

boys and girls, of the workmen at this immense establishment, are educated and trained in schools organized by M. Schneider. So far from the education which they receive putting the workman above his work, the contrary is the case; it enables him to do it more to the satisfaction of his employer, and to his own honor, and better for his own personal advancement.

The system of the instruction given at the Creusot schools is fully detailed in tables hanging on the walls of the Great Exhibition; drawings of the habitations of the workmen, their churches, their hospitals, and their schools, are also exhibited.

"Statistical tables illustrate the progress and changes of the population; these are divided into two parts—the one showing the progress of their material welfare, their accumulation of property, and their consumption of food and luxuries; the other showing the amount of attendance at schools, the relative statistics of individual success in these schools, and the subsequent rank attained by each pupil in the manufactories. From these we gather that the progress of education has always been followed by improved moral character and advanced social being; that the pupils who have most successfully availed themselves of the technical schools are those who have afterward risen to the highest ranks as foremen, clerks, superintendents, overseers and engineers, in the works themselves."

These tables also show "the organization of the schools, the programme of subjects taught, distribution of pupils' time, samples of their mechanical and mathematical drawings, samples of their hand and eye sketches, examples of writing and French composition, lists of their studies in religion, sacred history, French history and geography; studies in arithmetic, algebra, elementary geometry, and descriptive geometry; specimens of ornamental writing and map drawing. These are for the boys. But the girls also are well educated, with the difference that for plain drawing and geometry are substituted needle-work and dress-making. They are also taught book-keeping." It was remarked this education—fully equal to that taught in most of our high schools—does not put the workman above his work; and the magnificent display in almost any branch of heavy iron and steel manufacture placed by the Creusot works in the Exhibition, is as finely finished, both as regards accuracy and beauty of finish, as it is possible to make iron and steel. Fully equal to that of the most ignorant and dextrous of the English workmen.

It has been intimated on more than one occasion, by a prominent political economist of this country, that it would not harmonize with the "American idea" for employers to manifest any interest in the welfare and advancement of their employes. We believe this to be ridiculous fallacy.

No doubt American mechanics will strongly object to be ostentatiously patronized by that spirit of vanity which is so often illustrated in founding educational and theological establishments, so as to afford a prominent place to display the name of the founder. But an employer who cannot manifest an interest in the welfare of those employed by him, and those depending on them, without offending that proper pride which belongs to any man who is good for anything, by ostentatiously patting them on the back, and doing good with a loud blowing of horns, shows at once that he is a mean fellow—even more stingy, in reality, than one who makes no pretensions.

The moment a man becomes an employer he assumes duties which it is wicked to shrink from; duties scarcely less sacred than those due from parents to children. It is quite unnecessary to enlarge on these obligations, any one who cannot hide behind a three cent piece will appreciate them just as thoroughly as though they were placed before him in the largest type.

Where you find a man with a keen scent for gratitude, it is a pretty safe rule to set him down as "small potatoes, and few in a hill." To do good, to advance the welfare of others, to add to their happiness, is all the reward a noble nature cares for; and this seems to be the spirit which moves the manager of the Creusot Works.

If one cannot attempt to add to the means of enjoyment of others, without the accompaniment of a brass band, he had better, a good deal, not make the attempt at all.

THE TWENTY-EIGHTH STREET BOILER EXPLOSION.

This catastrophe which occurred Sept. 9th was so remarkable that it has attracted the attention of engineers and practical men throughout the country. The public, generally, have also read the details with great interest. The statements, however, which have appeared in some of the news journals have been so inaccurate and confused that we deem it well to publish the facts as they could be ascertained by personal inspection. This boiler, which was eight feet diameter at the bottom, six feet at the top, and fourteen feet and six inches high, and weighing five tons, exploded about 4 P. M. on the 9th of September, at 258 West 28th street, ascending into the air nearly vertically, with a slight westerly inclination, described by those who saw it as appearing about the size of a nail keg, and falling into the rear part of the dwelling house 308 West 28th street, a distance horizontally of about 450 feet. Two persons were killed where the explosion occurred—the engineer and fireman; and two children of Mr. Houseman, by its descent through his dwelling, and several others were injured.

This boiler was new, having been in use less than two months and a half, was built by Densmore & Black, of this city, and was of the style known as the Densmore boiler, which has an excellent reputation in different parts of the country. It was illustrated and described on the first page

of No. 23, Vol. XVI. SCIENTIFIC AMERICAN. It was tested by hydrostatic pressure to 115 pounds to the square inch. The iron is pronounced of good quality by all practical iron men. The man who has since bought it and cut it up, says it is the best iron he ever found in a boiler. All agree that the boiler was well made. These boilers, of the same size as this, have been tested both by the Metropolitan police inspectors and the steamboat inspectors, to 120 pounds to the square inch, and received their certificate to carry 80 pounds pressure of steam, and have carried that pressure for years. Many of them are now running, carrying 90 and 100 pounds to the square inch.

It was intended to carry 60 pounds pressure to the square inch on this boiler, and the safety valve was supposed to be set to blow off freely at that pressure. It had two steam gages—one in the fire room and one in the engine room. It did its work very easily, running all the time with the damper nearly closed and much of the time with the fire door open. On the afternoon of the explosion it was not doing more than about half its ordinary work. The engine was running at the time of the explosion and had not been stopped. The boiler had never been known to foam any after the first two days, and it was working to the delight and admiration of the owner and scores of practical steam men who visited it.

The lower portion of the boiler stood in a vault, the arch over the vault coming up a little below midway of the boiler, there being about two inches space between the boiler and arch all around. The fire room was below the arch, and the engine room was above and at one end of it, and the gage cocks and water glass gage were above the arch on the back side of the boiler where the fireman could not see them when at his duties, it being intended that the engineer should have sole charge of the water. This was an arrangement of the engineer himself. It should be borne in mind that the same engineer and fireman had run there, for about four years, three horizontal boilers placed in this vault—the fireman having charge of the fire and water, and the engineer charge of the engine and the machinery generally through the establishment. The boiler stood upon cast-iron legs that raised the bottom of it sixteen inches from the fire-room floor, which space was open on the front side half way around the boiler and stopped up on the rear side with a four inch brick wall laid up under the edge of the boiler. The fire grates were about 20 inches above the floor of the fire room, and the fire-box in the boiler was about 7 feet 4 inches high above the grate and contained about 180 square feet of heating surface of the most effective kind, the heat acting with nearly equal force upon every part of it. From the top of the fire-box the heat was conducted down to the bottom of the boiler through 135 tubes, 6 feet long and 2½ inches outside diameter, and was conducted directly from the bottom of the boiler to the chimney, and the outside of the boiler was covered with hair felt all over to the very bottom.

The cylinder containing the tubes was 4 feet diameter and 6 feet long, hence would contain, without any tubes, 90 cubic feet of water. The tubes would displace 27½ cubic feet, leaving the water contents of the tube cylinder 62½ cubic feet, or more than two thirds as much as it would be if it had no tubes in it. The water spaces between the tubes and the shell would average about six inches thick. The water spaces around the fire-box were nowhere less than four inches thick, and would average full six inches and a half thick. The gage cocks were set to carry from fifteen to twenty inches depth of water on the crown sheet. In regular working order it carried over 1,300 gallons of water, or about 21 hogsheds, about one cubic foot to every four feet and a half of heating surface. The ordinary run of stationary tubular boilers carry one cubic foot of water to from five and a half to seven square feet of heating surface; railroad locomotive boilers, a cubic foot of water to from eight to eleven feet of heating surface; and steam fire engines a cubic foot of water to from thirty to thirty-two feet of heating surface.

