



ISSUED FROM THE UNITED STATES PATENT-OFFICE
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46,616.—Protecting trees from injury while plowing.—
Ruel Alden, East Toledo, Ohio:

I claim the employment of use of india-rubber or other elastic substance in the form of rollers or otherwise applied to one or both ends of a whiffletree to serve as a cushion or guard to protect, while plowing, trees from the action of the whiffletree substantially as set forth.

[This relates to a new and useful attachment to be applied to whiffletrees in plowing in order to prevent the latter abrading trees a contingency which always attends the plowing of grounds in orchards, especially young orchards, as the plow approaches the trees sufficiently near, or should, if the ground be properly plowed, to cause the whiffletrees to come in contact with the trees.]

46,617.—Cartridge Retractor for breech-loading Fire Arms.—Ethan Allen, Worcester, Mass.:

I claim a link, F, hung in front of the center of action of barrel, B, in combination with discharger, E, substantially as described.

46,618.—Apparatus for Oxidizing Metals.—Wm. Atwood, Cape Elizabeth, Maine:

I claim the invention of a revolving chamber so constructed as to admit the passage of a constant current of atmospheric air over and through the material to be oxidized, while the same is kept in constant motion and exposed to any desirable degree of heat.

46,619.—Process for Desulphurizing and Disintegrating Ores.—Dr. James C. Ayer, Lowell, Mass. Ante-dated Jan. 24, 1865:

First, I claim the application of treating rock or ores while in the heated state with an alkaline solution substantially as described for the purpose of partial disintegration desulphurization and oxidation of the same.

Second, I claim the application of re-treating ores which have been heated substantially as above described and then same repeated for the complete disintegration desulphurization and oxidation of the same.

46,620.—Process for Desulphurizing and Disintegrating Ores, etc.—Dr. James C. Ayer, Lowell, Mass. Ante-dated Jan. 24, 1865:

First, I claim the application of treating rock or ores while in the heated state with a saline solution substantially as described for the purpose of partial disintegration, desulphurization and oxidation of the same.

Second, I claim the application of re-treating ores which have been heated substantially as above described and the same repeated for the complete disintegration, desulphurization and oxidation of the same.

46,621.—Process for Disintegrating, Desulphurizing and Oxidizing Ores.—Dr. James C. Ayer, Lowell, Mass. Ante-dated Jan. 24, 1865:

First, I claim the application of heating ore while in a heated state with water substantially as described for the purposes of partial disintegration, desulphurization and oxidation of the base metal in same.

Second, I claim re-treating ores which have been treated substantially as above described and repeating the same for the complete disintegration, desulphurization and oxidation of the metals in the same.

46,622.—Gaiter Boots.—Samuel Babbitt, Kokomo, Ind.:

I claim a gaiter boot constructed with a folding extension, C, substantially as and for the purpose set forth.

46,623.—Attaching Sleigh Bells to Straps.—Wm. E. Barlow, East Hampton, Conn.:

First, The metallic seat having a recess conforming to the boss of the bell a hole for the coupling screw to pass and impinging surfaces on the leather side to keep the seat in place substantially as described.

Second, In combination the bell with short boss and screw hole the metallic seat strap and coupling screw substantially as described.

46,624.—System of Supporting Combustion.—J. A. Bassett and E. L. Norfolk, Salem, Mass.:

We claim supporting or effecting combustion in furnaces, stoves, etc., by the introduction of superheated steam with or without air substantially as herein described.

[This invention consists in supporting or effecting the combustion of carbonaceous fuel in furnaces or stoves by the introduction of superheated steam mixed with or without atmospheric air below or among the incandescent fuel by which an instantaneous decomposition takes place into hydrogen and carbonic oxide, both of which are combustible and burn as gas above the layer of fuel, and this decomposition is more or less energetic as the steam is more or less heated.]

46,625.—Ordnance and Projectile.—Benjamin F. Bates and Charles R. Macy, New York City:

First, We claim a projectile made with a small head, B, a smaller body, C, to pass through an aperture in the breech of the gun and a disk, D, at the bore of the gun substantially as herein described.

Second, A gun having guide blocks, G, G', applied to its breech in the manner described and employed in connection with a projectile formed with a longitudinal rear extension, C, either for the purpose of guiding the latter in a central position or imparting rotation to the projectile as herein set forth.

46,626.—Seeding Machine.—Wm. N. Bates, Center Point, Iowa:

I claim the combination and arrangement of parts herein described consisting of a mitered seed box with a regulating slide, C, with its spring inside of the seed-box, a gate, F, operated by a handle from the exterior, and a toothed reciprocating agitator, E, moving on bearings at the upper part of the seed box, with its teeth extending down nearly to the seed aperture, and operated by connection with a vibrating block, and a link from a wrist on the driving wheel.

[This invention relates to certain improvements in that class of seeding machines which sow the seed broadcast, the end being placed in a suitable box and made to discharge through an opening or crevice the size of which can be regulated by a suitable slide or which can be closed by a gate, the discharge of the seed being facilitated by an agitator to which a reciprocating motion is imparted from the driving gear of the machine.]

46,627.—Bone Mill.—Edwin P. Baugh, Philadelphia, Pa.:

I claim, first, Making the grinding surface of mills for grinding bone and other substances, when the same are of cast metal, in sections or divisions so that the outer grinding surface shall be composed of vertical sections, b, surmounted and held in place by a ring, c, whose periphery is also a grinding surface, substantially as above described.

Second, I claim making the ring, L, which serves as a foundation for the lower edges of the grinding surface, separate and distinct from the shell, A, which surmounts the said outer grinding surface, substantially as above described.

[The object of this invention is to construct a mill suitable for grinding and reducing bones to the fine condition required when they are to be used as a fertilizer, and also for grinding other refractory substances, and it consists among other things of a novel construction of the grinding surfaces sometimes called the dress, an improved mode of securing them in the mill, and other improvements hereinafter set forth.]

46,628.—Harvesting Machine.—A. Belchamber, Ripley, Ohio:

I claim the flange, I, attached to a rod, H, at the upper end of the rotating shaft, D, and provided with the sockets in which the rake-bars, J, are permanently secured and the reel-arms, K, secured by pivots or pins, g, in connection with the cam way, M, all arranged to operate substantially as and for the purpose herein set forth.

[This invention relates to a new and improved reaping and mowing machine of that class in which horticultural rakes and reel-arms are employed, and it consists in a novel manner of arranging the same whereby machines of this class are much simplified.]

46,629.—Corn Planters.—George I. Bergen, Galesburg, Ill.:

First, I claim the runner, D, having a concave edge along its front part, and a slightly descending straight edge from a', to a'', as shown and described.

Second, I claim uniting the front and rear frames of a corn planter by means of the curved slotted box, I, and bar, g, in combination with the loose joint, d, e.

Third, I claim a guide for planting, consisting either of two points, or a broad plane surface, substantially as set forth.

Fourth, I claim the hopper, C, when constructed as herein set forth.

Fifth, I claim the plate, k, when constructed and used as and for the purposes described.

Sixth, I claim the scrapers, H, constructed as described and mounted on the roller, I, in such a manner as to automatically remove themselves from contact with the wheels, as and for the purpose set forth.

Seventh, I claim the seed tube, E, when constructed as shown and described.

Eighth, I claim the rubber cut off, J, when constructed and operated herein set forth.

Ninth, I claim the sliding rod, K, having the bent arms, t, and operating in conjunction with the standards, l, and steel slides, o, as and for the purpose set forth.

Tenth, I also claim pivoting the valve, m', on the removable pin, q, and forcing by one continuous operation substantially as set forth.

Eleventh, I claim the edge of the seed valve of the hopper all arranged and operating as herein described.

46,630.—Reaping Machine.—H. W. Bill, Cuyahoga Falls, Ohio:

First, I claim removing the grain from the machine and depositing it upon the ground in gaves, by means of the frame, F, raised and lowered by one continuous operation substantially as set forth.

Second, I claim the guards, H, in connection with the frame, F, as and for the purpose set forth.

Third, I claim the bearers, c, c, in connection with the frame, F, as and for the purpose set forth.

Fourth, I claim rotating the frame, F, by means of the pawl, e, and spring, s, in combination with the shaft, b, and catenae, c, c, substantially as and for the purpose set forth.

46,631.—Street Lamps, Lanterns, etc.—John Binney, Boston, Mass.:

First, I claim the construction and arrangement of street lamps or lanterns or other lamps exposed to winds or currents of air substantially as herein described.

Second, A lantern or street lamp cap composed of a chimney provided with apertures and overhanging bands in combination with an annular shield the whole being constructed for operation in the manner as and for the purpose set forth.

46,632.—Apparatus for Amalgamating Gold and Silver.—H. Bulthoff, Buddington, Iowa:

First, I claim the employment of use of the two mullers, K, placed one above the other in the pan, B, and arranged in such a manner as to rotate in reverse or opposite directions, substantially as and for the purpose herein set forth.

Second, The arrangement and combination of the central fixed conical hub, J, at the center of the pan, B, spindle, E, tubular shaft, D, conical hub, J, of muller, K, and the hollow hub Q, of muller, O, provided with arms, R, fitted on the sleeve, M, which is placed on the upper part of the spindle, E, with the screw, N, fitted in it, substantially as and for the purpose described.

[This invention consists in using within a pan two rotary mullers arranged in such a manner that they will rotate in reverse directions said mullers being provided with openings and placed one over the other, whereby the pulp will be thoroughly ground and the mercury intermixed therewith so that all the particles of precious metals contained in the former will be brought in contact with the mercury and amalgamated, the work being rapidly performed and in a very efficient manner.]

46,633.—Apparatus for Distilling Petroleum, etc.—Edward Braggins, Titusville, Penn.:

I claim the method described of producing a vacuum in the condenser, A, by water in the manner described when done by the aforesaid combination for the purposes set forth. I claim the combination of the water tank, P', with the tubes, O, and N, of condenser, k, the tube, R, and the retort, A, with the tubes, E, F, C, when the same are constructed as described and in the aforesaid combination for the purposes set forth.

46,634.—Safe.—Martin Briggs, Rochester, N. Y.:

I claim the construction essentially as herein shown, the lock, C, being secured within the inner side or back of the door, with its back resting through in such a manner as to be readily opened and used in combination with the plates, A, B, and packing, D, so that the packing will surround the lock on the outside and ends to protect it substantially as set forth.

In combination with lock, C, plates, A, B, and packing, D, as above described, I also claim arranging the bar, H, and its bolts, g, g, in the inner flange of the door and rendering them accessible by the chamber, I, substantially as herein set forth.

