tank A, containing a body of oil or tar B, which is raised in the tank by an under body of water C, and forced therefrom through pipe J, substantially as shown and specified. 3rd. An oil or tar burner, consisting of an oil or tar tube K, surrounded by a steam tube L, which is surrounded by an air tube N, all three terminating in a common opening or nozzle P, and supplied with oil or tar, steam and air, by means of pipes H, J, M, O, substantially as shown and specified. 4th. The shut-off valve R in oil or tar tube K, operated by rod Q and screw handle S, substantially as shown and specified. 5th. The combination of the above described oil or tar supply and pressure tank A, with a burner containing oil or tar tube K, steam tube L and air tube N terminating in a common opening or nozzle P, substantially as shown and specified.

No. 31,085. Railroad Mileage Ticket.*(Billet de péage par mille de chemin de fer.)*

William A. Megrath, Macon, Ga., U.S., 10th April, 1889; 5 years.

Claim.—1st. A railroad ticket, consisting of a series of coupons having distinguishing characters, each coupon being provided with a series of numbers, each number indicating a mile of travel, and corresponding numbers being arranged in a line one above the other upon the several coupons, and at such a distance from the dividing line between the coupons that, on folding the coupons back to back upon said dividing line, a punch mark through the number upon the upper coupon will be reproduced exactly above and in immediate proximity to the corresponding number on the lower coupon, substantially as set forth. 2nd. A railroad ticket, consisting of a series of coupons bearing distinguishing characters, each coupon being provided with a series of numbers, each number indicating a mile of travel, said series being arranged immediately below the longitudinal centre of its coupon, and corresponding numbers in the several series being arranged in a line, one above the other, substantially as and for the purposes set forth. 3rd. A railroad ticket, consisting of a series of coupons, provided with numbers indicating miles of travel, and each coupon being provided with additional numbers representing hundreds, tens and units, whereby, on the last undetached coupon an indication may be given of the number of miles just honored by the conductor, substantially as set forth. 4th. A railroad ticket, consisting of a series of coupons bearing distinguishing characters, each coupon being provided with a series of numbers, each number indicating a mile of travel, said series being arranged immediately below the longitudinal centre of its coupon, and corresponding numbers in the several series being arranged in a line, one above the other, and additional rows of numbers representing hundreds, tens and units upon each of said coupons, substantially as set forth.

No. 31,086. Hydro-Carbon Furnace.*(Foyer à hydrocarbures.)*

William Lawrie and John McMillan, Petrolia, Ont., 10th April, 1889; 10 years.

Claim.—1st. In combination with a furnace, having a mixing chamber P, an injector burner extending into the front end of said chamber, and openings around the injector burner for the admission of air, substantially as specified. 2nd. A furnace, with central inlet passage K, return passages L, L, communicating with passage K at the front of the furnace, flues or passages N, P and N, directly above the flues L, K and L, openings M and M connecting the rear ends of the flues L, L and N, N, and openings O, O, connecting the passages N and N with the chamber P at the front end of the latter, and an outlet R at the rear end of chamber P, substantially as specified. 3rd. A furnace, provided with hot air flues L, K and L, N, N, connecting at alternate ends and causing a circuitous travel of air, and the mixing chamber P receiving the injected fuel and the heated air, whereby the air, steam and oil or gas are thoroughly mixed, and perfect combustion secured, substantially as specified. 4th. In a furnace, the combination, with the main body, having an air inlet J, of short partitions dividing the floor space into flues L, K and L, the latter L, L, communicating with the former K by passages, covers for said flues L, K and L, partitions dividing the space above the flues L, K and L into similar flues N, P and N, two of which N and N communicate with the chamber P and the flues L and L, an outlet in flue or chamber P and an injector burner extending into the chamber P, all substantially as shown. 5th. In a furnace for burning hydro-carbons or other liquid, or gas fuels, the combination, with the mixing chamber P, of the closed pockets V, Y, and the steam pipes passing through said pockets and serving to deliver superheated steam to the injector burner, substantially as specified. 6th. In a furnace, the combination of the communicating passages L, K and L and N P and N arranged in two series, one above the other, and having their walls made of fire clay or other heat-resisting sub-

stance, of the pockets V, Y and the injector burner extending into the chamber or passage P, substantially as specified. 7th. In a furnace of the class described, the combination, with the recessed front wall, of the mixing chamber P provided with an opening in the front end and a discharge opening at its rear, the air flues on each side of the mixing chamber communicating therewith, and an injector burner extending into the open end of the mixing chamber, substantially as specified. 8th. In a furnace of the class described, a long, narrow mixing chamber P, having an inlet and outlet, in combination with an injector burner arranged at the inlet end of the chamber to cause the flame to impinge upon the walls of the said chamber, substantially as specified.

No. 31,087. Tension Releasing Device for Sewing Machines.*(Appareil pour relâcher la tension pour les machines à coudre.)*

Walton Haydon, Cochrane, Alta., N.W.T., 10th April, 1889; 5 years.

Claim.—1st. As a new article of manufacture, an attachment for sewing machines, consisting of the plate or bar G, the body e of which has thin longitudinally-extending prongs i, i, formed by the slot g at one end, one or more longitudinally-extending inclines h projecting from the bar or plate at right angles thereto, at the side or sides of the slot g, and inclined from their outer to their inner ends, the opposite end of the bar or plate having an opening to receive the presser foot screw, substantially as set forth. 2nd. The combination, with the sewing machine head B, the presser foot bar, the presser foot and the tension device C secured to the outer face of said head above the presser foot, of the tension releasing bar or plate having its lower end connected with the presser foot, and having its upper end extending between the tension plates provided with an incline to separate them when raised by the presser foot, substantially as set forth. 3rd. The combination, with the sewing machine head, the presser foot bar, the presser foot, its set screw and the tension device comprising the two disks, their adjusting screw and spring, of the plate or bar G slotted at its lower end to receive the presser foot screw, formed with thin prongs i, i at its upper end and extending between said discs straddling the tension adjusting screw, and provided with one or more inclined wings near its upper end at right angles to its outer face and just under the edge of the outer tension disk, substantially as set forth.

No. 31,088. Reaming Machine.*(Machine à percer.)*

Harrison H. Taylor, Detroit, Mich., U.S., 10th April, 1889; 5 years.

Claim.—1st. The combination, with a supporting bed, of a rotatable and reciprocating reamer spindle provided with a reamer tool, a rotatable cam to force the spindle to the work, and a retracting device to return the spindle to its normal position, substantially as described. 2nd. The combination, with a supporting bed, of a rotatable and reciprocating reamer spindle provided with a reamer tool, a driving shaft geared with said spindle, a cam to force the spindle to the work and a work gear to operate the cam, substantially as set forth. 3rd. In a reaming machine, the combination with a supporting bed, of a driving shaft geared with a shaft C, a reamer spindle geared with a shaft C₁, said spindle having a reciprocatory movement upon said bed, substantially as described. 4th. In a reaming machine, the combination of the supporting bed and driving shaft, a shaft C₁ geared with the driving shaft, a reamer spindle provided with a reaming tool geared with the shaft C₁, said latter shaft provided with a worm, a worm gear meshing with said worm, and a cam driven by said worm gear to reciprocate the reamer spindle, substantially as described. 5th. The combination, with a supporting bed, of a pair of reamer spindles having a reciprocatory movement upon said bed toward and from each other, and a driving shaft geared with said reamer spindles, substantially as described. 6th. The combination, with a supporting bed, of a pair of reamer spindles having a reciprocatory movement thereupon toward and from each other, a driving shaft geared with a shaft C₁, and said shaft C₁ geared with the reamer spindles, substantially as set forth. 7th. The combination, with a supporting bed, of a pair of rotatable reciprocatory reamer spindles located end to end, a driving shaft geared with said spindles, and a rotatable cam to reciprocate the reamer spindles respectively, substantially as set forth. 8th. The combination, with a supporting bed, of a pair of rotatable reciprocatory reamer spindles, a driving shaft geared with said spindles, and a cam shaft geared with the driving shaft to force the reamer spindles respectively to the work, substantially as set forth. 9th. The combination, with a supporting bed, of a pair of reamer spindles having a rotatable and reciprocatory engagement thereupon, a driving shaft geared with said spindles, mechanism to feed said spindles forward to their work, said spindles made self-retracting, substantially as described. 10th. The combination, with a supporting bed, of a pair of rotatable and reciprocatory reamer spindles located end to end to admit the work between them, a driving shaft geared with said spindles, cam shafts geared with the driving shaft to feed the spindles to the work, and an automatic retracting device substantially as set forth. 11th. The combination, with supporting beds A, A, of a pair of reamer spindles having a rotary and reciprocatory engagement upon each bed respectively, to simultaneously ream the two extremities of a radiator loop, a driving shaft geared with each pair of said spindles, and feeding mechanism to force the spindles forward to the work, substantially as set forth. 12th. The combination, with beds A, A, of a pair of rotatable and reciprocatory reamer spindles located upon each bed, said beds having an adjustable connection the one with the other, substantially as described. 13th. The combination, with supporting beds A, A, of a pair of reamer spindles engaged upon each bed, a driving shaft geared with each pair of spindles, cam shafts G, G₁ to feed the spindles to the work, said shafts respectively geared with the driving shaft, substantially as set forth. 14th. The combination, with a supporting bed, of a rotary and reciprocatory reamer spindle, a driving shaft geared with a shaft C₁, feeding mechanism to feed the spindle to the work, said feeding mechanism and spindle geared with said shaft C₁, and a retracting device to restore the spindle to its normal position, substantially as described.

No. 31,089. Combination Bank Book.*(Livre de banque à combinaison.)*

William H. Benson, Reading, Penn., U.S., 10th April, 1889; 5 years.

Claim.—1st. A bank-book consisting of a case having a flap, an inside pocket on one side, and an outside pocket on the other, in combination with a check-book having a back removably held in said inside pocket, and a bank-book placed in said outside pocket, the flap being adapted to cover the bank-book and be inserted in the outside pocket, substantially as set forth. 2nd. A bank-book consisting of a case having a flap and an inside pocket B on one side, and an outside pocket, and the inside pocket F on the other, in combination with a check-book having a back removably held in said pocket B, a record-book similarly held in the pocket F, and a bank-book placed in said outside pocket the flap being adapted to cover the bank-book and be inserted in the pocket D, substantially as set forth. 3rd. A bank-book consisting of a case having a flap and inside pockets B and H on one side, and an outside pocket D and inside pocket F on the other, in combination with a check-book, a bank-book and a record-book removably secured in said pockets B, D and F, all arranged substantially as set forth. 4th. A bank-book consisting of a case having inside pockets B and H on one side, and an inside pocket F on the other, in combination with a check-book and a record-book having backs C₁ and G₂ removably held in said pockets B and F, substantially as set forth.

No. 31,090. Trunk. (Coffre.)

Henry W. Rountree, Richmond, Va., U.S., 10th April, 1889; 5 years.

Claim.—1st. The combination, with a trunk, its hinged lid or cover and supporting strips for the tray fixed to the ends of the trunk, of a tray sustained upon these strips and adapted to slide horizontally back on said supports so as to protrude into the hinged cover, substantially as described. 2nd. The combination, with a trunk, its hinged lid or cover and supporting strips for the tray fixed to the ends of the trunk, of a tray sustained upon these strips and made in two hinged sections and adapted to slide horizontally back on said supports so as to protrude into the hinged cover, substantially as described. 3rd. The combination of the trunk having its rear edge a cut down or reduced in height, the supporting end strip C having its upper edge higher than the rear edge of the trunk, and provided with anti-friction rollers, and the tray made in two hinged sections and arranged upon the rollers on the strips to slide horizontally back into the lid of the trunk when raised.

No. 31,091. Waggon. (Wagon.)

William C. Nason, North Waterborough, Me., U.S., 10th April, 1889; 5 years.

Claim.—1st. The combination of the front cross-head L, the rear axle A, roller bed N, and loops N₁ secured on the rear axle, the rollers mounted on said roller beds, and the springs O rigidly secured at their front ends to the cross-head and having their rear ends resting on the rollers in the loops, as set forth. 2nd. The combination of the loops N₁, and grooved rollers P mounted in them, with the ribs O₁ formed on the loop-plate and underside of the springs O, substantially as shown and specified. 3rd. The combination of the axle-bars, the pairs of parallel plates secured to both ends of the same and depending vertically therefrom, the rollers journaled in and between said plates, and the axles inserted transversely through said plates and resting on said rollers, as set forth. 4th. The combination of the axle-bar, the plates secured thereto and projecting therefrom, the king-bolt mounted in said plates, and the strap mounted on the king-bolt and carrying the whiffstree, as set forth.

No. 31,092. Fence Wire Stretcher.*(Tendeur de fil de fer de clôture.)*

Stephen Martin, Kars, Ont., 10th April, 1889; 5 years.

Claim.—A fence wire stretcher comprising a wheeled truck having adjustable handles D, spools E keyed on shafts G journaled to the truck, and provided with a ratchet wheel H, and pawl I, as set forth.

No. 31,093. Instrument for Straightening Club Feet. (Appareil orthopédique pour les pieds bots.)

Charles Cluete, Toronto, Ont., 10th April, 1889; 5 years.

Claim.—A lever A provided with a strap C and hinged to the saddle B adjustably fixed to the pad D, in combination with the spindle G connected to the pad D, and pivotally connected to the end of the rod H, substantially as and for the purpose specified.

No. 31,094. Machine for Cutting Stone and other Substances. (Machine à tailler la pierre et autres objets.)

Hugh Young, New York, N.Y., U.S., 11th April, 1889; 5 years.

Claim.—1st. The combination in a machine for cutting stone or other substance, of a rotary cutter-bar support, a cutter-bar revolving laterally around the axis of said support, and operatively movable upon said support in a path parallel to said axis, and a tool adjustable upon said bar, substantially as described. 2nd. The combination in a machine for cutting stone or other substance, of a rotary cutter-bar support, a cutter-bar revolving laterally around the axis of said support, said bar being operatively movable upon said support in the line of its own length, and operatively and laterally movable nearer to, and further from, the said axis, and a tool adjustable upon said bar, said tool being set radially to the axis of said support, substantially as described. 3rd. The combination in a machine for cutting stone or other substance, of a rotary cutter-bar support, a cutter-bar operatively revolving laterally around the axis

of said support, said bar being also operatively movable upon said support in the line of its own length, and operatively and laterally movable nearer to, or farther from, the said axis, and a tool adjustable upon said bar, said tool being set at an angle to a radial line drawn to the axis of said support, substantially as herein described. 4th. The combination in a machine for cutting stone or other substance, of a rotary cutter-bar support, a cutter-bar revolving laterally around the axis of said support, said bar being operatively movable upon said support in the line of its own length, and operatively and laterally movable nearer to, or further from, the said axis, and a tool adjustable upon said bar, said tool being set at an angle to the length line of said bar, substantially as herein described. 5th. The combination in a machine for cutting stone or other substance, of a rotary cutter-bar support, a cutter-bar revolving laterally around the axis of said support, said bar being operatively movable upon said support in the line of its own length, and operatively and laterally movable nearer to, or further from, the said axis, and a tool adjustable upon said bar, said tool being set inward towards the axis of said rotary support, substantially as herein described. 6th. The combination in a machine for cutting stone or other substance, of a rotary cutter-bar carrier, and a cutter-bar movable within said carrier in the direction of its own length in lines parallel to the axis of rotation of said carrier, and a cutter adjustable on said cutter-bar, substantially as herein described. 7th. The combination in a machine for cutting stone or other substance, of a rotary cutter-bar carrier, a frame in which said carrier is contained and within which it rotates, and a cutter-bar movable within said carrier in the direction of its own length in lines parallel to the axis of rotation of said carrier, and a tool adjustable on said cutter-bar, substantially as described. 8th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same in the line of its own length, a cutter-bar having a lateral revolving movement, and a movement towards and from the axis of its revolution, mechanism for producing said revolving movement of the cutter-bar, and mechanism for producing the movement of the cutter-bar towards and from the axis of its revolution, the three said mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 9th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same horizontally in the line of its own length, a cutter-bar having a laterally revolving movement and also having a lateral vertical movement, mechanism for producing the lateral revolving movement, and mechanism for producing the lateral vertical movement of all the three, said mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 10th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same horizontally in the line of its own length, a cutter-bar having a lateral revolving movement, and a horizontal movement in the line of its own length and parallel with the axis of its revolution, mechanism for producing the said revolving movement of the cutter-bar, and mechanism for moving the cutter-bar in the line of its own length and parallel with the axis of its revolution, all the three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 11th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same horizontally in the line of its own length, a rotary bed or table, mechanism for rotating the rotary table, a cutter-bar, and mechanism for laterally revolving said cutter-bar, all the three said mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 12th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same horizontally in the line of its own length, a cutter-bar having a vertical movement, a lateral revolving movement, and a movement towards and from the centre of its revolution in any direction, mechanism for producing the said vertical movement of the cutter-bar, mechanism for producing the said revolving movement of the cutter-bar, and mechanism for producing the movement, of the cutter-bar towards and from the centre of its revolution, all the said mechanisms being so organized that any three may be subordinated while the other maintains a primacy, substantially as described. 13th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same horizontally in the line of its own length, a cutter-bar having a lateral revolving movement, a horizontal movement in the line of its own length, and a movement towards and from the centre of its revolution, mechanism for producing said revolving movement of the cutter-bar, mechanism for producing the movement in the direction of the length of the cutter-bar, and mechanism for producing the movement of the cutter-bar towards and from the centre of its revolution, all the said mechanisms being so organized that any three may be subordinated while the other maintains a primacy, substantially as described. 14th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same horizontally in the line of its own length, a rotary table, mechanism for rotating the table, a cutter-bar having a lateral revolving movement, and a movement towards and from the centre of its revolution, mechanism for producing said revolving movement of the cutter-bar, and mechanism for producing the movement of the cutter-bar towards and from the centre of its revolution, all the said mechanisms being so organized that any three may be subordinated while the other maintains a primacy, substantially as described. 15th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for moving the same horizontally in the line of its own length, a cutter-bar having a lateral vertical movement, and a movement horizontally in the line of its own length, mechanism for producing the lateral vertical movement of the cutter-bar, and mechanism for producing the lateral movement of the cutter-bar in the line of its own length, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 16th. The combination in a machine for cutting stone or other substance, of a horizontally movable bed or table, mechanism for mov-

ing the same horizontally in the line of its own length, a rotatable table, mechanism for imparting a rotary movement to this table, a cutter-bar laterally movable in a vertical direction, and mechanism for producing said movement of the cutter-bar, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 17th. The combination in a machine for cutting stone or other substance, of a cutter-bar having a lateral revolving movement, a movement towards and from the centre of its revolution, and a vertical movement, mechanism for producing the revolving movement, mechanism for producing the movement towards and from the centre of revolution, and mechanism for producing the vertical movement, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 18th. The combination in a machine for cutting stone or other substance, of a cutter-bar having a lateral revolving movement, a movement towards and from the centre of its revolution, and a movement in the direction of its own length and parallel with the axis of its revolution, mechanism for producing the said revolving movement, mechanism for producing the movement towards and from the centre of its revolution, and mechanism for producing a movement of the cutter-bar in the line of its own length, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 19th. The combination in a machine for cutting stone or other substance, of a cutter-bar having a laterally revolving movement, and a movement towards and from the centre of its revolution, mechanism for producing the said revolving movement, mechanism for producing the movement towards and from the centre of its revolution, a rotary table, and mechanism for producing the movement of this table, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 20th. The combination in a machine for cutting stone or other substance, of a cutter-bar having a lateral revolving movement, a lateral vertical movement, and a movement horizontally in the line of its own length parallel with the axis of its revolution, mechanism for producing the lateral revolving movement, mechanism for producing the lateral vertical movement, and mechanism for producing the said horizontal movement of the cutter-bar in the line of its own length parallel with the axis of its revolution, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 21st. The combination in a machine for cutting stone or other substance, of a cutter-bar having a lateral revolving movement and horizontal movement in the line of its own length parallel with the axis of its revolution, mechanism for producing the lateral revolving movement, mechanism for producing the lateral vertical movement, a rotary table, and mechanism for rotating the table, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 22nd. The combination in a machine for cutting stone or other substance, of a cutter-bar having a lateral revolving movement, and a horizontal movement in the line of its own length parallel with the axis of its revolution, mechanism for producing the lateral revolving movement, mechanism for producing said horizontal movement, a rotary table, and mechanism for rotating the table, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 23rd. The combination in a machine for cutting stone or other substance, of a cutter-bar having a lateral revolving movement, and a movement horizontally in the line of its own length, mechanism for producing the lateral revolving movement, mechanism for producing the horizontal movement, a rotary table, and mechanism for rotating the table, all the said three mechanisms being so organized that any two may be subordinated while the other maintains a primacy, substantially as described. 24th. The combination in a machine for supporting the work, a rotary cutter-bar carrier, of a bed or table for supporting the work, a rotary cutter-bar carrier, a frame in which the said carrier is contained and within which it rotates, and the cutter-bar movable within said carrier in the direction of its own length, and parallel with the axis of the rotation of said carrier, and a cutter adjustable on said bar, substantially as described. 25th. The combination in a machine for cutting stone or other substance, of a bed or table for supporting the work, a rotary cutter-bar carrier, a frame in which the said carrier is contained and within which it rotates, and a cutter-bar laterally movable within the said carrier towards and from the centre thereof, and a cutter adjustable on said bar, substantially as described. 26th. The combination in a machine for cutting stone or other substance, of a bed or table for supporting the work, a rotary cutter-bar carrier, a frame in which the said carrier is contained and within which it rotates, and a cutter-bar movable within said carrier in the direction of its own length, and laterally in a direction radial to the axis of said carrier, and a cutter adjustable laterally on said bar, substantially as and for the purpose herein described. 27th. The combination in a machine for cutting stone or other substance, of a table or bed for supporting the work, a reciprocating carriage, a rotary cutter-bar carrier fitted to rotate within the said reciprocating carriage, and a laterally revolving cutter-bar fitted to move operatively in the direction of its own length within said rotary carrier in lines parallel with the axis of said carrier, substantially as described. 28th. The combination in a machine for cutting stone or other substance, of a bed or table for supporting the work, a reciprocating carriage, a rotary cutter-bar carrier fitted to rotate within the said carriage, and a laterally revolving cutter-bar fitted to move operatively within the said rotary carrier in a direction radial to the axis thereof, and a tool adjustable on said bar, substantially as herein set forth. 29th. The combination in a machine for cutting stone or other substance, of a bed or table for supporting the work, a reciprocating carriage, a rotary cutter-bar carrier fitted to rotate within the said carriage, and a laterally revolving cutter-bar fitted to rotate within the said carrier in lines parallel to the axis of said carrier, and laterally in a direction radial to said axis, and a tool adjustable on said cutter-bar, substantially as herein set forth. 30th. The combination in a machine for cutting stone or other substance, of a reciprocating bed or table for carrying the work, a carriage movable in a direction perpendicular to the reciprocating move-

ment of the said bed, and a laterally revolving cutter-bar operatively movable in the direction of its own length and parallel with the axis of its revolution within said carriage, and in a direction towards and from the reciprocating table or bed, and a tool adjustable on said bar, substantially as described. 31st. The combination in a machine for cutting stone or other substance, of a rotary table for carrying the work, a carriage movable in a direction perpendicular to the plane of rotation of said table, and a laterally revolving cutter-bar operatively movable in the direction of its own length parallel with the axis of its revolution within said carriage, and a tool adjustable on said bar, substantially as described. 32nd. The combination in a machine for cutting stone or other substance, of a reciprocating bed for carrying the work, a carriage movable in a direction perpendicular to the reciprocating movement of the said bed, a rotary cutter-bar carrier fitted to rotate within said carriage, and a laterally revolving cutter-bar operatively movable in the direction of its own length within said rotary cutter-bar carrier, substantially as herein set forth. 33rd. The combination in a machine for cutting stone or other substance, of a reciprocating bed for carrying the work, a carriage movable in a direction perpendicular to the movement of the said bed, a rotary cutter-bar carrier fitted to rotate within said carriage, and a laterally revolving cutter-bar operatively movable within said rotary cutter-bar carrier towards and from the centre thereof, substantially as described. 34th. The combination in a machine for cutting stone or other substance, of a reciprocating bed for carrying the work, a carriage movable in a direction perpendicular to the reciprocating movement of the said bed, a rotary cutter-bar carrier fitted to rotate within said carriage, and a cutter-bar operatively movable within said rotary carriage both in the direction of its own length and in a direction radial to the axis of said rotary carrier, substantially as described. 35th. The combination in a machine for cutting stone or other substance, of a horizontally moving supporting bed, a table fitted to the said bed to rotate therein, a carriage movable vertically towards and from said bed, and a laterally revolving cutter-bar operatively movable within said carriage in the direction of its own length, substantially as described. 36th. The combination with the reciprocating bed D and the rotary table E contained therein, of the driving shaft E¹, the bevel gear e fitted to slide on, but to turn with the said shaft, and fitted to turn in a bearing e² on the said bed, the bevel gears e¹ carried by said bed and gearing with that e on the shaft, the bevel gear e³ secured to that e¹, and the bevel gear e⁴ on the bed gearing with that e³, all substantially as herein described, for driving the table E in all positions of the bed D, as herein set forth. 37th. The combination, with the reciprocating carriage G G F, and the rotary cutter-bar carrier H H fitted to rotate in said carriage, of the driving shaft H¹ furnished with bevel gears h, the bevel gears h¹ having fixed bearings and gearing with h, the shafts h² fitted to and longitudinally confined in bearings on said reciprocating carriage, and sliding through, but turning said bevel gears h¹, and the bevel gears h² on the rotary cutter-bar carrier gearing with said bevel gears h¹, all substantially as herein described, for driving the rotary cutter-bar carrier in all positions of the vertically moving carriage, as herein set forth. 38th. The combination with the reciprocating carriage G G F, the rotary cutter-bar carrier H H contained therein, the sliding cutter-bar boxes J movable within the cutter-bar carrier to and from the centre thereof, and the cutter-bar I having a longitudinal movement within said boxes, and the driving shaft I¹ arranged in bearings movable with the said carriage, of the shaft I² working in bearings carried by the cutter-bar carrier H H geared with said driving shaft I¹, and furnished with an endless screw s, the shafts s² working in bearings on the cutter-bar carrier H H, and furnished with worm gears s³ gearing with the endless screw s, and with spur gears s⁴ gearing with a rack r on the cutter-bar, the said gears s³ being movable with the cutter-bar boxes, and capable of sliding on the shafts s², all substantially as herein described, for driving the cutter-bar in all its positions relatively to the cutter-bar carrier H H and in positions of the said carrier H H and carriage, as herein set forth. 39th. The combination with the reciprocating carriage G G F, the rotary cutter-bar carrier H H contained therein, the sliding cutter-bar boxes movable within the said carrier H H towards and from the centre thereof, and screws j¹ fitted to said carrier H H and boxes J, of the driving shaft J¹ working in fixed bearings, telescopic shafts j², j³ geared with the said driving shaft by bevel gears j², j³, and having each a fixed bearing near one end, and a bearing near the other end, and carried by the reciprocating carriage, the shafts j², j³ geared with said shafts j⁴, j⁵ by bevel gears j⁵, j⁶, and being furnished with endless screws j⁸ gearing with worm gears j⁹, on the said screws j¹, all substantially as herein described, for producing the said movement of the boxes J in all positions of the reciprocating carriage and rotary cutter-bar carrier, as herein set forth. 40th. The combination, with the rotary cutter-bar carrier H H, and the sliding cutter bar boxes J, and reciprocating cutter-bar working therein, of the shaft j⁷, and its gearing for producing the movements of the said boxes, and the shaft i², and its gearing for producing the longitudinal movement of the cutter-bar, both having bearings in and concentric with the said carrier, and the said shaft j⁷ passing centrally through the shaft i², substantially as herein described.

No. 31,095. Locomotive Head Light.

(Lanterne de locomotive.)

Leander H. McKee, Frankfort, N.Y., U.S., 11th April, 1889; 5 years

Claim.—1st. The combination, with the extension A, of a locomotive head-light, and the inwardly-extended flat annular flange formed on said extension, of an annularly-grooved follower-ring, the glass and its packing between said follower and flange, and retaining set-screws arranged inside of the said extension, the rounded ends of the stems of which are adapted to fit in the groove in the follower, substantially as described. 2nd. The combination, with the flanged extension of a locomotive head-light, of the circular glass plate, its packing, the follower-ring annularly grooved, the set-screws, and their brackets, and the binding-nuts, all arranged wholly within the said extension A, substantially as and for the purposes described.

No. 31,096. Arc Lamp. (Lampe à arc.)

Frederick R. Boardman, London, S.E., Eng., 11th April, 1889; 5 years.

Claim.—1st. In an arc lamp in which light is produced by the incandescence of a marble block, an automatic electrically actuated device adapted to vary the distance between the carbon electrodes, substantially as and for the purpose described. 2nd. The combination of the electrical circuits 1 and 2, solenoids and their cores B and I, contacts C and E, a refractory material, and carbon electrodes, a small carbon with means for advancing and slowly withdrawing the same in a suitable channel, the whole operating substantially as described and shown by Fig. 1.

No. 31,097. Mounted Photograph, Picture, etc. (Photographie, image, etc., encadrées.)

Richard H. L. Talcott and Elizabeth Talcott, Boston, Mass., U.S., 11th April, 1889; 5 years.

Claim.—1st. The mounted picture herein described, the same consisting of a picture having its face cemented to a transparent front, a suitable covering to the back of the picture and transparent front, and a flexible material attached to the backing and extended across the edges of the covering and transparent front, and cemented to the face of the latter, substantially as and for the purposes described. 2nd. The mounted picture herein described, the same consisting of a picture and a plate of glass, the picture by its front face cemented to the glass, and provided with an enclosing casing of suitable flexible material which covers the back of the picture and overlaps and is cemented to the glass at its edges, all substantially as described and for the purposes specified. 3rd. The combination, with a sheet bearing a picture, of a plate of glass, sheet or sheets D, D² of card or paste board, and a plate H between them, with a projection and an enclosing or covering sheet of suitable material enclosing the whole at the back and edges, leaving the front exposed, the said projection from the plate protruding through the card sheet D² and enclosing sheet and adapted to be attached to suitable means for supporting the mounted picture, substantially as described. 4th. The combination, with a sheet bearing a picture, of a plate of glass, sheet or sheet D, D² of card or paste board, and a plate sheet of suitable flexible material enclosing the whole at the back and edges leaving the front exposed, said rings of the plate protruding through the card sheets D² and covering sheet, substantially as described for the purpose specified. 5th. The combination, with a sheet bearing a picture, of a plate of glass, said picture sheet being made to adhere to one side of said glass, sheet or sheets D, D² of card or paste board, and a plate having eyes or rings m between them, and an enclosing or covering sheet of suitable flexible material enclosing the whole at the back and edges having the front exposed, said rings of the plate protruding through the card sheet D² and covering sheet, and a log or support M engaging with said projection n, substantially as described for the purpose specified.