The evaporating power of this boiler, as near as we can arrive at it, was about 470 gallons per hour. The quantity of water on the crown sheet about 315 gallons, as designed to be worked, hence it would take forty minutes to uncover the crown sheet, and about twenty minutes more to get the water down to the upper tube head, which would have to occur before the tubes could heat.

The upper ends of the tubes and all the upper portion of the fire box showed unmistakable evidence of having been over-heated. The lower tube head blew out taking the tubes with it, the head and most of the tubes remaining where the boiler stood, the tubes first coming out of the upper head. There were 135 two-and-a-half-inch tubes equally distributed over a fifty-two-inch head well expanded with good projections on each end outside of the heads, and if not over-heated would not have yielded at three times the pressure that other portions of the boiler was able to withstand.

THE MACHINIST'S APPRENTICE.

Several communications asking information in regard to the trade of the machinist have been received. If we reply to one the answer will comprehend the inquiries of the others.

A correspondent from Iowa wishes to enter as an apprentice, a shop where locomotive and other engines, and machinist's tools are manufactured, or, at least, where engines are built, and desires replies to the following questions: "Can you recommend some such establishment where I could get in or you think I could? What is the period and what the terms of an apprenticeship? I wish a situation where the best of work is done and an opportunity is afforded the apprentice of becoming a thorough workman."

The time was—twenty-five or thirty years ago—when the position of apprentice to the machinist trade was easily ob-

tainable and the remuneration was sufficient to support the apprentice. It is not so now. To enter a good shop as an apprentice requires in most cases influence and the position is granted as a favor. The amount paid is rarely more than enough to liquidate board bills, if it is even so much, and the time required from three to five years. There are adequate reasons for this change. The apprentice must be furnished with good and valuable tools and his work is of as high a character as his increasing capabilities will warrant, not only for the purpose of advancing his interests but for the benefit of his employer. It is not surprising, therefore, that the first year or so of his apprenticeship proves, from breaking of tools and spoiling of jobs, unprofitable to the proprietor.

Again, there is no adequate means to compel an apprentice to fulfill his contract with his employer. He may, soon as he deems himself competent to do work which brings higher pay, leave his shop and go elsewhere. Consequently, master machinists prefer to employ ordinary laborers for their rougher work and journeymen for the better quality. Under these circumstances we do not know how to advise you.

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office,

FOR THE WEEK ENDING OCTOBER 1, 1867.

Reported Officially for the Scientific American

PATENTS ARE GRANTED FOR SEVENTEEN YEARS the following being a schedule of fees:—

On filing each caveat.....	\$10
On filing each application for a Patent, except for a design.....	\$15
On issuing each original Patent.....	\$30
On appeal to Commissioner of Patents.....	\$20
On application for Reissue.....	\$50
On application for Extension of Patent.....	\$50
On granting the Extension.....	\$50
On filing a Discontinuance.....	\$10
On filing application for Design (three and a half years).....	\$10
On filing application for Design (seven years).....	\$15
On filing application for Design (fourteen years).....	\$30

In addition to which there are some small revenue-stamp taxes. Residents of Canada and Nova Scotia pay \$500 on application.

Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to Inventors, may be had gratis by addressing MUNN & CO., Publishers of the Scientific American, New York.

69,298.—FOOT REST.—Calvin Adams, Pittsburgh, Pa. I claim constructing a foot rest with the base, A, of suitable diameter for its support, and the rest, B, of convenient shape to form a rest for the foot, connected by one or more columns, C, C, substantially as shown and described.

69,299.—FENCE.—G. W. Adams, Rochester, N. Y. I claim the arrangement of the metallic stakes, P, double braced wire, F, in connection with the bed plate, C, and the rails, R, of the fence, substantially in the manner herein shown and described and for the purposes set forth.

69,300.—BROOM HEAD.—E. A. Alexander and H. C. Kellogg, Independence, Iowa. I claim the employment of slotted bar, b, when arranged in combination with hooks, d, d, loop, c, and handle or screw rod, a, in the manner and for the purpose set forth.

69,301.—CORN PLANTER.—Thomas Allen, Arrow Rock, Mo., assignor to himself, Joseph Nicholson, Arrow Rock, and A. B. Garrison, St. Louis, Mo. I claim the arrangement of the furrow plow, B, covers, k, k, side boards, O, O, rolling wheel, D, slide valve, d, worked with a lever, E, or automatically, the adjustable cams or pins, p, on the rolling wheel, all in combination, when constructed and arranged substantially as shown and specified.

69,302.—CLOTHES DRYER.—Israel B. Arnold (assignor to C. P. Dunham), Providence, R. I. I claim the improved folding clotheshorse, as composed of a central post, A, the series of posts, B B B, their several connection bars, C C C, the catch plates, D, and screws, e, arranged and applied together substantially in manner and so as to operate as set forth.

69,303.—MACHINE FOR MAKING SOCKETED REED PLATES.—Chas. Austin, Concord, N. H. I claim the combination as well as the arrangement of the guides, D1 D1, the endless carrier, B, the presser, I, the rotary cutter, F, the vibratory frame, G, and the adjustable cam, H, as described, the said cutter, F, carrier, B, and cam, H, being provided with mechanism for operating them, substantially as described.

I also claim the combination as well as the arrangement of the hopper, E, the guides, D1 D1, the endless carrier, B, the presser, I, the rotary cutter, F, the vibratory frame, G, and the adjustable cam, H, as described, they being provided with mechanism for operating the carrier, B, the cutter, and the cam, as explained.

I also claim the adjustable cam, H, made substantially as described. I also claim the combination as well as the arrangement of two or any other suitable number of edge cutters, L, L, and one or more pressers, I, K, with the endless carrier, B, the guides, D1 D1, the rotary cutter, F, the vibratory frame, G, and the adjustable cam, H, of the same and the hopper, E, the whole being provided with mechanism for operating the carrier, the cutter, and the cam, substantially as herein before explained.

I also claim the combination as well as the arrangement of the two endless carriers, B M, one or more side trimmers or plane irons, U, the guides, D1 D1, the reverser, S, the cutter, F, the vibratory frame, G, and the adjustable cam, H, the carriers, cutter, and cam being provided with operative mechanism, substantially as described.

I also claim the combination as well as the arrangement of one or more smoothers, V, one or more finishers, W, the plane iron, U, the reverser, S, the endless carriers, B M, the guides, D1 D1, the rotary cutter, F, the vibratory frame, G, and the adjustable cam, H, the whole being provided with mechanism for operating the carriers, the cutter, and cam, substantially as described.

I also claim the combination as well as the arrangement of the hopper, E, the guides, D1 D1, the carrier, B, one or more pressers, I, K, the rotary cutter, F, the vibratory frame, G, the edge cutters, L, L, the reverser, S, the guides, R, R, the carrier, M, the face cutter, U, or the latter and the presser, V, also, their combination as well as their arrangement with one or more smoothers, V, or one or more finishers, W, the carriers and cam and rotary cutter being provided with mechanism for operating them, substantially as herein before specified.

69,304.—WARDROBE BEDSTEAD.—William R. Bagnall, Chelsea, Mass. I claim a hinged oblong bed-frame arranged to swing laterally from a case, as and for the purpose described. I claim a swinging bed frame, combined with a surmounted wardrobe or bureau, or both, substantially as described. I claim a wardrobe or bureau, or both combined with a swinging bed frame having head and foot pieces swinging inwards, as and for the purpose described.

69,305.—CARRIAGE-SHAFT COUPLING.—Jesse P. Barrick, Massillon, Ohio. I claim the pivoted or hinged stop, J, and spring, I, arranged in relation to the coupling, in the manner and for the purpose substantially as set forth.