46,635.—Oil Can.—John Broughton, New York City:

I claim an oil can or other having a transparent chamber applied to or combined with its metallic or opaque body and nozzle to operate substantially as and for the purpose specified.

[This invention relates to an improvement in the construction of oil cans or oilers, such as are generally used by mechanics for lubricating machinery, depositing oil on stones or hones, etc., etc. The object of the invention is to facilitate the filling of the can and prevent the overflowing of the same, a contingency of frequent occurrence and which is the cause of considerable annoyance attended with waste of oil or other lubricating material used.]

46,636.—Composition for Lining Oil Barrels.—Wm. Budd and J. L. Husband, Philadelphia:

We claim the manufacture of the firm elastic impervious coating and the use of the same as herein before substantially set forth.

46,637.—Corn Planter.—W. E. Chesney, Abington, Ill.:

I claim the cams, L, and lever, M, in combination with the bar, K, and boxes, F, F, and springs, J, J, all arranged to operate as herein set forth.

[This invention relates, first, to a new and useful improvement in

mounting the frame of the machine and annexing the driver's and dropper's seat thereon, whereby the same may be readily turned in the field at the ends of rows of planted corn, and at the same time remain in a proper position to admit of the forward shares being raised out of the earth and held in an elevated state while the machine is being turned.]

46,638.—Pump.—M. R. Clapp, New York City:

I claim inducing the water into the main cylinder, B, through openings, P, P', which surround or nearly surround the cylinder at each end, controlled by valves, G', G', as specified, and delivering the water through valves or sets of valves, M', M', the several parts being arranged and adapted for joint operations and easy access substantially as set forth.

46,639.—Receiving Magnet for Telegraphs.—James J. Clark, New York City:

I claim the revolving wheel, A, with rounded edges in combination with a telegraph receiving or main magnet, applied in the manner and for the purpose as herein before specified.

46,640.—Can for Preserving and Transporting Milk.—Moses M. Clark, Monroe, N. Y.:

I claim the lining in of milk cans between the inner and outer covers with pulverized charcoal as a means of preserving milk, in such a manner as to protect the milk from heat.

46,641.—Gold Washer.—N. D. Clark, Bentonsport, Iowa. Ante-dated March 3, 1865:

First, I claim the providing of a separator for the above described purpose with a series of elastic slips attached to the open end, to serve in separating nuggets from among the stones.

The providing of a separator or above with a second bottom, made hollowing or inclined from the sides inward to some point where there is an opening downwards, to serve in collecting and discharging the dirt at one place.

Third, The providing of the above described separator and gold pan with a sifting or oscillating motion.

Fourth, The flexible use of the water, first as a propelling force and then to wash the dirt.

46,642.—Car Brake.—J. M. Collins, New Bedford, Mass.:

First, I claim the mode of securing the shoes, D, D, to the heads, B, B, by means of the dovetail projections, c, on the shoes fitted in the dovetail grooves, b, in the heads when combined with the dovetail plugs, E, and the bolts, e, provided with the dovetail beads, f, all arranged as set forth.

Second, The cast-iron shoe bar, A, when attached or fitted to the heads, B, B, when constructed in the manner substantially as herein shown and described.

46,643.—Padlock.—Edward Coyle, Albany, N. Y.:

I claim the combination of the spring, E, with the shackle, B, plurality of double hooked tumblers, C, and springs, d, all constructed, arranged and operating as and for the purposes specified.

46,644.—Machine for Making Fish Hooks.—C. O. Crosby, New York City:

First, I claim the combination of an intermittent feeding device with a cutter, L, or its equivalent, when both are constructed substantially as herein set forth.

Second, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a cutter, L, and header, B, or their equivalents, substantially as described.

Third, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with header, B, and barb cutting instrument, P, or their equivalents, substantially as described.

Fourth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a cutter, L, and barb cutting instrument, P, or their equivalents, substantially as described.

Fifth, The combination of the holder, 14, back of the barb cutting instrument with the presser, 13, forward of the barb cutting instrument, substantially as and for the purpose specified.

Sixth, The combination of the holder, 14, back of the barb cutting instrument and the presser, 13, forward of the barb cutting instrument with the block or bed, P', on which the blank rests, substantially as and for the purpose set forth.

Seventh, The combination of the holder, 14, back of the barb cutting instrument the presser, 13, forward of the barb cutting instrument and blank P', on which the blank rests with the barb cutting instrument, P, substantially as described.

Eighth, The combination of a carrier constructed and operating as described producing intermittently a progressive transitory movement of the blank with barb cutting instrument, P, and one or more pair pressing or clipping dies, substantially as specified.

Ninth, The combination of a carrier constructed and operating as described producing intermittently a progressive transitory movement of the blank with one or more pair pressing or clipping dies, barb cutting instrument, P, and header, B, or their equivalents substantially as specified.

Tenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with one or more pair pressing or clipping dies, barb cutting instrument, P, and header, B, or their equivalents substantially as specified.

Eleventh, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with one or more pair pressing or clipping dies, barb cutting instrument, P, and header, B, or their equivalents substantially as specified.

Twelfth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with two or more pair pressing or clipping dies, substantially as specified.

Thirteenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with two or more pair pressing or clipping dies, substantially as specified.

Fourteenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a barb cutting instrument and one or more pair pressing or clipping dies, substantially as specified.

Fifteenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a header, barb cutting instrument and one or more pair pressing or clipping dies, substantially as specified.

Sixteenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a bender or former, T, substantially as described.

Seventeenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with one or more pair pressing or clipping dies, and a former or bender, T, substantially as specified.

Eighteenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a barb cutting instrument and bender or former, T, substantially as specified.

Nineteenth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a header, B, and barb cutting instrument, P, substantially as specified.

Twentieth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a bender, T, and cutting device, L, substantially as described.

Twenty-first, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement with a grooved guide, 15, substantially as and for the purpose specified.

Twenty-second, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a holder, c', which grasps and securely holds the blanks during their movement from one instrument to another, substantially as set forth.

Twenty-third, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank and holder, c', which grasps and securely holds the blanks during their movement from one instrument to another with a bender, T, substantially as described.

Twenty-fourth, The combination of a carrier constructed and operating as described, producing intermittently a progressive transitory movement of the blank with a carrier constructed and operating as described, header, B, barb cutter, P, pointing devices and bender, T, or their equivalents, in the manner and for the purpose substantially as herein set forth.

Twenty-fifth, The adjusting guide, P, for regulating the depth of the cut, in combination with the barb cutting instrument, P, substantially as described.

46,645.—Apparatus for Gathering Quicksilver.—M. B. Dodge, New York City:

I claim the slats, D, inserted into the vat, A, so as to have channels, a, between their lower edges and the bottom of the vat in combina-

tion with an amalgamated bottom, B, and with or without an agitator, C, constructed and operating substantially as and for the purpose specified.

46,646.—Water Filters.—Nicholas Downes, Syracuse, N. Y. Antedated Feb. 2, 1863.

I claim the combination of the lead reservoir partition, E, and tube for cleansing with the filtering medium as and for the purposes set forth.

46,647.—Machine for Baking and Loading Hay.—William A. Duncan, Syracuse, N. Y.

First, I claim the slotted clearing wedge, K, when located in front of the upper shaft, V, and constructed with a foot, L, projecting over the said shaft and with an inclined conductor, I, all as herein shown and described.

Second, the vertical sliding rake teeth, H, operating substantially in the manner and for the purpose set forth.

Third, I claim the springs, N, when constructed as herein shown and described and employed in combination with the channels, L, and teeth, H, in the manner and for the purpose specified.

Fourth, The combination of the springs, S, and the springs, N, with the teeth, H, whereby a yielding horizontal and a yielding vertical play is allowed to the teeth, H, substantially in the manner and for the purpose described.

Fifth, The longitudinal adjustment of the rake head, G, to and from the elevator, substantially in the manner and for the purpose set forth.

Sixth, The combination of the slotted clearing wedge, K, the curved guard board, M, and the vertical sliding rake teeth, H, with the endless apron or elevator, D, all arranged substantially in the manner and for the purpose described.

46,648.—Extension Ladder.—Calvin Eaton, Webster, N. Y.

I claim the combination and arrangement of the detachable section or extension, B, constructed as set forth with the main ladder in the manner and for the purposes shown and described.

46,649.—Foot Warmer.—Augustus Eckert, Trenton, Ohio.

I claim in combination with the casing, A, and door, B, the lamp F, and chimney, G, flaring plate, J, horizontal plate, K, and channels, I, constructed arranged and operating as and for the purposes described.

[This invention consists in an arrangement of parts whereby a root-stove or foot-warmer is made to combine in itself a lantern and a nursing or cooking lamp also.]

46,650.—Latches.—Henry H. Elwell, South Norwalk, Conn.

First, The employment or use of the catch or fastening, E, fitted on a pin, A, of the part, C, of the slide latch, and arranged substantially as shown to engage with the part, C, of the latch, for the purpose set forth.

Second, The actuating of the catch or fastening, E, by means of the key of the lock through the medium of the tumbler or any equivalent arrangement, substantially as described.

[This invention relates to a new and improved means employed for reversing the slide latch of a lock so that the same may be adjusted to suit either a right or left hand door.]

46,651.—Gas Stove.—Luther Erving, Brooklyn, N. Y.

I claim the gas chamber, D, provided with a perforated top, E, in combination with the air and gas chamber, G, all arranged substantially as and for the purpose herein set forth.

I further claim the arrangement of the tubes, F I J, when used in combination with the gas chamber, D, and air and gas chamber, G, substantially as and for the purpose specified.

46,652.—Chronometer Escapements.—Charles Fasoldt, Albany, N. Y.

I claim the pallet, e, arranged in combination with the pallet lever, c, wheels, a, b, and balance, f, in the manner and for the purpose substantially as herein shown and described.

46,653.—Latch for Doors.—Samuel W. Fordick and A. C. Dakin, Clinton, Mass.

I claim the catch, C, formed with a horizontal gravitating hooked arm, e, adapted to catch in the plate, F, and an upwardly projecting arm provided with a knob, E, by a direct pull upon which the latch is retracted, all as herein described.

[This invention relates to a new and improved latch for doors, designed more especially for closet and cupboard doors.]

46,654.—Teeth for Cultivators.—Henry Francisco, Lake Mills, Wis.

First, I claim the eccentric standard to a cultivator tooth, constructed and operated substantially as described.