No. 31,098. Grate. (Grille.)

John Wakeham and John Cunningham, Toronto, Ont., 11th April, 1889; 5 years.

Claim.—A grate having a series of fingers B formed around it, as shown, and having trunnions C set at one side of its centre, in combination with the angular fingers D formed around the spindle E, substantially as and for the purpose specified.

No. 31,099. Wind Mill. (Moulin à vent.)

Nels P. Hess and Chris Westergard, Belgrade, Minn., U. S., 11th April, 1889; 5 years.

Claim.—1st. The combination of the turn-table E, the wheel M mounted thereon, the vane J hinged to the turn-table, the cord L and the vertically movable rack bar M¹, as and for the purpose specified. 2nd. The wheel Y, consisting of a series of radiating arms Z, a series of converging bars a combined with the shaft T, the disk b and the sails or blades c, shaped substantially as shown.

No. 31,100. Round-About or Merry-go-Round and other Riding Toys. (Jeu de bague ou tourniquet et autres jouets tournants.)

Frank W. Allobin, Northampton, Eng., 11th April, 1889; 5 years.

Claim.—1st. In round-about or in segments thereof, or other trucks or trolleys capable of being moved about from place to place, in which horses (boats, or corresponding parts for carrying riders) are mounted, the means by which such horses (boats or corresponding parts) are operated from below, consisting of pairs of parallel crank shafts, of which the corresponding cranks of each pair are connected together by bars which carry such horses (boats, or corresponding parts) such crank shafts being caused to rotate during the revolution of the round-about, or the movement from place to place of the segments or other trucks or trolleys, substantially as described. 2nd. The combination of the pair of crank shafts b, b¹, with connecting rod c carrying vertical rods g with the means by which the said crank shafts are caused to rotate, substantially as described and shown by the drawings herewith for the purpose set forth.

No. 31,101. Self-Indicating Target. (Cible à indicateur automatique.)

James Paterson, Glasgow, Scotland, 11th April, 1889; 5 years.

Claim.—1st. In a self-indicating target, a face or front having the several values to be shot at, or one or more of them, composed of a

series of disconnected plates, whose edges overlap said plates individually, operating indicating mechanism, and being prevented from acting on other plates by cross bridges, substantially as described. 2nd. A face for a self-indicating target, composed of a series of disconnected plates, whose edges overlap, and a series of cross bridges or stops, substantially as described. 3rd. In a self-indicating target, the combination of the valve plates a, a¹, a², rods d, bell crank levers e, hammers l and indicators p, substantially as described. 4th. In a self-indicating target, the combination of the bell crank levers e, hammers l, bars t, detent levers w, and clock-work mechanism operating automatically to give an indication and return indicator to normal position, substantially as described. 5th. In a self-indicating target, the combination of the levers e, hammers l, bar t and cord or chain K, substantially as described.

No. 31,102. Foot Fastening for Seats, Desks, etc. (Arrête de pied de siège, pupitre, etc.)

Abraham C. Scarr, Maryborough, Ont., 11th April, 1889; 5 years.

Claim.—In a seat or desk of any kind, the combination of the short feet c, c, longer feet et, et on the legs B, B, swinging blocks E, E, pivoted to the legs B, and the socket brackets D, D, D attached to a floor and formed with recesses e, to receive the feet c, c, et, et, all constructed substantially as and for the purpose specified.

No. 31,103. Car for Carrying Sugar Cane. (Cabrouet pour charroyer la canne à sucre.)

Zach T. Earle, Iberville, La., U.S., 11th April, 1889; 5 years.

Claim.—The improved car, herein described and shown, comprising the longitudinal beams A, A, the transverse sills B, B, the longitudinal brace-rods C, C, the cross-bars F, the cylindrical rods G, G, the floor G¹, the standards I, the end pieces H, the standards K, pivoted on the rods G, the sides J, the hooks M and the hooks L, as specified.

No. 31,104. Apparatus for the Atomisation of Liquids and the Application thereof to the Surfaces of Fabrics and the like. (Appareil de pulvérisation des liquides et de leur application aux surfaces des tissus et autres objets.)

Rudolf Kron, Goltzorn, Germany, 11th April, 1889; 5 years.

Claim.—1st. In apparatus for the atomization of liquid, the combination of a central pipe carried on suspension arms and having perforations arranged in one line with a shield, against which the jets impinge, a gutter to catch the waste liquid, and means for imparting a to and fro motion to the said pipe, substantially as described. 2nd. In apparatus for the atomization of liquid, the combination of a central pipe a carried on suspension arms c, c, and having perforations arranged in one line with a shield m, m, against which the jets impinge, a gutter b to catch the waste liquid, a slotted sleeve g, a crank pin f and bevel gears e, et, all substantially as described. 3rd. In apparatus for the atomization of liquid, the combination of a central pipe carried on suspension arms, and having perforations arranged in one line with a shield, against which the jets impinge, a gutter to catch the waste liquid, means for imparting a to and fro motion to the said pipe, and means for unwinding and winding up the material under treatment, substantially as described. 4th. The combination with means for unwinding and winding up the material under treatment, of two atomizing apparatus facing each other, and each comprising a central pipe carried on suspension arms, and having perforations arranged in one line with a shield against which the jets impinge, a gutter to catch the waste liquid, and means for imparting a to and fro movement, and is supplied with liquid through a flexible hose, in combination with a gutter, which has also a to and fro movement, and which delivers the waste liquid it receives through a flexible hose, substantially as described.

No. 31,105. Temporary Binder or File. (Reliure serre-papier.)

Tony Faifer, Denver, Col., U.S., 11th April, 1889; 5 years.

Claim.—1st. A file or temporary binder, consisting of a back, two covers, one of which consists of two flexibly united parts, flexible wires seated in and projecting from one of such parts, a detachable binding or clamping plate, having apertures to pass over the wires, and having a longitudinal groove and buttons or catches pivoted on the plate for locking the wires in the groove, substantially as set forth. 2nd. A temporary binder or file, consisting of two covers, flexible wires seated in one cover and projecting therefrom toward the other cover, an independent binding or clamping plate entirely separate and detached from either cover, and having apertures for passing over the wires, and means as described for locking or securing the wires when bent upon the plate, substantially as set forth.

No. 31,106. Method of Increasing the Yield of Oil Wells. (Manière d'augmenter le rendement des puits d'huile.)

Olaf Terp, Breslau, Germany, 11th April, 1889; 5 years.

Claim.—1st. A method of increasing the yield of oil wells, this method consisting in preventing the paraffine contained in the oil from solidifying, by warming that portion of the sides of the oil well which extends into the layer of oil bearing rock, substantially as set forth. 2nd. A method of increasing the yield of oil wells, this method consisting in removing by means of wire brushes or similar scratching instruments the crust of solidified paraffine from the sides of the well, and afterwards warming the said sides for preventing the par-

affine from solidifying again, substantially as described. 3rd. A method of increasing the yield of oil wells, this method consisting in removing by means of wire brushes or similar scratching tools, the solidified paraffine from the sides of the well, which has previously been filled with hot water, and afterwards warming the sides of the well for preventing the paraffine from solidifying again, substantially as described. 4th. The combination, with an oil well and its pump, of a tank and furnace for heating water, and a pump and a lining of pipes which extend downward into the well and back again to the tank, substantially as and for the purpose set forth.

No. 31,107. Snow Shoe Strap.

(*Courrois de raquette.*)

Alexander T. Winter, Sherbrook, Qué., 11th April, 1889; 5 years.

Claim.—As an article of manufacture, a snow shoe strap, made substantially as and for the purposes hereinbefore set forth, i.e., the strap A, in combination with the strap B, the safe C, buckles E and F and loops or slots G, G.

No. 31,108. Handle for Canes, Umbrellas, and the like. (*Manche pour cannes, parapluies, et autres objets semblables.*)

William Taylor, Buffalo, N.Y., U.S., 11th April, 1889; 5 years.

Claim.—1st. As an improved article of manufacture, a handle for a walking-cane, umbrella, parasol, fishing pole and the like, consisting of a head A, having the compass with its cover H, the hollow body-portion B provided in its bore with the storm glass D and the slotted aperture E and the thermometer F, the whole being combined and arranged in the manner as and for the purpose stated. 2nd. The combination, with the head A, of the shell G having the cover H, the central pin M, magnetic needle I and the lifter J provided with a suitable handle L, as and for the object set forth. 3rd. In handles for canes, umbrellas and the like, the combination, with the central portion B having a core C, of a storm glass D retained in position by elastic cushions D', D'', said portion B having a longitudinal slot E, as and for the object stated.

No. 31,109. Copy Book with Detachable Index. (*Livre de correspondance avec index mobile.*)

Emil Sykora, Prague, Bohemia, 11th April, 1889; 5 years.

Claim.—The combination, with a book, a pocket or recess constructed in the cover of said book, and pins fastened in the cover of said book, of a removable index adapted to said book, and a flap flexibly attached to said index and adapted to fit into said recess or pocket, all substantially as and for the purpose set forth.

No. 31,110. Hydro-Carbon Burner.

(*Foyer à hydrocarbures.*)

Charles Cole, Chicago, Ill., U.S., 11th April, 1889; 5 years.

Claim.—1st. In a hydro-carbon burner of the character described, an oil nozzle of a rectangular form, or nearly so, the discharge end being contracted to provide a rectangular oil exit passage the full width of the nozzle, and the rectangular valve adjustably inserted in said nozzle and exit passage therefrom, whereby the oil is delivered from above and below said valve in a thin sheet, substantially as and for the purpose set forth. 2nd. In a hydro-carbon burner, the combination, with an oil nozzle of a rectangular form, or approximately so, and having a contracted discharge end, as described, of an adjustable flat valve inserted in the oil exit passage, inclosing and corresponding to the form of the oil nozzle, and having discharge openings above and below the oil exit passage or passages, substantially as and for the purpose set forth. 3rd. In a hydro-carbon burner, the oil nozzle of a rectangular form, having the front or discharge end contracted, as described, in combination with the steam nozzle of a similar form, and enclosing said oil-nozzle steam space being provided between the two, substantially as and for the purpose set forth. 4th. In a hydrocarbon burner, the combination, with the oil nozzle having a contracted wedge-shaped discharge end, of a steam nozzle inclosing said oil nozzle, and having a correspondingly contracted discharge opening, and the oil nozzle projecting beyond the steam nozzle, whereby the steam is discharged just back of the oil exit passage, substantially as and for the purpose set forth. 5th. In a hydro-carbon burner, the combination, with the oil nozzle, of the form described, of the steam nozzle inclosing and corresponding to the contour of said oil nozzle, the flat valve inserted in the exit passage of the oil nozzle, the valve stem, the oil feed-pipe connected to the oil nozzle and the steam supply pipe inserted in the steam nozzle, all combined and arranged to operate substantially as and for the purpose set forth. 6th. The combination, with the steam nozzle, of the steam pipe connected therewith, the adjusting rod attached at one end to the steam pipe and the post supporting the opposite end of said rod, substantially as and for the purpose set forth.

No. 31,111. Railway Car Coupling.

(*Attelage de chars de chemin de fer.*)

William G. Stuart, Nunhead, and Albert H. Bellingham, Peckham Eng., 11th April, 1889; 5 years.

Claim.—1st. In a car coupling, a link B, depending from the draw-bar head having a link end e and hook C, in combination with a suitable raising or lifting device, the link on one car being adapted to engage with a hook or link on the car end next in order, substantially as described. 2nd. In a car coupling, the link B depending from a hooked draw-bar head A, having a link end e, and hook C, in combination with a cranked rod D for raising same, having handles E, and being suitably attached to the car, substantially as described. 3rd. In a car coupling, the crank rod D, with handles E, combined with and adapted to raise a coupling link, substantially as and for the purposes set forth. 4th. A car coupling link, having the link end e and hook C, substantially as described.

No. 31,112. Audible Signal. (*Signal acoustique.*)

John Speirs, Jersey, N. J., and Gamaliel R. Christie, New York, N. Y., U.S., 11th April, 1889; 5 years.

Claim.—1st. The signalling apparatus, having the whistles adapted to sound tones of different pitch, substantially as described. 2nd. The signalling apparatus, having three whistles or horns, one of the same being adapted to sound a shrill or high tone, another a resonant or deep tone, and the third adapted to sound a tone in the middle register, substantially as described. 3rd. The combination, with two whistle-throats of different areas, substantially as described, suitably adapted for the passage of steam through them, of shifting impinging shell provided with a supporting and shifting means, whereby said shell may be placed in position in relation to either of said whistle-throats, all substantially as and for the purpose described. 4th. The combination, with two whistle-throats of different areas, substantially as described, each placed on a separate branch, of a main steam pipe and a valve at the junction of said branches, of a shifting impinging-shell suitably supported and adapted to be placed in operative position in relation to either of said whistle-throats, and of an intervening mechanism between the support for the said shell, and the valve that is actuated by and in conjunction with said support, and is adapted to operate said valve in a manner to open steam communication to either throat at the time that the impinging shell is moved in proper position over said throat, substantially as described for the purpose specified. 5th. The combination, with two whistle-throats of different areas, each placed in separate branches of a main steam pipe, and a cock, having on its steam a rigidly attached lever L, of an impinging shell hung upon a pivoted arm adapted to be swung into operative position in relation to either of said throats, and a lever arm K, one end of which engages with the arm and the other with the valve lever, all arranged for operation, substantially as described for the purpose specified. 6th. The combination, with two whistle-throats of different areas, each placed on separate branches of a main steam pipe, and a cock having passages at the junction of said branches and having a stem and rigid lever thereon, of an impinging shell hung upon a swivelling arm on a standard, a lever arm pivoted upon said standard, one end of which engages with the arm and the other with the valve lever, and a spring attached at one end to the end of said arm, and by its other to the standard, and all arranged for operation substantially as described for the purpose specified. 7th. The combination, with two whistle throats of different areas, each consisting of inner casing d and outer shell a, with annular space between them, the inner shell having abutments e, e' on the cap, and being in communication with branch steam pipe, and having ports h leading to the said annular space, of a shifting impinging shell, having post z and flanges j, j' hung upon an arm swivelling in a standard and adapted to be swung into position in relation to either of said throats, substantially as described. 8th. The combination, with two whistle-throat devices having throats of different areas, substantially such as described, and on which are located brackets, pulleys, and abutments e, e', of an impinging shell hung upon a swinging radius arm, which shell has a post z with flanges j, j' and pull cords secured to said radius arm, and all arranged for operation substantially as described for the purpose specified.

No. 31,113. Milk Cooler and Strainer.

(*Garde-lait et couloir.*)

Albertis Bowdish, Moravia, Clayton Bowdish, Ithaca, and John C. Brown, Moravia, N.Y., U.S., 11th April, 1889; 5 years.

Claim.—The combination, with the milk can A, of the cooling can C, the conical cover c on the top of the cooling can, the strainer D supported above the cover c, and the plate a in the strainer provided with the aperture b over the apex of the cone, substantially as described and shown.

No. 31,114. Method of Converting Insoluble Phosphoric Acid in Mineral and Petrified Phosphates into Available Phosphoric Acid.

(*Méthode de convertir l'acide phosphorique insoluble des phosphates minéraux et pétrifiés en acide phosphorique utile.*)

Charles Glaser and Charles F. W. Dambmann, Baltimore, Md., U.S., 11th April, 1889; 5 years.

Claim.—The above described method of converting the insoluble phosphoric acid contained in mineral and petrified phosphates into available phosphoric acid, by first finely dividing the mineral, and then applying directly phosphoric acid, substantially as described.

No. 31,115. Apparatus for the Employment of Vibratory Electricity in Telegraphy. (*Appareil pour utiliser l'électricité vibratoire dans la télégraphie.*)

The Phonopore Syndicate (assignee of Charles L. Davies), London, Eng., 11th April, 1889; 5 years.

Claim.—1st. The transmitter, of which the essential features are the numerous primary windings, and the secondary windings connected with the line by one end only, the pendulous contact Q working in conjunction with the tongue and adjustable core, and the key which sets the tongue in vibration in the act of closing the primary circuit. 2nd. The receiver, of which the essential features are the contact parts S₁ and S₂, operated by the reed and opening and closing the circuit of a reinforcing coil, also the conical plug adjustment of the contact parts S₁ and S₂. 3rd. The combined transmitter and receiver constituting a system applicable to duplex working, and effecting the translation of vibratory impulses into ordinary telegraph signals.

No. 31,116. Machine for Reducing Railroad Rails. (*Machine pour réduire les rails de chemins de fer.*)

Sidney McLoud, Chicago, Ill., U.S., and Charles E. Doolittle, (Trustee), Hamilton, Ont., 11th April, 1889; 5 years.

Claim.—1st. The combination, with a set of rolls for reducing railroad rails, of a delivery guide having a rib adapted to bear upon the under side of the head portion of the rail, substantially as described. 2nd. The combination, with a set of rolls for reducing railroad rails, of a delivery guide having a rib adapted to bear upon the under side of the head portion of the rail, said rib being of tapering shape from back to front, substantially as described. 3rd. The combination, with a set of rolls for reducing railroad rails, of a delivery guide having side walls converging from front to back, and having a central rib adapted to bear upon the under side of the head portion of the rail and tapering from back to front, substantially as described. 4th. The combination, with a set of rolls for reducing railroad rails, of a delivery guide, the top and bottom plates of which are provided with ribs or elevations adapted to bear upon the under side of the head-portion of the rail, substantially as described. 5th. The combination, with a set of rolls for reducing railroad rails, of a delivery guide having a rib or bearing upon the underside of the head portion of the rail, and a receiving guide having a rib for bearing against the head portion of the rail upon the opposite side of the rail, substantially as described. 6th. The combination, with a set of rolls for reducing railroad rails, of a receiving guide having a rib arranged to extend into the space between the head and flange portions of the rails as it passes through the rolls, substantially as described. 7th. The combination, with a set of rolls for reducing railroad rails, of a receiving guide having a top plate extending in proximity to the periphery of the rolls, substantially as described. 8th. The combination, with a set of rolls for reducing railroad rails, of a guide having a removable cover, substantially as described.

No. 31,117. Coffee Grinder. (*Moulin à café.*)

Samuel S. Arnold, David F. Macmillan and Orville M. Arnold, Toronto, Ont., 12th April, 1889; 5 years.

Claim.—A coffee grinder, consisting of the half crescent shaped tapering receiver *a*, having a cavity *A*; at the larger end bevelled outwardly around the edge, and the club-shaped crusher *B* having a button-shaped head *B*₁, and annular rings or grooves *B*₂ around the body, substantially as set forth.

No. 31,118. Corner Protector for Trunks. (*Cornière de coffre.*)

Samuel S. Arnold, David F. Macmillan and Orville M. Arnold, Toronto, Ont., 12th April, 1889; 5 years.

Claim.—A corner protector for attachment to trunks, comprising a frame *A*, having an opening *A*₁ at the converging end, and recesses *A*₂ on the inside, the rubber spring *B* fitting into said opening *A*₁, and having the inner end exposed to the trunk and the cap *C*, having arms *C*₁ fitting into the recesses *A*₂, and covering the outer end of the spring, whereby the cap will yield to the force of impact and be again reacted by the expansion of the spring *B*, substantially as set forth.

No. 31,119. Art of Firing Furnaces and Converting Solid Fuel into Gaseous Fuel and Apparatus for the Conduct thereof. (*Mode et appareil de chauffage des fourneaux et de convertir le combustible solide en combustible gazeux.*)

The Taylor Gas Producer Company, Camden, (assignee of William J. Taylor, Chester, N.J., U.S., 12th April, 1889; 5 years.

Claim.—1st. The method of making gas, which consists in placing and maintaining a deep bed of ash under a bed of incandescent fuel, and blasting through the ash and fuel, substantially as and for the purposes set forth. 2nd. The method of making gas, which consists in placing and maintaining a deep bed of non-combustible material under a bed of fuel, and drawing or blasting air or steam or both, into the fuel, substantially as and for the purposes set forth. 3rd. The method of making gas, which consists in placing and maintaining a deep bed of non-combustible material under a bed of incandescent fuel, and blasting through the same, and then discharging the accumulating non-combustible material, substantially as and for the purposes set forth. 4th. The method of making gas, which consists in placing and maintaining a body of non-combustible material under a bed of fuel, and blasting through the same, and then discharging the accumulating non-combustible material more rapidly in one place than another, substantially as and for the purposes set forth. 5th. The herein described gas generator or producer, provided with a bottom capable of rotation, substantially as and for the purposes set forth. 6th. A gas generator or producer, constructed and arranged as hereinbefore described, with a solid bottom and means for revolving said bottom, substantially as and for the purposes set forth.

No. 31,120. Construction of Cylindrical Barrels. (*Fabrication des barils.*)

Frederick Andrew, London, Eng., 12th April, 1889; 5 years.

Claim.—1st. The improved construction of cylindrical barrels, consisting of the combination of a flexible sheet of connected staves, having their edges formed with a tongue and groove, and bevelled and bent into a barrel cylinder, the means described for securing the bottom and head, and the fastening device for securing and drawing tight the ends of the hoop strips, all as described and set forth. 2nd. In the manufacture of cylindrical barrels from sheets of connected staves, a sheet of staves consisting of straight staves having their edges formed with a tongue and groove and bevelled nailed to hoop strips, as and for the purposes described.

No. 31,121. Printing Apparatus. (*Machine à imprimer.*)

Charles H. Deane, Woodford, near Keene P.O., Ky., U.S., 12th April, 1889; 5 years.

Claim.—1st. In a printing device, an endless band provided with characters from which the impression is to be made, suitable supporting rollers for said band, an impression roller in line with one of the rollers of the band, and means for supplying ink to the characters, substantially as described. 2nd. In a printing device, an endless band provided with characters or letters, suitable supporting rollers for said band, an impression roller over which the paper passes, and an adjustable bearing for one of the upper rollers, whereby the impression may be regulated, substantially as described. 3rd. A printing device for wrapping paper and the like, consisting of an endless band having upon its surface, the characters, suitable supporting rollers, a pivoted frame, and an impression roller carried by said frame, substantially as described. 4th. In combination with the endless band having characters on its face, an inking device consisting of a feed roller, and an ink cylinder having perforations on one side, and means for turning said cylinder to supply ink to the feed roller, substantially as described. 5th. In combination with the endless band supporting rollers therefor, an impression roller mounted on a pivoted frame, a pivoted knife, and an arm or arms in rear of the knife for preventing the upward movement of the paper, substantially as described.

No. 31,122. Steam Washing Machine. (*Machine à blanchir à la vapeur.*)

Alonzo F. Kempton, Glenboro, Ont., 12th April, 1889; 5 years.

Claim.—1st. An upright cylindrical furnace having placed within it a circulating boiler composed of two vessels placed one inside the other, and having an undulating or sloping top to the space between their walls, substantially as shown and described. 2nd. A boiler composed of two vessels placed one inside the other, having the undulating cover *I* to the space between said two vessels, the pipes *J*, and bottom openings *K*, substantially as shown and described. 3rd. The combination of a furnace having the cylindrical shell *A*, fire box *C*, and ash pan *D*, with a boiler composed of two vessels, one inside the other, having an intervening space covered by an undulating cover *I*, the pipes *J*, and openings *K*, and the top *L* having an opening covered *G*, the cap *M*, and the branch pipe *N*, all substantially as hereinbefore shown and described for the purposes set forth.

No. 31,123. Screw Tapping Machine. (*Machine à fileter les vis.*)

Harrison H. Taylor, Detroit, Mich., U.S., 12th April, 1889; 5 years.

Claim.—1st. In a screw tapping machine, the combination, with a supporting bed, of rotatable reciprocating taps, said taps having a reciprocatory movement toward and from each other, substantially as described. 2nd. In a screw tapping machine, the combination, with a supporting bed, of rotatable reciprocating taps, said taps having an endwise movement simultaneously toward and away from each other, substantially as described. 3rd. In a screw tapping machine, the combination, with a supporting bed, of a rotatable shaft or spindle provided with a tap, said spindle having a screw threaded engagement upon the bed, whereby the spindle may have an endwise movement, substantially as described. 4th. In a screw tapping machine, the combination, with a supporting bed, of a rotatable shaft or spindle provided with a tap, said spindle having a screw threaded engagement upon said bed, and rotating mechanism to reciprocate said spindle to and fro, substantially as described. 5th. In a screw tapping machine, the combination, with a supporting bed, of rotatable reciprocating shafts or spindles, said spindles provided with taps, and tightening heads upon their adjacent ends, substantially as described. 6th. In a screw tapping machine, the combination, with a supporting bed, of rotatable reciprocating spindles provided with taps movable toward and from each other, and a driving shaft geared with said spindles, substantially as described. 7th. In a screw tapping machine, the combination, with a supporting bed, of rotatable and reciprocating spindles provided with taps and tightening heads, one of said heads made reciprocatory, substantially as described. 8th. In a screw tapping machine, the combination, with a supporting bed, of rotatable reciprocating spindles journaled thereupon, and provided with taps, and tightening heads to embrace the work, one of said heads having a screw threaded engagement upon the bed, whereby it may be moved to and from the work, substantially as described. 9th. In a screw tapping machine, the combination, with the rotatable reciprocating tap spindles, of a driving shaft geared with said spindles, and an automatic clutch to reverse the motion of the driving shaft, substantially as described. 10th. In a screw tapping machine, the combination, of the tap spindles *F*, *F*₁ having a screw threaded engagement upon the supporting bed of the machine, a shaft *E* geared with said spindle, and a driving shaft geared with the shaft *E*, substantially as described.

No. 31,124. Rail Chair and Coupling for Permanent Ways. (*Coussinet-éclisse de rail pour les voies permanentes.*)

Robert Cardwell, Liverpool, and Samuel Watson, Manchester, Eng., 12th April, 1889; 5 years.

Claim.—In railway chairs formed separate, or with, or attached to a sleeper, the combination, with the base *b*, of the chair or sleeper *a*, of a jaw a hinged thereto and secured in position by suitable means, substantially as and for the purpose specified.

No. 31,125. Lead Pipe Coupling. (*Joint de tuyau de plomb.*)

Isaac B. Potts, Columbus, Ohio, U.S., 12th April, 1889; 5 years.

Claim.—1st. A pipe coupling consisting of a union *E* having a seat for one end of the pipe *a*, threaded ring *B*, with a seat for a flaring

boxing C, and a central union joint D, all arranged and operating substantially in the manner and for the purpose described. 2nd. The combination, with pipes a having swaged ends a', of a coupling ring therefor consisting of a boxing C seated in a ring B, a union E having a seat for a swaged end of the pipe, and a central union joint D consisting of a double frustrum of a cone, the ends resting in the swaged ends of the pipe, all constructed, arranged and operating substantially as and for the purposes set forth.

No. 31,126. Iron Pipe Coupling.
(*Joint de tuyau de fer.*)

Isaac B. Potts, Columbus, Ohio, U.S., 12th April, 1889; 5 years.

Claim.—1st. A coupling for pipes consisting of a central screw threaded union, a split ring at each end thereof, an interposed packing, and holding ring screwed to the central union, all arranged and operating substantially in the manner and for the purpose described. 2nd. The combination, with the pipes a, a of the holding rings c, c having seats for the stuffing box, a central union b, split rings d, d and interposed packing e, e between the split rings and central union, constructed, arranged and operating substantially as and for the purposes set forth.

No. 31,127. Illuminated Fountain.
(*Fontaine lumineuse.*)

Charles Baillargé, Québec, Qué., 12th April, 1889; 5 years.

Claim.—1st. The water chamber B having a row or tier of jets A, and provided with lenses D oppositely to said jets, and a central illuminator or lamp E on the horizontal plane of the jets and lenses, whereby light from the lamp is thrown through the lenses onto the jets to illuminate the water flowing therefrom, as set forth. 2nd. The water chamber B having jets A provided with lenses D oppositely thereto, a central illuminator or lamp E, and colored plates of glass L moved between the illuminator and lenses in any suitable manner, to illuminate the water flowing from the jets with a changeable variety of colours, as set forth.

No. 31,128. Cowl or Ventilator.
(*Capuchon ou ventilateur.*)

Henry G. Fox, Victoria, B.C., 13th April, 1889; 5 years.

Claim.—The combination of the various plates A B C E, shape and mode of fixing them on the shaft.

No. 31,129. Suspender and other Buckles.
(*Boucle de bretelle et autres.*)

Louis Steinberger, New York, N.Y., U.S., 13th April, 1889; 5 years.

Claim.—1st. The combination, with the buckle slide or body, of a loosely attached laterally sliding and buckling spring bar, or plate, arranged on one side or face of said body, and for operation in connection therewith, essentially as herein set forth. 2nd. In combination with the buckle slide or body, the loosely attached laterally sliding and buckling spring bar, or plate on one side or face of said body, provided with teeth or gripping points or projections, substantially as specified. 3rd. The combination of the buckle slide, or body B having a gripping lip g on its inner surface, and the loosely attached sliding and buckling spring bar, or plate C having teeth or projections e for operation together, essentially as shown and described.

No. 31,130. Sash Cord Fastener.
(*Accroche-corde de croisée.*)

Edwin W. Abbe, New Britain, Conn., U.S., 13th April, 1889; 5 years.

Claim.—The herein-described sash-cord fastener consisting of the end plates connected by a shell or frame, the cross-bar between said end plates for doubling the cord over, and a fastening-tongue formed integral with one or both of said end plates for impinging upon the cord, substantially as described and for the purpose specified.

No. 31,131. Spring Clasp for Holding Letters, Papers and other Articles.
(*Serre-papier.*)

Louis Steinberger, New York, N.Y., U.S., U.S., 13th April, 1889; 5 years.