69,306.—CARRIAGE BUTTON.—W. P. Bateman (assignor to himself and N. F. Mathewson), Barrington, R. I. I claim a carriage button, as constructed with the head eccentric to the body, and with a journal to project from the head, and with a screw and a prismatic base to its body, as described. I also claim the carriage button, as not only made with the head eccentric to the body, and applied thereto by means of a journal so as to be capable of being revolved relatively to it as specified, but as having a prismatic base, and a screw to project therefrom, as explained.

69,307.—MACHINE FOR MAKING WAGON WHEELS.—Alonzo Beswick, Paris Richardson, Jr., and John W. Brown, Kelley, Ill. We claim the combination and arrangement of the cross bar, C, and movable bar, E, with the guide bars, H, H, operating in the manner and for the purposes set forth. We also claim the auger frame, W, in combination with the screw, M, and guide bar, H, operating substantially as described and for the purposes stated.

69,308.—BRICK MACHINE.—Peter E. Bland, St. Louis, Mo. 1st. I claim the combination of movable platens or followers, b, in a mold-bearing cylinder, B, revolving about a fixed central shaft, H, with one or more fixed cams, k, upon said shaft, all substantially in the manner and for the purpose herein set forth.

2d. The combination of compressing plates, or plungers, G, with a revolving mold-bearing cylinder, B, when said compressing plungers have the within-described reciprocating movements, and operate in unison with an intermittent movement of said cylinder, substantially as and for the purpose herein set forth.

3d. The combination of platens, g, or their equivalents, with a revolving mold-bearing cylinder, B, and radial cam-actuated followers, b, in the molds thereof, when said pistons, g, have substantially the within-described reciprocating movements, for the purpose herein specified.

4th, The combination of a ratchet wheel, W, or other equivalent device, with the hollow shaft of a mold-bearing cylinder, encircling a fixed central shaft, H, all substantially in the manner and for the purpose herein set forth.

5th, The combination of a rocking shaft, J, and pawl levers, w, w, with pins or catches, l, on the revolving mold-bearing cylinder of a brick machine and with ratchet bars, l, on a receiving car running beneath said cylinder for the purpose of imparting an intermittent forward movement to the car in unison with the intermittent revolution of the cylinder, all substantially in the manner and for the purpose herein set forth.

6th, The combination of inclined bars, r, with the frame of my improved brick machine, and with the coupling hooks or catches, o, of the cars running through the same, for the purpose of automatically disconnecting the cars in their forward movement, substantially as herein set forth.

7th, The combination of a stationary transverse sweep bar, n, with a revolving mold-bearing cylinder, B, and movable followers, b, therein, to effect a detachment of the molded material from the face of said followers after its discharge from the mold, substantially in the manner herein specified.

8th, The combination of detachable mold frames, F, with a grooved or suitably framed revolving mold-bearing cylinder, B, substantially in the manner and for the purpose herein set forth.

9th, The combination of any suitable packing material with the re-adjusting pins or pistons, g, of a rotary cylinder brick machine for the purpose of lubricating or dampening the sides of the mold therein, substantially as herein set forth.

10th, The combination of an adjusting plate, J, with the end of a fixed central cam shaft, H, passing centrally through the mold-bearing cylinder, B, of a revolving cylinder brick machine, substantially in the manner and for the purpose herein set forth.

69,309.—MACHINE FOR WEAVING BASKETS.—F. H. BROWN (assignor to himself, E. F. Peugeot, and H. Fiershelm), Chicago, Ill.

1st, I claim the mechanism for forming the sides of the baskets, as shown and described.

2d, The packing and forming device, F, or its equivalent, as and for the purposes specified.

3d, The guide-piece, M, constructed and operating as and for the purposes specified.

4th, Cam, Z, in combination with the band, X, as and for the purposes specified.

5th, The flexible teeth, T, of the controlling band, as and for the purposes specified.

6th, The holder, 3, in combination with rod, I, and cam, Z, as and for the purposes specified.

7th, The cam, G, in combination with the screw, C, as shown, and for the purposes specified.

8th, The frame, in combination with the packing and forming device, F, as and for the purposes specified.

9th, In a basket machine, the oscillating standard, 4, in combination with the weaving device, as and for the purposes specified.

69,310.—CANE STRIPPER.—J. C. BROWN, Crawfordsville, Ind.

I claim the cane stripper and cane cutter, herein described, when the same is considered as a whole device, and constructed in its said several parts as aforesaid, and used for the purpose and in the manner substantially as set forth.

69,311.—HAT AND COAT RACK.—T. W. BROWN, N. Y. City.

I claim the arrangement of the lower curved or coat prong so as to stand obliquely with the larger, upper, or hat prong, and the fastening plate, substantially as shown and described.

I also claim the tri-pronged hook as made with the hat prong and the two coat prongs, and with these latter arranged obliquely with respect to the fastening plate and such hat prong, and to project in opposite directions relatively to the latter, the whole being substantially as described and represented.

69,312.—MODE OF EMBALMING OR PRESERVING ANIMAL SUBSTANCES.—L. Brunetti, Rovigno, Italy.

I claim the method of embalming or preserving animal substances from decay, substantially as herein set forth and described.

69,313.—WOOD-BENDING MACHINE.—D. Catchpole, Geneva, and J. Havens, Auburn, N. Y.

1st, We claim the arrangement of the sliding bed, D, lever, j, rod, r, presser head, e, former block, B, and its clamps, and the wheel, F, substantially in the manner and for the purposes shown and described.

2d, The levers, G, former, rotating head, Q, and former, F, arranged and operating substantially in the manner shown and described, for the purpose of giving the vertical and lateral bends at the same time, as set forth.

3d, The arrangement of the levers, G, pivoted to the sliding bed, D, in combination with the rollers, R, attached to the bed, D, as and for the purposes specified.

69,314.—CULTIVATOR.—Nathan A. Cates, Thorndike, Me.

1st, I claim the combination of the central beam, carrying the adjustable roller, the cotter and the scraper, with the laterally adjustable beams, carrying the ridging and smoothing plows, the combination being and operating substantially as described for the purposes set forth.

2d, The combination of the central beam, carrying the laterally adjustable plows, all constructed and arranged for joint operation, as described.

3d, The laterally adjustable furrow-turning and ridge-smoothing plows, constructed and operating as described.

4th, The combination with the central beam and cotter, of the clevis bracket and adjustable yoke carrying the leading roller, all constructed, arranged and operating as described.

69,315.—ARCHITECTURAL PORCELAIN.—W. J. Cheyney, Wallingford, and E. F. Dieterichs, Philadelphia, Pa. Antedated September 20, 1867.

We claim, as a new article of manufacture, architectural porcelain, composed of cryolite, or its chemical equivalents, in combination with silica and a metallic oxide, or an alkali, or both, pressed and cast in molds, and pressed or rolled as above set forth.

69,316.—PLATE PORCELAIN.—Waldron J. Cheyney, Wallingford, and E. F. Dieterichs, Philadelphia, Pa. Antedated Sept. 20, 1867.

We claim, as a new article of manufacture, plate porcelain, composed of cryolite or its chemical equivalents, and silica alone, or cryolite, or its chemical equivalents, in combination with silica and a metallic oxide, or an alkali, or both, fused and cast on a table, and rolled or blown into cylinders, and cut and flattened, as above described.

69,317.—MANUFACTURE OF DRESS TRIMMINGS.—Waldron J. Cheyney, Wallingford, and E. F. Dieterichs, Philadelphia, Pa.

We claim, as a new manufacture, bugles, beads, or buttons, made of cryolite, or its chemical equivalents, fused with silica, worked substantially in the manner and for the purpose described.

69,318.—ENAMEL TO BE APPLIED TO METALS, EARTHENWARE, ARTIFICIAL STONE, ETC.—W. J. Cheyney, Wallingford, and E. F. Dieterichs, Philadelphia, Pa. Antedated Sept. 19, 1867.

We claim, as a new manufacture, an enamel composed of cryolite, or its chemical equivalents, and silica fused together, substantially as above set forth.