Second, The slotted slide and set screw, arranged and operated in the manner and for the purpose described.

Third, The combination of the set and set retaining device with the eccentrically hung shank of a cultivator tooth, substantially as and for the purpose described.

46,655.—Making Volute Springs.—John Freeland and Danl. Ward, New York City.

I claim a solute spring composed or formed out of a single plate cut or divided longitudinally nearly its whole length with the cut portions spread apart, and the plate rolled, substantially as herein shown and described.

[This invention relates to a new and useful improvement in volute springs for railway cars, and for other purposes. The object of the invention is to obtain a spring of the class specified which will possess a greater degree of elasticity than usual and be stronger or less liable to break and more durable.]

46,656.—Car Couplings.—Francis M. Gifford, Brant, N. Y.

First, The drop bolt or pin, F, and link or shackle, D, in combination with the pivoted bar, H, and the brace or stay, E, all arranged in relation with the draw head to operate substantially in the manner as and for the purposes herein set forth.

Second, The pin, E', in the rear part of the draw head when used in connection with a link or shackle, D, and a brace or stay, E, substantially as and for the purpose specified.

[This invention relates to a new and improved car coupling, of the class which are commonly termed self coupling.]

46,657.—Cultivator.—John H. Given, Henry Hutsonpiller, and H. Chas. Gilbert, Des Moines, Iowa.

We claim the frame, D, pivoted or attached to the draught pole, A, as shown in connection with the joined set bar, O, angle plates, P, and the plates, R, all arranged to admit of the ready elevation of the plows, G, as set forth.

We further claim the uprights, H H, connected at their upper parts to the lever, J, and connected to their lower parts to the plow standards, F, and pivoted to the frame, D, substantially as shown and described, to admit of the lateral movement of the plows, G, as described.

[This invention relates to a new and improved cultivator for plowing or cultivating corn and other crops which are grown in hills or drills.]

46,658.—Bolting Apparatus.—Henry B. Goodyear, New Haven, Conn.

First, The combination with the wire instrument for seizing and drawing up and forcing internal elastic ball valves into the necks of bottles for the purpose of closing or stopping the same of a check piece, operating in conjunction with said wire instrument in the manner and for the purpose set forth.

Second, The machine or apparatus herein described for closing bottles by means of internal elastic valves, in the manner shown and set forth.

46,659.—Snap Hooks.—Robt. A. Goodyear, New Haven, Conn.

I claim, first, The recessed shank of the closing bar, when constructed for operation substantially in the manner and for the purposes set forth.

Second, As a new article of manufacture I claim a snap hook, the same consisting of a hook, a recessed hinge or closing bar and a spring end, in the manner substantially as set forth.

Third, In combination with the recessed hinge bar and hook of a vulcanized india rubber spring the whole being constructed and combined in the manner and for the purposes set forth.

46,660.—Machine for Riveting Buttons in Cloth.—William J. Gordon and Edmond D. Gilbert, Philadelphia, Pa.

We claim, first, In machines for attaching buttons to cloth or other material, feeding the rivet and the button, perforating the material, placing the rivet therein, advancing the cloth and rivet to the button, and uniting them by riveting, by mechanical devices, constructed, arranged, and operating as a whole substantially as described.

Second, We claim the needle and its tubular casing, T, constructed and operating substantially as described.

Third, We claim the jointed hook, Q, with its inclined face, Z, for operating the hammer in its connection with the button riveting machine, substantially as described.

Fourth, We claim the combination of the punch stick, E, casing, J, punch, M, and spring, K', constructed, arranged and operating substantially as described.

Fifth, We claim the button chamber, L', in the bottom of the punch stick, substantially as described.

Sixth, We claim the button chamber, L', in combination with the centering tube, J', constructed with a centering end, M', substantially as above described.

Seventh, We claim releasing the rivet from its carriage by the impact thereon of the punchstick, substantially as described.

Eighth, We claim the rivet-carriage, constructed substantially as described.

Ninth, We claim the hopper in combination with the channel, V, chamber, L', and the feeding slide, W, substantially as described.

Tenth, We claim operating the punch stick by means of the trigger arm of the lever, H, substantially as described.

Eleventh, We claim operating the button feeding slide, W, by means of a sliding rod, X, or its equivalent, and the sliding pin, U, substantially as described.

Twelfth, We claim the combination of the ratchet, G, bent lever, I, and lever, H, substantially as described.

Thirteenth, We claim operating the pawl, I, on the return movement of the lever, H, in the manner and by means substantially as described.

Fourteenth, We claim the cross heads, 18 and 19 constructed as described in combination with the standards, S S, and Q, and cam, E, for the purpose described.

Fifteenth, We claim operating the cam by means of the pawl, I, on the lever, B, and the ratchet, G, on the cam shaft, substantially as described.

Sixteenth, We claim operating the rivet carriage by means of the lever, H, and lever, X, substantially as described.

46,661.—Machine for Making Heads to Barrels.—John Greenwood, Rochester, N. Y.

I claim so arranging the clamp heads, C C', upon the swing frame, B, and combining therewith the sliding shaft, D, that the said heads first clamp the boards in place, and then move up to cut the barrel head, substantially as described.

In combination with the sliding shaft, D, and clamps, C C', I also claim the lever, E, and wedge cam, G, operating substantially as and for the purpose specified.

I also claim the combination of the spring, d, pin, g, and collar, h, with the shaft, D, provided with the cavity, c, slot, f, the whole so arranged as to produce the reaction of said shaft, to separate the clamps, and so as not to interfere with the twirling of the shaft substantially as described.

I also claim the disk wheel, M, mounted on the arm, N, and both used in combination with the swing frame, B, and piston wheel, O, in such a manner that the forward motion of said swing frame will bring the two wheels in contact, and the backward motion of the frame will bring them apart, as herein specified.

In combination with the subject matter of the preceding clause, I also claim the spring catch, t, substantially as specified.

I also claim the arms, S S', in combination with the clamp heads C C', and swing frame, B, to operate in such a manner that when the swing frame is drawn back, the said arms will rest upon the clamps to act as the guides, but when the arms are moved forward the clamps will clear from them, substantially as described.

46,662.—Collision Brake.—C. B. Guy, Lybrand, Iowa.

I claim a collision brake for railroad cars composed of a double inclined truck mounted on wheels and placed in front of the locomotive of a train, the locomotive being connected to the inclined truck in such a manner that it will disconnect itself in the event of a collision and the locomotives and forward cars of the two trains will pass up the inclined tracks and lose their momentum in the ascent.

[The object of this invention is to prevent accidents arising from collisions on railroads, and it consists in the employment or use of a double inclined truck mounted on wheels and placed in front of the locomotive of a train, the locomotive being connected to the inclined truck in such a manner that it will disconnect itself in the event of a collision and the locomotives and forward cars of the two trains will pass up the inclined tracks and lose their momentum in the ascent.]

46,663.—Passenger Register.—Edward Hackett, New York City.

I claim the roller, E, provided with a spiral groove, g, and marked with alternating figures and ciphers placed in a spiral row to operate in combination with the slide, I, and with the hinged step, A, sliding rod, B, and weight, C, or its equivalent, in the manner and for the purpose substantially as set forth.

[This invention consists in the employment or use of a roller to which an intermittent rotary motion is imparted by connecting it in a suitable manner with the hinged step of a street car, omnibus, or other public conveyance, and which is marked on its circumference with a series of figures placed in a spiral row, and also provided with a spiral groove to operate in combination with an endless apron carrying the indicating slide in such a manner that for each start given to the roller by the weight of a passenger acting on the step the slide is propelled a proportionate distance and a new figure is brought opposite to an opening in said slide, thus indicating the number of passengers passing in and out of the conveyance with perfect accuracy.]

46,664.—Horse Hay-fork.—A. M. Halsted, Rye, N. Y.

I claim a horse fork provided with a shank, C, having an oblong slot, c, for the pivot bolt, d, which connects the shank with the frame, B, and the lip or projection, e, on the shank—all arranged to operate in the manner substantially as and for the purpose set forth.

[This invention relates to a new and improved trip mechanism for a horse hay-fork—that is to say, a means whereby the fork is held in a position to retain its load while being elevated, and which will admit of being readily manipulated so that the fork may discharge its load when required.]

46,665.—Portable Heater for Liquids.—Wm. A. Hancock, Salem, N. J.

I claim the combination of the heater, A, provided with tubes, B, and the base, C, provided with sockets, C', the heater being adapted to slide up and down within the base and retained at any desirable height, substantially as and for the purposes specified.

[This invention relates to an apparatus of very simple construction and compact form, especially adapted for the use of soldiers on picket duty, for heating coffee, water or any beverage or stimulant.]

46,666.—Cultivator.—Lorenzo D. Haughey, Atlanta, Ill.

I claim the pivoting of the axle, A, to the draught pole, D, to admit of the lateral movement or adjustment of the plows as set forth.

I also claim the semicircular frame, C, attached to the front side of the axle, in connection with the traction roller, F, and bolt or rod, G, attached to the draught pole, D, substantially as and for the purposes specified.

[This invention relates to a new and improved cultivator for cultivating or plowing corn and other crops which are grown in hills or drills, and it consists in a pivoted axle and a novel construction and arrangement of other parts whereby it is believed that several advantages are obtained over other devices for the purpose specified.]

46,667.—Construction and Hanging of Gates.—J. Healy, South Dansville, N. Y.

I claim the gate above described, constructed and applied substantially as above set forth.

[This invention has for its object to produce a gate which may be opened from the right or left-hand sides, and suspended at different heights above the ground to allow small animals to pass beneath, and which may be lifted off its points of suspension without making any changes in the gate or its posts.]

46,668.—Pneumatic Drill.—Herman Haupt, Cambridge, Mass.

I claim the method of and apparatus for drilling rock for mining, tunneling, and boring purposes, substantially as herein before described.

46,669.—Apparatus for Folding Paper Collars.—Albert H. Hook, New-York City.

I claim the elastic folding-york in an inclined position on which the knife acts in folding as described, in combination with the gages, m, substantially as and for the purposes set forth.

46,670.—Stove-pipe Damper.—James L. Howard, Hartford, Conn.

I claim, first, Retaining the dampers of stove-pipes in any desired position by means of the elasticity of the pipe, substantially as above described.

Second, I also claim releasing the damper or its axis from the indentation, or other device for holding the damper in place, by shortening the diameter of the pipe in the line of the axis of the damper, substantially as described.