Claim.—1st. A clasp for loose papers and other materials or articles, constructed of an endless piece of spring wire bent to form opening and closing clamping frames, and crossed in a free or loose manner in reverse directions upon any of the adjacent marginal portions of said frames, and forming a running hinge adapted to change its position to different sides or marginal portions of the frames, essentially as described. 2nd. An expandible clasp consisting of two parallel frames connected at one end only and movable toward and from each other, the clasp being open at at its other marginal sides and end to receive and clasp a book or other article, substantially as set forth. 3rd. An expandible clasp consisting of two parallel frames, connected at one end by a diagonal arm extending from opposite corners thereof, the clasp being open at its opposite end and at both sides, substantially as set forth. 4th. An expandible clasp consisting of two parallel frames, and two crossed arms connecting opposite corners of the said frames at one end of the clasp only, whereby the opposite end of the clasp, and its opposite sides will be unobstructed to allow of the insertion of a book or other article, substantially as set forth. 5th. An expandible clasp consisting of two parallel frames formed of a single wire crossed from opposite corners of the frames at one end of the clasp, the sides and opposite end of the clasp being adapted to receive a book or other article, substantially as specified. 6th. A clasp consisting of two parallel frames formed of a single piece of wire crossed at one end of the clasp only, to opposite corners of the two frames, one frame being smaller than the other, substantially as described.

No. 31,132. Pipe Wrench. (*Clé à tuyaux.*)

James Boland and Jacob West, Jackson, Mich., U.S., 13th April, 1889; 5 years.

Claim.—1st. In a pipe wrench, shank A provided with graduating stem G, the revolving jaw wheel D, as described and for the purpose hereinbefore set forth. 2nd. A pipe wrench, socket F provided with screw H, nut I, and collar J, as described and for the purpose hereinbefore set forth. 3rd. In a pipe wrench, socket F provided with screw H, spring C, and hinge joint K, and jaw B, as described and for the purpose hereinbefore set forth. 4th. In a pipe wrench, shank A, graduating stem G, revolving jaw D, in combination with socket F having screw H, nut I, jaw B, and spring C, the whole as described and for the purpose hereinbefore set forth.

No. 31,133. Type-writer. (*Graphotype.*)

Alexander Downey, Toronto, Ont., 13th April, 1889; 5 years.

Claim.—1st. The combination, with the paper-carriage of a type-writer, and a striking-roller or platen supported thereon, of a support adjustably connected to the carriage so that the striking-roller or platen may be adjusted vertically to ensure a perfect alignment of the letters, substantially as described. 2nd. The carrying-wheel A journaled in the cross-head B, which is fitted into slots made in the front bar C, in combination with a screwed spindle D passing through a nut formed in, or attached to, the frame of the paper-carriage, substantially as and for the purpose specified.

No. 31,134. Medicinal Compound.
(*Composition médicinale.*)

Joshua C. Gamble, Brookville, Ont., 13th April, 1889; 5 years.

Claim.—A medicinal preparation consisting of a decoction produced by infusion of black cherry bark, mandrake, scarparrilla, gentian, burdock and dandelion roots, buchu leaves and esomile flowers, of about one ounce of each to a gallon of water, then adding alcohol one pint, and a flavoring syrup to suit the taste, as set forth.

No. 31,135. Foot Ball. (*Ballon de jeu.*)

William Howard, Ipswich, Eng., 13th April, 1889; 5 years.

Claim.—1st. Making the leather cases of foot balls by first shaping the two halves thereof and sewing them together, substantially as hereinbefore described, with reference to the accompanying drawings. 2nd. Making a foot-ball cover out of four pieces of leather, cut, stretched and blocked, substantially as above described with reference to the accompanying drawings. 3rd. Fixing the shields to cover the points of the pieces of leather out of which a foot-ball cover is made inside the cover, substantially as described with reference to the accompanying drawings. 4th. In a foot-ball cover, forming either or both shields in one piece with a gusset, substantially as described with reference to the accompanying drawings. 5th. In a foot-ball cover, the combination, of gussets and shields, substantially as hereinbefore described, the same being adapted thereby to produce a regular surface. 6th. A foot-ball constructed without projecting lacings or shields, substantially as hereinbefore described.

No. 31,136. Saw Mill. (*Scierie.*)

Howard P. Heacock, Missoula, M.T., U.S., 13th April, 1889; 5 years.

Claim.—The combination, in a saw mill, of two pulleys, as 12 and 13, upon a feed shaft, as 10, two loose belts, as 14 and 15, upon said pulleys, and driven in opposite directions, and a tightener, as 17, adapted to tighten alternately one or the other of said belts, substantially as described.

No. 31,137. Railroad Switch.

(*Aiguille de chemin de fer.*)

Edwin Gordon, Hyde Park, Mass., U.S., 13th April, 1889; 5 years.

Claim.—1st. In a railroad switch, the continuous switch-rails A, A', the blocks e, bolts c, c, guard-rails C, bar d, fixed-bar w, link k, pivot m, stud k₁, and point-rails B, B, in combination, with the device for automatically moving the continuous switch-rails, consisting of the lever j, cross-piece j, and rod h, substantially as and for the purpose above described. 2nd. In a railroad switch, the switch-rails A, A', the blocks e, bolts c, c, guard-rails C, bar d, fixed-bar w, link k₂, pivot m, stud k₂, and point-rails B, B, in combination, with the device for automatically moving the continuous switch-rails, consisting of the lever p, pivot n, rod o, and pin r, substantially as and for the purpose above described. 3rd. The links k, k₂, in combination, with the pivot m, the rod t, the fixed-bar w, and the movable-bar d, substantially as and for the purpose above described.

No. 31,138. Disinfecting Apparatus.

(*Appareil à désinfecter.*)

Robert S. West, Cleveland, Ohio, U.S., 13th April, 1889; 5 years.

Claim.—1st. A disinfecter consisting of a chamber for antiseptic fluid, with a cup A' at the lower exterior end thereof, in combination with the tube E and conveyer C having one end in the fluid chamber, and extending up through an opening therein and down the interior of said tube with its terminal within said cup, arranged substantially as set forth. 2nd. The fluid chamber B having a cup at its lower end, a conveyer C, a tube on the exterior of said chamber for the protection and direction of the external terminal of the conveyer to the cup, in combination with the cut-off H, and its threaded operative stem arranged conjointly, substantially as and for the purpose set forth. 3rd. A disinfecter consisting of a chamber B for antiseptic fluid provided with a cap or cover, in combination, with the exterior tube E, and a conveyer C having one end depending in the fluid of said chamber, and the other end extending down through the tube E to the exterior, whereby the fluid is conveyed from the interior to the outside terminal of and by the conveyer, in the manner and for the purpose substantially as described and shown.

No. 31,139. Railway Switch:*(Aiguille de chemin de fer.)*

The Isbell Machine Company, (assignee of Robert H. Isbell), New York, N.Y., U.S., 13th April, 1889; 5 years.

Claim.—1st. In a railway switch, the combination, of a compressible spring link within a frame, a switch-bar adapted to compress the spring against the frame by movement in either direction, a rocking-bar pivoted to the frame and adapted to alternately lock the switch-bar to such frame in each direction while leaving it free in the other, and means to rock such bar upon its pivot at the end of each shifting of the switch. 2nd. In a switch operated by double toggle-joints, the combination of arms *b b'*, *c c'* and the rocking bar *h*, both pivoted to *e*, with the frame *e* containing and supporting the collars *i*, switch-bar *a*, and spring *g*.

No. 31,140. Purification of Gas such as issued for Illuminating Purposes by means of Ammonia and Producing certain bye Products.*(Epuraton du gaz d'éclairage au moyen de l'ammoniac et production de ses produits secondaires.)*

William T. Walker, Donnington, Eng. (assignee of Carl F. Claus-Briton Ferry, Wales, 13th April, 1889; 5 years.

Claim.—1st. The herein described continuous method or process of purifying crude coal gas that has been freed from tar, by subjecting it after passing through a scrubber or scrubbers to the action of an excess of ammonia in the gaseous or in the liquid state, ammonia in addition to that originally present in the coal gas itself being for this purpose caused to circulate continuously in contact with the coal gas, as set forth. 2nd. In the combined and continuous method or process of purifying coal gas referred to in the preceding claim, regulating the admission of the ammoniacal gas or the liquid ammonia to the crude coal gas, by regulating the supply of the washing liquor to the washing scrubber. 3rd. Effecting during the circulation of the ammoniacal liquor *A*, the extraction of the free sulphur from the mixture of carbonic acid and sulphide of hydrogen *B*, the extraction of the cyanides by concentrating the excess of liquor in the distilling apparatus and producing a raw product, the ammonia retained in the liquor being freed by caustic, or carbonated alkalies or by alkaline earths, or by their soluble sulphides, and conveyed into the distilling apparatus with the steam simultaneously produced, the concentrated cyanides remaining as a raw product *C*, the extraction of the concentrated carbonate or concentrated sulphate of ammonia from the excess of ammonia in the gas liquor, which is not required in the process of gas purification, as herein described, and which comes from the scrubbers, the hydraulic main, the condensers, and the washers. 4th. In the purification of coal gas causing scrubber liquor containing sulphite of ammonium to combine with additional sulphur without previous distillation by contact with solid sulphur preparatory to use for removing bi-sulphide of carbon from the coal gas in a scrubber, substantially in the manner hereinabove set forth. 5th. In the combined and continuous method or process of purifying coal gas, as herein described, and in which sulphur is extracted from the sulphide of hydrogen produced therein, the herein described method of extracting the cyanides as cuprous sulpho-cyanide from the spent liquor that is in excess of that required for circulation in the scrubbers.

No. 31,141. Folding Step. (Marche-pied articulé.)

Harrison T. Cork, Marshall, Ill., U.S., 16th April, 1889; 5 years.

Claim.—The combination, with a vehicle body, of a step and standard, a case or guide, and a holding pin, all formed substantially as shown and described.

No. 31,142. Garment. (Vêtement.)

Benjamin J. Greely, Boston, Mass., U.S., 16th April, 1889; 5 years.

Claim.—The garment above described, the waist portion having the front and rear flaps *A1*, *A2*, with their edges *a*, *b*, *c*, *d* forming a placket over each hip, and connected by the straps *B*, *B'* secured to the edges *a*, *b*, of the front flap *A2* from the top of such edges to the bottom of the placket, and by the straps *D*, *D'* secured to the edges *c*, *d* of the rear flap *A1*, from the top of such edges to the bottom of the placket, the straps *D*, *D'* uniting at the front, and the straps *B*, *B'* at the rear, all substantially as described.

No. 31,143. Mechanism for Opening Gates.*(Mécanisme pour ouvrir les barrières.)*

John N. Stong, Woodbridge, Ont., 16th April, 1889; 5 years.

Claim.—1st. A rod *G* fixed to, or forming part of the bar *F* adjustably connected to the rack *C*, a pin *K* projecting from the bar *F*, in combination, with the lever *N* pivoted on the quadrant *A*, and connected to the latch *M* by the cord or chain *O*, substantially as and for the purpose specified. 2nd. A rod *G* fixed to, or forming part of, the bar *F*, a pin *L* projecting from the bar *F*, in combination with the lever *P* pivoted on the quadrant *A*, and connected to the latch *M* by the cord or chain *O*, substantially as and for the purpose specified. 3rd. A rod *G* fixed to, or forming part of the bar *F*, pin *K* and *L* projecting from the bar *F*, in combination with levers *N* and *P* pivoted on the quadrant *A*, and connected to the latch *M* by the cord or chain *O*, substantially as and for the purpose specified.

No. 31,144. Waggon Jack. (Chèvre de carrosserie.)

James V. Thompson, Toronto, Ont., 16th April, 1889; 5 years.

Claim.—A waggon jack consisting of still *a*, standards *B*, lever *D*, and upright shaft *H*, all formed and combined as herein set forth.

No. 31,145. Art of Producing Buoyancy.*(Art de produire la flotabilité.)*

Samuel T. Culp, Denver, Col., U.S., 16th April, 1889; 5 years.

Claim.—The art of producing buoyancy by forcing compressible elastic gas into a tank having one end open downward, and submerged into a fluid.

No. 31,146. Process of Making Fibre from Pine Needles and Fibre obtained therefrom. (Procédé pour fabriquer les fibres avec les aiguilles des sapins et fibres ainsi produites.)

William Latimer, Wilmington, N.C., U.S., 16th April, 1889; 5 years.

Claim.—1st. The process herein described for treating pine needles for making fibre for spinning and weaving into textile fabrics, for bagging and other purposes, which consists in, first, actively boiling the needles for a few minutes in an alkaline solution until a head of foam is raised, then lowering the temperature to below the boiling point, and slowly digesting the mass for a period of ten hours more or less, then drawing off the solution and washing the mass with pure water, substantially as shown and described. 2nd. The process herein described of treating pine needles for making fibre for spinning and weaving into textile fabrics, for bagging and other purposes, which consists in, first, actively boiling the needles for a few minutes in an alkaline solution until a head of foam is raised, then lowering the temperature below the boiling point, and slowly digesting the mass for ten hours, more or less, then draining off the solution and subjecting the cooked needles to a series of successive washing and steeping or soaking operations in clean water, each of said washing and soaking operations being at a lower temperature than the preceding one, substantially as specified. 3rd. As a new article of manufacture, the fibre herein described consisting of the cellular tissues of the pine needle, eliminated in lengths from the silicious, resinous and pulpy parts, and subdivided into long pliant filaments adapted to be spun and woven, as described.

No. 31,147. Rail Brace. (Armure de rail.)

Thomas A. Griffin, Chicago, Ill., U.S., 16th April, 1889; 15 years.

Claim.—A brace constructed from a blank of the form in cross-section of a T-rail, the head of the blank forming the foot of the brace, and the foot of the blank forming the head of the brace, the lower edge of the brace head extending only to the junction of the web and flange of the track rail, substantially as described and shown.

No. 31,148. Bolting Reel. (Blutoir.)

Orville M. Morse, Jackson, Mich., U.S., 16th April, 1889; 5 years.

Claim.—1st. The combination, with a bolting reel, of a rotating support arranged within the reel, and a cylindrical agitator net mounted upon said support, substantially as set forth. 2nd. The combination, with a bolting reel, of a rotating support arranged within the reel, and an internal agitator composed of intertwined spiral wires mounted upon said support, substantially as set forth. 3rd. The combination, with a bolting reel, of a drum arranged within the reel, and an agitator net mounted upon said drum, substantially as set forth. 4th. The combination, with a bolting reel, of a drum arranged within the reel, supports attached to the drum and projecting beyond the surface thereof, and an agitator net resting upon said supports, substantially as set forth.

No. 31,149. Apparatus for Automatically Registering or Recording the Flow of Water or other Fluids.*(Appareil pour enregistrer automatiquement l'écoulement de l'eau et autres fluides.)*

Henry H. Sporton and Ernest White, Enfield, Eng., 16th April, 1889; 5 years.

Claim.—1st. Apparatus for registering or recording the flow of fluid through fluid meters, comprising a drum or cylinder adapted to carry a diagram paper, and to be moved on its longitudinal axis by means of clock mechanism, and an arm carrying a pencil and designed to be attached to one of the index spindles of the meter, so that as the meter is operated the pencil will be caused to travel over the paper, substantially as described. 2nd. The combination of the frame *a*, a clock having a barrel carrying a cord, a drum *n* suspended from the said cord, and a pencil carrier *s* adapted to be secured to one of the index spindles of a fluid meter, and to be moved around the said drum, all substantially as and for the purposes described. 3rd. In recording apparatus for fluid meters, a diagram carrier, the weight of which assists in operating the clock work which controls the movements of the said carrier, substantially as and for the purpose described.

No. 31,150. Fastening or Locking Mechanism for Safes and Strong Rooms.*(Fermure pour coffres-forts ou pièces fortes.)*

Francis E. Wilson, Birmingham, and Charles C. Walker, Accoacs Green, Eng., 16th April, 1889; 5 years.

Claim.—The application of a bolt or bolts passing transversely across and through the shot out bolt or bolts of safes and strong rooms into the frames or top, bottom and side walls of such safe or strong rooms, for the purpose of securing such shot out bolts to the frames or walls of safes or strong rooms.

No. 31,151. Bath Tub Seat. (*Sège de bainoire.*)

Dora K. Frederick, Marshallville, Ga., U.S., 16th April, 1889; 5 years.

Claim.—As an improved article of manufacture, a bath tub seat constructed of condensed pulp moulded in a single piece and dried, the seat being provided with a coating of water-proofing material, substantially as herein set forth.

No. 31,152. Wheel. (*Roue.*)

Willard A. Smith, Providence, R.I., and Irving A. Weston, Syracuse, N.Y., U.S., 16th April, 1889; 5 years.

Claim.—In a suspension wheel, spoke, disks for receiving the ends of the spokes, provided with bell-mouthed perforations to receive the draw of the spokes, all substantially as shown and for the purposes set forth.

No. 31,153. Sleigh Knee. (*Courbe de traîneau.*)

Alonso Bostiek, Millington, Mich., U.S., 16th April, 1889; 5 years.

Claim.—The combination of the saddle B, the rider H, and the runner and cross-beam of a sleigh, all formed as described and connected in the manner set forth.

No. 31,154. Dry Battery. (*Pile sèche.*)

Wilhelm L. F. Hellesen, Copenhagen, Denmark, 16th April 1889; 5 years.

Claim.—1st. In primary and secondary dry elements, the transformation of the electrolyte into a firmer substance through addition of slimy sticky substance, principally tragacanth. 2nd. The ventilation of the element through covering of the slime, with a porous solid substance. 3rd. The surrounding or covering of the element by a larger receptacle or vessel, which is provided with air holes in such places that the gas is compelled to pass a longer way where it is dried prior to making its escape, and which receptacle is filled principally with substances capable of absorbing moisture.

No. 31,155. Rotary Measuring Instrument.

(*Instrument rotatoire de mesure.*)

Robert J. Buchanan, Pittsburgh, Penn., U.S., 16th April, 1889; 15 years.

Claim.—1st. The combination, substantially as hereinbefore set forth, of the frame, its handle, the rotating disc, wheel or roller pivoted to the frame and having scales or distances marked on its side, and an index or pointer pivoted concentric with the disc wheel or roller, and weighted and pointed at its lower end. 2nd. The combination, substantially as hereinbefore set forth, of the frame, the rotary disc, wheel or roller, the scale marked on its side and near its periphery in accordance with one unit of measure, a second scale or scales within the outer scale divided according to a different unit or different units of measure, and an index or pointer pivoted concentric with the disc, wheel or roller, having its lower arm weighted and pointed and extending to the outer scale, and its upper arm made light, narrow and pointed and extending to the inner scale or scales, for the purpose herein specified. 3rd. The combination, substantially as hereinbefore set forth, of the bushing or core, the circular graduated plates on each side of the bushing and bevelled on their inner sides at the periphery, the tire or rim of soft flexible material between the plates and around the bushing or core, and extending beyond the edges of the plates, the bosses of the bushing extending centrally through the plates, the axle or shaft, the frame to which it is secured, and an index or pointer pivoted concentric with the circular graduated plates. 4th. The combination, substantially as hereinbefore set forth, of the central bushing or core, its laterally projecting bosses having the extensions a_2 , the metallic plates secured to the bushing around the bosses, and having their inner sides tapered or bevelled as described, and marked on their outer sides with scales divided in accordance with suitable units of measure, the tire or rim of soft flexible material secured around the bushing and between the plates, and extending beyond the outer edges or peripheries of the plates, the frame, its handle, the axle secured to the frame and extending through the bushing and its extensions, and the indexes or pointers pivoted on the extensions a_2 . 5th. The combination, substantially as hereinbefore set forth, of the disc, wheel or roller having a circular scale on its side and around its periphery, divided into inches, and a circular scale within the outer scale divided proportionately to represent miles, the frame to which the disc, wheel or roller is pivoted, and the freely suspended pointers or indexes adjacent to the disc, wheel, or roller.

No. 31,156. Apparatus for Illuminating and Heating purposes. (*Appareil d'éclairage et de chauffage.*)

Roughsedge Wallwork and Arthur C. Wells, Manchester, Eng., 16th April, 1889; 5 years.

Claim.—1st. The combination of one, two, or more rings b, b^* , tube b_4 , jet nozzle c , air cylinder d , and cone d_1 , as set forth. 2nd. The combination of burners with rings b, b^* , tube b_4 , nozzle c , air cylinder d , and cone d_1 , and a supply pipe a arranged so that the flame will pass horizontally from the burner. 3rd. The combination, with burners in which the flame passes from them horizontally, of a wind vane for automatically keeping the burner, with the flame passing in the same direction as the wind blows, as set forth. 4th. The combination of a cover f with the rear part of burners, as set forth. 5th. The combination of a pipe a , dish e , rings b, b^* , tube b_4 , nozzle c , air cylinder d , and cone d_1 , and cover f forming a complete burner, as set forth. 6th. The combination, with a burner, of a chimney h , as set forth. 7th. The combination, of duplex burners, as set forth. 8th. The stuffing box g , in combination with the oil supply pipe of burners, as set forth. 9th. The combined filter plug and regulating tap, as set forth.

10th. The combination of a fluid-tight cistern, and pipes g_6 and g_7 , with air under pressure imprisoned in the upper part of the cistern for forcing the oil at the pressure required to the burner, as set forth. 11th. The combination, with a cistern of a pump, with rings or discs g_7 and g_8 , and valve g_9 , as set forth. 12th. The combination of cistern pump, flexible tube g_2 and connected parts, pipes g_6 and g_8 , filter plug, and regulating tap, and pressure gauge g_5 , as set forth. 13th. The combination of the plug w with the supply cistern, as set forth.

No. 31,157. Wood Working Machine.

(*Machine à travailler le bois.*)

George Hughes, David A. Ross and William G. Scott, Mount Forest, Ont., 16th April, 1889; 5 years.

Claim.—1st. The combination of the guide bar 5 and the movable head block M and revolving cutter H, substantially as and for the purpose hereinbefore set forth. 2nd. The combination of the draw-bar D and lever P, substantially as and for the purpose hereinbefore set forth. 3rd. The combination of the bolt e and slot in lever P and draw-bar D, substantially as and for the purpose hereinbefore set forth. 4th. The combination of the hand wheel j and screw J on cutter spindle g for raising and lowering cutter H, substantially as and for the purpose hereinbefore set forth. 5th. The combination of the cutter block M, connecting to guide-bar 5 and connecting to table A, substantially as and for the purpose hereinbefore set forth. 6th. The combination of the stop gauge W, with movable pin x and lever z , and spring k , substantially as and for the purpose hereinbefore set forth.

No. 31,158. Process for Extracting Gold, Silver and other Metals from Refractory Ores, Sands and Residues. (*Procédé pour extraire l'or, l'argent et autres métaux des minerais, sables et résidus réfractaires.*)

Comte Edouard de Rottermund, Bludow, Russia, 16th April, 1889; 5 years.

Claim.—1st. The improved process for extracting gold, silver and other metals from refractory ores, sands and residues, consisting in, first roasting such ores, secondly, submitting them while warm to the action of warmed dilute sulphuric or muriatic acid, thirdly, subjecting the resulting liquid to the action of scrap iron, or other necessary reactives to secure precipitation of the copper, silver, etc., fourthly, leaching the effluent liquid with cold water to reduce the temperature, and then introducing chlorine in the exact quantity necessary for its combination with metals without the necessity of employing air-tight or closed vessels, all as herein described. 2nd. In a process for the separation and removal of copper, silver, etc., from refractory ores, sands and residues, the introduction of chlorine in the exact quantity for its combination with metals, subsequently to the treatment by roasting and by dilute acids, and leaching of said ores, sands and residues, as and for the purpose described.

No. 31,159. Temperance Beverage.

(*Boisson de tempérance.*)

Heinz Lowenfeld, London (assignee of James Harris, Deptford, Eng.), 16th April, 1889; 5 years.

Claim.—A temperance beverage, manufactured by combining hops, borehound, dandelion root, ginger and loaf sugar, in about the proportions and in the manner substantially as described.

No. 31,160. Composition of Matter for Making Oil. (*Composition de matières pour faire de l'huile.*)

John B. Freed (assignee of James D. Meagher), Hamilton, Ont., 16th April, 1889; 5 years.

Claim.—A compound, composed of the several matters herein described, for making machine or lubricating oils and grease, substantially in the proportion and for the purpose set forth.

No. 31,161. Medicinal Preparation for Pulmonary Complaints. (*Préparation médicinale pour les maladies pulmonaires.*)

Joshua C. Gamble, Brookville, Ont., 20th April, 1889; 5 years.

Claim.—A pulmonary balsam composed of the tinctures of myrrh, casiaum, capsicum and senna, and the essences of anise, wintergreen, peppermint and pennyroyal, and the oils of tar and sassafras and alcohol, and a flavoring syrup, in about the proportionate quantity stated.

No. 31,162. Nut Lock. (*Arrête-écrou.*)

George O. Hannah, Saint John, N.B., 20th April, 1889; 5 years.

Claim.—The nut lock, consisting of the disc a , having the lugs b and the teeth c , substantially as and for the purpose hereinbefore set forth.

No. 31,163. Spoon Rest. (*Tuteur de cuiller.*)

Horatio H. Abbe, East Hampton, Conn., U. S., 20th April, 1889; 5 years.

Claim.—The detachable spoon-rest herein described, consisting of the standard b , having a foot c , and formed at its top with the rest-plate f , having on its side edges the lips d adapted to receive and hold the handle of the spoon, substantially as specified.

No. 31,164. Percolator. (Filtre.)

John W. Evans, Cleveland, Ohio, U.S., 20th April, 1889; 5 years.

Claim.—1st. In a percolator for extracting oil, the combination, with so-called breakers hinged to the side of the percolator, and a depressible centre piece for supporting the inner end of the breakers, said breakers having perforated pipes attached underneath, of corresponding perforated pipes connected with the centre piece, the latter pipes being made movable to couple or uncouple with the pipes of the breakers, substantially as set forth. 2nd. In a percolator for extracting oil, the combination, with breakers, perforated pipes and centre piece, substantially as indicated, of supporting bifurcated brackets, having hollow seats forming half-boxes, and corresponding hollow trunnions on the breakers for engaging the said seats, forming steam connections between the outside pipes and the said perforated pipes, and arranged, substantially as indicated, whereby the breakers are detachable from the brackets. 3rd. In a percolator, the combination, with cross-bars and perforated pipes connected with the cross-bars, of ball-and-socket elbows connecting the perforated pipes with the supply pipes, substantially as described. 4th. In a percolator, the combination, with perforated plates forming a conical false bottom, of a heating coil located between the perforate and imperforate bottoms, substantially as set forth. 5th. In a percolator, the combination, with cross-bars and the perforated pipes, substantially as indicated, of a perforated stand-pipe, the same having shoulders for supporting the cross-bars, and a block for supporting the stand-pipe and the inner ends of the plates of the false bottom, said block having channels on the under side thereof, substantially as set forth.

No. 31,165. Pneumatic Flushing Tank for Water Closets. (Cuvette à lavage pneumatique des latrines.)

James E. Boyle, Brooklyn, N.Y., U.S., 20th April, 1889; 5 years.

Claim.—1st. The combination of a tank, a float valve for supplying water thereto, a flushing pipe leading from said tank, an outlet valve opening from said tank to said pipe, and adapted, when operated, to cause an outflow from said tank, a lever for operating said valve, an air pipe projecting up in said tank and opening above the water level therein, and an open bottomed vacuum chamber or box placed in said tank over said air-pipe and constructed to be lifted out at will. 2nd. The combination of a tank, a float-valve for supplying water thereto, a flushing pipe leading from said tank, an outlet valve opening from said tank to said pipe, and adapted, when operated, to cause an outflow from said tank, lever for operating said valve, an air pipe projecting up in said tank and opening up above the water level therein, and an open bottomed vacuum chamber or box placed in said tank over said air-pipe, constructed to be lifted out at will, and having a capacity equal to the volume of air required to be drawn from the air pipe by the operation of the tank. 3rd. The combination of a tank, a float valve for supplying water thereto, a flushing pipe leading therefrom, an outlet valve opening from the tank to said pipe and adapted, when operated, to establish an outflow from said tank, a lever for operating said valve, an open-bottomed vacuum chamber arranged in said tank and movable up and down therein, an air pipe opening within said chamber above the water-level in the tank, and mechanical means for lifting said chamber. 4th. The combination of a tank, a float-valve for supplying water thereto, a flushing pipe leading therefrom, an outlet valve opening from said tank to said pipe, an open-bottomed vacuum chamber arranged in said tank and movable up and down therein, an air pipe opening into said chamber above the water level, and an operating lever connected to said chamber and to said outlet valve, whereby the pulling of said lever simultaneously raises said chamber, thereby creating a partial vacuum in said air pipe and opens said valve, thereby establishing the outflow and maintaining said vacuum. 5th. The combination of a tank, a float valve for supplying water thereto, a flushing pipe leading therefrom, an outlet valve opening from the tank to said pipe, a lever for operating said valve, a vacuum chamber pivoted in said tank and connected to said lever, whereby, when the lever is pulled the chamber is tilted, and an air pipe opening into said chamber above the water level. 6th. The combination of a tank, a float-valve for supplying water thereto, a flushing pipe leading therefrom, an outlet valve opening from the tank to said pipe, a vacuum chamber arranged in said tank mounted on pivots on a horizontal axis and capable of being tilted, an operating lever fixed to said chamber and an air pipe opening into said chamber above the water level. 7th. The combination of a tank, a float valve for supplying water thereto, a flushing pipe leading therefrom, an outlet valve opening from the tank to said pipe, a lever or equivalent mechanical means for operating said valve, a vacuum chamber arranged in said tank and movable up and down therein, an air pipe opening into said chamber, and a vent-valve for permitting escape of air from said chamber. 8th. The combination of a tank, a float-valve for supplying water thereto, a flushing pipe leading therefrom, an outlet valve opening from the tank to said pipe, and adapted, when operated, to cause an outflow of water from said tank sufficient for one flush, a lever for operating said valve, a vacuum chamber arranged in said tank, adapted to be raised and lowered therein and connected to said lever, an air pipe opening into said chamber, a vent valve in said chamber opening outward, a vent tube leading from the tank, and a flexible tube connected to said vent valve and to said tube. 9th. The combination with a water closet, consisting of a bowl, two traps and an intervening air space of a tank, a float valve for supplying said tank, a flushing pipe extending from said tank to the bowl, an air pipe extending upward from said air space and opening in the tank above the water level, an operating lever for said tank and a movable air-bell or vacuum chamber arranged in said tank in communication with said air pipe and connected to said lever, whereby, on the lifting of said air bell a partial vacuum is created within it and in said air pipe and air space. 10th. The combination, with a water closet, consisting of a bowl, two traps and an intervening air space, of a flushing tank, a movable air-bell therein, an operating lever and pull for lifting said bell, and an air-

pipe extending from the said air-space and terminating in said air bell, whereby, on lifting said bell, a partial vacuum is created in said pipe and air space.

No. 31,166. Moulding for Caskets, etc.