69,319.—PICKER STAVE FOR LOOMS.—Richard Collins, Chicopee, Mass. Antedated Sept. 14, 1867.

I claim the combination of the cam, c, with the lever, a, and plate, d, substantially as and for the purpose described.

69,320.—LOOM.—Jessie D. Cottrell, and George Draper, Milford, Mass.

1st, We claim the combination of the "let off" mechanism, two yarn beams, and a friction and equalizing apparatus, substantially as described.

2d, The "let off" mechanism, made and arranged with the friction equalizing apparatus, substantially as described.

3d, An improved arrangement of the two yarn beams, and the equalizing and friction apparatus, substantially as described, the two beams under such an arrangement being placed close together, and the equalizing and friction apparatus being arranged outside of, rather than between them, as explained.

4th, We also claim our improved friction and equalizing apparatus, or mechanism, substantially as described.

5th, We also claim the arrangement of the gears, o r r m, and l, constituting the "compound motion."

69,321.—STEP AND EXTENSION LADDER.—H. W. Covert, Rochester, N. Y.

I claim, as a new article of manufacture, the combined step and extension ladder, A, B, having combined and arranged therewith, both lateral and rear braces, D, C, in such a manner as to expand and brace when used as a step ladder, but fold compactly when used as an extension ladder, as herein set forth.

69,322.—HARVESTER RAKE.—M. Crossman, Marengo, and P. A. Spleer, Marehall, Mich.

1st, We claim the mode of suspending and tripping a series of revolving rakes or reels, and attached vibrating arms, by the use of an inclined track-way, H, in combination with the traversing roller, R, abutting pins, F, hinged attachments, J, and tripping cam, K, connected, arranged, and operated substantially as herein described.

2d, Changing the height of the plane of rotation, in rakes or reels, when so suspended by the employment of stepped faces, l, on the hinged abutment, J, in combination with the guide lever, L, as set forth.

3d, Preserving the parallelism of the rake with the vibrating arm, and with the platform of the machine, by overbalancing and stopping said rake, and connecting it with its revolving central cap by the combined arrangement of the bracket, G, rod, N, link, O, and stop ears, S, substantially in the manner herein specified.

69,323.—COUPLING PLOWS TO WHEELED CARRIAGES.—Marshall S. Curtis, Bradford, Ill.

1st, I claim the curved and slotted arm, C, its form and manner of adjustment between the ears, I, combined with the plow beam, B, substantially as and for the purpose set forth.

2d, The forward guide, Q, combined with arm sockets, N, arranged to allow the forward end of the plow beam, B, to have a lateral and vertical motion, substantially as set forth.

3d, The arrangement of the seat, F, in front of the crank axle, E, combined with lever, D, the whole being arranged to set plow, B, in the ground, or lift it out of the ground, as described and set forth.

69,324.—CHURN.—William Davis, Arrow Rock, Mo.

I claim the disks, D, shaft, a, diamond-shaped beaters, D' gears, a' b', and spring, B, in combination with the case, A, and the parts being constructed, combined, and arranged, as and for the purpose specified.

69,325.—GLASS WARE PRESS.—H. Dillaway, Sandwich, Mass.

I claim the combination of the driving segment gear and pinion, with the respective pinion and segment gear with which each alternately connects when arranged to operate to produce the descent of the plunger or piston, substantially as shown and described.

Also, Combining the follower with mechanism, which not only effects its descent, but holds it stationary upon the mold during the continued descent of the plunger, substantially as described.

69,326.—CLUTCH FOR SUSPENDING HAY FORKS.—Wm. Dixon, and L. Heath (assignors to themselves and T. P. Saunders), Adams, N. Y.

We claim, 1st, The combination of the arms, A, A1, spurs, J, J, stock or frame, D, pulleys, B, b, cord or flexible connection, C, and springs, L, L, substantially as and for the purpose specified.

2d, The combination with the above of the clasp, I, staff, h, latch or ratchet bar, F, catch, M, and spring, G, arranged and operating in the manner and for the purpose set forth.

3d, The combination of the arms, A, A1, pulleys, B, b, stock, D, d, cord, C, ring, E, latch, F, spring, G, staff, h, and clasp, I, the whole constructed and operating in the manner and for the purpose explained.

69,327.—ADJUSTABLE FRAME FOR STRETCHING HIDES.—William Dunn, Newark, N. J.

I claim the application of movable planks to a stationary frame, in the manner set forth, and worked by levers, as shown, the planks divided in the middle, and connected by a hinge, or each plank in one continuous piece, and working independently of each other, thus adjusting itself to the formation of the hide, and stretching each part to its fullest capacity.

69,328.—CENTRIFUGAL APPARATUS FOR WASHING SUGAR.—George E. Evans, Boston, Mass.

I claim, 1st, The movable inner cylindrical cylinder, or partition, R, in centrifugal sugar machines, either with or without perforations, the same being capable of being attached without alteration of the centrifugal tub by means of a conical or cylindrical socket, fitting upon a central conical or cylindrical shaft, substantially as described.

2d, Constructing the inner cylindrical partition, B, in centrifugal sugar machines of sheet metal, or any equivalent material, without perforations or interstices, substantially as described.

3d, Operating the inner cylindrical partition, B, when made without perforations, to make a wall of sugar by lifting the same after the rotation of the centrifugal has commenced.

69,329.—SELF-ADJUSTING LID SUPPORT FOR PIANOS, DESKS, ETC.—Charles T. Faber, New York City.

I claim the adjuster for bridging the notch or stop which holds the prop or support for the lids of pianos, desks, and other similar articles of furniture, made automatic in its action by means substantially as described.

69,330.—RAILWAY TRUCK.—H. B. Fernald, Dedham, Mass.

I claim, 1st, The circular truck, T, constructed as described, with hangers cast or fitted upon it, and extending above and below, substantially as set forth.

2d, In combination with the above, the guides, I, I, the convex wheel, E, and the drive wheel, D, constructed and arranged as set forth.

3d, The truck, V, with the hangers extending above and below, and provided with slotted openings for the wheels, O, O, a traverse opening to admit the axle, and a central circular opening, in combination with the guides, L, L, substantially as described.

69,331.—COMPOSITION OF MATTER FOR FILLING SAFES, AND OTHER PURPOSES.—Samuel T. Fowler, Brooklyn, N. Y.

I claim the use of saw dust, or its substitute, for this purpose, in combination with any one or more of the plastic materials herein described, for the purpose specified.

69,332.—HORSE RAKE.—Samuel Freet, Upper Strasburg, Pa.

I claim the combination of the double acting lever, A, and the roller, B, with hooks, c, c, the lever being attached to the roller, B, which is attached or fixed on the ends of the shafts, B, having in it two hooks, c, c, to hold down the teeth when raking heavy hay, or heaping the same.

69,333.—MAKING CARRIAGE BOLTS.—Samuel Frisbie and Andrew S. Upson, Farmington, Ct.

We claim the method substantially as herein described of making bolts with heads and square necks, such method consisting in ironing or rolling that part of the rod which is to form the neck, and at the same operation forming a rudimentary or preliminary head thereon, and subsequently forming the square neck by squeezing, and the finished head by compression, the whole mode of manufacture being substantially as described.

69,334.—SHOEMAKER'S BENCH.—Benedict Gantner (assignor to himself and John Sporer), Tell City, Ind.

I claim, 1st, The combination of the treadle, C, strap, D, drum, a, and straps, e, h, substantially as and for the purpose described.

2d, The combination of the treadle, C, strap, D, pawl, b, and ratchet, a', or the equivalent, substantially as and for the purpose specified.

3d, In combination with the elements of the above claims, claim the clamp, E, constructed as described, for the purpose set forth.