[This invention consists in a novel mode of applying a damper to a stove-pipe, wherein the elasticity of the pipe is employed to keep the damper in any desired position, and its flexibility is employed for the purpose of releasing it in order to take a new position.]

46,671.—Breech-loading Fire-arm.—Frederick Howe, Providence, R. I.

What I claim in combination with the hinged breech piece is constructing the hammer and the latch bolt substantially as herein described, that they shall act as a stop to prevent the closing of the breech unless the hammer be first drawn back as set forth and for the purpose specified.

And I also claim the special construction of the wing for drawing out the cartridge cases from the barrel with its flanges fitted to sockets in and combined with the breech piece, as herein described.

And I also claim making the hinged swinging breech piece hollow to receive and contain the mechanism of the lock, in combination with the heads, D D', attached to the sides to resist the recoil by abutting against corresponding shoulders in the mortise of the surrounding metallic case, as and for the purpose described.

46,672.—Steam Engine.—W. Huston, Wilmington, Del.

I claim, first, The cylinders, E E', secured to the ends of heads, D D', and with the common shafts, C C', and operating in combination with a common piston rod and pistons, F F', F', in the manner and for the purpose substantially as set forth.

Second, The use of the compound piston rod, G, constructed as shown in figures 7 and 8.

The disk valves, H H', applied in combination with the revolving heads, D D', and with the common starting and reversing bar, I, in the manner and for the purpose substantially as described.

[This invention consists in an engine composed of four cylinders which are secured one to each end of two heads mounted on the ends of two shafts which are parallel but not situated in line with each other and coupled together by a compound piston rod, moving in suitable guide grooves in said heads in such a manner that each pair of cylinders revolve in a true circle around the shaft to which they are connected, but the pistons of one set of cylinders act eccentrically on the shaft of the other set, and vice versa.]

46,673.—Well Borer.—Walter Hyde, New York City.

I claim, first, The pulley, e, arranged in the oscillating lever, C, in combination with the drill rope, E', pulley, G, windlass, D, and tappet wheel or cams, constructed and operating substantially as and for the purpose set forth.

Second, The double gear, g, h, pawl, J, or its equivalent, and hand crank, applied in combination with the drill rope and cams, substantially as herein described, so that the stroke of the drum can be adjusted and the drill raised or lowered while the machine is running.

Third, The shears, I, applied in combination with the platform, A, and sectional drill rod, H, substantially as and for the purposes specified.

Fourth, The use of a double windlass, W W', and adjustable stirrup, S, in combination with the drill rope, E', and bucket rope, E'', constructed and operating substantially as and for the purpose described.

46,674.—Elastic Fabric.—Hector Hyves, New York City.

I claim making an elastic fabric suitable for bed bottoms and other analogous purposes by means of securing the strands to the frame and lacing them to resemble lattice work by passing the adjacent angles formed by the sinuosities of the cord through thimbles or short sections of india-rubber tubing, as described and represented.

[The object of this invention is to produce a fabric which shall be suitable for the bottom surfaces and backs of chairs, settees, sofas, cots, beds, berths, and all manner of surfaces in which it is desirable to combine the qualities of lightness, elasticity, cleanliness, and economy.]

46,675.—Cultivator.—John W. Ingle and R. H. Wright, Livingston, Ill.

We claim the frame, D, attached to the axle, A, by a pivoted bolt, a, and provided with pivoted plow standards, H, connected by rods, K, the segment teeth, J, K, and levers, L, L, in combination with the frame, D, and draught pole, A, and arranged to operate substantially as and for the purpose set forth.

[This invention relates to a new and improved cultivator designed for cultivating those crops which are grown in hills or drills.]

46,676.—Screw Plates.—John Jennings and George C. Sweet, West Meriden, Conn.

We claim the employment or use of pins, C C, fitted in the plate, A, and provided with recesses, e, e, as shown, for the purpose of securing the dies, B B', in the plate, A, admitting of their ready removal from the plates, as set forth.

46,677.—Engine Lathe.—James L. Johnson, Ashburnham, Mass.

I claim, first, The method therein giving to the tool stock an automatic motion back and forth at the terminal of the stroke of the slide rest by means of the slide, g, and cam slot, f, constructed and applied substantially as set forth.

Second, The application of adjustable lugs, l, to the hand wheel, d, and screw, b, which serves to operate the tool stock, in combination with a spring stop, k, constructed and operating substantially as and for the purpose described.

46,678.—Broom.—O. W. Kellogg, Ripon, Wis.

I claim the broom above described as a new and improved article of manufacture.

[This invention consists in making a broom for household and other uses by securing the handle in the upper and smaller end of a metallic holder, and the "brush," or other material composing the sweeping surface, in the other end.]

46,679.—Mode of Weaving Button-holes in Fabrics.—Lucius J. Knowles, Warren, Mass.

I claim my improved mode, substantially as described, of weaving a fabric with button holes, the same consisting in weaving alternately of increments of the two marginal portions including the button-hole and running the weft thread on the outside of the fabric between the weaving of any two consecutive increments, the same being essentially as herein before explained.

In combination with my said improved process or mode of weaving webbing with a button-hole, I claim the running of the first and last shoots of the wefts of each increment of a marginal portion between the upper and lower sets of warps, the same being for the objects specified.

46,680.—Whip Socket.—John Lake, Haydenville, Mass.

First, I claim the springs, B, placed within the socket and arranged substantially as and for the purpose set forth.

Second, The plate, C, with the spring, D, underneath it, arranged with the lower part of the socket to operate substantially as and for the purpose specified.

Third, The securing of the socket to the dashboard by means of the spring, E, substantially as shown and described.

[This invention relates to an improvement in the whip socket whereby the whip will be firmly retained therein, and the lower end or bottom of the socket prevented from being broken out or detached under the thrust of the whip when hurriedly shoved into the socket—a contingency of frequent occurrence with the ordinary sockets in use. The invention further relates to an improved mode of attaching the socket to the dashboard of the vehicle, whereby the socket may be readily detached from the dashboard of one vehicle and applied to that of another.]

48,681.—Punch and Die.—William K. Lewis, Boston, Mass.

First, I claim the pricking needle, F, applied in combination with the yielding center piece, D, die, B, and punch, A, substantially as and for the purpose set forth.

Second, The combination of the center piece, D, and needle, F, separately adjustable in height, and employed in connection with the spring, E, in the manner and for the purposes explained.

[This invention relates to an improvement in that class of punches and dies which are used for cutting and pricking studs, cups or covers for tin cans, etc., at one operation.]

46,682.—Ice Sandal.—Thomas J. Linton, Providence, R. I.

I claim an ice sandal, stamped or otherwise, produced out of sheet metal, to fit the sole of a shoe, and provided with a grater surface and lugs, and with a suitable fastening, by which it can be secured to the foot, substantially as and for the purpose set forth.

[This invention consists in an ice sandal, stamped or otherwise, produced out of sheet metal, to fit the formation of the sole of a boot or shoe, and provided with a large number of holes punched in, so as to form beads on the outer surface similar to that of an ordinary grater, in combination with lugs or ears catching over the edges of the heel and sole, and with a series of leather straps or other suitable fastening, in such manner that the sandal can be readily and easily attached to the sole of a boot or shoe, to which it had been fitted, and that by the action of the grater surface a firm foothold is obtained on ice or snow.]

46,683.—Pump.—Thomas J. Linton, Providence, R. I.

First, I claim the shallow pans, B B', in combination with the reservoir, A, and induction pipe, C, constructed substantially as set forth.

Second, The producing a vacuum in the reservoir, A, by the combined action of hydrocarbon liquid and steam, substantially in the manner set forth.

Third, The arrangement of the water pan, B, and hydrocarbon pan, B', and reservoir, A, whereby the combustion of the hydrocarbon liquid in the pan, B, will vaporize the water in the pan, B, and thereby produce a partial vacuum in the reservoir, substantially as described.

Fourth, The measuring spouts, d d', applied in combination with the pans, B B', and closed reservoir, A, substantially as specified.

Fifth, The method herein described of igniting the hydrocarbon liquid in the pan, B, by igniting a portion of said liquid in the spout and running such ignited liquid into the reservoir, A, substantially as set forth.

Sixth, The drop valve, E, in combination with the ascension pipe, D, and induction pipe, C, and reservoir, A, all constructed substantially as and for the purpose described.

46,684.—Red Ink.—Thomas J. Lumrus, Lynn, Mass.

I claim the use of a solution of the above-named salt in alcohol or other equivalent neutral spirit, as a red writing ink or fluid, substantially as described.

46,685.—Globe Valve Cock.—F. Lunkenheimer, Cincinnati, Ohio

I claim a globe valve, in which the nut and stuffing box for the valve stem are made of one piece, or rigidly connected, the same as in an ordinary globe valve, but the nut instead of being provided on its outer surface with a screw thread is turned off smooth, and fitted in the socket of the stem, where it is held by a cap, substantially in the manner and for the purpose set forth.

[This invention consists of a globe valve, in which the nut and stuffing box for the valve stem are made one, the same as in the ordinary globe valve, but the nut, instead of being provided with a screw thread on its surface, is turned off smooth and fitted into a socket in the body or shell of the globe valve, and it is held down by means of a cap fitting over the outside of the nut and socket, in such a manner that when said cap is unscrewed the friction of the spindle in the stuffing box prevents the same from turning in the nut, and the valve can be ground with the greatest ease and precision, the nut itself forming the guide during the operation of grinding.]

46,686.—Washing Machine.—Lansing Marble, Vassar, Mich.

I claim the cylinder, C, provided with the balls or spheres, a, at its periphery, in combination with the endless apron, J, arranged in connection with the fixed rollers, e e', all arranged to operate substantially as and for the purpose herein set forth.

[This invention consists in the employment or use of a cylinder, provided at its periphery with balls or spheres placed in rows parallel with the axis of the cylinder, in connection with an endless belt and rollers, arranged within a suds box.]

46,687.—Artificial Leg.—A. A. Marks, New York City

I claim, first, The oblique boxes, b, applied in combination with the gudgeons of the T-shaped bracket, D, and with the shell of the leg and thigh, in the manner and for the purpose substantially as set forth.

Second, The pear-shaped button, f, in combination with the spring, d, oscillating box, g, and with the bracket, D, applied to the thigh and leg, in the manner and for the purpose substantially as described.

[An engraving and description of this invention will shortly be published in the SCIENTIFIC AMERICAN.]

46,688.—Trough for Raising Dough.—H. S. McKean, Alleghany, Pa.