(Moulure pour cercueils, etc.)

William A. Fraser, Suspension Bridge, N.Y., U.S., 20th April, 1889; 5 years.

Claim.—1st. The elastic or pliable moulding A, cast or otherwise formed into suitable lengths and shapes, substantially as and for the purpose specified. 2nd. A moulding or strip, cast or formed of rubber or other pliable or elastic material or compound, and covered, or partially covered by cloth, silk, or other fabric, plain or ornamental, substantially as and for the purpose specified.

No. 31,167. Middlings Purifier or Apparatus for Grading or Sorting Grits and other Pulverulent Substances. (Epurateur des gruaux ou appareil à séparer les recoupes ou autres substances pulvérulentes.)

Carl Hagenmacher, Budapest, Hungary, 20th April, 1889; 5 years.

Claim.—1st. In a purifying machine, having an air exhaust, a series of removable grids or frames with openings, arranged one above the other in stops, whereby more or less inclined air passages widening out towards their upper end are formed between the frames, so that grits introduced over the first frame become gradually sorted according to weight and size by the action of the air-currents, and collected at discharge openings leading into corresponding shoots, substantially as herein described. 2nd. In purifying machines for grits, a series of grides or frames a, a1, a2, a3, with openings p situated within a casing M, and having air channels between them, in combination with a feed hopper e, discharge openings q and movable shoots r, air chest W and an exhaust fan, arranged and operating substantially as set forth.

No. 31,168. Carousal, or Merry-go-Round.

(Jeu de baguette.)

Gustav Sanerlana, Friedrich Nieschlag, Friedrich Grupe, Hanover, and Emil F. Muller, Linden near Hanover, Prussia, 20th April, 1889; 5 years.

Claim.—1st. A merry-go-round, the boats of which are suspended by ropes in such a manner and carried by arms that they can be drawn up vertically by means of a winch mechanism. 2nd. A merry-go-round, the boats of which are carried by ropes running from arms, which are rotary on a frame work in a horizontal direction, and in which the ropes can be tightened by a winch mechanism in such a manner that the boats are first drawn up vertically and then moved horizontally round a common axis, substantially as described. 3rd. A merry-go-round, the boats of which are carried in a rotary manner horizontally round a common axis, and suspended by means of ropes to a winch mechanism, in such a manner that they take a spiral path upwards or downwards through simultaneous rotation of the arms and operation of the winch, substantially as described. 4th. In a merry-go-round, the combination and arrangement of a block 2 provided with a swivel piece 4, and to which the ropes y and the chain g of the winch e are attached, in order to enable the boats being pulled up and down and being revolved without the ropes turning round their axis, substantially as described. 5th. In a merry-go-round, the combination and arrangement of the column q, which moves on rollers horizontally and vertically arranged, and which carries the arms t on the socket piece s, and by means of the socket piece s, carries the sheaves u, which carry the ropes y and the arms t, as described.

No. 31,169. Auxiliary Rifle Sight for Facilitating Instruction in Musketry

(Mire auxiliaire de carabine pour faciliter l'enseignement de la mousqueterie.)

William H. Grindley, Tunstall, Eng., 20th April, 1889; 5 years.

Claim.—1st. In an auxiliary sighting device, a fore sight, such as A, carried on an arm, such as A1, adapted to be secured on a rifle abreast of its fore sight, substantially as and for the purpose herein described and illustrated in the accompanying drawings. 2nd. In an auxiliary sighting device, a back sight, such as B, consisting essentially of an arm, such as B1, on which is capable of being horizontally adjusted a frame, such as B2, on which a sighting piece, such as B3, is capable of being vertically adjusted, substantially as and for the purpose herein described and illustrated in the accompanying drawings. 3rd. In an auxiliary sighting device, a back sight, such as B, having an arm, such as B1, on which is a graduated scale B2, frame B3 adapted to be moved horizontally thereon, sighting piece, such as B4, vertical scale B5 and level B6, substantially as described and illustrated in the accompanying drawings. 4th. In an auxiliary sighting device, the means for securing to a rifle a fore sight, such as A, consisting of a clamping ring, such as A2, and clamping screw A3, the ring A2 being recessed so as to receive the permanent fore sight, substantially as herein described and illustrated in the accompanying drawings. 5th. In an auxiliary sighting device, the means for securing to a rifle a back sight, such as B, consisting of a yoke, such as B2, slotted plates B3, bar B5, screws B6 and B8, and clamping plate B7, substantially as herein described and illustrated in the accompanying drawings.

No. 31,170. Washing Machine.

(Machine à blanchir.)

John J. O'Neill and Alfred Langdon, Almonte, Ont., 20th April, 1889; 5 years.

Claim.—1st. The combination, with the wash-tub A, legs B, of the slides a, carriage F, handle G, rod H, trunnions I, the detachable

corrugated wash-board or scrubber J, slotted brackets K secured by the studs L in the said frame F, the frame C, rollers D, pins *d* journalled in bearings E in the said frame C, substantially as set forth. 2nd. The combination, with a wash-tub, of a carriage, consisting of side pieces F, handle G, rod H, detachable wash-board or scrubber J, secured by slotted brackets K and studs L to the said side-pieces, and trunnions I sliding in slides *a*, substantially as set forth. 3rd. The combination, with a wash-tub, of a carriage trunnions I and slides *a*, substantially as set forth. 4th. The combination, in a washing machine, with a wash-tub, of the frame C, rollers D, pins *d*, bearings E, substantially as set forth.

No. 31,171. Siding Gauge.

(*Fausse-équerre.*)

Samuel G. Hosaok, Ann Arbor, Mich., U. S., 20th April, 1889; 5 years.

Claim.—1st. In a siding gauge, the combination of the slotted bar A, provided with the spur G, the spring-actuated arm C, provided with a pointed finger H, and the cam lever K adapted to bear against the said arm, substantially as specified. 2nd. In a siding gauge, the combination, with the transverse bar A, having a slot B therein, and provided with a spur G, of the movable arm E passing through the slot B, and provided at its lower end with a spring coil F, the adjustable finger H and the cam lever K, substantially as specified. 3rd. The herein described siding gauge, comprising the transverse slotted bar A, provided with the spur G, the spring rod C provided with the short depending arm D, the movable arm E, the spring coil F connecting the lower ends of the arms D, E, the adjustable finger H mounted on the movable arm, and provided with a thumb-screw I and the cam lever K, substantially as specified.

No. 31,172. Tubular Lantern.

(*Lanterne tubulaire.*)

Ernest Schultz, Hamilton, Ont., 20th April, 1889; 5 years.

Claim.—1st. In a tubular lantern, uniting the canopy E and tube B together, and forming an opening F in both, to allow a draft of air to pass directly from the globe to the side tubes, substantially as and for the purpose specified. 2nd. In a tubular lantern, in combination with the match opening of the disc, of a spring cover made to fit and close said opening when pressure is removed, substantially as and for the purpose specified. 3rd. In a tubular lantern, the combination of the disc H, provided with an opening G, cover I and spring J, substantially as and for the purpose specified.

No. 31,173. Screw Propeller.

(*Helice de propulsion.*)

Alexander D. Hall and George B. Sloan, San Francisco, Cal., U.S., 20th April, 1889; 5 years.

Claim.—1st. A screw propeller, having a spiral continuous blade with no openings therein, making one complete revolution, and provided at its outer edge with the spiral laterally-extending flange, for the purpose set forth, the said flange being disposed in a plane parallel with the axis of the propeller, the length of the said blade being in excess of the diameter of the propeller, substantially as described. 2nd. The propeller, having the continuous spiral blade formed of separable sectors, the said sectors being separately keyed to the propeller shaft and having their opposing edges secured together, substantially as described. 3rd. The combination, in a propeller, of the spiral blade and the flange E at the outer edge of said blade, said flange having the flanges F embracing the opposite sides of the spiral blade and bolted thereto, substantially as described. 4th. The propeller, having the continuous spiral blade forming one complete revolution, and the flange E on the outer edge of the blade, the said flange being disposed in a plane parallel with the axis of the propeller, and having its rear edge or projecting portion broader than its forward projection portion, for the purpose set forth, substantially as described.

No. 31,174. Spring Tooth Harrow.

(*Herse à dents élastiques.*)

Reuben A. Rose, Genesee, N.Y., U.S., 20th April, 1889; 5 years.

Claim.—The combination, with the harrow frame, having spring teeth mounted on its front and rear bars, of guard C hinged at their forward edges to said front and rear bars, and extending throughout their entire length in advance of the spring teeth, the rear edges of said guards being connected by rigid adjustable connection to their respective supporting bars, whereby the depth of the furrow made by said teeth may be regulated, substantially as described.

No. 31,175. Treatment of Beer and other Fermentable and Effervescent Liquids and Apparatus Therefor.

(*Traitement de la bière et autres boissons fermentables et effervescentes et appareil pour cet objet.*)

William Kuhn, Clermont Ferrand, France, 20th April, 1889; 5 years.

Claim.—1st. The improved process of treating beer in large quantities, characterized by: (a) The uniform heating, without divisions of the liquid to be treated, which is realized by not allowing part of the said liquid to be at any moment raised or lowered above or below the final temperature of the operation. (b) The employment, as a heating agent of water or other suitable substance at a temperature which is very little higher than the final temperature at which the operation takes place, whilst the points of contact between the liquid and heating surfaces are increased as much as possible. (c) The entire absence of displacements of the carbonic acid, which is generated in the liquid under treatment. (d) The employment, as a cooling agent, of incongealable liquids, or any other source of artificial cold capable of reaching about 10 degrees. 2nd. The apparatus,

hereinbefore described and represented by way of example in the accompanying drawing, for carrying into practice the said improved process of pasturising fermentable and effervescent liquids, and particularly beer for sale and transport in casks, the said apparatus being characterized by the combination of a cylinder or receptacle having double walls and a coil, the spirals or convolutions of which are nearer to each other in proportion as they are further away from the point where the liquid for circulating in the interior of the said cylinder or receptacle enters the latter for the purpose of effecting the uniform heating and cooling of the liquid to be treated. 3rd. The arrangement of several apparatus in groups either horizontally or vertically, for the purpose of effecting a continuous production, as above described and represented in the accompanying drawing.

No. 31,176. Automatic Car Coupler.

(*Atelage de chars automatique.*)

John Wright, Toronto, Ont., 20th April, 1889; 5 years.

Claim.—1st. As an improved car coupler, the bar B having an ar row-shaped head H formed on its end, a bracket C to receive the pin *a* on which the bar B is pivoted, in combination with the spring E, pin F and bracket G, arranged substantially as and for the purpose specified. 2nd. As an improved car coupler, the bar B having an ar row-shaped head H formed on its end, a bracket C to receive the pin *a* on which the bar B is pivoted, in combination with the spring E, pin F, bracket G, rod I and lever J, arranged substantially as and for the purpose specified.

No. 31,177. Disc Harrow.

(*Herse à disque.*)

George T. Booth, Christ Church, New Zealand, 20th April, 1889; 5 years.

Claim.—1st. The combination in a disc harrow, of the discs having square or suitably shaped holes, with sleeves having projections *x, z, z'* to fit into the holes in the discs, all held together by an axle or bolt, substantially as hereinbefore described and illustrated in the accompanying drawings. 2nd. The combination in a disc harrow, of the hinged pole *c*, the screw bolt *m*, the handle nut *m*, the cross-bar *f*, and the disc bar *d* with or without the spring *m*₁, substantially as hereinbefore described and illustrated in the accompanying drawings. 3rd. The combination of the axle *g*, the travelling wheels *h, h*, the axle box *h*₁, and the screw bolt *r*, substantially as hereinbefore described and illustrated in the accompanying drawings.

No. 31,178. Electric Governor.

(*Gouverneur électrique.*)

Frank E. Pritchard, Cedar Falls, Iowa, U.S., 24th April, 1889; 5 years.

Claim.—1st. In an electrical governor, the combination, with the ratchet-wheel, and the shaft upon which it is fixed, of a continuously oscillating vertical lever, the separate and independent pawls *e, e*₁ pivoted thereon above the ratchet-wheel, and having upwardly-projecting arms *g, g*₁ respectively, the armature-levers *f, f*₁ pivoted above the pawls and having depending arms *i, i*₁ normally engaging the arms *g, g*₁, and holding the pawls out of engagement with the ratchet, the armatures *h, h*₁ projecting from said levers, and the magnets G, G₁ above the armatures, substantially as set forth. 2nd. In an electrical governor, the combination, with the ratchet-wheel and its shaft, of the pawls, the levers normally holding the pawls out of engagement with the ratchet-wheel, the armatures projecting from said levers, the electro-magnets to operate said armatures, the circuit-wires, the battery, the contact points *s, t* in said circuit, the lever *r* connected with the battery and extending between the contact-points and the centrifugal governor, the vertically-movable rod *q* thereof operating the lever *r*, substantially as set forth. 3rd. An electrical governor consisting in the frame, the horizontal shaft D having a gear at one end, and a ratchet-wheel E on the other, the vertical oscillating lever loosely mounted on the shaft D, the pawls *e, e*₁, the armature-levers *f, f*₁ above the pawls and normally holding them out of engagement with the ratchet, the magnets G, G₁ for actuating the armature-levers, electric circuit, the contact-points *s, t* therein, the pivoted lever *r* extending between the contact-points and connected with the battery, the centrifugal governor H, the horizontal shaft I operating the same, the vertical rod *q* of the governor to operate the contact lever, the horizontal shaft C having pulley *b*, and crank-disc *c*, the rod *u* connecting the crank-disc, the lower end of the oscillating pawl-carrying lever, and the belt *m* leading from pulley *b* to a pulley on the governor-shaft I, combined and operating substantially as set forth.

No. 31,179. Band Sawing Machine.

(*Scierie à ruban.*)

Calvin Bryant, Keene, N.H., U.S., 24th April, 1889; 5 years.

Claim.—1st. As an improvement in band sawing machines, the combination, with a vertically swinging frame carrying the saw located transversely to the log, and movable towards and away from the same, of saw pulleys mounted in said frame, the saw-blade carried by the pulleys, and guide rollers arranged in proximity to the blade with the axis at an angle to that of the pulleys, so that the cutting portion of the blade may be turned to an angle with relation to that portion of the blade upon the pulleys, substantially as described. 2nd. As an improvement in band sawing machines, a vertically swinging frame carrying the saw pivoted upon the driving shaft, said frame being placed transversely to the log and provided with guide carrying arms, and guide rollers, which latter lie in a plane at right angles to the plane of movement of the frame, in combination with the saw-blade, and its carrying pulley, all arranged and operating to drive the saw and so guide the same that its cutting portion shall be deflected at a right angle to the remainder of the blade, substantially as described. 3rd. In a band sawing machine, the combination of the swinging frame located transversely to the log and movable toward and from it, the supporting standards for the frame, guide arms and the saw guides arranged in close proximity

to the saws, with their axis at right angles to those of the saw pulleys, the saw pulleys, and saw blade carried thereby, whereby said saw blade has its cutting portion turned into the plane of movement of the saw frame, and at a right angle with that portion of the blade upon the pulleys, substantially as and for the purposes specified. 4th. In a band sawing machine, the standard B provided with a journal bearing *a*, the driving shaft C carrying pulleys D and E, in combination with the swinging frame located transversely to the log, and movable towards and away from the same pulley F, saw-blade J, and guide rollers *b*, *c* in close proximity to the blade, and attached to guide blocks L, L' for the purpose of turning and guiding said saw-blade, so that its cutting portion will lie in the plane of movement of the saw frame, said rollers *b* lying in a plane at right angles to that of the pulleys, while rollers *c* lie in the same plane as the pulleys, substantially as described.

No. 31,180. Hay Loader. (*Monte-foin*.)

William M. White, Tacoma, W.T., U.S., 24th April, 1889; 5 years.

Claim.—1st. As an improvement in hay loaders, the revolving reel provided with a series of rakes having an inward and outward movement, and the series of arms between which the rake heads move, substantially as described. 2nd. As an improvement in hay-loaders, the reel having a series of rakes, a cylindrical casing provided with slits or openings, and the curved arms with which the rake heads come in contact, substantially as described. 3rd. As an improvement in hay-loaders, the reel having the end pieces or heads comprising the lateral arms arranged in pairs, the cylindrical casing having slits or openings, the rake heads together with their teeth or tines and the curved arms, substantially as described. 4th. The combination, with the wagon-body having the central transverse opening, and the brackets of the reel having its shaft supported by said brackets, the series of radial arms secured to said shaft and arranged in pairs, the casing attached to the outer ends of said arms, and having slits formed therein, the rake heads having curved teeth or tines, and end plates E₁ and the cams secured to said brackets, substantially as set forth. 5th. The combination, with the wagon-body and the brackets secured thereto, of the reel, its shaft, the series of radial arms secured to said shaft, the rake heads having end plates E₁, the stationary cam G secured to said brackets, the movable cams G₁, G₂ connected together at their upper ends, the pivoted stud K upon which said cam G₁ is rigidly secured, and the lever for operating said stud and cams, substantially as set forth. 6th. The combination, with the wagon-body, and the carrying wheels, one of which has a shive wheel, of the reel having the central shaft, the V-shape brackets, the shive wheel secured on said shaft, and the endless chain-belt, substantially as described. 7th. The combination, with the reel having a series of rakes, of the inclined wagon-body having a central opening and a front raised portion, substantially as described. 8th. In a hay-loader, the combination, with the front and rear axles and carrying wheels, of the wagon-body, the front bolster, and the supplementary bolster supported thereby, and to which the front end of the said wagon-body is secured, substantially as described, the rear end of said wagon-body being secured directly to the stock of the rear axle. 9th. As an improvement in hay-loaders, the tilting platform and the rock-shaft having curved arms designed to engage one end of said platform, substantially as described. 10th. The combination, with the wagon-body, of the tilting platform, the sliding supporting board, and the rock-shaft having curved arms, substantially as described.

No. 31,181. Railroad Spike.

(*Chevillette de chemin de fer*.)

William Goldie, Bay, Mich., U.S., 24th April, 1889; 5 years.

Claim.—1st. A spike having a point provided on each side, with diagonal cutting edges located in the same perpendicular plane with its rear side, substantially as set forth. 2nd. A spike having a point provided with a sloping compressing surface on its front side, and with cutting edges *p*, *p* located in a plane with the rear side of the point, and diverging from the centre diagonally upward to the lateral sides, and with the oblique facets *o*, *o* on the front sides of the said cutting edges, substantially as set forth.

No. 31,182. Wood Carrier. (*Liure à bois*.)

Edwin W. Payne, Morrison, Ill., U.S., 24th April, 1889; 5 years.

Claim.—A wood-carrier consisting of two base-wires and a bail, said base-wires having upwardly-extending and converging ends united to each other and to the ends of the bail in the manner described, whereby said base-wires are placed at a considerable distance apart at the base, and are thereby adapted to hold and support the wood laid crosswise thereon, and the bail is centrally and conveniently arranged for lifting and carrying.

No. 31,183. Liniment. (*Liniment*.)

Joshua C. Gamble, Brockville, Ont., 24th April, 1889; 5 years.

Claim.—A liniment composed of alcohol, camphor, chloroform, oil of wormwood, tincture of arnica, oil of gaulth, ammonia, and a solution obtained by infusion of bayberry bark, hemlock bark, cayenne pepper, and cloves, in about the proportions stated.

No. 31,184. Fluid Burner Fire Log.

(*Foyer à combustible liquide*.)

George W. White, Waco, Texas, U.S., 24th April, 1889; 5 years.

Claim.—1st. A portable fluid burner fire log comprising a hollow perforated tubular body, removable heads, a perforated tie, and fluid conducting and distributing tube passed through the heads and secured by nuts, and a fire-proof filling surrounding the tube and occupying the chamber of the body, substantially as described. 2nd. A portable fluid burner fire log comprising a hollow tubular perforated body, removable heads, asbestos packing sheets, a perforated tie and fluid conducting and distributing tube passed through the

heads and secured by packed nuts, and a fire-proof filling surrounding the tube and occupying the chamber of the body, substantially as and for the purpose described. 3rd. A portable fluid burner fire log having in combination, the perforated tubular body, removable heads, an air supply tube, perforated fluid conducting and distributing tube, and a comminuted fire-proof filling surrounding the oil tube and occupying the chamber of the body, substantially as described. 4th. A portable fluid burner fire log having in combination, the perforated tubular body, removable heads, a fluid supplying tube, a perforated air induction and distributing tube, and a comminuted or disintegrated fire-proof filling surrounding the air tube and occupying the chamber of the body, substantially as and for the purpose described. 5th. In a portable fluid burner fire log, the combination, of the perforated tubular body, removable heads, a perforated oil conducting and distributing tube, a perforated oil induction and distributing tube, and a comminuted or disintegrated fire-proof filling surrounding the tubes and occupying the chamber of the body, substantially as and for the purpose described. 6th. In a portable tubular fluid burner fire log, the combination of the perforated body, air supply tube, with funnel-shaped mouth, and a fire-proof filling, substantially as and for the purpose described. 7th. A portable tubular fluid burner fire log having its body formed of fire-clay and its heads of metal, and provided with a filling of comminuted fire-proof material, and with a tie, and oil distributing and conducting tube, substantially as described. 8th. A portable tubular fluid burner fire log having its body formed of fire-clay, and its heads of metal, and provided with a filling of comminuted fire-proof material and with the perforated tie, and air and oil conducting and distributing tubes, substantially as and for the purpose described.

No. 31,185. Machine for Planing and Shaping Metals. (*Machine à raboter et façonner les métaux*.)

Henry Bertram, Dundas, Ont., 24th April, 1889; 5 years.

Claim.—1st. In a metal planer or shaper, the fixed abutment L the movable abutment M on the annular slot D, for operating the duplex pawl G in the revolving case H on the shaft B, in combination with worm or other driving gear, substantially as and for the purpose specified. 2nd. In a metal planer or shaper, the revolving case H, in combination, with the pawl G, ratchet wheel E, steel friction ring F on the shaft B, with worm or other gear for operating the feed, substantially as and for the purpose specified. 3rd. In a metal planer or shaper, the quadrant J operated by the gear I, in combination with the revolving case H to impart feed motion, substantially as and for the purpose specified.

No. 31,186. Quilting Frame for Sewing Machines. (*Métier à piquer pour machines à coudre*.)

Henry T. Davis, New York, N.Y., U.S., 24th April, 1889; 5 years.

Claim.—1st. In a quilting attachment for sewing machines, the combination of a suitable support, a longitudinal track-bar, end pieces, a lining roller, a winding roller, a combined cover and tension roller, and means for imparting tension to the latter roller, substantially as described and shown. 2nd. A quilting attachment for sewing machines, consisting of a longitudinal track-bar, end pieces, lining roller, winding roller and combined cover and tension roller, and spring metal bushings T surrounding the journals of the cover roller, substantially as described. 3rd. A quilting attachment for sewing machines, consisting of a longitudinal track-bar, end pieces, lining roller, winding roller, combined cover and tension roller, the elongated sockets V, having slots W and the set screws for adjusting the cover roller, substantially as described and shown. 4th. A quilting attachment for sewing machines, consisting of a longitudinal track-bar, end pieces, a lining roller and a winding roller, said rollers, having on each end a clip L, formed with a gudgeon L₁ and one of the clips on each roller having a ratchet-wheel N, in combination with suitable pawls on the end pieces, substantially as described.

No. 31,187. Siphon for Flushing Tanks.

(*Siphon pour réservoir de lavage*.)

James C. Orr, Winnipeg, Man., 24th April, 1889; 5 years.

Claim.—1st. A siphon pipe 6, with air-tight float 7, flexible tube 5 and tank connection 17, substantially as and for the purpose hereinbefore set forth. 2nd. A siphon pipe 6, float 7, with flexible tube 5 secured to pipe 6, and tank connection 17, with or without the ball, cock lever 3, and in combination with ball cock 2 and guides 12 and 13, substantially as and for the purpose hereinbefore set forth. 3rd. A siphon pipe 6, float 7, flexible tube 5, tank connection 17, ball cock lever 3, guides 12 and 13, with or without seat action lever 8, fulcrum 9, axle bar 9₁, arm 18 and counterpoise 19, substantially as and for the purpose hereinbefore set forth. 4th. A siphon pipe 6, float 7, flexible tube 5, tank connection 17, with or without hook 20, in combination with bucket 21, having small aperture in bottom, substantially as and for the purpose above set forth.

No. 31,188. Art or Process of Refining Petroleum and Analogous Oils. (*Mode ou procédé de raffinage du pétrole et des huiles semblables*.)

Ernst C. C. Menger, Bay, Mich., U.S., 24th April, 1889; 5 years.

Claim.—1st. The herein described process of refining petroleum and analogous oils, which consists in introducing into the vapors arising from the still during the process of distillation, carbonic acid gas, or its equivalent specified, and in a heated condition equal to the distilling temperature of the oils, and mixing such gases and vapors by passing them together through pipes, boxes, or other conduits of sufficient length, and suitably heated to prevent condensation to have the gas blend with the impurities of the oil before con-

ducting them into the condensers, substantially as described. 2nd. A process of refining petroleum and analogous oils, which consists in introducing by mechanical means into the vapors arising from the still during the process of distillation, the gases resulting from the combustion of lime kiln coal, coke, natural gas, or other fuel, after washing the same, if necessary, and heating them to a temperature equal to the distilling temperature of the vapors in the still, and then mixing such gases and vapors by conducting the chemically-mixed gases through pipes, boxes or other conduits suitably heated to prevent condensation, and then conducting the mixed gases and vapors into the condenser, substantially as described.

No. 31,189. Hand Soldering Iron.

(*Fer à souder.*)

Edward J. Dolan, Philadelphia, Penn., U. S., 24th April, 1889; 5 years.

Claim.—1st. A hand soldering iron, composed of a head, a holder and a plurality of separate metallic bodies forming an absorbent core, and projecting beyond said head, substantially as and for the purpose described. 2nd. As a new article of manufacture, the herein described hand soldering iron, comprising, in combination, a handle, a head provided with a central chamber open at the end of the iron, and a series of parallel wires held within said chamber, the ends of the wires being extended beyond the open end of the chamber and formed into a soldering point, substantially as and for the purpose specified.

No. 31,190. Friction Clutch Pulley.

(*Poulie d'embrayage à friction.*)

Ernst Bovensiepe, Detroit, Mich., U. S., 24th April, 1889; 5 years.

Claim.—1st. The combination, with the shaft and loose pulley, of the segments adapted to bear against the inner face of the pulley, the spreader bars between the segments engaging therewith by means of right and left hand screw threads, the sliding hub on the shaft, the actuating arms on the spreader bars and their connections with the sliding hub, and the sliding lever, all the parts being arranged to operate substantially as described. 2nd. The combination, with the shaft and the loose pulley thereon, of the segments adapted to bear against the inner face of the pulley, the spreader bars between the segments engaging therewith by means of right and left-handed screw threads, the sliding hub on the shaft, the shipping lever for actuating the sliding hubs, and the arms on the spreader bars connected to the sliding hub by means of connecting bars, substantially as described. 3rd. In a friction clutch pulley, the combination of the shaft A, the loose pulley D, the segments E, the spreader bars F, having right and left-handed screw-threads, the arms G secured to the spreader bars, the connecting bars H, the sliding hub B having longitudinal slots, and the shipping lever I, the parts being constructed and arranged to operate substantially as described. 4th. In a friction pulley clutch, the combination of the loose pulley D, the segments E adapted to bear against the inner face of the pulley and thereby hold the pulley fast on the shaft, and the spreader bars F provided with right and left-handed screw threads engaging with the segments, substantially as described.

No. 31,191. Stave. (*Douelle.*)

Jay W. Chapman, Detroit, Mich., U. S., 24th April, 1889; 5 years.

Claim.—1st. As a new article of manufacture, stave veneer, out with a natural and uniform bilge and curvature as obtained by cutting around a log, substantially as described. 2nd. As a new article of manufacture, a stave cut with a natural bilge, and having the characteristics of veneer cut from a revolving log, such stave being thicker in its centre and gradually lessening in thickness towards the ends, substantially as described.

No. 31,192. Door Catch. (*Arrête-porte.*)

Charles Rettie, Liverpool, Eng., 24th April, 1889; 5 years.

Claim.—1st. In a door catch, the combination of the plate and casing A, Ar, having notch at, the catch B having knob b, bevel-faced hook b1, b11, and finger or stop b111, the pin B1, the spring C and catch plate D, substantially as set forth. 2nd. In a door catch, the combination of the plate and casing A, Ar, having notch at, a catch B having knob b, bevel-faced under-cut hook b1, b11 and stop b111, pivot B' and the spring C, substantially as set forth.

No. 31,193. Railway Rail Joint.

(*Joint de rail de chemin de fer.*)

John McKenzie, West Troy, N. Y., U. S., 24th April, 1889; 5 years.

Claim.—1st. The rail joint fastening device, composed of the twin angle-bars A, each having extension 4 and lip 5, with inclined engaging faces, said bars A having spike notches 3 and the extension 4 having spike-holes 8, substantially as described. 2nd. The rail-joint composed of the twin angle bars A, each having extension 4 and lip 5 for mutual engagement, in combination with perforated rails and pins transversely arranged in said perforations and engaging the said bars.

No. 31,194. Pocket Knife. (*Couteau de poche.*)

Arthur Wilzin, New York, N. Y., and Norman C. Stiles, Middletown, Conn., U. S., 24th April, 1889; 5 years.

Claim.—1st. A pocket-knife, comprising a handle, a blade and a back spring of the full regular length relatively to the pivot, but bearing with full tension when the blade is closed against the pivotal portion of the blade on the edge adjacent to the knife edge, at a point forward of the pivotal point of the blade, in combination with a locking device engaging the blade when fully closed, substantially as set forth. 2nd. A pocket-knife, comprising a handle, a blade with the usual shouldered heel to engage the back spring when fully opened and to be locked thereby, and a back spring of the full regular length and with the usual straight end, but bearing with full tension when the blade is closed against the pivotal portion of the blade on the edge adjacent to the knife edge, and at a point forward of the

pivotal point of the blade, in combination with a locking device engaging the blade when fully closed, and holding its portion in rear of its pivotal point out of contact with the knife spring, substantially as shown and described. 3rd. The combination, with the knife handle and the ordinary back spring held therein, of a blade having a projection on the inner edge of its pivotal portion forward of its pivotal point, and bearing against the said spring when the blade is closed, and a lock or catch to hold the blade fully closed, substantially as described. 4th. In a pocket knife, having the blade or blades arranged to automatically fly open when free so to do, a back spring having the usual straight end, and the blade having the usual shouldered heel to engage the back spring when the blade is fully opened, substantially as described. 5th. A pocket knife, comprising a handle, a blade and a back spring bearing with full tension when the blade is closed against the pivotal portion of the blade on the edge adjacent to the knife edge, in combination with a locking device on the knife handle, and extending between and clamped by the knife spring and the butt of the pivotal portion of the blade, substantially as described.