4th, The spring, e, in combination with the bar, d, cross head, f, and straps, e, h, substantially as and for the purpose specified.

5th, The friction device, K, in combination with the groove, j, arranged and operating substantially as described.

6th, The overal key, i, in combination with the groove, g, and shoulder, h, 2, substantially as and for the purpose set forth.

7th, The rollers, m, in combination with the shoulder, B2, for the purpose specified.

8th, The removable cushion, G, and arm, F, adapted to be applied substantially as described for the purpose specified.

69,335.—THREE WHEEL CARRIAGE.—John Gehr, Mercersburg, Pa.

1st, I claim the combination of the frame, B, working in the groove, a, of the wheel, A, and having the projections, b, b, substantially as and for the purpose specified.

2d, The spring, D, bent in the form shown, attached to the wheel, A, by the bolts, d, d, and bearing the carriage at d1, substantially as and for the purpose described.

3d, The metallic guard, substantially as and for the purpose specified.

69,336.—GATE.—Riley James Gilbert, Hanover, Wis.

I claim, 1st, The inclined ways, G and H, when constructed with ascending and descending flanges, K, the flange, G, to guide and support separately the ends of a gate, substantially as described.

2d, Operating a gate, having its ends separately supported on two parallel double inclined ways by means of the handles, E, and cord, D, the latter being provided with a stop, I, in such a manner that the gate is operated by the cord, together with its own momentum and gravity, substantially as described.

69,337.—FARM GATE.—Newton J. Glover, Waveland, Ind.

I claim the double flanged roller, B, the pieces, A, E, H, I, P, and the brace, N, in combination, substantially as described and set forth.

69,338.—MACHINE FOR CUTTING ICE INTO BLOCKS FOR STORAGE.—George Bruner, Uxbridge, Ct.

I claim the arrangement of the revolving circular saw, C, adjusting frame, B, lever, D, in combination with the other attachments, in the manner herein described, and for the purpose set forth.

69,339.—POTATO DIGGER AND WEEDE.—George W. Hall, Triangle, N. Y.

I claim, 1st, A spade or spading fork, having a pivoted fulcrum or rest provided with a swivel joint, substantially as and for the purpose set forth.

2d, A spade or spading fork, having a pivoted fulcrum or rest where the said fulcrum is adjustable in the middle of the spade or fork, and of adjustable length, substantially as described.

3d, A spade or spading fork, constructed as described, viz., with an adjustable, pivoted swiveling fulcrum, as and for the purposes set forth.

69,340.—DOUBLE ROTARY HARROW.—George W. Hall, New Haven, Mich.

I claim the combination of the bent rim, a, having teeth therein, sleeves, s, s, and x, center pin, c, and cross bar, l, all constructed and arranged as and for the purposes described.

69,341.—DEVICE FOR PREVENTING HORSES FROM CRIBBING.—G. G. Hickman (assignor to himself, Francis H. Wright, and John Criswell), Coatesville, Pa.

I claim the combination of the rubber part, or shield, A, with the prong, B, substantially as and for the purpose specified.

69,342.—HARVESTER.—Anthony Hilts, Jr., Springdale, O.

I claim the quadrantal plate, C, when provided with stop, e, and perforations, l, in combination with bar, E, and tongue, A, operating in the manner and for the purpose described.

69,343.—MUSKETO FRAME FOR WINDOWS.—Augustine E. Horton, North Leominster, Mass.

I claim the musketo shade as composed of the main and auxiliary rectangular musketo netting covered frames, A, C, and the cross bar, B, arranged and hinged together as specified.

69,344.—SADIRON.—Arthur Y. Hubbell, Elmira, N. Y.

I claim the employment of a non-conducting substance, in combination with the parts, A, B, constructed and arranged substantially in the manner and for the purpose set forth.

69,345.—PUDDLING AND OTHER FURNACE.—William Jeffries, West Bromwich, Eng. Patented in England, January 26, 1866.

1st, I claim the improvements in puddling furnaces and heating furnaces, and other reverberating furnaces used in the manufacture of iron and steel hereinbefore described, and illustrated in the accompanying drawing, that is to say, constructing the beds of the said furnaces, substantially in the manner hereinbefore described and illustrated, whereby the whole or nearly the whole of the plates used in ordinary furnaces are dispensed with, and great economy, both in the cost of keeping the furnaces in repair and in the saving of time consequent upon the furnaces working a long time without requiring repair, is obtained.

2d, Manufacturing a fettling for lining fettling, or repairing reverberatory furnaces, by tapping or running liquid mill or other cinder into molds, so as thereby to form bricks or blocks, which bricks or blocks are used to line the kettle, or repair the bottoms of reverberatory furnaces, instead of fettling the said furnaces with red ore, pottery mine, and tap cinder, calcined and ground as is usual.

69,346.—STRAWBERRY RIPENER.—C. J. Jilson, Worcester, Mass.

1st, I claim a strawberry ripener made of glass, to be used substantially as and for the purpose set forth.

2d, A strawberry ripener for supporting the fruit, and preventing the runners taking root about the stem of the plant, substantially as set forth.

69,347.—SADIRON HEATER.—James J. Johnston, Alleghany City, Pa.

I claim the heated heater, f, when the bottom of same is corrugated, and used in combination with the box or body, A, of a box iron, whose inner face is corrugated, substantially as herein described, and for the purpose set forth.

69,348.—MODE OF TREATING SLAGS AND CINDERS FOR THE MANUFACTURE OF IRON.—Eudolph Keck, Clintonville, N. Y.

I claim the within described process of reducing slags and cinders directly into wrought iron by subjecting them after they have been pulverized to the action of a separating apparatus and reducing the residuum in a puddling furnace or blooming fire, as set forth.

69,349.—CLOTHES DRYER.—Henry N. King and Austin G. Mason, Adrian, Mich.

We claim the construction and use of the four beams, a, e, f, g, and d, h, the four slats, s, s, s, s, and the brace, B, the whole constructed and operating substantially in the manner and for the purpose set forth.

69,350.—AXLE.—S. D. Littlefield (assignor to himself and Horatio D. Knight), Burlington, Wis.

1st, I claim the beveled flanges, e, e1, for covering the collar, E, and the nut, D, and protecting them from grit and sand, substantially as specified.

2d, The projections or lugs, x, x1, for holding the collars, d, d, temporarily upon the skein, substantially as set forth.

69,351.—POULTRY DRINKING FOUNTAIN.—George H. Lomay, Somerville, assignor to himself and Richard D. Blinn, Lexington, Mass.

I claim the combination and arrangement of the filling opening, e, and the recess, d, with the reservoir, B, and the trough, A, such reservoir being provided with a discharge opening, b, arranged as specified.

I also claim the construction of the poultry drinking fountain with flat top to the reservoir, in combination with the filling orifice, e, or the same and the recess, d, arranged in its bottom, as set forth.

69,352.—CLOD FENDER.—John Lowe, Lebanon, Ind.

I claim the device herein described, when the same is constructed in its

said several parts in manner and form as aforesaid and used for the purpose and in the manner and form substantially as set forth.

69,353.—HORSE HAY FORK.—Joshua M. Mansfield, Watertown, N. Y.

1st, I claim the separately pivoted curved links, C, in combination with the sliding bar, D, and hinged lines, B, B, arranged and operating substantially as and for the purpose described.

2d, The eccentrically pivoted cam lever, F, in combination with the spring catch, E, e, and rope, G, arranged and operating as and for the purpose specified.

3d, The arrangement of the arm, A' a, rope, G, and cam lever, F, substantially as set forth.

69,354.—WAGON SPRING.—James McDuffie, Heller's Corners, Ind.

I claim the spring, A, in combination with the gibbs and keys, B, and the bar, C, said springs and bar being constructed in the manner and for the purposes herein described and set forth.