I claim the employment or use of a box or chest, A, provided with a steam pipe, B, arranged substantially as shown, in connection with a dough chow provided with feet, C, and with the steam pipe, so that it may be fitted in A, with its bottom above the steam pipe, or above the bottom of A, for the purpose of raising dough for baking, as set forth.

I also claim, in combination with the box or chest, A, heated by steam, as described, one or more perforated shelves, D, for the purpose specified.

[This invention is designed to facilitate the raising in cold water of dough for bread.]

46,689.—Hot-air Engine.—Henry Messer, Roxbury, Mass.

First, I claim the arrangement in a hot-air engine of the lower part of the cylinder, the air pump, the fire box and the feed box, substantially as specified.

Second, Also the arrangement of the conduit around the cylinder, substantially as described, for keeping the upper part of the cylinder cool, and utilizing the waste heat.

Third, Also the employment, in the unoccupied space in the foundation m, of a hot-air engine, for reception of water, so that steam can be generated by utilization of radiated and conducted caloric, which would otherwise be wasted, substantially as described.

Fourth, Also in connection with the space in the foundation, m,

the separation of the cylinder therefrom, by a casing, a, substantially as and for the purpose described.

Fifth, Also dividing the space contained in the foundation, m, of a hot-air engine, by means of the partition, p, when provided with a flange, as shown, by which a tight joint is between the partition and covering plate, n, can be secured, substantially as and for the purpose described.

Sixth, Also the grate, as constructed, when arranged with reference to passages admitting air, with or through it, and with provision for discharging the air between the fire pot and its lining, substantially as described.

Seventh, Also the employment, in combination with cup packing, of springs, by which the cup packing is so held to its place as to operate as designed under pressure.

Eighth, Also in a hot-air engine a tightly-closed fire box, and working all the volatile products of combustion through the cylinder, the injection into the fire box, in connection with ignited solid fuel of combustible fuel, substantially as described.

46,690.—Combined Measure, Tunnel and Faucet.—Henry Mitchell, Richmond, Ind.

I claim the arrangement, construction and combination of the pipe, B, cylinder, C, measurer, D, and faucet, H, as herein described and for the purposes set forth.

46,691.—Mode of Suspending Burners for Lamps.—Albert Moore and James A. Cole, Northville, N. Y.

I claim, first, A temporary hanger for lamp burners, operating substantially in the manner and for the purpose specified.

Second, Providing a loop to guide the wick, for the purpose substantially as described.

Third, Hinging the spring, C, to the lower portion of the burner, substantially as shown

46,692.—Knife, Fork and Spoon Holder.—G. Livingston Morse and L. M. Herrick, Harrison, N. J.

We claim the combination of the hinged rest, A, with the clasp, B, C, constructed and employed as described.

46,693.—Tobacco Pipe.—Robert Nagler, Brooklyn, E. D., N. Y.

I claim the combination of the bracket, B, formed separately from and adapted for the reception of the pipe bowl, A, the sockets, a, b, tubes, c, d, stem, C, and reservoir, D, when the said parts are constructed and connected, as and for the purposes herein specified.

46,694.—Fruit Ladder.—A. W. Olds, Green Oak, Mich.

I claim the two holders, A A', in connection with the brace or connecting rod, C, and the support, B, and wheels, d', all arranged substantially as and for the purpose specified.

[This invention consists in constructing a ladder in such a manner that it may be used as an ordinary step ladder for picking fruit, and for other purposes, and be capable of being readily moved from place to place, and also capable of being adjusted so as to form, when desired, a single or continuous ladder, such as are used by house painters and others.]

46,695.—Churn.—James N. Pease, Panama, N. Y.

I claim the churn, A, placed in a frame, B, mounted on rockers, C, C, in combination with the bars, F, F, arms or levers, G, G, and bar, I, attached to dasher rod, H', all arranged and applied to operate in the manner substantially as and for the purpose herein set forth.

[This invention relates to a new and improved churn of that class which are provided with rockers and have an oscillating motion. The object of the invention is to obtain a churn of the class specified, which will have, in connection with a rocking or oscillating movement, a reciprocating dasher, operated automatically from the rocking movement of the churn, whereby butter may be produced much more expeditiously than by either a rocking movement of the churn alone or with a fixed churn and reciprocating dasher.]

46,696.—Artificial Arm.—Jacob Peterson, Canoga, N. Y.

I claim, first, The use of the flexor cord, f f f, Fig. 1, and the strap, F, for the purpose of closing the fingers and thumb, essentially as above described.

Second, The use of the elastic strap, G, Fig. 4, in combination with the strap, F, and the flexor cord, f f f, Fig. 1, for the purpose essentially as above described.

Third, The use of the hook and eye, marked p, Fig. 5, said cross piece, F, Fig. 5, in combination with the elastic strap, G, Fig. 4, and the flexor cord, f f f, and strap, F, Fig. 1, and rod or shaft, X, Fig. 5, substantially as above described.

Fourth, The wire joint, constructed essentially as above described, in combination with the flexor cord, f f f, and strap, F, Fig. 1, as above described.

46,697.—Spring Catch for Door.—J. Plumer, Boston, Mass.

I claim, first, The use of rubber in spring catches, when so arranged in reference to the inelastic portion of the catch as to partially or entirely encompass it, and operating by means of its flexibility or bending property in any or all directions.

Second, The combination of the rubber with the catch, as above described, substantially as and for the purposes enumerated.

46,698.—Hot Blast Pipe.—Wm. B. Pollock, Youngstown, Ohio

I claim, first, The combination of the trunks, B B', with the sectional pipes, C, and connecting pipe, D, arranged substantially in the manner and for the purpose set forth.

Second, The combination of the trunks, diaphragms and section pipes, substantially in the manner described, so that any injured or worn tube or section may be singly removed, and a new one inserted, without stopping the blast longer than merely to make the removal or change of the section.

Third, Making the continuous pipes in sections, and so uniting them with the trunks that any one of the several pipes may expand unequally and independently without fracturing the other, having a different expansion, as set forth.

46,699.—Picture Card Frame.—R. W. Potter, New York City

I claim a card frame, A B, made in the manner herein shown and described.

Also cutting and embossing the hole, A, in border, B, in the card, A, by one and the same operation, as set forth.

46,700.—Process for Treating Navassa Guano.—Robert Potts, Camden, N. J.

I claim the within-described process of making superphosphate of lime from Navassa guano, or all guano containing more than 6 per cent of iron and alumina, by sprinkling the requisite quantity of sulphuric acid over the guano, in the form of rain, or as near as possible in that form, while the mass is continuously agitated, substantially as and for the purpose set forth.

[The object of this invention is to make a dry superphosphate of lime from Navassa guano, by adding sulphuric acid in small portions at a time, keeping the batch agitated or stirred with such rapidity as to prevent heating as much as possible, and thereby keep the batch dry and granular, ready for sale in a few hours, instead of a wet and sticky mass, totally unsaleable as made by the old process. Secured by patents in the United States and in Europe.]

46,701.—Machine for Washing and Cleaning Clothes, Etc.—Wm. Price, Cincinnati, Ohio

I claim the combination of the arms, G C, with the horizontal pins, d d, the vertical pins, e e, and hand lever, D, substantially as and for the purposes herein set forth.

46,702.—Sand-paper Holder.—Jerome Redding, Maplewood, Mass., and Nathaniel W. Redding, Charlestown, Mass.

We claim, first, The employment, of two pieces, A, B, of metal or other suitable material, in connection with a thumb nut and screw, for holding and affording a bearing for sand paper and emery cloth, substantially as herein described.

Second, We claim the deflected parts b b, and fingers or prongs, b', in combination with the guide, A, and guideway, B, the whole being employed to facilitate the application of the emery cloth or sand paper to the holder, in the manner herein explained.

46,703.—Tool for Cutting Off Stay and other Bolts.—Joseph Renshaw, Michigan City, Ind.

I claim, first, The clasp sleeve for holding the tool to the bolt to be cut, constructed substantially as described.

Second, The combination of the clasp sleeve and the stock, I, substantially as described.

46,704.—Key for Lock.—Edwin Reynolds, Mansfield, Conn.

I claim a key made with a series of auxiliary bits, interlocking with the main bits, and so as to be capable of rotation and operation in one direction, and independently thereof in the other direction, substantially as set forth.

46,705.—Velocipede Trotting or Pacing Horse.—Harvey A. Reynolds, New York City

I claim, first, A velocipede trotting or pacing horse, mounted on wheels, and having the axle of the forward or driving wheels provided with reversed cranks, to act on the jointed legs, B B, substantially as explained.

Second, The jointed legs, B C, connected by rods, L, and the latter secured to the stirrups, K, of the axle of the driving wheels, substantially as and for the purpose specified.

[This invention relates to a new and improved toy or velocipede horse for children, and it consists in having the horse mounted on wheels, the axle of the driving ones of which is provided with cranks, having stirrups applied to them, and arranged in such a manner that the driving wheels may be turned by a direct application of the feet of the rider to them.]

46,706.—Manufacture of White Lead.—Wm. Archer and Clinton Rice, New York City

We claim the continuous or intermittent removal of the white lead from the surface of metallic lead, as fast as desirable, by means of a stationary revolving or reciprocating brush or scraper, applied in combination with a revolving or stationary drum or frame, substantially as described.

46,707.—Method of Preserving Fruit, Etc.—Esek C. Roberts, Salem, Mich.

I claim, first, The herein-described construction of one or more chambers, arranged with an ice house or fruit house, and surrounding the same with a poor conductor of heat, as and for the purposes herein set forth.

Second, I claim one or more condensers, constructed as described, and placed within the chamber, as and for the purpose specified.

46,708.—Machine for Hulling, Cleaning and Polishing Rice.—Charles E. Rowan, Brooklyn, N. Y.

I claim, first, The combination of the two concentric cones, D and E, provided with open removable frames, G, and adjustable endwise in relation to each other, in the manner and for the purposes herein specified.

Second, I further claim constructing the rubbing surfaces of steel wires, I, set edgewise in the frames, G, as herein shown and described, so as to admit of setting or repa ring the rubbing surfaces by tapping the wires from the back, as explained.

46,709.—Knife for Opening Tin Cans.—Charles A. Ruff, Providence, R. I. Ante-dated Feb. 23, 1865

I claim a knife, provided with a fulcrum to rest or rock on, the tin being cut, constructed and arranged substantially as described.

46,710.—Curry-Comb.—Cyrus W. Saladee, Putnam, Ohio

I claim the arched frame or back, A A' of the curry-comb, in combination with the handle, C, in the manner and for the purpose substantially as shown and described.