No. 31,195. Dry Mineral Separator.

(*Séparateur sec de minéraux.*)

The Coombes Mining and Dry Mineral Separator Company, Boston, Mass. (assignee of Joseph A. Coombes, New York, N. Y.), U. S., 24th April, 1889; 5 years.

Claim.—1st. A dry mineral separator consisting of the hollow trunk, provided with an exhaust fan, and laying the partitions B and C, substantially as set forth. 2nd. In a mineral separator, the combination, with the hollow trunk consisting of the vertical part 2 and horizontal part 3, of the partitions B, C in the vertical part, and the exhaust fan D, substantially as set forth. 3rd. In a mineral separator, the combination, with the hollow trunk, of the partitions B, C, provided with the swivels J, K and the exhaust fan D, substantially as set forth. 4th. The combination, with the hollow trunk, of the partitions B, C, the exhaust fan D at the upper end of the trunk, damper E and hopper F, substantially as set forth. 5th. The combination, with the hollow trunk, of the partitions B, C, provided with swivels J, K, hopper F, metal receiving box G, damper E and exhaust fan D, substantially as set forth. 6th. The combination, with the hollow trunk, of the partitions B, C, the hopper F, the swell or belt H below the hopper and the exhaust fan D, substantially as set forth.

No. 31,196. Stopper for Bottles and Means for Securing the same thereto.

(*Bouchon pour bouteilles et moyens de les assujétir.*)

Edwin L. Blake, John Wild, Oldham, and John B. Jackson, Werneth, Eng. 24th April, 1889; 5 years.

Claim.—1st. The combination, with the mouth of the bottle e, of the cap a formed in one piece with two straps or arms b and c depending rigidly therefrom, and fitted with a cork d, substantially as and for the purpose hereinbefore set forth. 2nd. The combination, with the neck, of the bottle e and cap a, of the spring band h, substantially as and for the purpose hereinbefore set forth.

No. 31,197. Head Rest Attachment.

(*Appui-tête.*)

Jonathan Hugill and John Oxley, Hamilton, Ont., 25th April, 1889; 5 years.

Claim.—In a head rest attachment for beds, the semi-circular ratchets C attached to the adjustable frame B, the frame A, the slotted guides D secured thereto, the pins d, the pawls E, the bearings H and the caps I, all formed, arranged and combined substantially as and for the purpose hereinbefore set forth.

No. 31,198. Check Punch.

(*Enporte-pièce à papier.*)

John C. Lowdon, Kansas, Mo., U. S., 29th April, 1889; 5 years.

Claim.—1st. In a paper perforating machine, the sliding-box 5 carrying the feed-roll, and a ratchet device, substantially as described, for turning the roll, and a hand-lever actuating said ratchet device, and constructed to depress any one of the punches in the manner set forth. 2nd. In a paper-perforating machine, the combination of a number of punches, each connected to a lever 12, and a hand-lever adapted to be moved over any one of the punch-levers, and having a horn taking beneath the lever 12 to enable positive movement to be imparted by the hand-lever to the lever 12 both upward and downward. 3rd. In a paper-perforating machine, the sliding-box 5 having the lower feed and guide-rolls or wheels at its front end, and at its rear end the ratchet operating mechanism of the feed-roll, and a standard in which is pivoted the actuating lever 17, and carrying the spring perforated clearing-plate, in the front part of which the upper feed or pressure rolls are mounted, substantially as described. 4th. In a paper-perforating machine, a series of spring punches, dies beneath the punches, a fixed guide rack, and a hand-lever pivoted to a standard rising from a sliding-box extending beneath the dies, having feed and guide-rolls at its front end, and spring clearing-plate attached to the box and extending over the dies, and having feed or pressure-rolls at its front side. 5th. The combination in a paper-punching machine, of dies and punches having their faces set obliquely to each other, substantially as and for the purpose set forth.

No. 31,199. Shipping Can for Shipping and Handling Varnishes, Oils, and other Liquids. (*Boîte métallique pour expédier et transborder les vernis, huiles et autres liquides.*)

John T. Harland, Clinton, Ont., 29th April, 1889; 5 years.

Claim.—The combination of the circular can A having pivots B, B, and spout C, and vent-tube D, with the case E having handle F, and stopper-pad G, substantially as and for the purpose hereinbefore set forth and described.

No. 31,200. Die for Manufacturing Lids of Journal Boxes. (*Etampe pour fabriquer les couvercles des boîtes de tourillons.*)

Nathan H. Davis, Philadelphia, Penn., U.S., 29th April, 1889; 5 years.

Claim.—1st. Dies provided respectively with the shoulders C D having the working faces 6 and 7 for forming the lip of the lid, said parts being combined substantially as described. 2nd. Dies provided respectively with the opening 8, and punch 9 for forming the flanged opening of the lid, and the wiper 10 for stripping the plate from said punch, said parts being combined substantially as described.

No. 31,201. Process of Manufacturing Peat Fuel. (*Procédé de fabrication de la tourbe combustible.*)

Arohibald A. Dickson, Côte St. Antoine, Qué., 29th April, 1889; 5 years.

Claim.—The improved process of manufacturing peat fuel, which consists in, first, depriving the peat of any foreign substances, then passing it between rubber faced rollers to expel a portion of the moisture without the application of heat, then simultaneously drying and pressing it in a heated cylinder, and finally, forcing the peat so dried and compressed through outlets, and dividing it up into suitable length, all substantially as described.

No. 31,202. Process for Manufacturing Peat Fuel. (*Procédé de fabrication de la tourbe combustible.*)

David Aikman, Montréal, Qué., 29th April, 1889; 5 years.

Claim.—The improved process in the manufacture of peat fuel, which consists in reducing the peat to a semi-liquid pulp, then drying it in the form of thin films or flakes, and afterwards pressing it while hot into blocks, the whole substantially as described.

No. 31,203. Car Coupler. (*Attelage de chars.*)

Heinrich Sommerfeld, Canton, Kan., U.S., 29th April, 1889; 5 years.

Claim.—1st. The combination of a coupler-jaw, and a depending stop arranged to one side thereof in a position to prevent lateral movements of opposing coupler-jaws, and formed by folding a metal plate I, substantially as set forth. 2nd. In combination with a car-coupler jaw and the bumpers, a plate J secured to the under forward end of the car having sockets J₁ for the bumpers, and a depressed portion J₂ for the coupler-jaw, substantially as described. 3rd. In combination with a spring-actuated coupler-jaw, a plate such as J secured to the front end of the car, and provided with sockets J₁, and a depression J₂, and bumpers H mounted in said sockets, substantially as described. 4th. A coupler-jaw provided with a series of grooves and ribs which are disposed longitudinally on its face, substantially as and for the purpose hereinbefore set forth.

No. 31,204. Cabinet File. (*Buffet serre-papier.*)

Edward Phillips, Mount Forest, Ont., 29th April, 1889; 5 years.

Claim.—1st. A cabinet A having one or more panels B hinged to its front, each panel having fixed to its inside projecting fingers D, substantially as and for the purpose specified. 2nd. A drawer E, in combination with a hinged board F provided with a handle H, and designed to butt against the felt strips G fixed on the inside of the drawer, substantially as and for the purpose specified. 3rd. A drawer E hinged to a cross-bar I sliding in the grooves J, in combination with a hinged board F provided with a handle H, and designed to butt against the felt strip G fixed on the inside of the drawer, substantially as and for the purpose specified. 4th. A cabinet A having one or more panels B hinged to its front, each panel having fixed to its inside projecting spring fingers D, one or more drawers E fitted into the said cabinet, and provided with a hinged board F to form a paper clamp, substantially as and for the purpose specified.

No. 31,205. Gas Tip or Outlet for Gas.

(*Bec de gaz.*)

Walter M. Jackson, New York, N.Y., U.S., 29th April 1889; 5 years.

Claim.—1st. A gas tip or outlet consisting of two or more longitudinal sections cut, struck, or pressed out of sheet metal, and a binding shell embracing said sections and locking them together, substantially as set forth. 2nd. A gas tip or outlet consisting of a body composed of two or more longitudinal sections cut, struck, or pressed out of sheet metal, and a binding shell embracing said sections and locking them together, the said body having a slot for the egress of gas, substantially as set forth. 3rd. A gas tip or outlet consisting essentially of a body composed of two or more sections, a locking-plate located within said body, and a binding-shell embracing the body for locking the parts together, substantially as set forth. 4th. A gas tip consisting of a body having intersecting slots for the exit of gas, and composed of two or more sections, an angular locking-plate located within said body, and a binding shell embracing said body and locking the parts together, substantially as set forth. 5th. A gas tip consisting of a body composed of two or more longitudinal sections, a locking-plate located within the body with its side edges resting between the edges of the body-sections, and a binding-shell embracing the body and locking the parts together, substantially as set forth. 6th. A gas tip consisting essentially of a body composed of two or more longitudinal sections, the latter being separated a slight distance to form a slot or means of exit for the gas, and a binding shell embracing the sections, substantially as set forth.

No. 31,206. Tip or Outlet for Gas Burners.

(*Bec de gaz.*)

Walter M. Jackson, New York, N.Y., U.S., 29th April, 1889; 5 years.

Claim.—In a gas burner, the combination with a chambered head a provided with a flame-slot, of a perforated diaphragm or cup-section b located within the chambered head, the upper portion of the diaphragm being flattened, and situated in practically the same plane as the lower ends of the flame-slot, thereby forming a substantially hemispherical gas chamber within the upper end of the chambered head, substantially as set forth.

No. 31,207. Construction of Apparatus for Heating Railway Carriages and Similar Conveyances. (*Construction des appareils de chauffage des voitures de chemins de fer et autres.*)

John Langfield, Tyldesley, Eng., 29th April, 1889; 5 years.

Claim.—1st. The improved apparatus for heating railway and steam tramway carriages by means of the utilization of the waste heat from the furnace of the locomotive engine, consisting principally in the combination of a hollow chamber placed in the smoke-box and supplied with atmospheric air by a suitable opening from the outside, with suitable pipes for the conveyance of the heated air into the carriage or carriages, substantially as hereinbefore particularly described and illustrated by the drawings annexed. 2nd. The combination of the air chamber b in the smoke-box a, pipe c, and steam jet e¹ for supplying moist air to the carriages.

No. 31,208. Machine for Stretching Carpets.

(*Machine à tendre les tapis.*)

John Story, Goderich, Ont., 29th April, 1889; 5 years.

Claim.—1st. The herein described carpet-stretcher composed of the bars A and C, the one having the slotted end a₁, and the other a slotted end c so that their end form a male and female joint, the one part fitting into the other, and the two pivoted together by a pin, and the curved ratchet-bar E pivoted in the slot f, substantially as shown and described. 2nd. A carpet-stretcher composed of two members A and C, the first having at its lower end the stretcher points B, and at its upper end the slotted part a₁, the latter having the needle-point D at its lower end, and the slotted part C at the other, the two slotted parts forming a male and female joint, the said male and female joint fitting the one part upon and over the other, and the two hinged together by a pin, and the ratchet-bar E pivoted in one of the slotted joints, and engaging in the bevelled edge of the opposite slotted joint, all substantially as and for the purposes set forth.

No. 31,209. Sewer Gas Trap.

(*Fermure d'égout.*)

Harry C. Montgomery, Cleveland, Ohio, U.S., 29th April, 1889; 5 years.

Claim.—1st. In a sewer-trap, a body-part having the form of a section of cylindrical tubing, and caps closing the ends of said body, a diaphragm extending across the interior of the said body at or near its centre, and having a valve-seat, a ball-valve above the diaphragm, seating itself by gravity, an inlet at the side of the body below the diaphragm, and an outlet above the diaphragm having its lower edge raised about one-third the diameter of the valve above, the valve-seat, where a water-seal is formed above said valve-seat, substantially as set forth. 2nd. In a sewer-trap, a substantially cylindrical body having its ends open the full width of the body and directly opposite each other, and screw-caps for closing the ends, a central diaphragm dividing the body into two separate chambers, an inlet-port below the diaphragm and an outlet-port above the diaphragm, at the sides of the body, a gravity-valve, and a guide, and a stop therefor, substantially as set forth. 3rd. A reversible sewer-trap consisting essentially of a body-part having a diaphragm at its centre, provided with opposite valve-seats, openings for the induction and eduction of water at equal distances from said diaphragm near the respective ends of the body-part, and the ends of the body-part closed by removable caps with a ball-valve, substantially as set forth. 4th. In sewer-traps, a reversible trap having substantially the following distinguishing features, a body-part with a diaphragm at its centre having valve-seats on each side, fluid inlet and outlet ports on either side of the diaphragm at equal distances therefrom, and about midway between the said diaphragm and the ends of the body-part, where by a water-seal is maintained about the valve, and a sediment chamber is formed in the bottom of the trap, a ball-valve above the diaphragm, and a guide therefor, substantially as set forth.

No. 31,210. Eliminator. (*Epurateur de vapeur.*)

Frank A. Hine, Tenafly, N.J., U.S., 29th April, 1889; 5 years.

Claim.—The combination with the shell or casing to be inserted in a line of pipe, a depending partition, and a well beneath said partition, of ridges and shown projecting from the interior surfaces of said shell at points where the force of the steam current is received or deflected, said ridges disposed transversely to the currents, whereby the heavier particles are separated therefrom.

No. 31,211. Tobacco Pipe Bowl.

(*Fourneau de pipe de fumeur.*)

Walter S. Blake, St. Louis, Mo., U.S., 29th April, 1889; 5 years.

Claim.—The process of manufacturing tobacco-pipe bowls by incorporating disintegrating corn-cob 20 parts, with cement 24 parts, and moulding the mixture into shape, as set forth.

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

1391. R. MITCHELL, 2nd 5 years of No. 19,019, from the second day of April, 1889. Improvements in Lock Up Safety Valves, 1st April, 1889.
1392. A. WATTS, 2nd 5 years of No. 19,010, from the second day of April, 1889. Improvements in Thrashing Machines, 2nd April, 1889.
1393. J. B. BÉLANGER, 2nd 5 years of No. 19,065, from the fifth day of April, 1889. Improvements in Scarfed Joints for Timber Beams, 3rd April, 1889.
1394. NEW ENGLAND PATENT FIRE ESCAPE CO. (assignee), 2nd 5 years of No. 19,070, from the fifth day of April, 1889. Improvements on Fire Escapes and Fire Escape Supports, 3rd April, 1889.
1395. STOUT, MILLS & TEMPLE (assignees), 2nd 5 years of No. 19,253, from the thirtieth day of April, 1889. Improvements in Turbine Water Wheels, 3rd April, 1889.
1396. J. S. CORBIN and A. G. HILL, 2nd 5 years of No. 19,058, from the fourth day of April, 1889. Improvements on Combined Harrows and Seeders, 3rd April, 1889.
1397. AMERICAN ROAD MACHINE CO. (assignee), 2nd 5 years of No. 19,055, from the fourth day of April, 1889. Improvements on Machines for Making, Repairing and Clearing Roads, 4th April, 1889.
1398. NEW YORK INSULATED WIRE AND VULCANITE CO. (assignee), 2nd 5 years of No. 19,114, from the twelfth day of April, 1889. Improvements in Process and Apparatus for Covering Wire for Electrical Purposes, 8th April, 1889.
1399. O. R. COOKE, 3rd 5 years of No. 9,833, from the twelfth day of April, 1889. Improvements in Sash Holders, 9th April, 1889.
1400. T. G. STEVENS, 2nd and 3rd 5 years of No. 30,527, from the thirty-first day of December, 1893. Improvements in Apparatus for Controlling Ships' Rudders, 11th April, 1889.
1401. ONTARIO PUMP CO. (assignee), 3rd 5 years of No. 9,034, from the twelfth day of April, 1889. Improvements in Pumps, 11th April, 1889.
1402. BALDWIN MANUFACTURING CO. (assignee), 2nd 5 years of No. 30,213, from the twenty-ninth day of April, 1889. Improvements in Refrigerators, 12th April, 1889.
1403. T. A. BLAKE, 2nd 5 years of No. 19,127, from the nineteenth day of April, 1889. Improvements on Stone Crushers, 12th April, 1889.
1404. F. E. DIXON, 2nd 5 years of No. 19,136, from the nineteenth day of April, 1889. Improvement in Leather Belting, 16th April, 1889.
1405. J. N. BARR, 2nd 5 years of No. 19,175, from the twenty-fourth day of April, 1889. Improvement in Car Wheel Chills, 16th April, 1889.
1406. J. W. EBERHART, 2nd 5 years of No. 19,129, from the nineteenth day of April, 1889. Improvements on Sulky Ploughs, 17th April, 1889.
1407. I. M. HOUSE, 2nd 5 years of No. 19,479, from the thirtieth day of May, 1889. Improvements in Shingle Sawing Machines, 17th April, 1889.
1408. I. A. SMITH and C. ALLEN, 2nd 5 years of No. 19,134, from the nineteenth day of April, 1889. Improvements on Chimney Protectors, 18th April, 1889.
1409. P. BAKER, 2nd 5 years of No. 19,155, from the twenty-second day of April, 1889. Improvements in the Manufacture of Under Garments, 22nd April, 1889.
1410. IMPERIAL OIL CO. (assignee), 2nd 5 years of No. 19,189, from the twenty-fourth day of April, 1889. Improvements on the Process and Apparatus for the Fractional Distillation of Hydro-Carbon Oils, 23rd April, 1889.
1411. H. H. PORTER, G. A. WADE and R. BURNS, 2nd 5 years of No. 19,255, from the thirtieth day of April, 1889. Improvements on Lace Fasteners, 23rd April, 1889.
1412. E. S. PIPER, 2nd 5 years of No. 19,269, from the thirtieth day of April, 1889. Improvements on Semaphore and other Elevated Signal Lights, 23rd April, 1889.
1413. G. CARLILE, 2nd 5 years of No. 19,162, from the twenty-third day of April, 1889. Improvements in Refrigerators, 23rd April, 1889.
1414. DOMINION WIRE ROPE CO. (assignee), 2nd 5 years of No. 19,196, from the twenty-fifth day of April, 1889. Improvements in Machines for Making Rope, 23rd April, 1889.
1415. DOMINION WIRE ROPE CO. (assignee), 2nd 5 years of No. 19,200, from the twenty-fifth day of April, 1889. Improvements in the Art of Manufacturing Wire Rope, and in Wire Rope Machines, 23rd April, 1889.
1416. DOMINION WIRE ROPE CO. (assignee), 2nd 5 years of No. 19,201, from the twenty-fifth day of April, 1889. Improvements in the Art of Manufacturing Wire Rope and Cables, and Improvements in Wire Rope Machines, 23rd April, 1889.
1417. S. A. FLOWER and P. ROSS, 2nd 5 years of No. 19,229, from the thirtieth day of April, 1889. Improvement on Car Axle Lubricators, 24th April, 1889.
1418. LEES GAS GOVERNOR CO. (assignee), 3rd 5 years of No. 9,932, from the first day of May, 1889. Improvements in Gas Pressure Governors, 24th April, 1889.
1419. J. H. CHADWICK, 2nd 5 years of No. 19,208, from the twenty-ninth day of April, 1889. Improvements on Lead Ribbons for Metallic Seals, 25th April, 1889.
1420. W. WILKINSON, 2nd 5 years of No. 19,238, from the thirtieth day of April, 1889. Improvements in Friction Engines for Tram, Rail, or other Roads, 25th April, 1889.
1421. ACME STAPLE and MACHINE CO. (assignee) 2nd 5 years of No. 19,202, from the twenty-ninth day of April, 1889. Improvements in the Manufacture of Boots and Shoes, 27th April, 1889.
1422. G. H. POND and E. A. MORSE, 2nd 5 years of No. 19,323, from the twelfth day of May, 1889. Improvement in the Process of and Apparatus for Manufacturing Paper Pulp, 27th April, 1889.
1423. J. B. STETSON, 2nd 5 years of No. 19,284, from the ninth day of May, 1889. Improvements in Lanterns, 27th April, 1889.
1424. W. J. RAMSAY, 2nd 5 years of No. 25,971, (re-issue of No. 19,254,) from the thirtieth day of April, 1889. Improvements in Door Mats, 29th April, 1889.

APRIL LIST OF TRADE MARKS.

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

3417. WALLACE DAWSON, of Montreal Que. Medicine. 2nd April, 1889.
3418. NEVERSLIP HORSE-SHOE COMPANY, of Boston, Massachusetts, U.S.A. Horse-shoe pads, Horseshoes and removable self-sharpening calks therefor and wrenches, drills, taps, and other tools used in connection therewith, 4th April, 1889.
3419. GOLDEN FLEECE ASSEMBLY, No 8527, OF THE KNIGHTS OF LABOR, of Toronto, Ont. Coats, Vests and Pants, 4th April, 1889.
3420. JOHN TAYLOR, of Toronto, Ont. Soap, 8th April 1889.
3421. }
3422. } JULES MUMM ET CIE., de Reims, France. Vins de Champagne, 11 Avril, 1889.
3423. }
3424. JOHN M. McLEOD, of Goderich, Co. of Huron, Ont., McLeod's System Renovator, 11th April, 1889.
3425. ALONZO W. SPOONER, of Port Hope, Co. of Durham, Ont, Babbit Metal, 13th April, 1889.
3426. HUGH McKAY & CO., of London, Ont. Cigars, 16th April, 1889.
3427. SARAH PORTER, Veuve de feu Hubert Roberge, Jr., de la Paroisse de St. Romuald, Comté de Levis, Que. Onguent pour guérir. les tumeurs, cancers, plaies, etc., etc., 17 Avril, 1889.
3428. WILLIAM KEARNEY, of Montreal, Que. Cigars, 17th April, 1889.
3429. JOHN E. HETHERINGTON, of New York, U.S.A.. Electric Galvanic or Voltaic-Curative Appliances, 20th April, 1889.
3430. F. REVEL, PERE ET FILS, No. 5, Rue Pizay, Lyon, France. Parapluies, ombrelles, en-cas, parasols, 23rd Avril, 1889.
3431. } KINAHAN & CO. of 20, Great Titchfield Street, London, England, and Carlisle
3432. } Buildings, Dublin. Fermented Liquors and Spirits including Whisky, 23rd April, 1889.
3433. HERMAN WUPPERMAN, of Pinneberg, Holstein, Germany. Enamelled Stamped Steel Hollow-ware, 23rd April, 1889.
3434. D. J. MUNN, Manager Bon-Accord Fishery Co., of New Westminster, B.C. Salmon, 23rd April, 1889.
3435. }
3436. } EWEN & CO., of New Westminster, B.C. Salmon, 23rd April, 1889.
3437. } PETER BIRRELL, Manager British Columbia Packing Co., of New Westminster,
3438. } B.C. Salmon, 23rd April, 1889.
3439. } FERGUSSON, ALEXANDER & COMPANY, of Montreal, Que. White Lead and
3440. } Paints, 24th April, 1889.
3441. }
3442. GEO. MATTHEWS, of Peterboro, Ont. Hams, Bacon and Lard, 25th April, 1889.
3443. ALONZO W. SPOONER, of Port Hope, Co. of Durham, Ont. Babbit-metal, 26th April, 1889.
3444. PAUL FAVREAU, d'Ottawa, Ont., Une huile appelée "Capital Rheumatic Cure." 29 Avril, 1889.

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4815. **McKILLOP'S COMMERCIAL AND LEGAL RECORD**, March 28th, 1889 (periodical). James Jack, St. John, N.B., 1st April, 1889.
4816. **HEART AND HAND**. No. 4. Rondo. by John Post.
 4817. **THE VARSITY VALSES**. By Schultz Fairclough.
 4818. **PHILOPOENA POLKA**. By J. N. Kitchen. 2nd April, 1889.
 4819. **THE UHLAN'S CALL**. By Richard Eilenberg. Arranged for four hands by Theo. Martens.
 4820. **OLD VOICES**. Song. Words by W. W. Campbell. Music by A. E. Fisher.
 4821. **TARPAULIN JACKET**. Song. Music by Ernest J. Symons.
 4822. **JUANITA**. Piano Solo. Arranged by Brinley Richards.
 4823. **THY CAPTIVE**. Song. Words by Wm. Boosey. Music by F. L. Moir.
 4824. **CREEP INTO BED MY BABY**. Song. by F. Belasco.
 4825. **JUANITA**. A Song of Spain. Written and adapted by the Hon. Mrs. Norton. I. Suckling & Sons. Toronto, Ont., 3rd April 1889.
4826. **THE SOLUTION OF THE GREAT MYSTERY**, or An Explanation of the Cause which brought a Flood over the whole face of the Terrestrial Globe in one Year, etc. by Prof. J. W. Crouter. John Wesley Crouter, Winnipeg, Man., 4th April, 1889.
4827. **MR. NAYDIAN'S FAMILY CIRCLE**. (book). J. Theo. Robinson, Montreal, Que., 4th April, 1889.
4828. **THE PATENT GRAVITY FIRE ESCAPE**. (book). Chas. W. Allen, Deer Park, Co. of York, Ont., 5th April, 1889.
4829. **THE MERCANTILE TEST AND LEGAL RECORD**. Vol. XIX. No. 14, April 4th, 1889, (periodical). Dun, Wiman & Co., Toronto, Ont., 5th April, 1889.
4830. **THE WITNESS OF THE SUN**. by Amelia Rives. (book). The National Publishing Co., Toronto, Ont., 5th April, 1889.
4831. **A FALSE SCENT**. by Mrs. Alexander. (book). The National Publishing Co., Toronto, Ont., 5th April, 1889.
4832. **LOVE'S GOLDEN DREAM**. Song. Written and Composed by Lindsay Lennox. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 6th April, 1889.
4833. **VENETIAN SONG**. Words by B. C. Stephenson. Music by F. Paolo Tosti. The Anglo-Canadian Music Publishers' Association (L'd.), London, England, 6th April, 1889.
4834. **McKILLOP'S COMMERCIAL AND LEGAL RECORD**, April 4th, 1889, (periodical) James Jack, St. John, N.B., 8th April, 1889.
4835. **INSURANCE PLANS** of Almonte, Arnprior, Carleton Place, Pembroke, Perth, Renfrew, Smith's Falls, Inkerrian, Metcalfe and Richmond in Ontario; Actonvale, Danville, Iberville, St. Remi, Upton, Portage-du-Fort, Sweetsburg, and Richmond in Quebec. Charles E. Goad, Montreal, Que., 9th April, 1889.
- 4836 } **Dillon's** { **CHEESE FACTORY LEDGER**.
 4837 } { **IMPROVED MILK BOOK**.
 4838 } { **MILK SHEET**.
 Thos. J. Dillon, Bluevale, Co. of Huron, Ont., 9th April, 1889.
4839. **JOHN HERRING**. by S. Baring Gould, (book). The National Publishing Co., Toronto, Ont., 9th April, 1889.
4840. **NEARER MY GOD TO THEE**. Harmonized and Arranged by Sutherland Macklem. I. Suckling & Sons, Toronto, Ont., 9th April, 1889.
4841. **SOME MUSICAL DON'TS**. (book). I. Suckling & Sons, Toronto, Ont., 9th April, 1889.
4842. **JUST A LITTLE SUNSHINE**. Song. Words by Smedley Norton. Music by F. Solomon. The Anglo-Canadian Music Publishers' Association (L'd.), London, Eng., 11th April, 1889.
4843. **FORGET ME NOT**. Valse by Florence Fare. I. Suckling & Sons Toronto, Ont., 11th April, 1889.
4844. **THE MERCANTILE TEST AND LEGAL RECORD**. Vol. XIX. No. 15, April, 11th, 1889 (periodical). Dun, Wiman & Co., Toronto, Ont., 12th April, 1889.
4845. **THE DESTRUCTION OF SIN**. By the Rev. T. S. Linscott. (pamphlet). Rev. Thos. Sam'l Linscott, Brantford, Ont., 12th April, 1889.
4846. **LAST NIGHT**. Song. English words translated from the German by Theo. Marzials. Music by Halfdan Kjerulf. I. Suckling & Sons, Toronto, Ont., 13th April, 1889.
4847. { **THE ANGELUS OF OLD**. Song. Words by Frederic E. Weatherly. Music by Paul Rodney.
 4848. { **THE ANGEL CAME**. Song. Words by G. Clifton Bingham. Music by Frederic H. Cowen.
 4849. { **CAPTAIN DANDO**. A Sea Song. Words by Frederic E. Weatherly. Music by Joseph L. Rosckel.