69,355.—COOKING STOVE.—Matthias Mead, Lowell, Mass.

I claim the arrangement of the ducts, f, f, for conveying heated air through the bottom of the oven and distributing it through the discharge pipes, g, g, substantially for the purpose described and set forth.

69,356.—CARRIAGE POLE.—Christain K. Mellinger, Millersville, Pa.

I claim the plate, A, with its slots, b, and eye, a, forming the adjustable shackle for carriage poles, when arranged, constructed, and applied in the manner and for the purpose specified.

69,357.—VENTILATOR FOR RAILROAD CAR.—Jos. H. Moore, Chicago, Ill.

1st, I claim the shaft, C, when provided with rods or dashers, a, a, attached spirally as described, in combination with the cap, D, located inside of the casing, substantially as and for the purposes described.

2d, The shaft, C, provided with the rods, a, a, and fans, D, located and operating as described, in combination with the doors, G, and bath, B, substantially as specified.

3d, The perforated diaphragm or partition, E, in combination with the shaft, C, provided with rods or dashers, a, a, and water bath, B, the whole constructed and operating substantially as specified.

69,358.—MACHINE FOR PRESSING HATS.—Monroe and Chas. H. Morse, Franklin, Mass.

We claim a series of dies or molds combined with a movable or revolving steam chest to heat the same, so that by the movement of the steam chest either of said molds may be brought to the proper place to cooperate with the other parts of the machine without disconnecting the molds from the steam chest, substantially as described.

69,359.—CUT-OFF FOR WATER SPOUTS.—Henry W. Mosher (assignor to himself and Edward C. Dudley), Aurora, Ill.

I claim, 1st, The shifting pipe, B, and the flange or collar, c, of the horizontal pivoted plate, A, arranged in relation to the conducting spout, A, in such manner that the lower end of the shifting pipe may be moved horizontally in the arc of a circle, substantially as described.

2d, The combination of the fixed base plate, D, having two openings, with the horizontal pivoted plate, C, which carries the shifting pipe, when constructed and arranged so that the surfaces of these two plates shall remain in contact while changing the pivoted plate from the conducting pipe to the escape opening, and vice versa, substantially as described.

3d, The shifting pipe, B, sustained so that it will maintain its proper connection with the conducting spout, A, and the pivoted flanged plate, C, by means of an annular seat, b, on the lower end thereof, and the fixed ears or projections, a, a, on the fixed conducting spout, as herein described.

4th, The arrangement of the pivoted plate, C, provided with an annular groove, s, in the bottom thereof, in such manner as to maintain the relation with the influx opening of the base plate, as herein described, and for the purpose set forth.

5th, The filter, G, seated in the influx opening of the base plate, D, the shifting pipe, B, and the pivoted plate, C, all arranged substantially as herein described.

69,360.—WATER WHEEL.—John Mumma, Middletown, Ohio. Antedated Sept. 23, 1867.

1st, I claim the elongated concave buckets, S, terminating at their upper ends with the cap, V, constructed, arranged, and operating in the manner and for the purpose described.

2d, The floating cylindrical gate, C, in combination with the floats, m, lever, B, and rods, D, arranged and operating substantially as described.

3d, The cylindrical rack or screen, H, in combination with chutes, d, and gates, G, arranged as described for the purpose specified.

4th, The combination of the ball gates, a, with chutes, d, operating substantially as specified for the purpose set forth.

5th, The rings, h, h, arms, l, chains, b, guide rods, f, and roller, E, arranged in relation to the ball gates, a, substantially as and for the purpose specified.

6th, The chute disk, f, with its packing ring, f, in combination with chutes, d, and annular diaphragm, K, arranged above the wheel, a, d, its curb, J, all constructed and operating substantially as and for the purposes described.

69,361.—VISE.—J. Howard Murray, Trenton, N. J., assignor to himself and T. S. Murray and A. Jameson.

I claim the stationary jaw of the vise with its shoulders, s, s', in combination with the screw, D, and nut, E, the whole being constructed as and for the purpose described.

69,362.—AXLE.—Webster Nevins, Falmouth, Me.

1st, I claim the combination of the part, d, ears, e, e', joints, f, and metallic rocker plate, b, as and for the purposes hereinbefore described.

2d, The combination of the metallic rocker plate, b, with its bolt, c, worked into and forming a part of said rocker plate, with the forward axle, substantially as and for the purposes described.

69,363.—CHURN Dasher.—Maria A. Ober, Chazy, N. Y.

I claim a churn dasher constructed as shown and described.

69,364.—CARRIAGE STEP.—Charles Parker and Wm. Vogler, Canterbury, N. H.

1st, I claim a vibrating carriage step operated by mechanism connected with the forward axle, substantially as described.

2d, The vibrating step, a, in combination with the fan shaped arm, d, levers, b, b', and cross bar, c, substantially as described.

3d, The step, a, provided with fan shaped arm, d, substantially as described.

69,365.—LOOSE JOINT BUTT HINGE.—Marshall Perry, New York City, assignor to himself and Geo. W. Gregory, Watertown, N. Y.

I claim a right or left hand hinge composed of two plates, one having a single pin carrying knuckle, and the other having two socketed pinlike receiving knuckles, one projecting from the top and the other from the bottom of said plate, but at opposite edges, substantially as and for the purpose set forth.

69,366.—BED BOTTOM.—Thomas Raser, Geneseo, Ill.

I claim the boxing or castings, C, and polis, B, B, in combination with the rubber bands and slats, D and E, as described.

69,367.—DEVICE FOR HEATING TIRES.—Charles H. Reno, Barrington, N. Y.

I claim the chamber, A, pipes, C, and D, and branch pipe, E, when made and used as and for the purpose herein specified.

69,368.—MOP HEAD.—Geo. W. Sanders, Springfield, Vt.

I claim the screw cam, e, and slide, d, or its equivalent, in combination with the jaw, c, constructed and operating substantially in the manner described and for the purpose specified.

69,369.—HITCHING DEVICE FOR WHIFFLETREES.—Henry and James M. Saunders, Oxford, Ohio.

We claim the application of the whiffletree, A, of the arms or stops, B, the case, D, with the spring bolt, C, arranged therein with the cords, c, and pulleys, when the same are arranged to operate as herein shown and described.

69,370.—MACHINE FOR PREPARING PEAT FOR FUEL.—A. M. Sawyer, Athol, Ma.

1st, I claim the combination of an apparatus for grinding or disintegrating the peat, the endless apron, b, and the squeezing rollers, C and C', arranged substantially as described.

2d, The combination of the endless apron, b, the squeezing rollers, C and C', and the scraper, F, substantially as described.

3d, The scraper, h, h, with the hopper, H, in combination with the series of molds substantially as described.

4th, A ranging the cams that work the pistons in and out, so as to be adjustable, as described, so that the movement of the pistons in the direction of the diameter of the mold wheel may be varied and thereby the compressing capacity of the mold, be increased or diminished, substantially as described.

69,371.—HAT BLOCKING MACHINE.—Julius Sheldon, New York City.

I claim in combination with a hat stretching or blocking machine, the continuous rubber cap, a, applied substantially as and for the purpose set forth.

69,372.—FLASK FOR CASTING.—G. P. Sisson, Florence, Mass.

I claim the bands, G and H, or either of them, in combination with the flask, and arranged to operate therewith substantially in the manner and for the purpose herein specified.

69,373.—JOURNAL BOX.—Le Roy M. Taylor and W. D. Fowler, Washington, D. C.

We claim the manner herein described of constructing the box, A, B, in two halves, with the hinge, a, e, and the turning pin, d, and locking devices, g, h, the said construction admitting of a ready removal of the shaft, as well as for the purposes above set forth.

69,374.—WIND MILL.—John S. Thornton, Port Gibson, N. Y.