46,711.—Stirrup.—Cyrus W. Saladee, Putnam, Ohio

I claim the cross bar, C, in combination with the guard, B, and the stirrup, A, in the manner and for the purpose substantially as shown and described.

46,712.—Stirrup.—Cyrus W. Saladee, Putnam, Ohio

I claim the cap, A, in combination with the cross bar, F, and stirrup leather, E, in the manner substantially as shown and described.

46,713.—Machine for Pulverizing Sand, Etc.—Joseph G. Savage, South Reading, Mass.

I claim the machine, constructed and operated substantially as above described, for pulverizing and reducing sand and other material, and sifting the same, as set forth.

46,714.—Machine for Rifling Gun Barrel.—William and Coleman Sellers, Philadelphia, Pa.

We claim, first, Arranging the movements of a machine for rifling gun barrels in such a manner that they shall take place in a series or order, the starting of each one of the series being dependent upon the final movement of the previous one of the series, substantially as and for the purpose specified.

Second, Stopping the motion of the rifling rod at one end of its stroke, and causing the other movements to take place, as described, while the rifling rod is at rest.

Third, Arranging the driving power of the rifling rod, in such a manner that it shall be able to perform the work required, but will disconnect itself and stop under a strain too great for the rod to bear with safety.

Fourth, The use of a washing box or boxes, substantially as described and for the purpose specified.

46,715.—Liniment.—G. W. Smith, North Whitehall Township, Pa.

I claim a liniment, composed of the ingredients herein specified, and mixed together, substantially in the manner and about in the proportion set forth.

[This invention is intended as a remedy for such diseases as the swenny in horses, or for other similar affections, and when applied twice or three times to the afflicted part it gives relief in a very short time.]

46,716.—Slide-hill Plow.—Hannibal B. Smith, Springfield, Mass.

I claim the combination of the mold board, D, with the share, B, flange beam, A, spring catch, c, and lip, d, or their equivalents, operating substantially as described.

46,717.—Machine for Making Heads of Casks.—E. R. Spaulding, St. Louis, Mo.

First, I claim the combination in a lathe of the rotating disks or heads, and the vibrating arms carrying tool for cutting out and chamfering the heads of kegs, and other work of like character, and the sliding table which carries the arms, substantially as and for the purpose described.

Second, I also claim constructing and arranging the chamfering tool stock, and the cutting tool stock, C, in the order and manner herein shown, upon vibrating arms, constructed and operated so as to be adjustable for different diameters and sizes of work, and for different thicknesses of bevel, substantially as above described.

[This machine is especially adapted for cutting out bottoms of pails and tubs and bottoms and heads of kegs. The cutters are set so as to work at right angles to the plane of the stuff, while the chamfering tools or planers are set so as to produce a bevel.]

46,718.—Manufacture of Skirt Wire.—T. S. Sperry, New York City

I claim the above-described skirt wire as an article of manufacture, consisting of wire, covered with a non-corrosive surface over a central skirt wire, substantially as described and represented.

[This invention consists in the use of thin metal wire in place of cotton or other fibrous material for the purpose of covering skirt wire, said wire to be applied by braiding, or simply by winding it on in such a manner that a permanent and durable covering for the skirt wire is obtained, which will effectually protect said wire, and not be liable to pull off or break out.]

46,719.—Lever Buckle.—Leonard A. Sprague, New York City

First, I claim a lever buckle in which the lever is composed of a single strip, and secured to the hinge bar by means of stoppers cut out of the body of the lever, substantially as set forth.

Second, In lever buckle, operating as described, I claim forming the frame of sheet metal, and corrugating or bending the front or impinged bar thereof, so as to prevent a lever surface to the front edge of the lever, substantially as set forth.

46,720.—Fruit Can.—John J. Squire, Windsor Locks, Conn.

First, I claim, in jars for preserving fruits, meats and other substances forming pedestals on the bottom thereof, so as to obtain a free circulation of the heating medium beneath them when they are placed in such medium, in the process of putting them up for market, substantially as described.

Second, I also claim the cover, C, formed with projections, c, F, F', in the described combination with the packing ring, b, and locking bar, E, for the purposes set forth.

[This improvement embraces two particulars, one being the providing the bottom of jars in which fruits, meats or other substances are to be preserved, with pedestals or feet, and the other consisting in a novel method of applying a packing ring to the cover, to make a tight joint with the neck of the jar.]

46,721.—Lock.—Nelson Stafford, Brooklyn, N. Y.:

First, I claim a series of tumblers, swinging in a plane at right angles, or nearly so, to the line of motion of the bolt, and moving with said bolt, in combination with stationary wards, substantially as specified.

Second, I claim the combination of a plate key with a sliding bolt and tumblers, when said bolt is moved by an endless motion given to said key, as specified.

Third, I claim the bolt carrying the tumblers, and fitted as specified, in combination with the key and stationary ward bar, as set forth.

46,722.—Binding Attachment for Sewing Machines.—Jacob S. Steiner, St. Louis, Mo.

First, I claim, in combination with the edge turners, e, e', the inclosed pressure guide, d, secured to the adjustable plate, B, and arranged and operating substantially in the manner and for the purpose herein set forth.

Second, The spring pressure plate or foot, h, combined with the tapering edge turners, e, e', and inclosed pressure guide, d, arranged and operating substantially as and for the purpose herein set forth.

Third, The slides, m, m', and guides, l and t, combined and arranged substantially in the manner and for the purpose herein set forth.

Fourth, The employment of the adjustable guide, w, substantially in the manner and for the purpose herein set forth.

46,723.—Piston Packing.—A. J. Stevens, San Francisco, Cal.

I claim the arrangement of a T-shaped ring, E, two L-shaped rings, F, piston head, A, and follower, D, constructed and operating in the manner and for the purpose substantially as herein shown and described.

This invention consists in the employment or use of a T-shaped and two L-shaped rings in combination with the head and follower of a steam piston in such a manner that the three rings are held in position by each other and by the piston head and follower, and that the L-shaped rings project up over the outer edges of the head and follower and flush with the outer surfaces of the same, and thus an increased bearing surface is obtained between the piston and cylinder, and said piston is more securely guarded than a piston of the same size constructed in the usual manner.]

46,724.—Apparatus for Filtering Liquids.—Robert Stewart, Brooklyn, N. Y.

First, in connection with the filtering chamber, G, I claim the construction and arrangement of the central receiving chamber, K, and hollow shaft adapted to prevent the escape of the vapor and the overflow of the liquid, substantially as set forth.

Second, I claim the distributing disk, L, arranged and employed substantially in the manner and for the purpose herein described.

[The principal object of this invention is to prevent the escape of vapor during the process of distillation, and preclude the possibility of overflow while providing adequate means for the introduction of the liquid.]

46,725.—Boiler Furnace.—Emerson C. Strange and Geo. K. Huntley, Taunton, Mass.

First, We claim the combination of a wind wheel with a series of perforated pipes placed in the walls of a furnace, either above or below the grate bars thereof, substantially as and for the purpose above set forth.

Second, The combination of the open casing, B, provided with perforated pipes leading from a central hub, as described, with doors, F, for shutting off the supply of atmospheric air, substantially as above set forth.

[This invention consists in a new method of supplying mingled or separate currents of air and steam to furnaces of steam boilers and to other furnaces.]

46,726.—Faucet.—Herman Strater, Jr., Boston, Mass.

I claim the arrangement of the sleeve, o, o, and the elastic packing, p, p, placed within the cap, n, n, as described.

Also, in combination with the above arrangement, the metallic packing furnished with an elastic backing, and operating substantially as described.

Also, the stop, m, for preventing the wear of the metallic washer on its backing, as described.

46,727.—Faucet.—Herman Strater, Boston, Mass.

First, I claim the spaces or chambers to which air has free access around the tube through which the liquid passes in such a manner that when a vacuum or partial vacuum is created in the chamber in which the said tube is located by the downward current of the said liquid, the air and liquid will be commingled, substantially as specified.

Second, The combination of the screw plug, h, h, extension tube, d, d, and in spaces or chambers, g, g, arranged and operating with regard to each other substantially as described.

46,728.—Faucet.—Herman Strater, Jr., Boston, Mass.

I claim the arrangement of the traveling socket and extension tube, operating together substantially as described.

46,729.—Stove.—T. L. Sturtevant, Boston, Mass.

I claim a stove provided with an internal heating chamber, B, open at its top, closed at its bottom, and communicating at its lower end with the external air by means of a number of radial tubes, b, which extend across the space or flue, a, between the chamber, B, and the case of the stove, substantially as and for the purpose specified.

I further claim, in combination with the air heating chamber, B, arranged as shown, the perforated plate, D, as and for the purpose set forth.

[The object of this invention is to obtain a stove which will possess a greater heat-radiating surface and greater heat-radiating capacity than any now constructed.]

46,730.—Lamp.—Dexter Symonds, Lowell, Mass.

I claim the thin metal jacket, B, formed with elongated air openings, b, b, placed on or around the wick tube, C, and in sulcate d from the latter by means of a non-conducting plug, E, all substantially as and for the purpose herein set forth.

46,731.—Clothes Dryer.—E. B. Taylor, Natck, Mass.

First, I claim the frame, B, provided with the rope, D, and d applied to the window, A, substantially as shown, in connection with a clothes frame, F, suspended to B, and provided with cords for the purpose specified.

Second, The construction and arrangement of frame, F, to admit of the revolving of the same, and the winding of the clothes upon it, for its ready application to and removal from frame, B, substantially as described.

[This invention relates to a new and improved clothes dryer of that class designed to be applied to windows.]

46,732.—Attaching Drill Teeth to Seeding Machines.—J. H. Thomas and P. P. Mast, Springfield, Ohio:

We claim bracing a drill tooth or tube to a drag bar by means of a separate brace bar in such a manner as to allow the drill tooth to swing or fold forward without breaking the wooden pin, substantially as and for the purpose set forth.

46,733.—Piston Packing.—Wm. R. Thomas, Catawauqua, Pa.

I claim the double shell, D E, provided with holes, f, in the outside

shell, and with a partition, a, and flange, c, in combination with holes, d, d, in the head and follower of the piston, and with secondary packing rings, F, and main packing rings, G—all constructed and operating in the manner and for the purpose substantially as herein set forth.

[This invention relates to an improvement in that class of pistons in which steam is used to keep the packing rings in contact with the inside surface of the cylinder.]