4850. { THE PROMISE OF YEARS. Song. Words by Clifton Bingham. Music by Paul Rodney.
4851. { TEARS. Song. Words by G. Clifton Bingham. Music by Frederic H. Cowen.
4852. { YOU SANG TO ME. Song. Words by Frederic E. Weatherly. Music by Milton Wellings. The Anglo-Canadian Music Publishers' Association. (L'd.), London, England, 13th April, 1889.
4853. MCKILLOP'S COMMERCIAL AND LEGAL RECORD, April 11th, 1889, (periodical), James Jack, St. John, N.B., 15th April, 1889.
4854. ONTARIO PRACTICE REPORTS. Vol. XII, by T. T. Rolph, Barrister-at-law and Reporter to the Court. J. F. Smith, Q.C., Editor. The Law Society of Upper Canada, Toronto, Ont., 16th April, 1889.
4855. THE SPRING LEGEND. Ballad from the Comic Opera, "Dr. D." Written and Composed by Cotsford Dick. Sydney Ashdown. Toronto, Ont., 16th April, 1889.
4856. THE SCRAVILLE BANDITS, or, THE WHITE CAPS OF PEPPER ISLAND and other Stories. Charles Gordon Rogers, Ottawa, Ont., 16th April, 1889.
4857. THE MYSTERY UNVEILED. (pamphlet). J. Thomson Paterson, Montreal, Que., 16th April, 1889.
4858. { THE LONGSHOREMAN Song. Words by Philip Dayson. Music by Edward M. Chesham.
4859. { IN OLD MADRID. Song. Words by Clifton Bingham. Music by H. Trottere. The Anglo-Canadian Music Publishers' Association (L'd.), London England, 17th April, 1889.
4860. SLUMBER DEEP. Words and Music by Wm. Crowley. A. & S. Nordheimer. Toronto, Ont., 18th April, 1889.
4861. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX., No. 16, April 18th, 1889, (periodical). Dun, Wiman & Co., Toronto, Ont., 20th April, 1889.
4862. SWAN, FUDGER & CO.'S INSURANCE PLANS OF WEST TORONTO JUNCTION, Swan, Fudger & Co., Toronto, Ont., 20th April, 1889.
4863. YOUNG LION OF THE WOODS. (book). Thos. B. Smith, Windsor, Co. of Hants, N.S., 23rd April, 1889.
4864. HISTORY OF PROFESSOR PAUL, which is now being preliminarily published in separate articles in *The Week* of Toronto, Ont., (Temporary Copyright). Stuart Livingston, Hamilton, Ont., 23rd April, 1889.
4865. MCKILLOP'S COMMERCIAL AND LEGAL RECORD, April 18th, 1889, (periodical). James Jack, St. John, N.B., 23rd April, 1889.
4866. THE ART OF COOKING MADE EASY. (book). Wm. T. Strong, London, Ont., 24th April, 1889.
4867. RING THE BELLS OF HEAVEN. Variation, by Phoebe M. Wright, Willimott Henry Billing, Toronto, Ont., 24th April, 1889.
4868. INHALER. (engraving). Emanuel Rothaermel, Dushwood, Ont., 26th April, 1889.
4869. THE MERCANTILE TEST AND LEGAL RECORD. Vol. XIX. No. 17, April 25th 1889, (periodical). Dun, Wiman & Co., Toronto, Ont., 26th April, 1889.
4870. ORPHEUS WALTZES. Composed by Ivan C. Durkee. Mrs. C. Edward Durkee, Yarmouth, N.B., 26th April, 1889.
4871. THE CANADIAN PARLIAMENTARY COMPANION 1889. Edited by J. A. Gemmill, Ottawa, Ont., 26th April, 1889.
4872. COMMERCIAL DAWN, OR FINANCIAL SECURITY IN BUSINESS. Henry Schuhl, Hamilton, Ont., 29th April, 1889.
4873. MCKILLOP'S COMMERCIAL AND LEGAL RECORD, April, 25th, 1889. (periodical), James Jack, St. John, N.B., 29th April, 1889.
4874. MODERN GARMENT CUTTING, by Mulcair Bro's., (book). Mulcair Bro's. Montreal, Que., 29th April, 1889.
4875. THE REPROACH OF ANNESLEY, by Maxwell Gray, (book). Wm. Bryce, Toronto, Ont., 30th April, 1889.

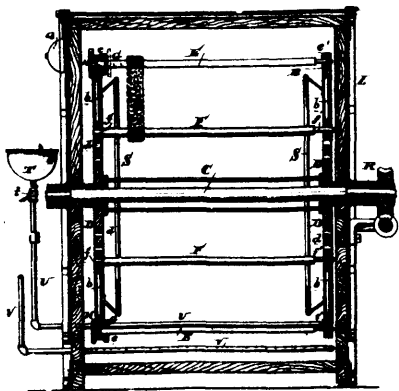
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ILLUSTRATIONS.

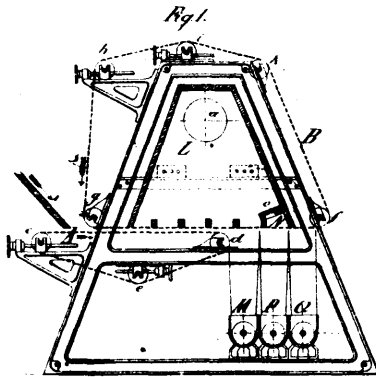
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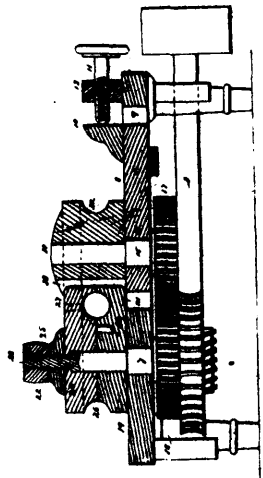
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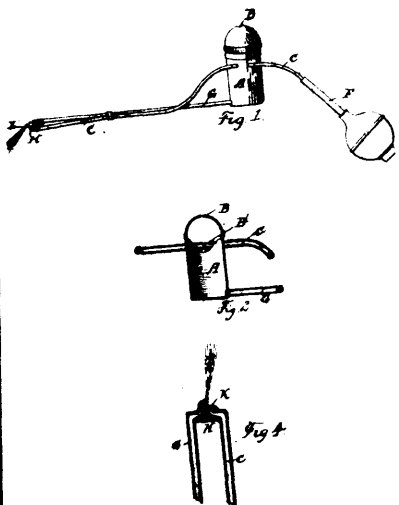
31024 Klauder's Dyeing or Scouring Machine



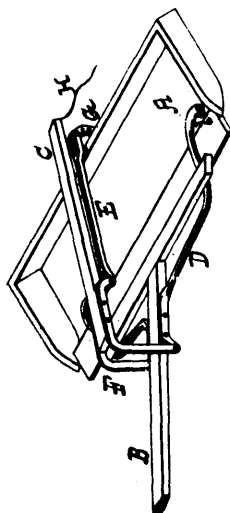
31025 Piette's Apparatus for Sorting Disintegrated Wood



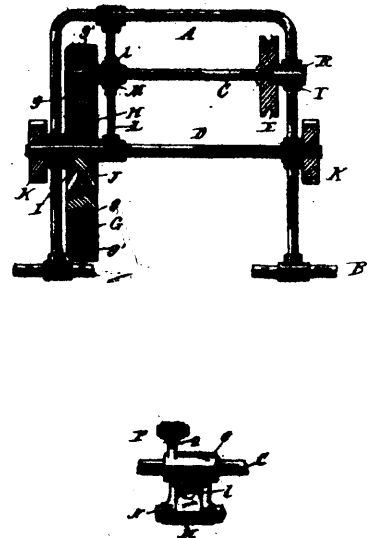
31026 Fowler's Machine for Bending Pipe.



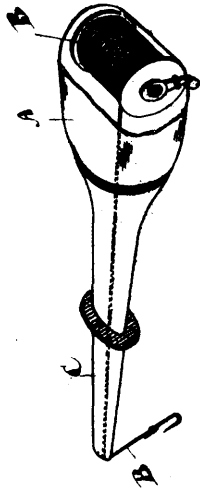
31027 De Vilbiss' Spray Producer.



31028 Wiles' Road Scraper.



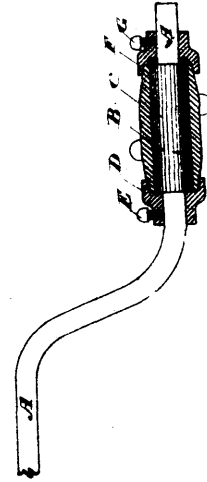
31029 Smith & Walkers' Traction Engine.



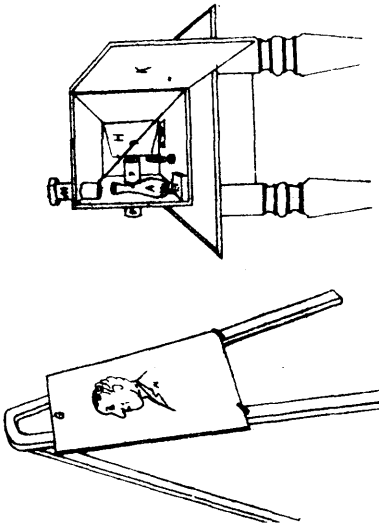
31030 Gullfoyle's Device for Measuring Cloth.



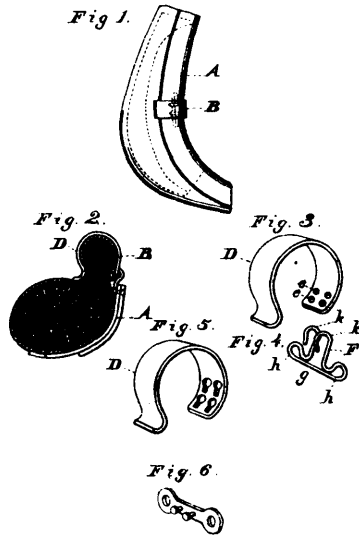
31031 Avery's Elevator Bucket.



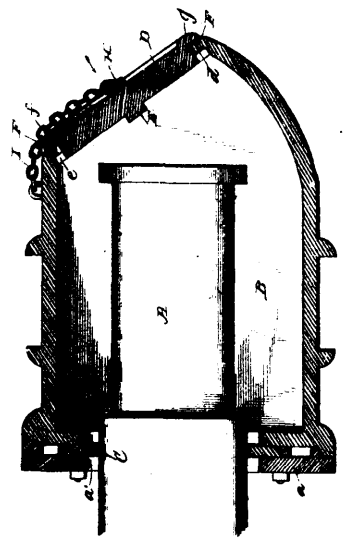
31032 Hayden's Axle Bearing.



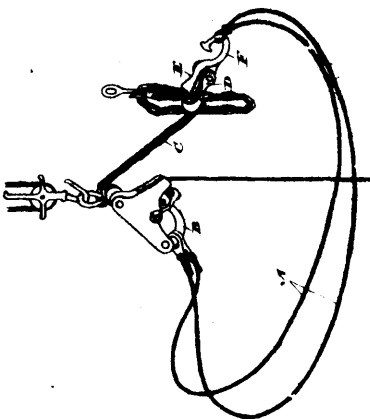
31033 Haeger's Art of Reflecting Pictures.



31034 Pflueger's Sweat Pad Fastener.



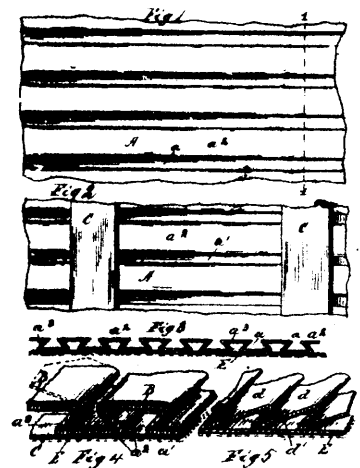
31035 Heffner's Car Axle Box



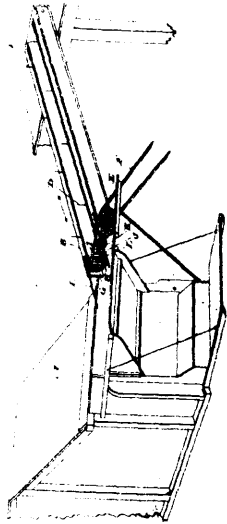
31036 Provan's Load Lifting Sling Catch.



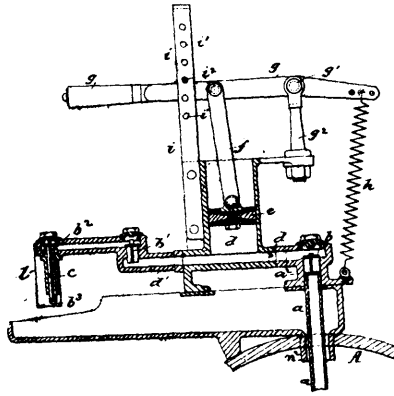
31037 Lansell's Apparatus for Equalizing the Strain on Winding Gears.



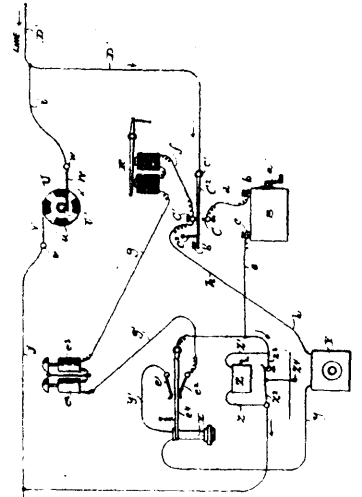
31038 Gibb's Folded Paper for Carpet Lining, etc.



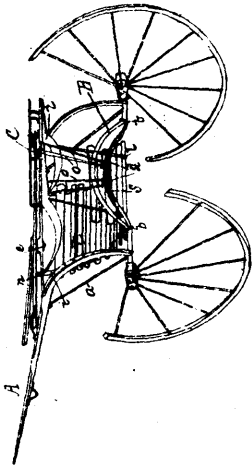
31039 McEwen's Sheaf Carrier and Band Cutter.



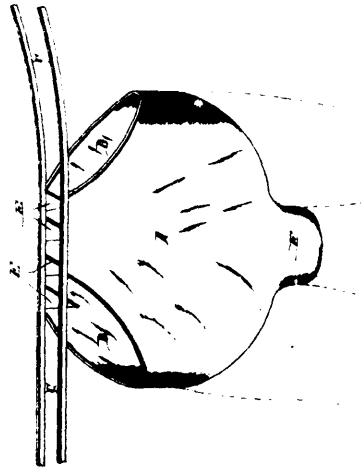
31040 Dutton's Apparatus for Charging Lamps with Oil.



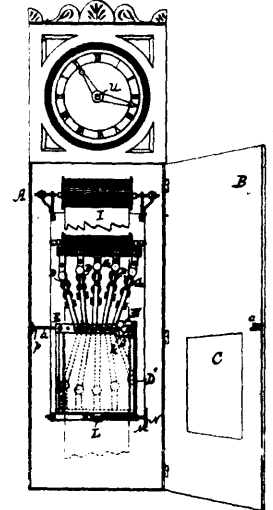
31041 Ferdinand's Electric System.



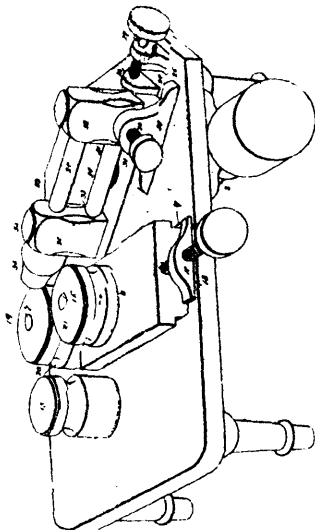
31042 Barsalou's Sulky



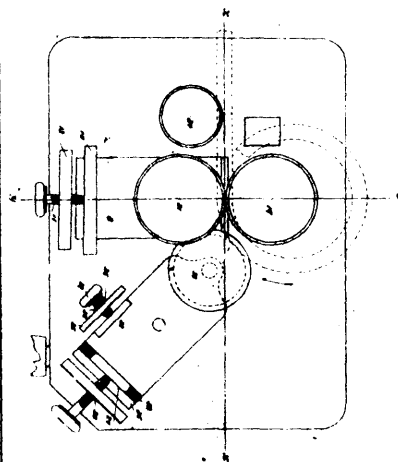
31043 Wiley's Catamenial Sack.



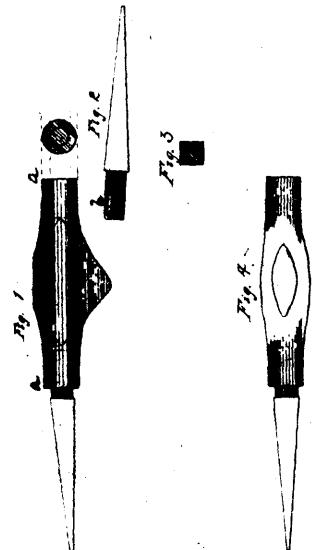
31044 Davis & Westervelt's Watchman's Time Detector.



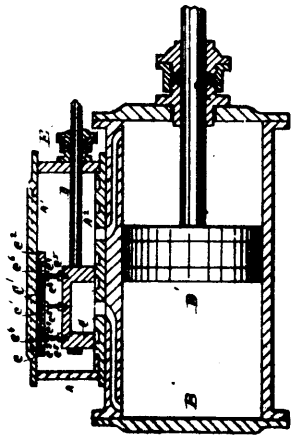
31045 Fowler's Machine for Bending Pipe.



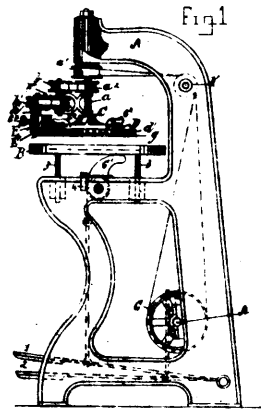
31046 Fowler's Machine for Bending and Coiling Pipe.



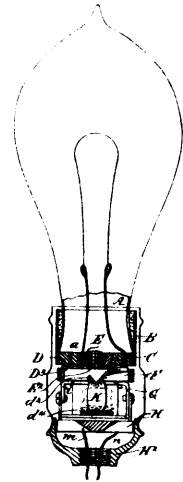
31047 Schuman's Miner's Pick.



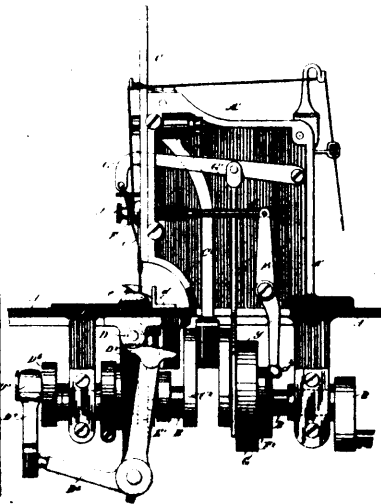
31048 Lafrance's Slide Valve.



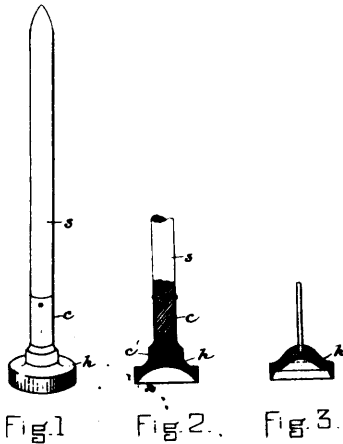
31050 Wellman's Machine for Cutting Bevelled Rubber Soles, &c.



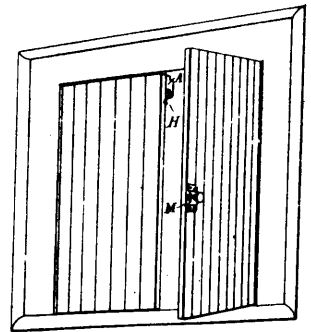
31051 Thomson & Alton's Incandescent Lamp, &c.



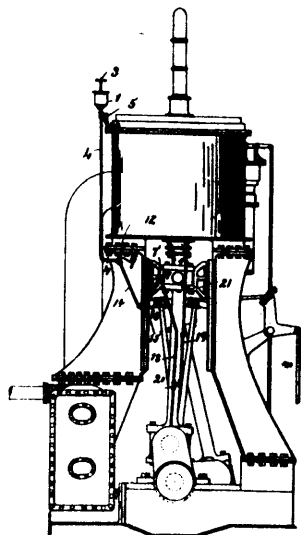
31052 Lachman's Sewing Machine



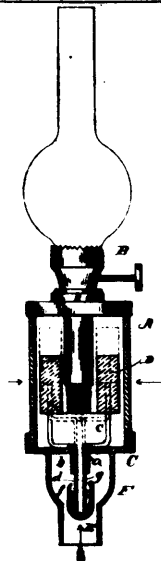
31053 White's Vacuum Arrow.



31054 Bouchard's Folding Door Lock.



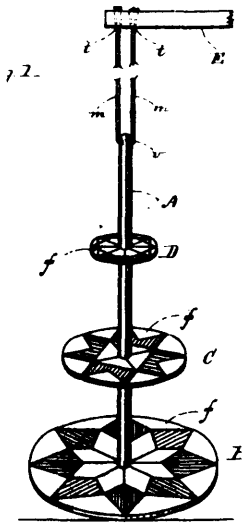
31055 O'Connell & Cahill's Lubricating Apparatus.



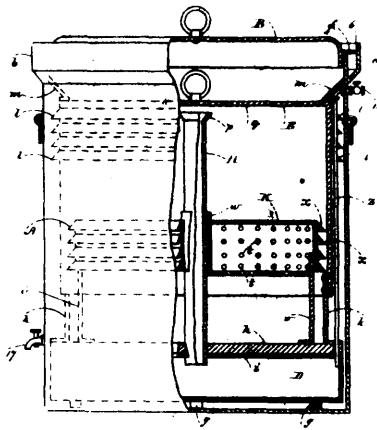
31056 Sieghold's Oil Feed for Lamps.



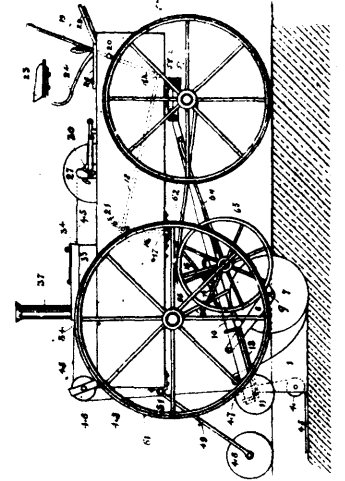
31057 Sage's Urethral Powder Applier.



31058 Lane's Toy.

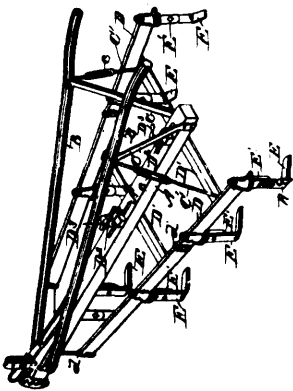


31059 Yarrington's Fire Proof Gas Machine

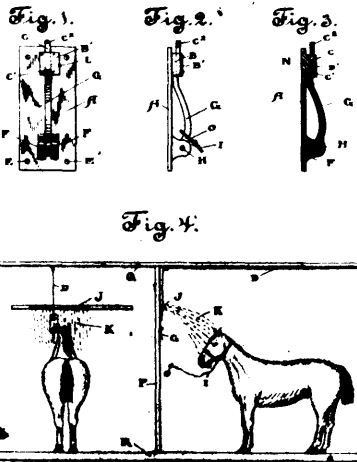


31060 Brown's Machine for Laying Wires Underground.

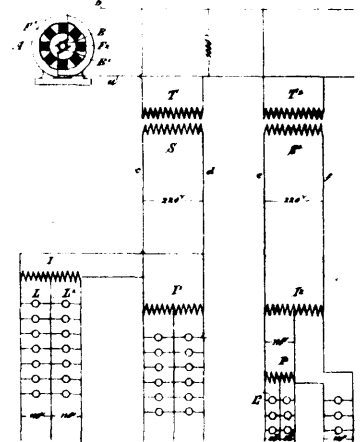
Fig. 1.



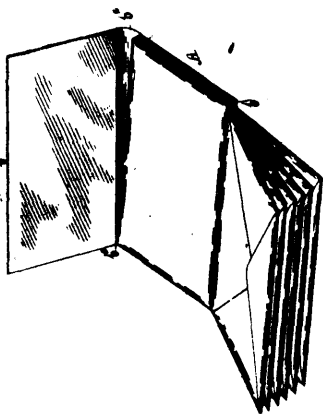
31061 Case's Cultivator.



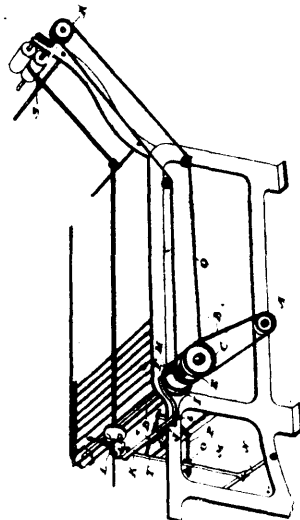
31062 Braun's Horse Release.



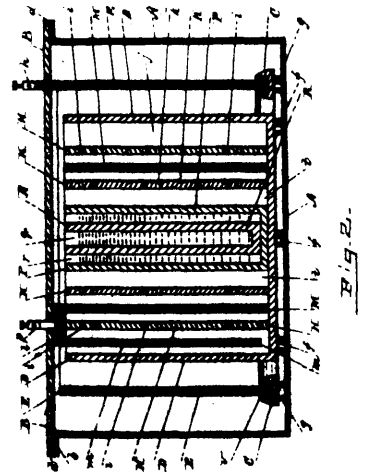
31063 Rice's Electric Distribution System.



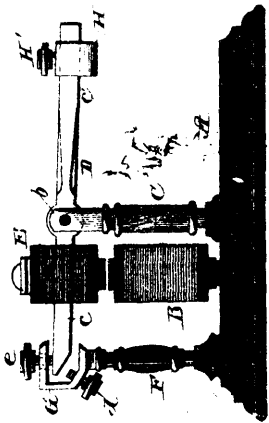
31064 Phillips' Envelope Tablet.



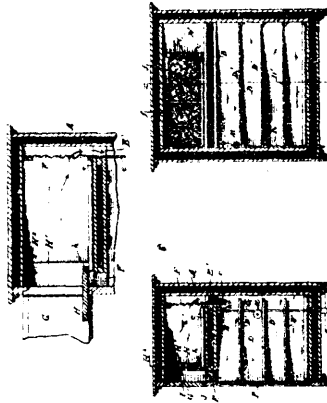
31065 Ryan's Feed Regulator for Spinners.



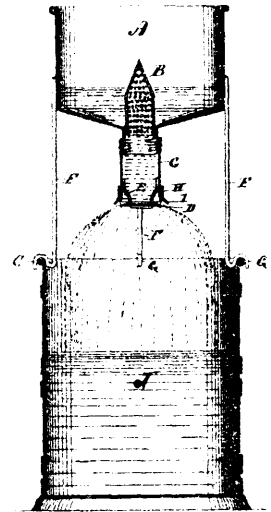
31066 Serson's Electric Battery



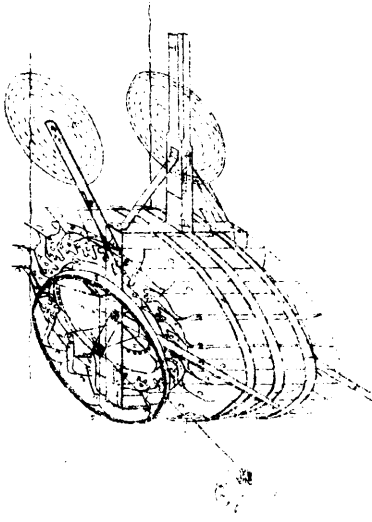
31067 Stitzel and Weindel's Telegraphic Relay



31068 Feather's Refrigerator.



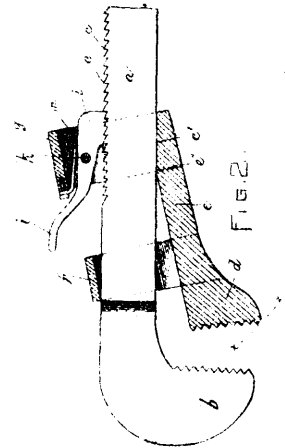
31069 Casswell's Milk Purifier



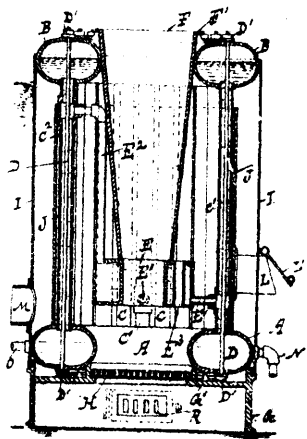
31070 Collins' Bough



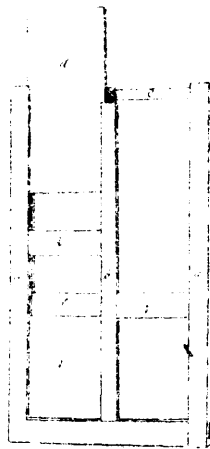
31071 Wienert's Steam Boiler.



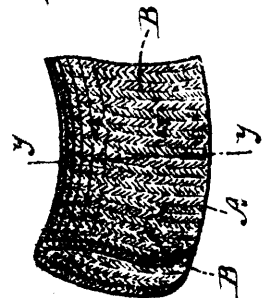
31072 Porter's Pipe Wrench.



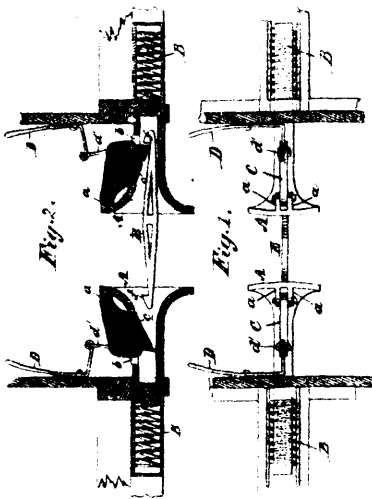
31073 Spert's Steam Heater.



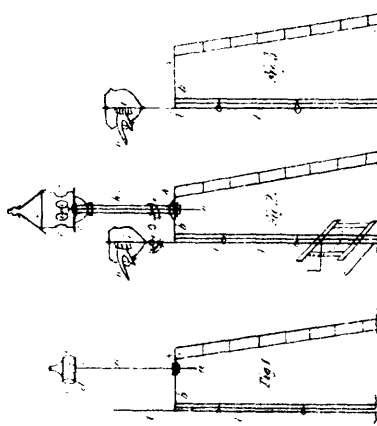
31074 Ettles' House Door.



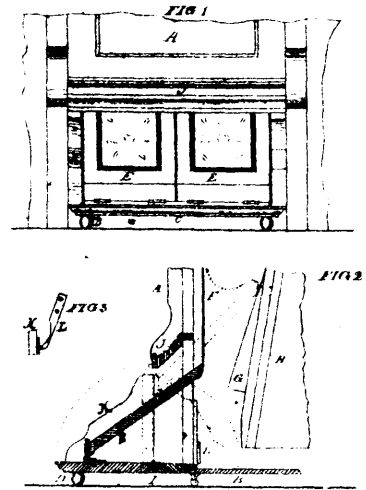
31075 Pendergast's Harness Pad.



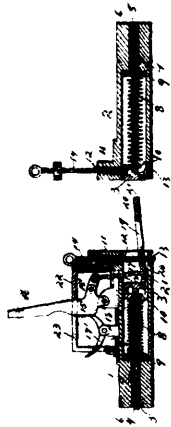
31076 Mason's car Coupling.



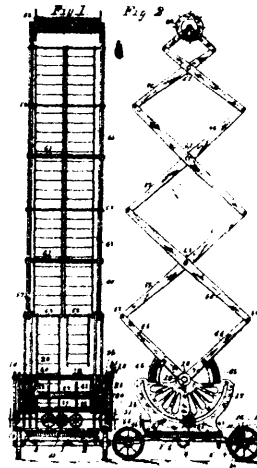
31078 Hurly's Railway Light, etc.