1st, I claim the fan wheels, E, E, fans, C, C, and arms, D, D, constructed and combined substantially as and for the purpose set forth.

2d, The fan, G, in combination with fans, C, C, arranged in relation to each other substantially in the manner and for the purpose specified.

3d, The shaft, H, combined and arranged with wheels, F, F, and E, E, substantially as and for the purpose described.

69,375.—HAY DERRICK.—Isaac Van Voorhis, Hillsboro, Pa.

I claim a portable self-balancing derrick consisting of one or more upright posts, with arms hinged on opposite sides, such arms connected with each other in the manner described and the whole operating substantially as and for the purposes above set forth.

69,376.—MATTRESS.—B. F. Walton, Philadelphia, Pa.

I claim a mattress or cushion containing curled hair or other equivalent elastic stuffing material, combined with shavings or chips of cedar, for the purpose specified.

69,377.—CAR BRAKE SHOES.—I. P. Wendell, Philadelphia, Pa.

1st, I claim the combination with a cast iron brake shoe for railroad cars, of pieces of wood, india rubber, or other suitable material, softer than the iron, substantially in the manner hereinbefore described and for the purpose above specified.

2d, The combination of the shoe, A, and stock D, by means of the groove, e, tongue, and cross key, E, substantially in the manner described and for the purpose set forth.

3d, The combination of the lug, l, and arm, k, with the keys, E and E', substantially as described and for the purpose specified.

69,378.—EXCAVATING MACHINE.—E. H. Williams, Grand Meadow, Iowa, and D. R. Williams, Werner, Wis.

We claim the construction and arrangement in an excavator, of the pressure belt, V, when the same is driven by friction caused by the ascending furrow slice, in the manner and for the purpose herein described.

2d, The construction and arrangement of the two shafts, S S, with their pulleys, in combination with the pressure belt, V, as herein described.

69,382.—TREADLE FOR PROPELLING MACHINERY.—William C. Abbott, Niles, N. Y.

I claim the combination of the treadles, L M, the straps, O P, the roller, Q, and crank, R, when said parts are constructed and arranged in relation to one another, substantially as set forth.

69,383.—ROTARY ENGINE.—Moses L. Andrew, Cincinnati, O.

1st, I claim the combination and arrangement of the lipped and chambered wings, D D', grooved segmental pistons, E, and springs, F, for the purpose set forth.

2d, The combination of the setscrews, H, and springs, I, whereby to hold the follower, G, to the end of the piston, C, with a variable and elastic pressure.

3d, The arrangement of the conical boxes, M, bearings, N, and pinch nuts, O, for the purpose set forth.

69,384.—HOISTING APPARATUS.—W. D. Andrews, N. Y. City.

I claim the use of two plain or grooved friction wheels of different diameters upon one shaft when the same are operated and driven by two similar friction wheels of different diameters on one driving shaft placed nearly parallel thereto and so arranged that the speed and power may be varied by bringing into contact the larger wheel and smaller pinion or the smaller wheel and larger pinion, by means of the eccentric bearing as shown and described, or other equivalent device, for the purpose and object as stated.

69,385.—LETTER FILE.—Frederick Ashley, New York City.

Ante-dated June 1, 1867.

I claim securing the upper portion, C, of the hook or thumb plate, b, to which it is attached, by a pivot, c, to the frame, A, for operation in combination with a spring, e, to admit of the lateral play of said portion, C, relatively to the lower portion, B, of the hook through a slot or opening, f, in the former, substantially as specified.

69,386.—ELLIPTIC SPRING BRACE.—M. Barker, Humphrey, N. Y.

I claim the arrangement of the brace rods, C D, their outer ends secured to the center of the lower part of the springs, A B, their inner ends pivoted to the vertical wheel, E, pivoted to the bottom of the wagon box, as herein described for the purpose specified.

69,387.—HAND SPINNING MACHINE.—Turner Barns, Greensburg, Ind.

1st, I claim the arrangement of spindle, J, maintained in a given direction or bearing within the movable arm, H, by means of sliding rod, I, and pin-man, K, and screw, L.

2d, The combination with elements of claim 1st, I claim the arm, H, adapted for being advanced and retracted by weight, X, and treadle, Y, and their described or equivalent accessories, substantially as set forth.

69,388.—ERASER AND LETTER OPENER.—G. C. Barney, Philadelphia, Pa.

I claim the blade, B, having convex and concave sharpened or cutting edges intersecting in a sharpened point, substantially as described, forming a combined eraser and letter opener.

69,389.—APPARATUS FOR RECORDING VOTES.—J. E. Beardsley, A. F. Boyle, E. M. Lewis, and M. A. Clancy, Washington, D. C.

1st, I claim the arrangement of the bars, F, with jacket and type, z, bars, O, with indicators, X, connected to bars, P, by the short bar, s3, rods, b', and springs with angular bars, b', when used with the disks, C and D, and lever, N, in the manner and for the purposes herein specified.

2d, The dial plate, A, with its flange, A', and hands, 12, when arranged in combination with the drum, E, as constructed in the manner and for the purposes herein specified.

3d, The dial disk, C, with its springs, W, and slots and provided with the radiating flat springs, R, on its back, in the manner and for the purposes specified.

4th, The disk, B, provided with its narrow paired slots, y, y', for guiding the U-shaped bars, O, and plate, F, as constructed and arranged as set forth.

5th, The circular disk, F, with points, 1, 2, 3, 4, and spring, I, on its rear face and with bar, b, spring, h', p', 2, and pin, k, on the front face in combination with the hollow shaft, E, and ratchet, k, as and for the purposes herein fully described.

6th, The arrangement of the clutch, K, with cones, q, and pawls, o, o, in combination with the ratchets, p, p', spring shaft, and spring, I, plates, m2, and cogs, s, s', in the manner substantially as and for the purposes herein specified.

7th, The drum, E, with its rollers, f, f, band, g, and double catch, d3, when arranged and used in the manner and for the purposes herein specified.

8th, The disks, A B C D, and G, with the drum, E, when constructed as specified with the voting devices and gearing for taking, counting, and printing the voters' names, in the manner and for the operation substantially as herein fully set forth.

69,390.—APPARATUS FOR FILTERING AND PURIFYING SPIRITS.—William F. Beards, Mount Pleasant, N. Y.

1st, I claim the rectifying vessel, h, provided with the oven flow pipe, p, supply pipe, e', perforated false bottom, m, and perforated head, n, between which the filtering material is retained, as and for the purposes set forth.

2d, I claim the perforated head, n, formed with the movable sections, 1 and 2, held in place by the cross bar, l, nted in the manner and for the purposes set forth.

69,391.—CHURN.—E. O. Bennett, Mt. Pleasant, Iowa.

I claim the combination of the floats, G G, the inclined shaft, F, the perforated diaphragm, and the driving machinery of a rotary churn dasher, substantially as described.

69,392.—HEN'S NEST.—C. W. Blackman, Bridgeport, Conn.

I claim a nest for hens composed of a box, A, provided with two doors, B, hung on pivots, c, c, and constructed each of two parts, b, b', at right angles with each other and connected by cross rods, C C, all arranged to operate in the manner substantially as shown and described.

69,393.—TOOTH POWDER LOZENGE.—C. E. Blake, San Francisco, Cal.

I claim the making of tooth powder in the form of lozenges.

69,394.—ATTACHING THILLS TO CARRIAGES.—S. S. Bliss, New Bedford, Mass.

I claim 1st, Securing the side iron, B B, when the same are constructed with solid conical bearings or centers, F F, by means of clamp bolts, D D, or in the manner and for the purposes herein specified.

2d, The combination of the thill, A, side iron, B B, having solid conical bearings, F F, and clip iron, C, with its conical socket or seats, E E, when the same are constructed, arranged and operated substantially as described and for the purposes set forth.