46,734.—Composition for Coating Oil Barrels and for other purposes.—Jesse G. Thompson, Carbondale, Pa.

I claim mixing lincseed oil with glue as herein described, for the purpose set forth.

46,735.—Machine for Cutting the Curd of Cheese.—Sardis Thomson, Monterey, Mass.

First, I claim the hollow cylinder with the groove beams, knives, and throats, in combination with the cams.

Second, The semi-cylinder or bed-piece with its grooves, slides, springs, and beams, in combination with the cylinder.

46,736.—Flexible Forms for Graining, Printing, etc.—Henry Tubising, Pittsburgh, Pa.

I claim making flexible and elastic forms for printing, graining, etc., of india-rubber or gutta-percha, or a mixture of india-rubber and gutta-percha, with a body or backing of printers' roller composition (gum and molasses), substantially as herein before described.

46,737.—Adjustable Eccentric.—D. F. Walker, Bowling Green, Ky.

I claim the sleeve, b, provided with wedges, g, inclined in opposite directions, and fitted to the shaft, A, by feathers, i, in combination with the disk, B, furnished with an oblong slot, c, and fitted to the shaft by notches, d—all constructed and operating substantially as and for the purpose set forth.

[This invention consists in the use of a grooved sleeve provided with two wedge-shaped projections and made to slide in a longitudinal direction on the shaft which carries the eccentric disk, said wedge-shaped projections being made to operate in combination with the eccentric disk in such a manner that by shifting the sleeve on the shaft the eccentricity or throw of the eccentric can be regulated at pleasure without stopping or interrupting the motion of the shaft on which the eccentric is mounted or that of the eccentric itself.]

46,738.—Corn Planter.—C. L. Westbrook, New-York City:

I claim the peculiar A-shaped harrow, or its equivalent, with the plowshare, F, the converging covers, I, the peculiar placing of the share, flexible tube and covers, together with the arms, k and j, and cross-piece, k, as attached—the whole, as constructed and described, as and for the uses and purposes herein stated.

46,739.—Churn.—Amos Westcott, Syracuse, N. Y.

I claim, first, The use of the funnel-shaped box, T, figure 5, with the method of packing the same, essentially as above described, in combination with the rectangular bars, H, the body of the churn, and the shaft and dasher paddles, as above described.

Second, The method of attaching and securing the shaft, I, figure 3, in the body of the churn, as above described, in combination with the body, rectangular bar, pinion wheel and shaft, as above described.

Third, The method of introducing air into the body of the churn, essentially as above described, in combination with the shaft and dasher, paddles, body, and rectangular bar, as above described.

46,740.—Bolt for Doors.—Amos Westcott, Syracuse, N. Y.

I claim, first, The method of fastening the bolt when the same is thrown out and also when it is drawn back, substantially as above described.

Second, The use of the spiral spring, or other similar device, in combination with the projection, a, figure 2, and the holes in the side of the bolt, substantially as and for the purpose above described.

46,741.—Animal Trap.—Jay Wheelock, San Francisco, Cal.

I claim the lever, G, provided with the plate, H, and spring, I, in combination with the slot, e, in the partition, F, and the revolving platforms, C, all arranged in connection with the box or animal receptacle, A, to operate substantially as and for the purpose specified.

I further claim the bait-box, E, connected to the box or animal receptacle, A, and arranged in relation with the lever, G, partition, F, and revolving platforms, C, substantially as and for the purpose set forth.

46,742.—Ox-yoke.—John H. Whitney, Sandisfield, Mass.

I claim the adjustable fulcrum screw, D, and the thumb screw, E, in combination with the bow slides, H, as and for the purposes set forth.

46,743.—Sugar-cane Mills.—E. A. Williams, Columbus, Ohio:

I claim, first, The application of one or more screens to the troughs or side conduits of the bottom plate of a cane mill in such a manner that the juice flowing over the angle formed by the said plate and the troughs into the troughs, b b', will be deprived of cane trash, substantially as described.

Second, The flaring spring guides, J, J, in combination with the side fenders, G, G, substantially as described.

Third, The combination of the bottom plate of a cane mill with side troughs, crushing rollers, partly overhanging the troughs, and the screens, substantially as and for the purpose set forth.

Fourth, Providing for the removal of the cane trash from both ends of the crushing rollers when the top and bottom plates of the mill are brought in close proximity to the ends of said rollers, substantially as described.

Fifth, The arrangement of guides and fenders as described, or their equivalents, directly over the front trough, b, substantially as described.

46,744.—Self-rocking Cradle.—Horace G. Williams, Hamilton, Iowa:

I claim the operating of a cradle, A, and fan if desired, through the medium of a weight, F, or an equivalent spring, an ordinary clock movement and rocking pallet bar, Q, with its upright, R, engaging with the forked bar, S, of the cradle, in combination with the counterpoise, laterally adjustable, weighted bar, T, substantially as described and represented.

[This invention relates to a new and improved arrangement for operating a child's cradle and fan whereby the use of the hand or foot for that purpose is entirely avoided, and the cradle rendered capable of being perfectly balanced and regulated, so as to operate with greater or less speed as may be desired.]

46,745.—Roasting and Desulphuring; Ores.—Riley P. Wilson, New York City:

First, I claim fire-clay retorts, A, in combination with conveyers, C, as a whole or in sections, for the purpose of desulphurizing gold, silver, and other metalliferous bearing ores.

Second, I claim the construction of a furnace in such a manner that a series of clay retorts, A, may be placed in a horizontal position side by side, or one above the other, so that the desulphurized ores may be conveyed back and forth during the process of calcination.

Third, I claim the hollow shaft, C, in combination with the retorts, A, as shown herein.

Fourth, I claim the flanges or wings, K, of the conveyers as adjusted to the shaft for the use and purpose herein stated.

Fifth, I claim the use and application of copper or gun metal, or its equivalent, both for a sheathing for the shafts of the retorts as also for the flanges or wings, K.

Sixth, I claim the introduction of a jet of steam into the retorts in combination with the air; also, the box or vessel, J, containing the salt or brine, substantially for the uses and purposes herein described.

Seventh, I claim the use of a receiving vessel or vat, G, in combination with the millers or stirrers, g, into which the desulphurized ores collect—said vat being partly filled with water, having a fine or pipe for the egress of the steam into the furnace; a faucet, i, for the extraction of surplus water; a syphon, j, for the discharge of the debris or refuse material, and the faucet, h, for drawing the amalgam.

46,746.—Twin Wood Stove.—Adam Worley, Saint Paul, Minn.

I claim, first, The convex-concave plate, C, and curved or elbow pipe, d, in combination with the inner or fire cylinder, B, substantially in the manner and for the purpose herein described.

Second, The curved or bent partitions, c, c, in the receiver, in combination with the inner cylinder, B, and outer one, A', substantially in the manner and for the purpose herein described.

Third, The combination of the stove, A, with the receiver, A', when used with their interior arrangements as described, substantially in the manner and for the purpose herein set forth.

46,747.—Self-centering Chuck.—Thomas H. Worrall, Manchester, N. H.

I claim the wedge-shaped jaws, b, and corresponding ways a, in combination with the spring slide, d, and cap, B, constructed and operating substantially as and for the purpose set forth.

46,748.—Lamp Shade.—Henry Zahn, New York City:

I claim suspending the shade of a lamp from the top edge of the cylinder by means of hooks or straps, a, or by any other equivalent means, substantially as and for the purposes herein shown and described.

[This invention consists in suspending the metal ring which supports the shade by means of two or more straps or hooks from the top edge of the cylinder or chimney in such a manner that said ring does not come in contact with the surface of the cylinder, and that by the current of air passing up between the cylinder and ring the temperature of the latter is kept at such a degree as to prevent the paper shade from being scorched or burned, and at the same time the liability of the cylinder to break is materially reduced.]

46,749.—Churn.—John Aiken (assignor to Erastus Wilkins), Warner, N. H.

I claim the combination in a churn of the rocking shaft, B, vibrating lever, C, and adjustable connecting rod, D, attached to the lever by a swivel joint, and to the dasher by a rigid joint, in the manner and for the purpose above described.]

[This invention effects a compound movement of the dasher—that is to say, a change from a horizontal to an angular position during each ascent of the dasher, and from an angular to a horizontal position during each descent, thereby producing a very energetic agitation of the contents of the churn by a slight movement of the vibrating lever.]

46,750.—Composition for Insulating Telegraph Wires.—Samuel C. Bishop (assignor to the "Bishop Gutta-Percha Company"), New-York City:

I claim a composition for insulating telegraph wires, consisting of gutta-percha or india-rubber and paraffine mixed with either resin and wheat flour, or with a tannate of gelatine and white oxide of zinc, substantially in the manner and about in the proportion herein set forth.

[The object of this invention is a composition which will serve to insulate telegraph wire over or under ground, and particularly under water, and to effect this purpose a composition must be used which is absolutely impervious to water, and which will protect the wire even if the same should be immersed to a considerable depth.]

46,751.—Clothes and Hat Rack.—Charles Bradford (assignor to himself and Paul Swenson), Newark, N. J.:

I claim, first, The combination of the escutcheons, b and d, connecting bar, c, the whole constituting a shank for the attachment of the hook, D, in the manner explained.

Second, In combination with a hook constructed as above specified, I further claim the bars, A, B, and divided sockets, C, C, constructed, arranged and employed as described.

[This invention consists of a clothes and hat rack in which there are two rails inserted in a metal s ket without fastenings so as to be removable; the hooks being so formed that their shanks fit between the rails and can be made to slide along between them to any desired position.]

46,752.—Corn Plow.—S. W. Hammon, (assignor to himself, Joseph H. Lincoln, S. Lincoln and A. P. Hammon), Montford, Wis.:

I claim, first, the two semicircular frames, E, C, applied to the draught pole, D, in the manner substantially as shown to form the main frame of the machine.

Second, The axle, A, connected to the draught pole, D, by the pivot bolt, a' in the manner as shown or in any equivalent way to operate as herein described.

Third, The toothed segments, C, C, arranged as shown in combination with the shaft, F, and bar, H, for the purpose of moving or adjusting the axle, A, as set forth.

Fourth, The attaching of the plows, T, to the standards, S, by means of the stems, h, fitted in bearings, l, the former being provided with nuts, j, and all arranged substantially as described.

Fifth, The method of adjusting and holding the frame, k, by means of the toothed segment, N, segment bar, M, and lever, Q, all arranged substantially as set forth.