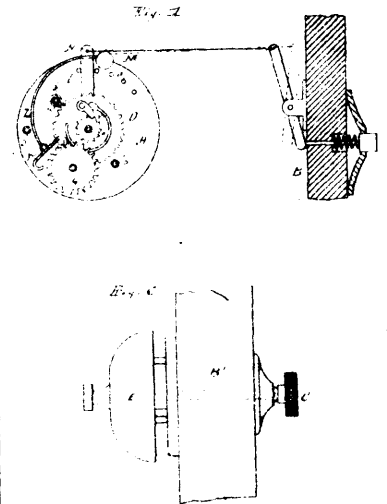
31079 Thomas' Organ Pedal.



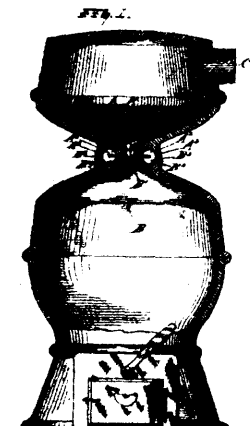
31080 Clark's Car Coupling.



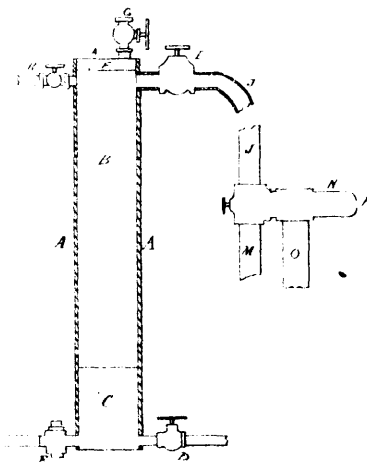
31081 Mosner's Fire Escape.



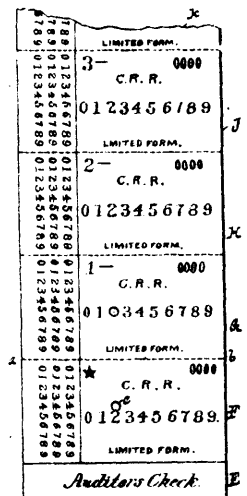
31082 Livingston's Door Bell



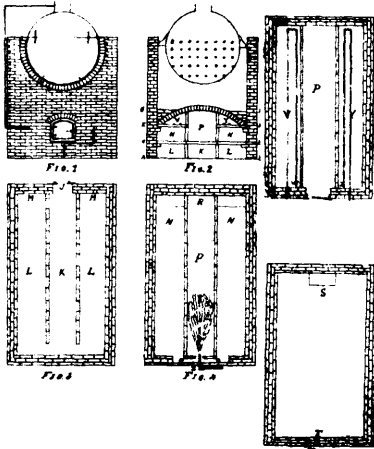
31083 Schreyer's Heating Furnace and Stove.



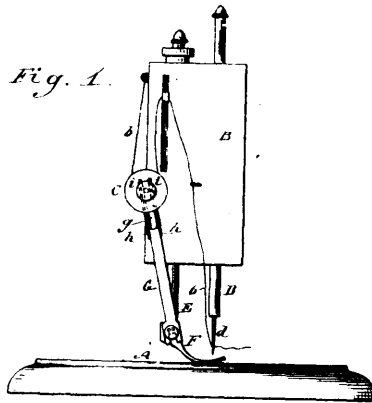
31084 White's Apparatus for Burning Oil, etc.



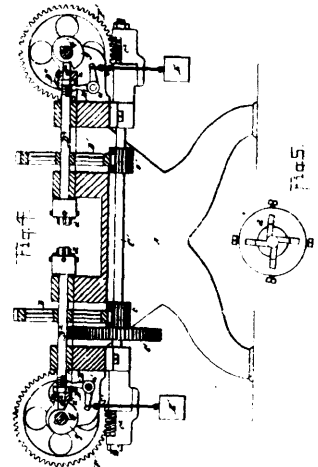
31085 Megrath's Railway Mileage Ticket.



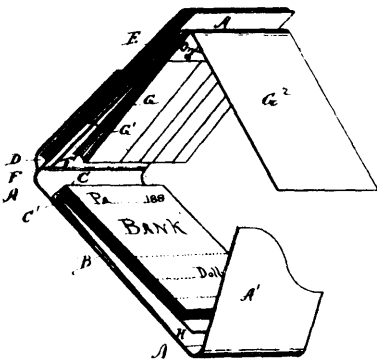
31056 Lawrie and McMillan's Hydro-Carbon Furnace.



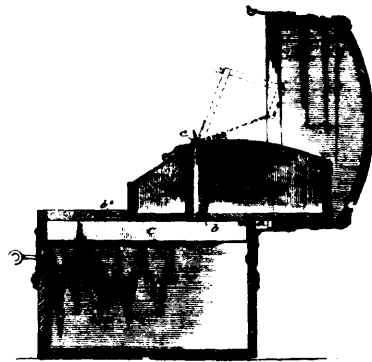
31057 Haydon's Tension Releasing Device.



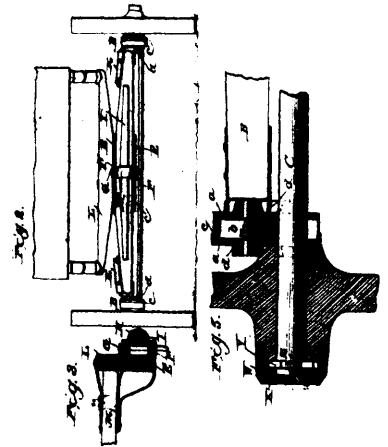
31088 Taylor's Reaming Machine.



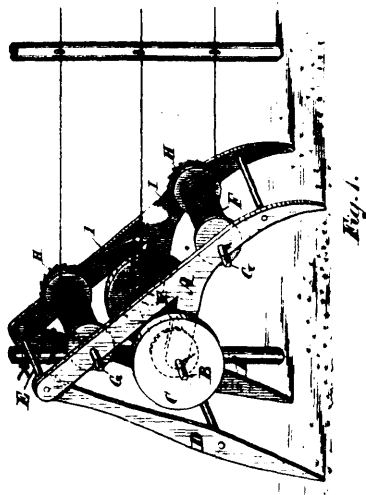
31089 Benson's Bank Book



31090 Rountree's Trunk.



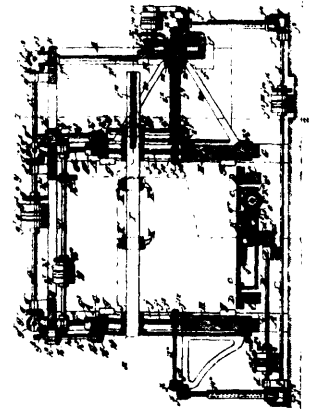
31091 Nason's Waggon.



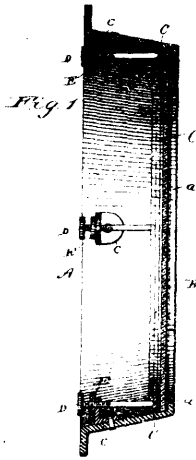
31092 Martin's Fence Wire Stretcher.



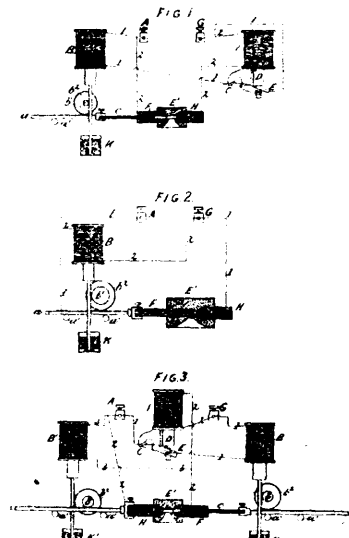
31093 Cluthe's instrument for Straightening Club Feet.



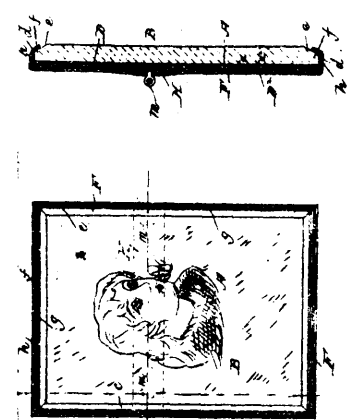
31094 Young's Machine for Cutting Stone, etc



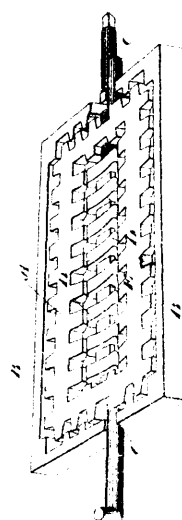
31095 McKee's Locomotive Head Light.



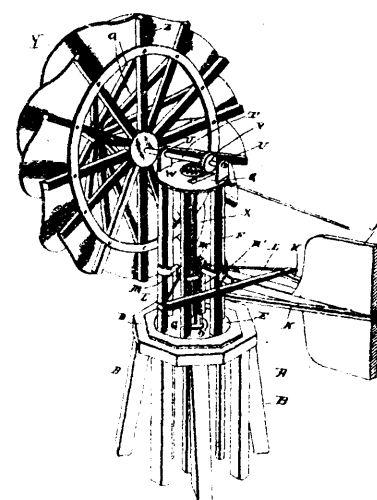
31096 Boardman's Arc Lamp.



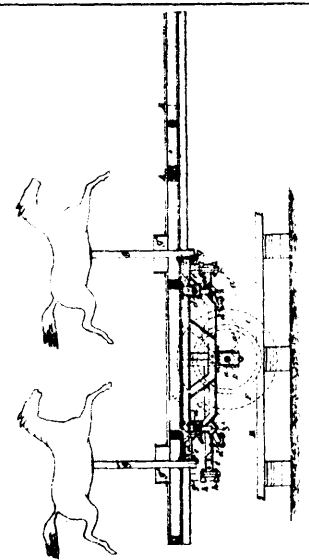
31097 Talcott's Mounted Photograph, etc.



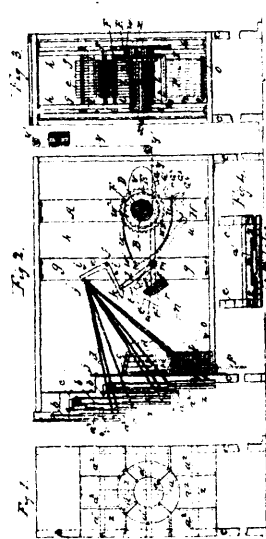
31098 Wakeham & Cunningham's Grate.



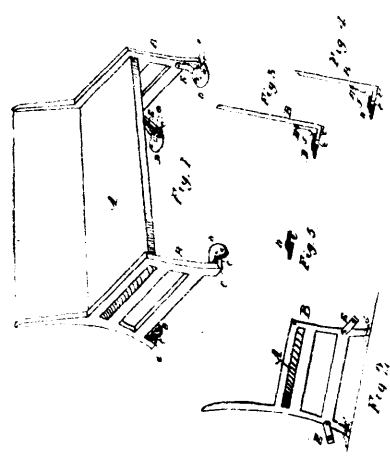
31099 Hess & Westergard's Wind Mill.



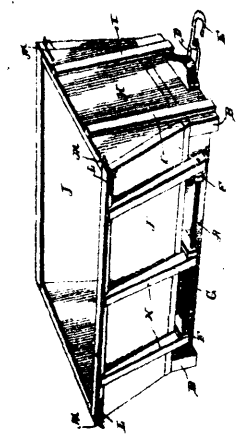
31100 Allebin's Roundabout, etc.



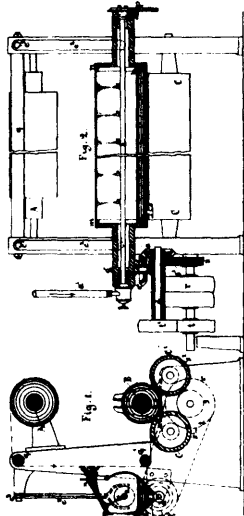
31101 Paterson's Target.



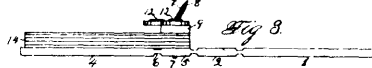
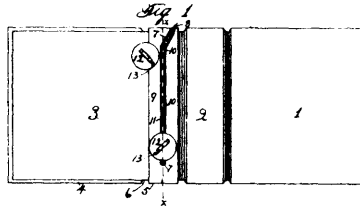
31102 Scarr's Fastening for Seats, etc.



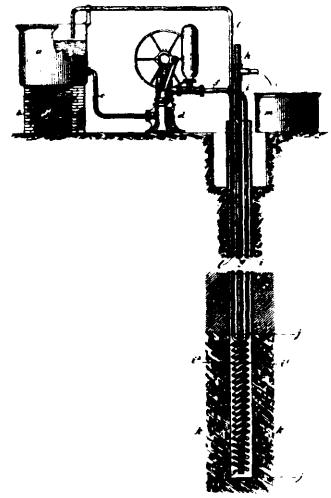
31103 Earle's Car for Sugar Cane.



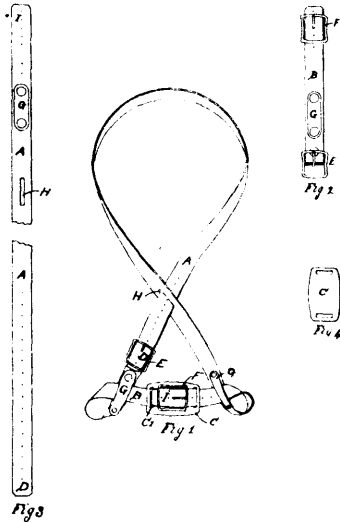
31104 Kron's Apparatus for the Atomization of Liquid, etc.



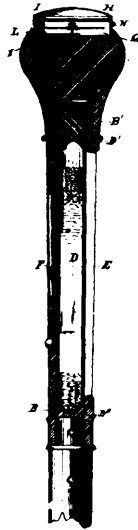
31105 Falfer's Temporary Binder.



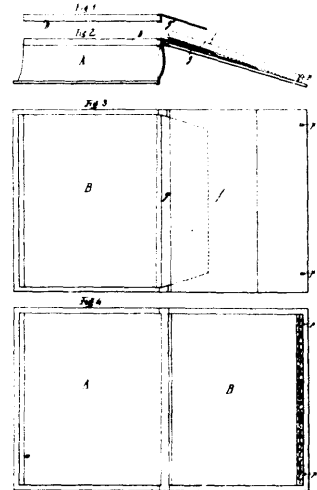
31106 Terp's Method of Increasing the Yield of Oil Wells.



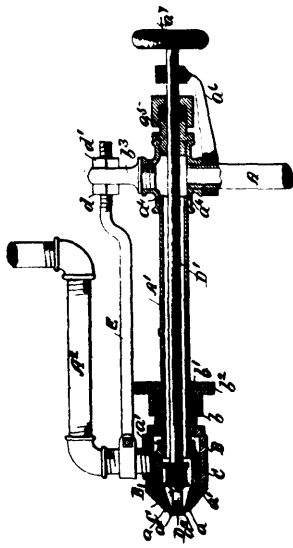
31107 Winter's Snow Shoe Strap.



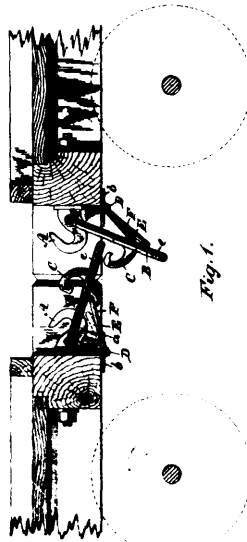
31108 Taylor's Handle for Canes, etc.



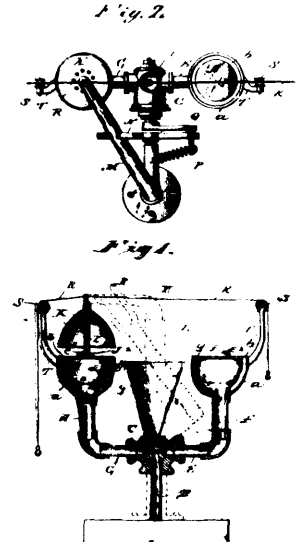
31109 Sykora's Copy Book.



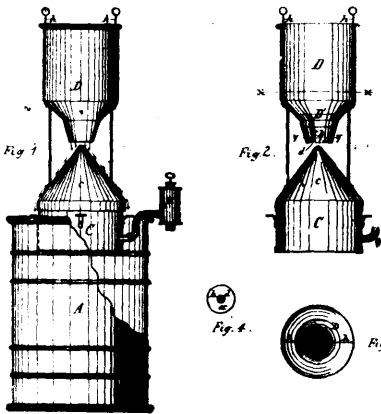
31110 Cole's Hydro-Carbon Burner.



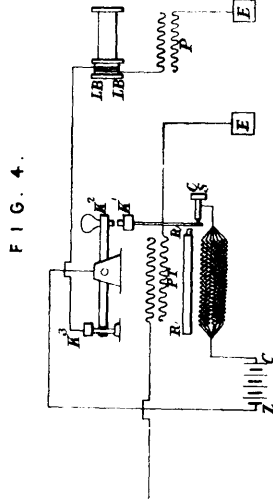
31111 Stuart's Car Coupling.



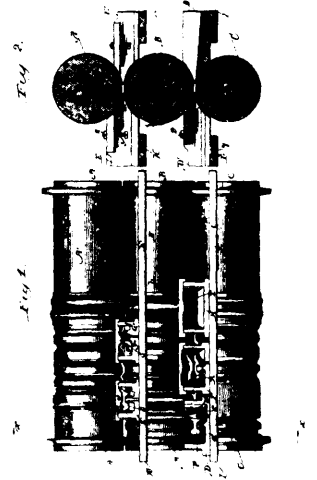
31112 Spets' Audible Signal.



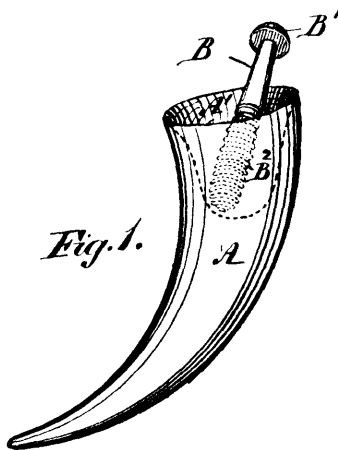
31113 Bowdish's Milk Cooler.



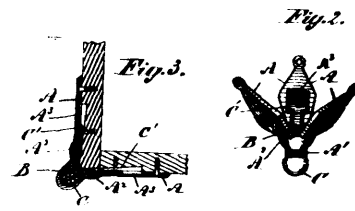
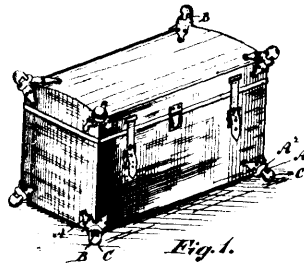
31115 Davies' Apparatus for the Employment of Vibratory Electricity in Telegraphy.



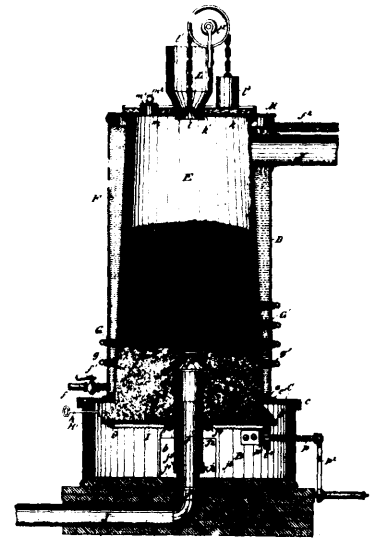
31116 McCloud's Machine for Reducing Rails.



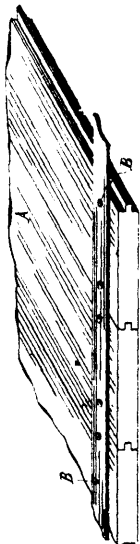
31117 Arnold's Coffee Grinder.



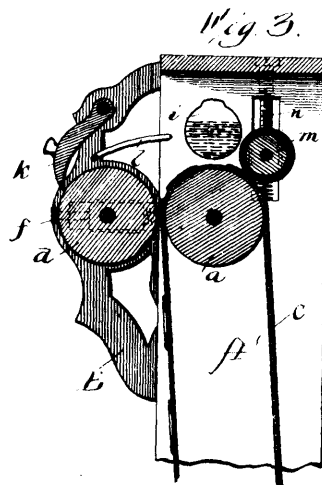
31118 Arnold's Corner Protector for Trunks.



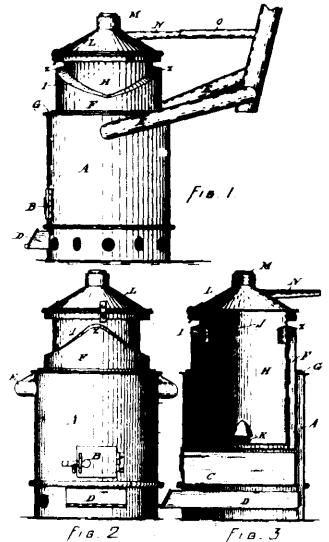
31118 Taylor's Art of Firing Furnaces, etc.



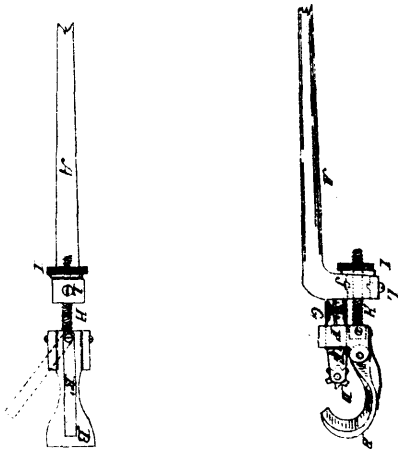
31120 Andrew's Barrel.



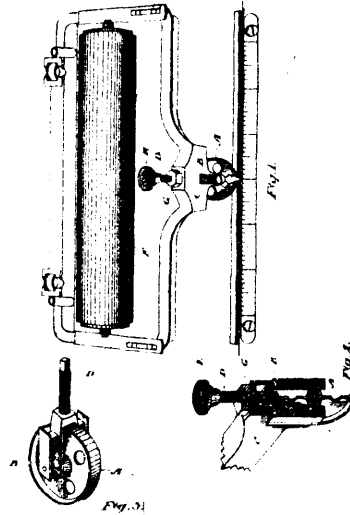
31121 Deane's Printing Apparatus.



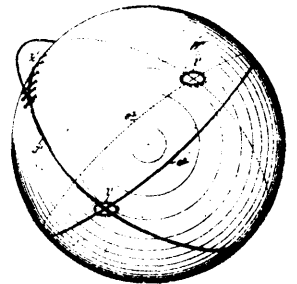
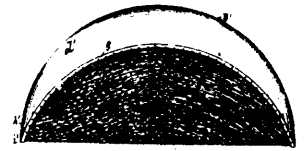
31122 Kempton's Washing Machine.



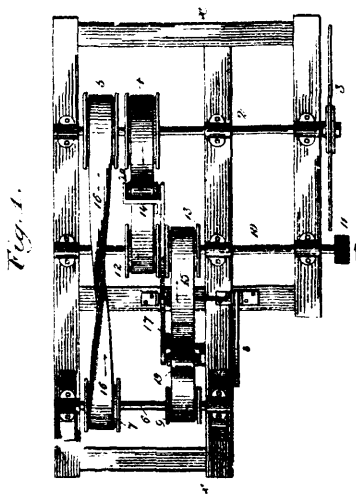
31132 Boland & West's Pipe Wrench.



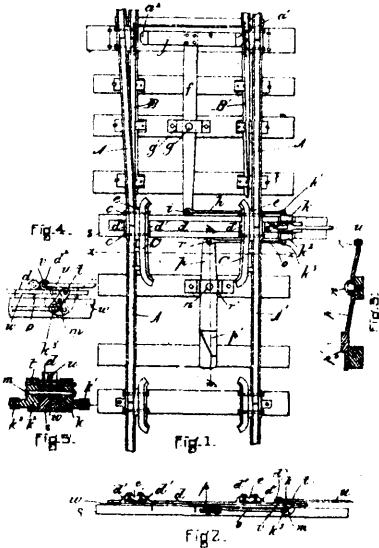
31133 Downey's Type Writer.



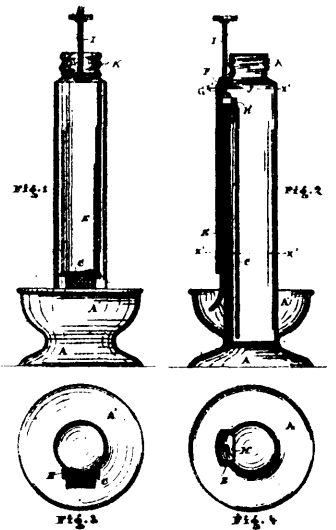
31135 Howard's Foot Ball.



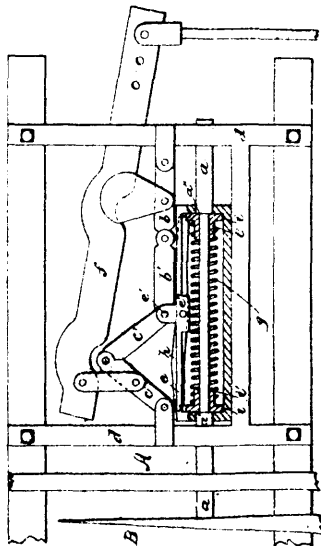
31136 Heacock's Saw Mill.



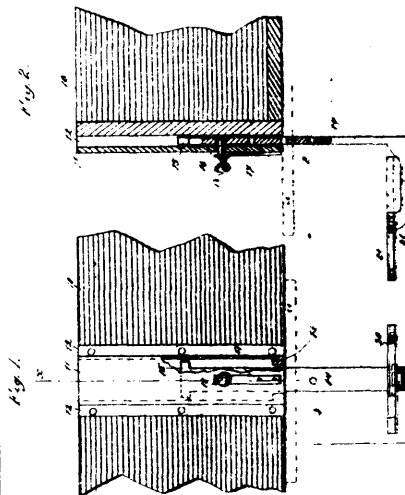
31137 Gordon's Railroad Switch.



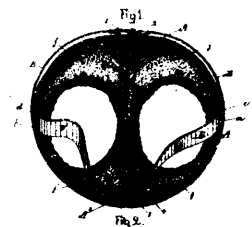
31138 West's Disinfecting Apparatus.



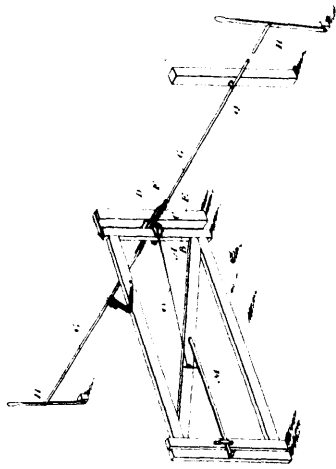
31139 Isbell's Railway Switch.



31141 Cork's Folding Step.



31142 Greely's Garment



31143 Stong's Mechanism for Opening Gates.

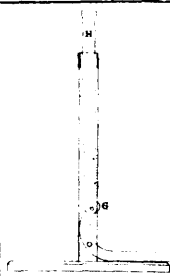


Fig. 3.

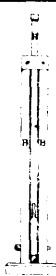


Fig. 2.



Fig. 4

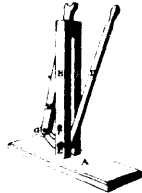
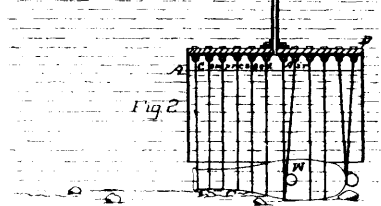
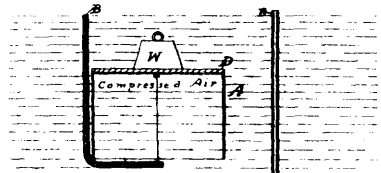
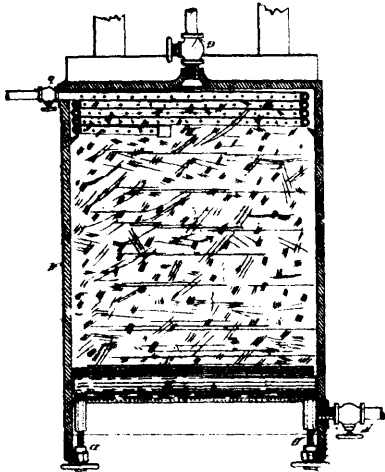


Fig. 1.

31144 Thompson's Waggon Jack.



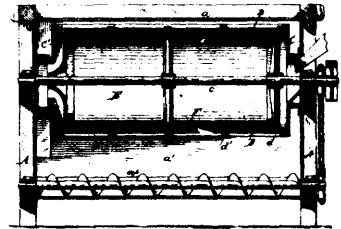
31145 Culp's Art of Producing Buoyancy.



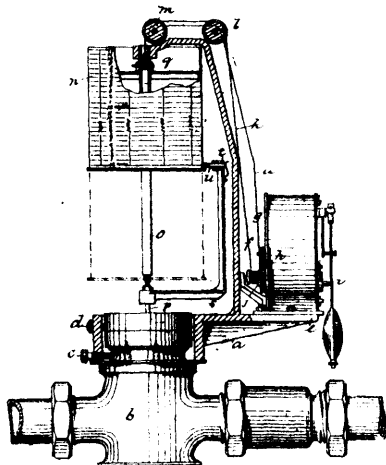
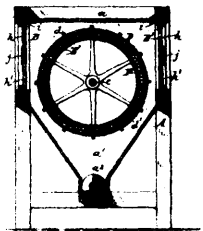
31146 Latimer's Process of Making Fibre from Pine Needles, etc.



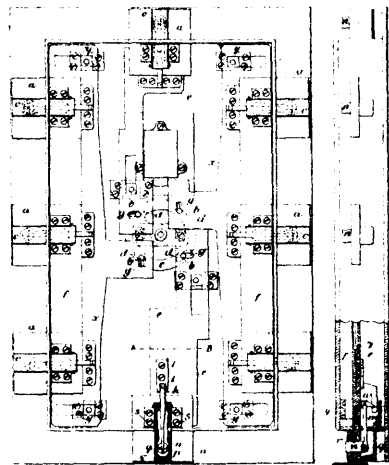
31147 Griffin's Rail Brace.