46,753.—Rudders.—Jonas Higbee, Northport, N. S., assignor to himself and Joseph B. Denton, Newton, N. S.:

I claim the hinged segmental rudders, B B', provided with fins, a, a', and applied in combination with the posts, C, C, in the manner and for the purpose substantially as herein shown and described.

[This invention consists in the employment or use of two segmental rudders one at the bow and one at the stern and hinged to the lower ends of the rudderposts in combination with pins attached to the surfaces of each rudder in such a manner that said rudders adjust themselves automatically according to the direction in which the vessel moves, that at the rear end or stern of the vessel being turned out in its working position and at the bow or forward end being turned in out of harms way.]

46,754.—Loom for Weaving plush or piled Fabrics.—Samuel Holt, Newark, N. J., assignor to Charles A. Bulkley, New York City:

I claim, first, The levers, k, l, attached to the heddles as specified in combination with the tappets, f, g, h, and levers, i, m, n, to actuate the warps in a manner set forth, and wearing two pieces of cloth with the pile between substantially as specified.

Second, I claim the arrangement of the wheel, v, drum, w, levers, x, and tappets, y, for actuating the center knife, r, by means of the cord or strap, t, as specified.

46,755.—Plow.—Josiah Kilmer, Barnesville, N. Y., assignor to himself and August Kilmer:

I claim a regulator, R, to be employed in combination with the drag chain, C, in the manner and for the purposes set forth.

[The present improvement consists in the application of a regulator, in combination with the drag chain above referred to, in such a manner that the position of the chain can be adjusted instantaneously, according to the force required to throw the stalks, etc., under.]

46,756.—Sand Pump for Artesian Well.—Thomas J. Lovegrove (assignor to himself and Henry Baldwin, Jr.), Philadelphia, Pa.:

I claim, first, An air chamber, connected to and vibrated with a sand pump, substantially in the manner described, for the purpose set forth.

Second, A chamber connected to and vibrated with a sand pump, to receive the heaviest portions of the detritus passing through the pump.

Third, The combination with a vibrating sand pump of a flexible and extensible hose discharge pipe, for the purpose of accommodating the movements of the pipe to those of the pump, without lifting the weight of the pipe at every stroke of the pump.

Fourth, The combination in a sand pump of an air chamber next the valve, with a sand chamber above the air chamber.

Fifth, The combination with a sand pump of a sand chamber, hav-

ing an induction pipe projecting above its bottom, substantially as described, to relieve the induction valve from the weight of the debris, as set forth.

46,757.—Rock Drill.—Thomas J. Lovegrove (assignor to himself and Henry Baldwin, Jr.), Philadelphia, Pa.: I claim, first, A rock drill, having its cutting edges sloped with the center to the circumference, and with more cutting edges on one side than on the other, so that the stroke of the drill will tend to force the drill to one side, and thus make a hole larger than the drill, substantially in the manner described.

Second, A rock drill, having a chamber or concavity in its face, surrounded by polygonal cutting edges, substantially in the manner described for the purpose set forth.

Third, A rock drill, having one cutting edge on one side, three or more cutting edges on the other, substantially in the manner described, for the purpose of cutting both radial and transverse lines, as set forth.

Fourth, A rock drill, having a chamber on its face surrounded by cutting edges, substantially as described, and a channel leading therefrom to the head of the drill, for the purpose of cleaning away the chip at every stroke of the drill, and thus leaving a clear surface to operate upon.

Fifth, The combination of a perforated drill with a flexible hose or discharge pipe, substantially as and for the purpose set forth.

Sixth, The combination of a perforated drill, a valve and a flexible hose, substantially in the manner and for the purpose described.

64,768.—Machine for Cutting Keyseats.—J. C. Morgan (assignor to Wm. A. Nixon and J. S. Everhard), Alliance, Ohio: I claim, first, Chucking the piece of work, while the key-seat is being cut to a tapered mandrel, which may be fixed or movable, substantially as set forth.

Second, Providing the mandrel with a slot, substantially as described, so as to allow the saw to pass through it.

Third, The set screws or guides, a, a', applied in combination with the socket, C, mandrel, D, and saw, E, substantially as and for the purpose set forth.

Fourth, The knuckle, I, and shoe, K, applied in combination with the slide, N, feed screw, F, and saw, E, substantially as and for the purpose described.

[This invention consists in a machine provided with a mandrel, which may be fixed or movable, and on which the piece in which the keyseats to be cut, can be chucked. This mandrel is slotted, so as to allow the saw to pass through it, and the saw is adjusted at the requisite angle for cutting by a guide or set screws, which hold the lower part of the same in position. The feeding arrangement is composed of a screw with a dog hinged to a knuckle in such a manner that the saw is thrown forward when cutting and allowed to drop back when not cutting.]

46,759.—Piano-forte.—S. T. Parmelee (assignor to Parmelee Piano Company), New Haven, Conn.: I claim, first, The entire isolation of both the metallic frame and sounding, in the manner and for the purpose substantially as specified.

Second, Combining and uniting the sounding board with the frame, substantially as and for the purpose specified.

46,760.—Cranberry Gatherer.—Geo. Shove (assignor to himself and Chas. Thacher), Yarmouth, Mass.: I claim the arrangement and combination of the lifting comb, B, in the manner substantially as described, with the receiver, A, provided with teeth, as explained.

I also claim the combination of the partition, h, with the toothed receiver, A, and the lifting comb, B, arranged and so as to operate together, substantially as described.

I also claim the arrangement of the handle of the lifting comb at an inclination as described, with the comb, when such comb is disposed with a toothed receiver, substantially in manner as set forth, the purpose of such arrangement being to cause the comb while being raised upward, to be tilted backward so as to discharge the berries into the space in rear of the partition of the receiver.

46,761.—Heel Polishing Machine.—James M. Thompson, Stoneham, Mass., and Seth D. Tripp, Lynn, Mass., Assignors to Seth D. Tripp, Lynn, Mass.: We claim, first, The rocking plate, L, in combination with the supports, K, J, and the rotating disk, J, substantially as above described.

Second, We claim the adjustable arm, M, and spring, N, in combination with the frame, K, which holds the rocking plate, substantially as above described.

Third, We also claim operating the disk, J, and its supports, K, H, by means of the treadle, C, and spring, D, substantially as described.

Fourth, We also claim cooling the polishing wheels of machines for polishing heels of boots and shoes by the application of a blast of air to the same, substantially as and for the purpose above described.

Fifth, We also claim the combination in machines for polishing the heels of boots of a grinding and a polishing wheel upon the same shaft, substantially as above described.

[This invention consists in various improvements in the devices for holding the work up to the polishing wheels; in providing two or more polishing wheels which slide upon their shaft and so are brought opposite to the holding devices, and in a method of cooling the polishing wheel during their operation.]

46,764.—Submerged Pump.—J. H. Williamson (assignor to himself and Levi Beemer), Branchville, N. J.: I claim the tubular postor standard, A, with the two pump cylinders, B, B, permanently attached with valves, b, at their upper parts, in connection with the reciprocating yokes, D, D, provided with the tubular pistons, F, F, having valves, f, at their upper ends, all arranged to operate in the manner substantially as and for the purpose herein set forth.

[This invention relates to a new and improved double-acting pump, and it consists in a novel arrangement of parts, hereinafter shown and described, whereby a very simple and economical pump is obtained, and one which may be kept in repair or proper working order by any one of ordinary ability.]

RE-ISSUES.

1,898.—Machine for Making Paper and Paper Boards.—John F. Jones, Rochester, N. Y. Patented Oct. 13, 1863:

First, I claim forming paper or paper board of any thickness, in a continuous sheet, by adding to the web a succession of any number of layers of pulp, each succeeding layer being added and pressed to the preceding one in the aggregate or compound web, before leaving its felt, and the compound web being subjected to pressure, after each addition of a layer of pulp, substantially as and for the purposes herein specified.

Second, I also claim forming paper board of a continuous or indefinite length, by means of any required number of separate paper-making machines, arranged as a web or as a combined machine, in such a manner that each separate machine successively deposits a layer or web of its own to form the aggregate layers of the board in the act of formation, or passing through the combined machine, substantially as herein set forth.

Third, The combination of a system of cylinder molds, as herein above specified, and a continuous series of drying cylinders and calendering rolls, in such a manner that the manufacture either of boards of any thickness or of several webs of paper may be carried on by a single continuous process, substantially as herein described.

Fourth, The arrangement of the several spouts, G, E, J, pipes, c, m and J, valve, P, and self-acting feed gear, d, in combination with each other and with the several vats, substantially as and for the purpose herein specified.

Fifth, The overall composed of a vat, a cylinder mold, a concher and a scraper, combined and applied in connection with one or more paper-making machines, substantially as herein specified.

Sixth, The combination of press rolls, illustrated by M7 M7 M7, in Fig. 1, to obtain two pressures from three rolls, as herein described.

Seventh, The employment of calender rolls on the top of drying cylinders, substantially as herein described, to equalize the water in the board and make it of uniform dryness as it passes over the dryers, and partially effect the glazing and calendering process while the board is being dried.

Eighth, The cutting apparatus, X Z, operated by the means and in the manner herein set forth.

Ninth, The lay box, Z, constructed and operating in the manner and by the means herein described.

1,899.—Straw Cutter.—H. K. Parsons (assignee by mesne assignments of Jacob H. Mumma), Harrisburg, Pa. Patented Jan. 26, 1859. Re-issued Sept. 6, 1859. Again March 29, 1864:

First, I claim broadly a knife for use in straw cutters so constructed that its cutting edge shall be on a line with its outer surface, instead of its inner surface—said edge being formed by bevelling or grinding the knife from its inner instead of its outer side; and this I claim whether the whole or a portion only of the body of said knife shall form the arc of a circle coincident with the axis around which it revolves in the operation of cutting.

Second, I claim a knife constructed as above described, and having two under beveled cutting edges—one at its front and the other at its rear edge.

Third, I claim so constructing a knife for straw cutters, whether single or double edged, that its cutting edge shall continue to revolve in the same circle when partially worn or ground away as when new, and thus avoid the necessity of adjusting either the knife, the cylinder, or the cutting box, as herein set forth.

Fourth, I claim the reversible feed gear, in combination with double-edged knives, when arranged to operate as herein set forth.

Fifth, I claim the combination of the rubber springs, e, with the feed rollers, H H', when arranged and operating as herein set forth.

Sixth, I claim operating the roller, I, by means of the tappets, g, as and for the purpose set forth.

SPECIAL NOTICE TO INVENTORS.

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