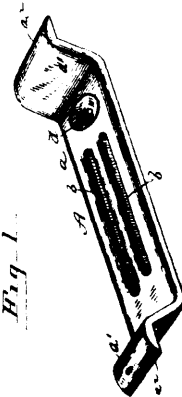
31148 Morse's Bolting Reel.



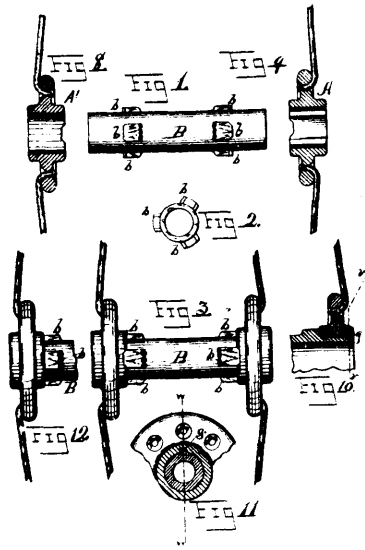
31149 Sporton & White's Apparatus for Registering the Flow of Fluids.



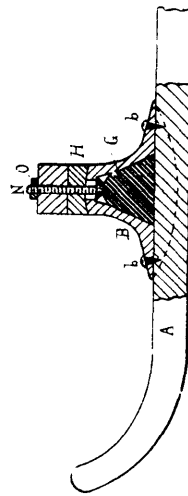
31150 Wilson & Walker's Locking Mechanism for Safes, etc.



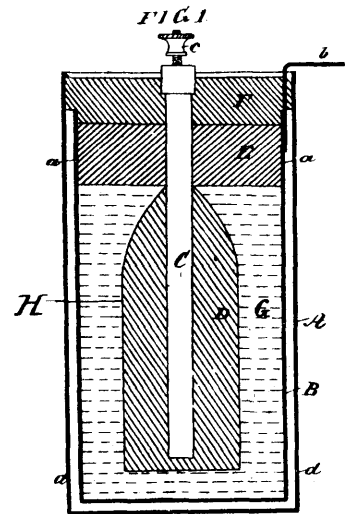
31151 Frederick's Bath Tub Seat.



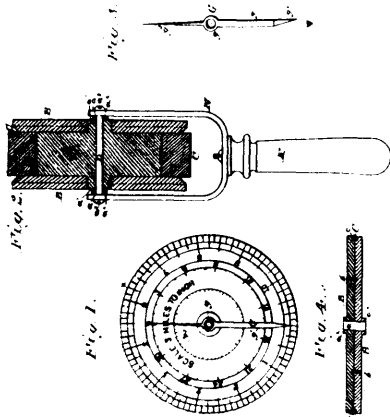
31152 Smith & Weston's Wheel.



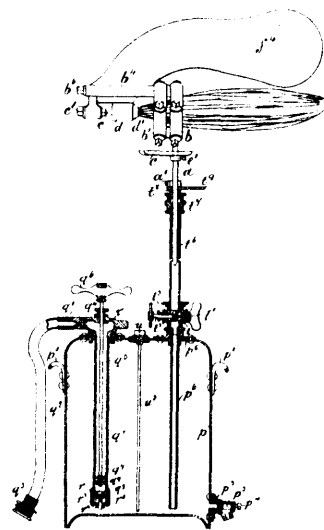
31153 Bostick's Sleigh Knee.



31154 Hellsen's Dry Battery.



31155 Buchanan's Measuring Instrument.



31156 Wellwork & Wells' Apparatus for Illuminating and Heating.

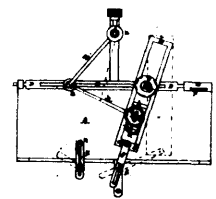


Fig. 2.

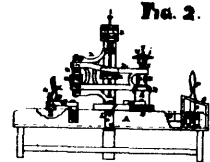
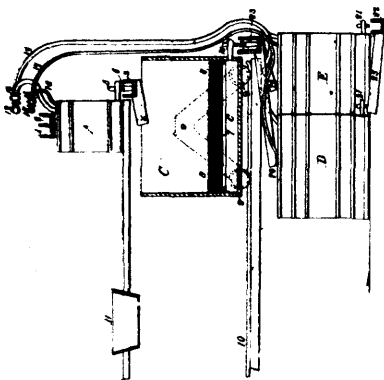


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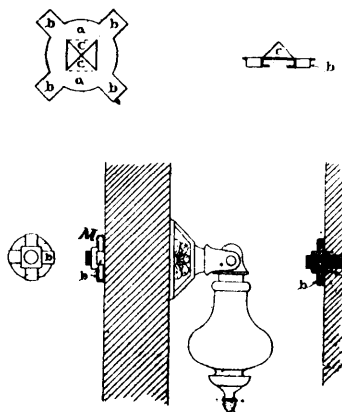


Fig. 4.

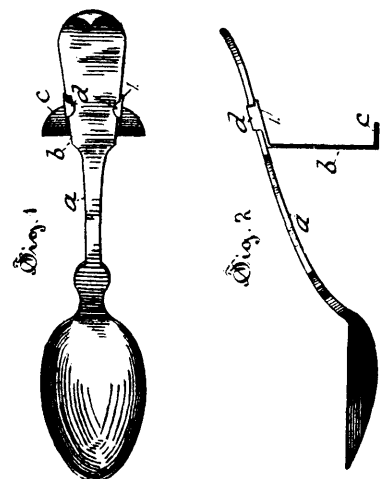
31157 Hughes, Boss & Scott's Wood Working Machine.



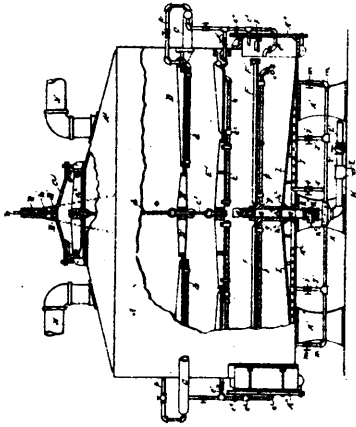
31158 De Rottermund's Process for Extracting Metals from Ores, etc.



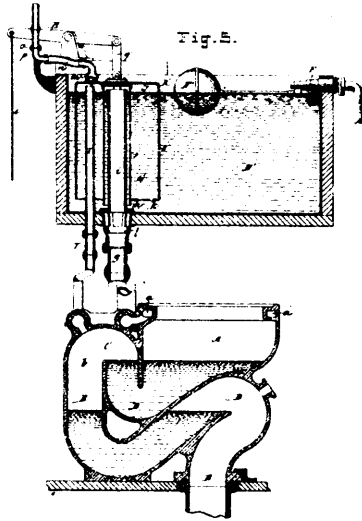
31182 Hannah's Nut Lock.



31183 Abbe's Spoon Rest.



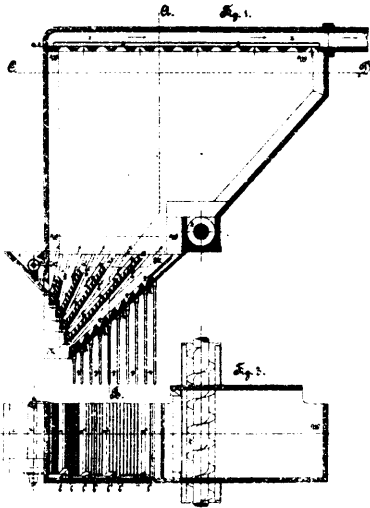
31164 Evans' Percolator.



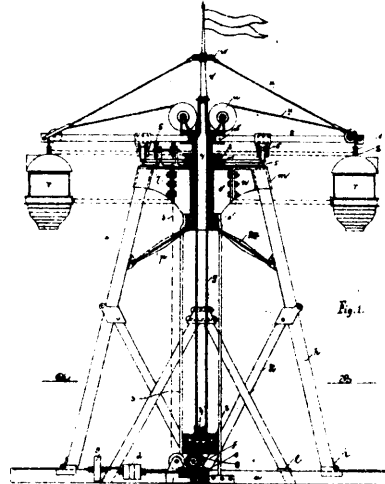
31165 Boyle's Flushing Tank.



31166 Frazer's Moulding for Caskets, etc.



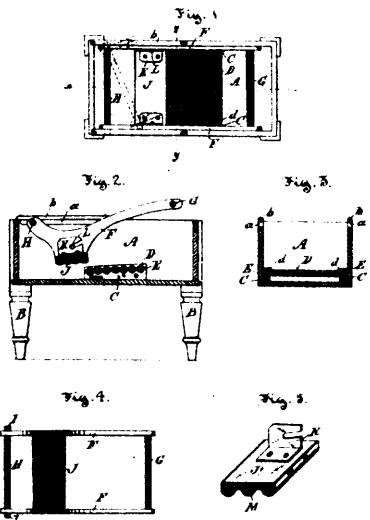
31167 Haggmacher's Middlings Purifier



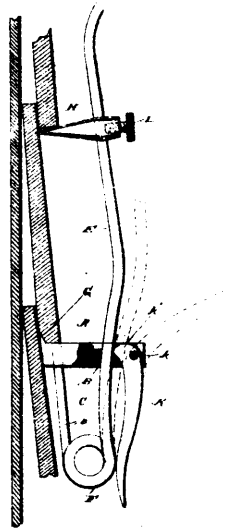
31168 Sauerland, Nieschlag, Grupe & Muller's Merry-go-Round.



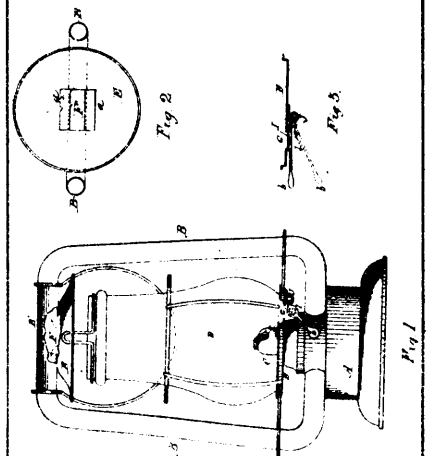
31169 Grindley's Rifle Sight.



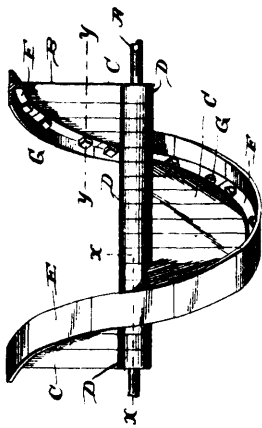
31170 O'Neil & Langdon's Washing Machine.



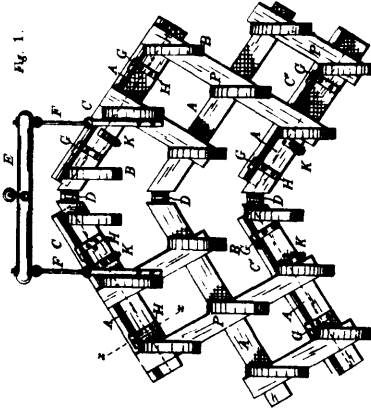
31171 Hosack's Siding Gauge.



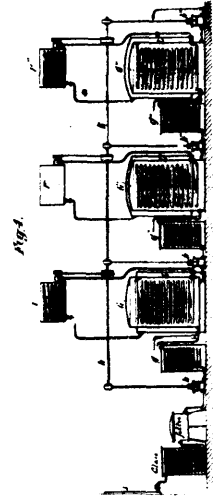
31172 Schultz's Tubular Lantern.



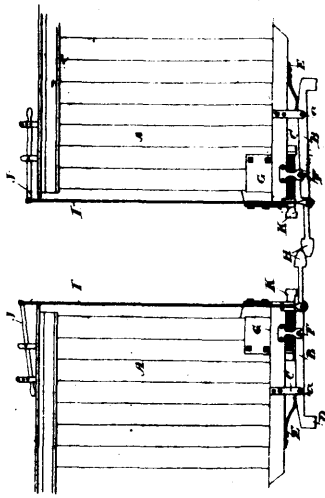
31173 Hall & Sloan's Screw Propeller.



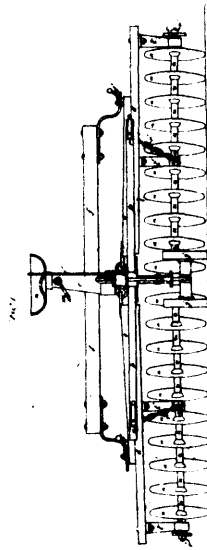
31174 Rose's Spring Tooth Harrow.



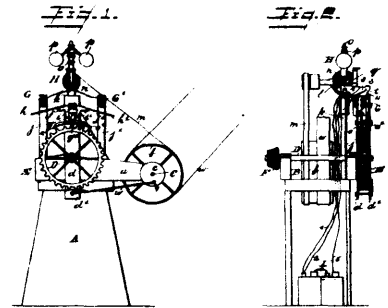
31175 Kuhn's Apparatus for Treating Effervescent Liquids.



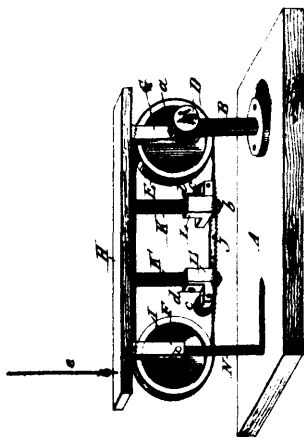
31176 Wright's Car Coupler.



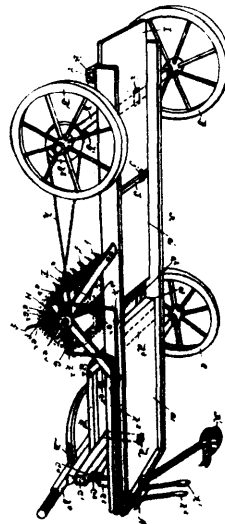
31177 Booth's Disk Harrow.



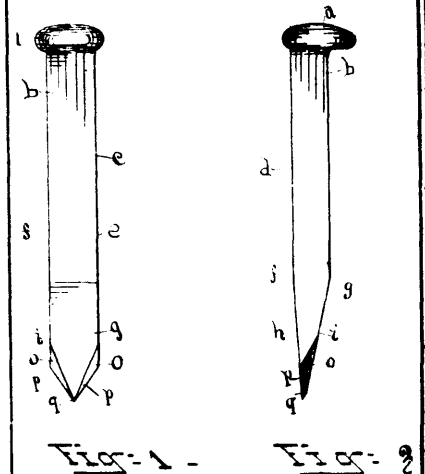
31178 Prichard's Electrical Governor.



31179 Bryant's Band Sawing Machine.



31180 White's Hay Loader.



31181 Goldie's Spike.

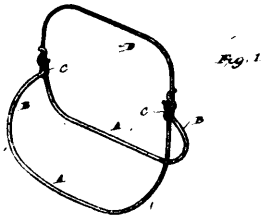


Fig. 1.

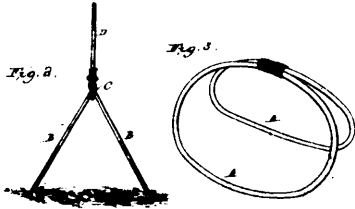
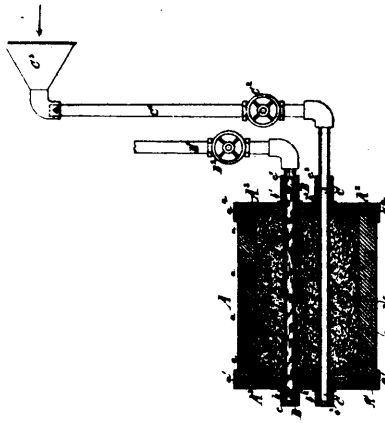


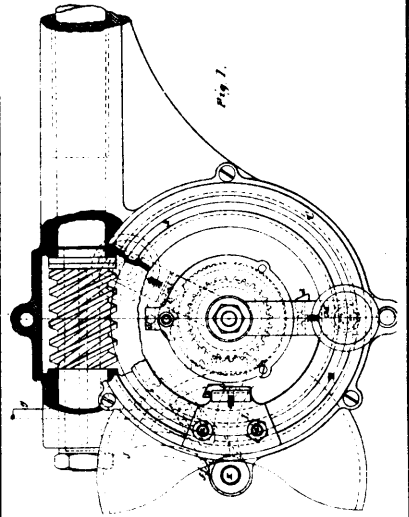
Fig. 2.

Fig. 3.

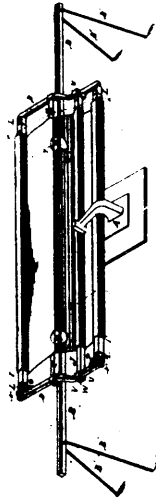
31182 Payne's Wood Carrier.



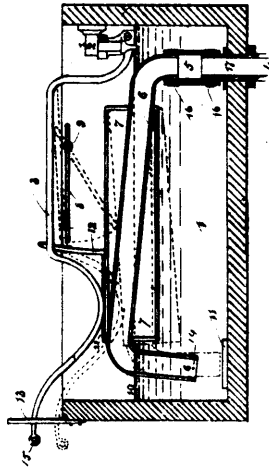
31184 White's Fire Log.



31185 Bertram's Machine for Planing and Shaping Metal.



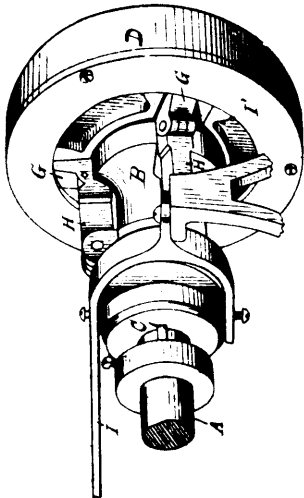
31186 Davis' Quilting Frame.



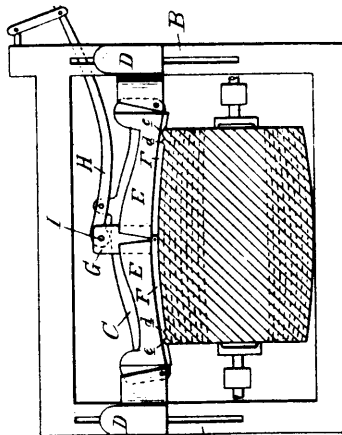
31187 Orr's Siphon.



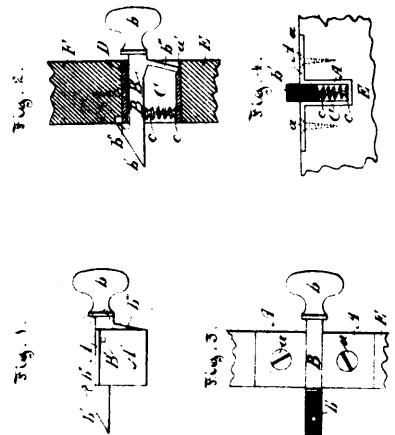
31189 Dolan's Soldering Iron.



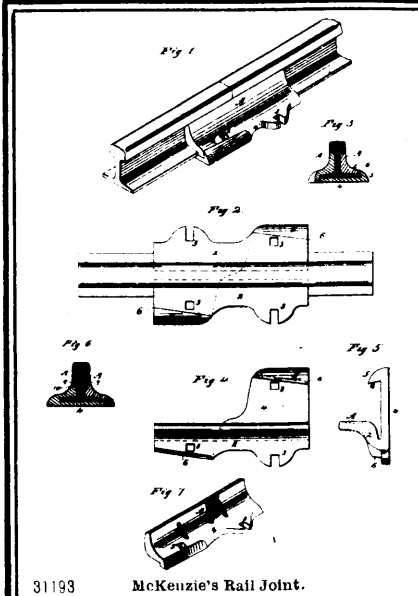
31190 Bovensiep's Friction Clutch Pulley.



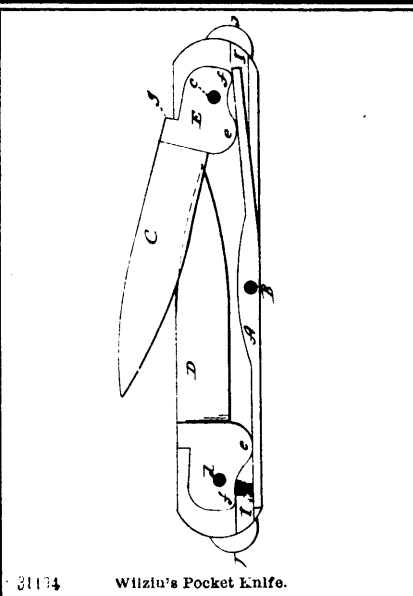
31191 Chapman's Stove.



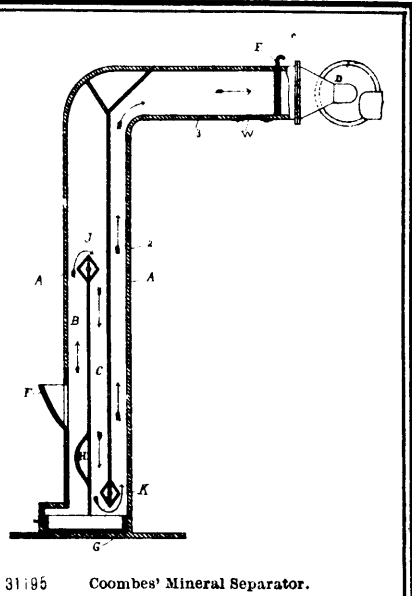
31192 Rettie's Door Catch.



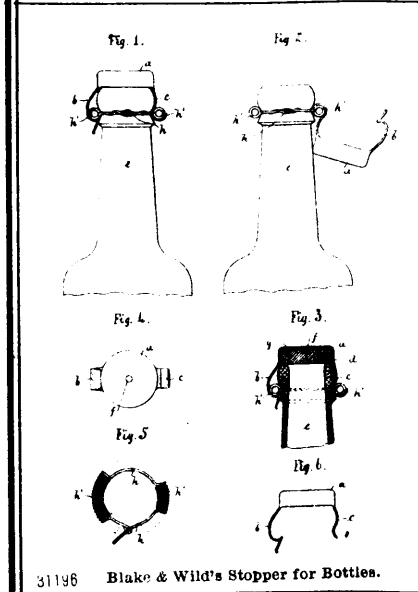
31193 McKenzie's Rail Joint.



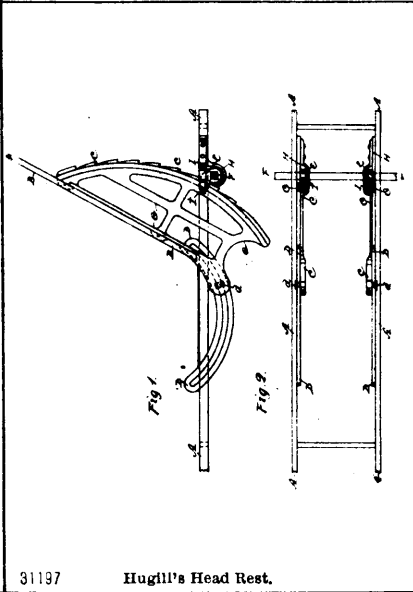
31134 Witzlu's Pocket Knife.



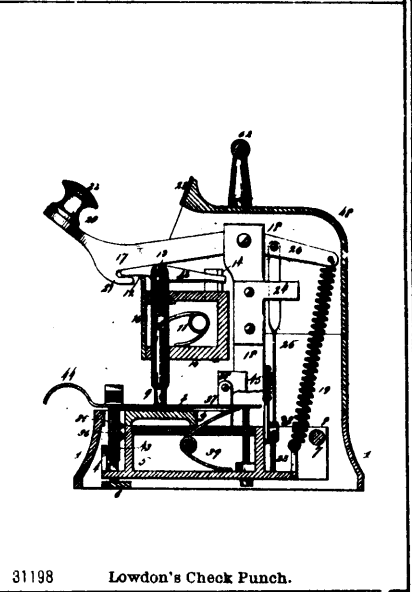
31195 Coombes' Mineral Separator.



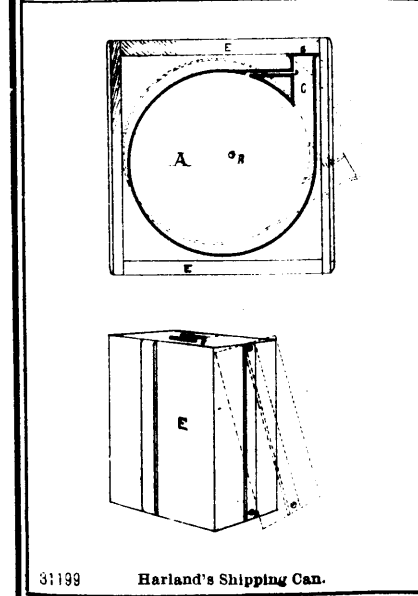
31196 Blake & Wild's Stopper for Bottles.



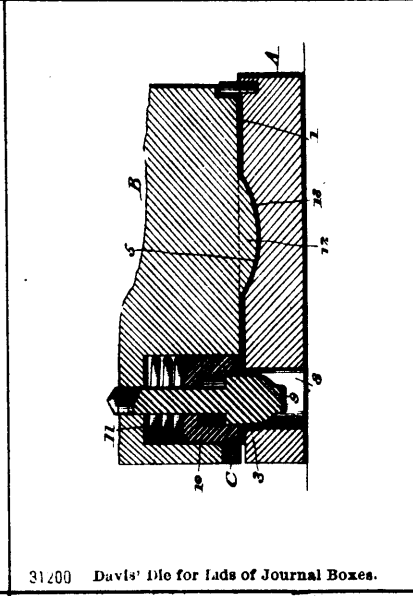
31197 Hugill's Head Rest.



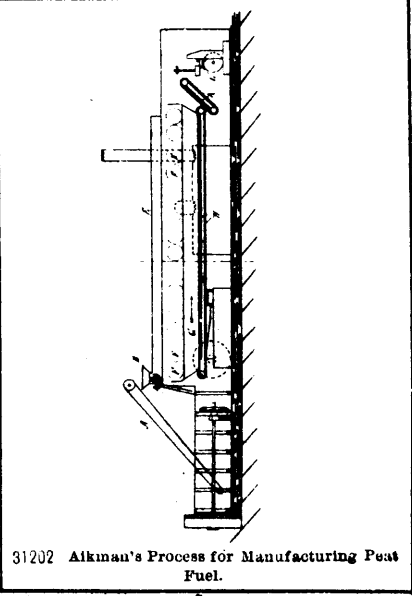
31198 Lowdon's Check Punch.



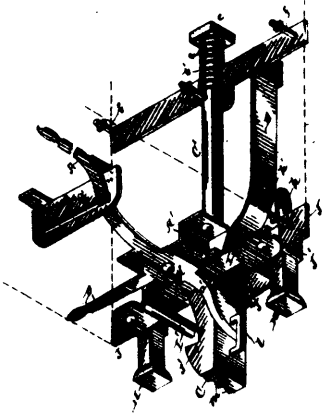
31199 Harland's Shipping Can.



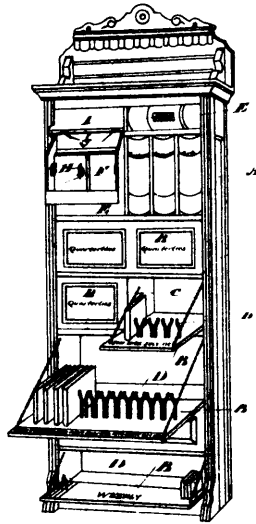
31200 Davis' Die for Ends of Journal Boxes.



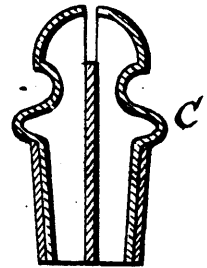
31202 Aikman's Process for Manufacturing Peat Fuel.



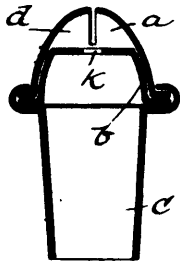
31203 Sommerfeld's Car Coupler.



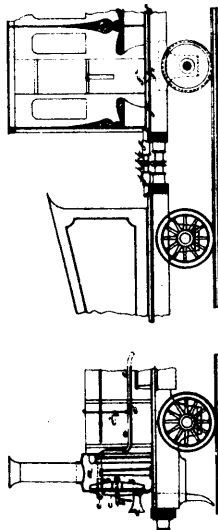
31204 Phillips' Cabinet File.



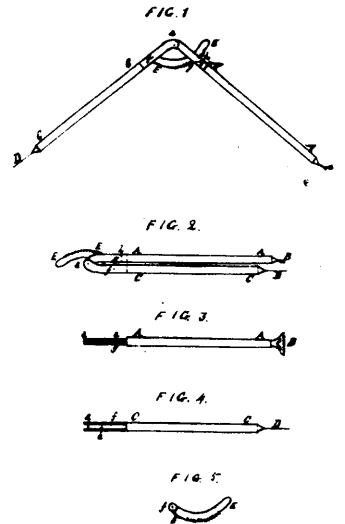
31205 Jackson's Gas Burner.



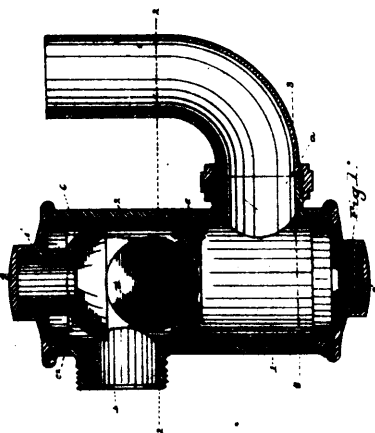
31206 Jackson's Gas Burner.



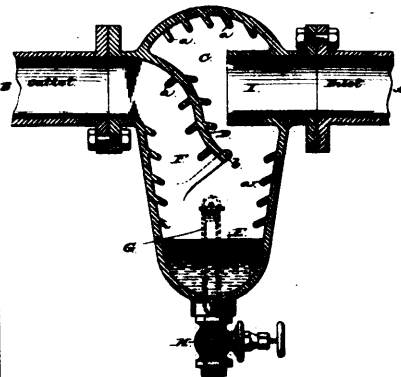
31207 Langfield's Apparatus for Heating Railway Carriages, etc.



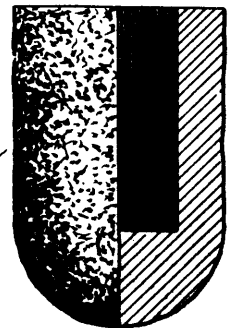
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