69,395.—LASTING AWL.—C. K. Bradford, Lynnfield, Mass.

I claim combining with the stock or handle, a, an eye-pointed awl, b, substantially as shown and described.

Also, in combination with such stock and eye-pointed awl, the spool chamber with the handle, substantially as set forth.

69,396.—RESPIRATOR.—Robert Brayton and Samuel Curtis, Fremont, Ohio.

1st, We claim a nostril tubes, b, b, chamber, F, and mouth piece, c, in combination with the tubes, a, a, and valves, d, d', substantially as and for the purposes set forth.

2d, The box, A, and tube, E, in combination with the air chamber, F, substantially as set forth.

3d, We claim a respirator so constructed that it may be connected to either the mouth or nose and so provided with inhaling and exhaling pipes and valves that in breathing the valves will alternately open and close, when used in the manner and for the purposes substantially as set forth.

69,397.—FOLDING SEAT FOR CARRIAGE BODIES.—Richard F. Briggs, Amesbury, Mass.

I claim the combination and arrangement of the support, b, slotted friction plate, d, and slotted upright support, c, substantially as described for the purpose herein set forth.

69,398.—CLOTHES PIN.—R. G. Britton, Springfield, Vt.

I claim a clothes pin formed of the two wooden pieces, A B, united by the pin, b, through the grooved circular projection, a, and the tongue, c, and provided with a spiral spring, h, between the ends, e, e', to close the ends, e, e, arranged and operated as described.

69,399.—RATCHET BRACE.—William Brown, Hoboken, N. J.

I claim the spherical ratchet, A, in combination with the socket, c, and pawl, g, substantially as described.

69,400.—LIFTING JACK.—William Green, Holly, Mich.

1st, The combination of the lever, L, upright post, A, grooves, e, e, lip, e', and guides, v, v, with the dogs, b, b', each having the short projecting tooth, i, and arranged and operating substantially as and for the purpose described.

2d, The lifting jack above described consisting of the post, A, having the series of teeth, a, a, the grooves, e, e, lip, e', and guides, v, v, in combination with the lever, L, having the dogs, b, b', held in place by the springs, s, s', and provided with the teeth, i, i, all the parts being constructed, arranged and combined substantially in the manner and for the purpose specified.

69,401.—BELLOWS.—George Bushnell, Schodack, N. Y. Ante-dated Sept. 26, 1867.

I claim 1st, The combination of the several smaller bellows with the rod, L, operating substantially in the manner hereinbefore described.

2d, The combination of the bellows, E, with the chamber, F, valve, O, and lever, P, as hereinbefore set forth and described.

69,402.—ATTACHING THILLS TO VEHICLES.—Edward M. Butler, Croton Falls, N. Y.

I claim the rubber cushion, I, or its equivalent, applied to the center pin of shaft couplings, substantially as and for the purpose described.

69,403.—CARRIAGE WHEEL.—J. G. Buzzell, Lynn, Mass.

I claim 1st, The swivelled spokes, B', when crimped to give them elasticity with the coils, b', substantially as herein shown and described.

2d, The single spokes, B, their outer ends swivelled to the rim, C, and their ends screwing into the hub and adapted to be turned to regulate the strain of the wheel, I herein set forth for the purpose specified.

3d, The single spokes, B or B', their inner ends secured to the hub, A, out of the same horizontal lines with the coils, b', as herein set forth for the purpose specified.

4th, The combination and arrangement of the removable ring, D, coiled swivelled spokes, B, and the strain and elasticity of the wheel are adjusted, as herein set forth for the purpose specified.

69,404.—WAGON.—Vasco M. Chafee, Xenia, Ill.

I claim 1st, Hinging the tongue or shafts of a wagon or other vehicle to the front axle so as to obtain a direct center draft, substantially as set forth.

2d, The combination of the tongue, C, with a center hinge at G, and the side braces, H, attached substantially as and for the purpose set forth.

3d, The plate, F, forming the sand board axle plate and reach receiver combined in one piece, substantially as described.

4th, The key or twisting instrument, E F G, and hook, H, combined and operating in the manner and for the purpose explained.

69,405.—TAG OR LABEL.—Charles H. Chapman, Sherley, Mass.

I claim the spangle, B, in combination with the string, C C', and card, A, made substantially as described and for the purpose set forth.

69,406.—RINGING HOGS.—G. W. Clark, Frankfort, Ohio.

I claim 1st, The within-described apparatus consisting of the awl or piercing instrument, A B C, and the key or twisting instrument, E F G, constructed and operated substantially as and for the purpose set forth.

2d, The awl, A B C, when provided with a groove, b, and socket, b', substantially as and for the purpose explained.

3d, The key or twisting instrument, E F G, and hook, H, combined and operating in the manner and for the purpose explained.

69,407.—COAL ELEVATOR AND DISTRIBUTOR.—H. C. Clark and Robert B. Little, Providence, R. I.

I claim 1st, A coal elevator which is arranged substantially as herein shown and described so that coal or other material can be raised from the hold of a vessel and discharged into any desired one of a number of temporary compartments or pockets and be discharged from the latter into cars or carts, ready for delivery to families all without requiring any manual labor except that which is required for raising or lowering the necessary doors or traps, as set forth.

2d, The extension rails, G, when hinged to the ends of the rails, F, so that they can be folded out of the way, substantially as set forth.

3d, The adjustable bolsters, o, o, when arranged as set forth for the purpose specified.

4th, The revolving trough, J, when arranged in combination with the rails, F F', of an elevator and with the chambers, B B, substantially as herein shown and described.

5th, The revolving trough, J, when provided with trap doors, p, substantially as and for the purpose herein shown and described.

6th, The device for regulating the discharge of the coal or other material from the pockets or chambers, B, consisting of the screw or board, a, in combination with the hinged plate, d, and with the cord, e, all made and operating substantially as and for the purpose herein shown and described.

7th, The folding extension, G, when made as set forth arranged in relation with the adjustable bolsters, o, stationary track, F, and flexible revolving trough, J, all made and operating substantially as and for the purpose herein shown and described.

69,408.—TERRESTRIAL GLOBE.—G. P. Clarke, N. Y. City.

I claim the division of a sphere or globe into sections or zones, substantially as described and for the purpose set forth.

2d, I claim the construction and application of the spring, I, in combination with the spindle, E E, the trunnions, F F', and the center zone, D, substantially as and for the purposes set forth.

69,409.—HAND REAPER AND MOWER.—J. P. Cook (assignor to himself and John T. Campbell), Rockville, Ind.

I claim a hand reaper or one designed for manual operation composed of a frame, A, having two reciprocating sickles, F F', attached and operated by a crank, B, or chain, C, consisting of the parallel bars, D, and connecting links, E, in opposite directions, substantially as shown and described.

I further claim the adjustable yoke, B, in the framing, A, for the purpose specified.

69,410.—WATER WHEEL.—William Cooper, Hancock, Md.

1st, I claim the gates, G, operated through the medium of the circular plate, I, pivoted arms, H, and springs, J, all arranged substantially as and for the purpose specified.

2d, The combination and the arrangement of the slotted arms, H, springs, J, and plate, I, as set forth for the purpose specified.

69,411.—STEAM SUPERHEATER.—L. R. Cornell, Flatbush, N. Y.

I claim the superheater as described consisting of the parallel cylinders, A, divided into chambers, B2, by heads, B, and supported by means of the uprights, A2, said chambers connected alternately by means of the curved pipes, C, and connecting with the parallel condensing pipes, E, beneath each cylinder by means of the short pipes, D, as herein shown and set forth for the purpose specified.

69,412.—HOLDBACK.—J. C. Covert, Townsendville, N. Y.

I claim the metallic holdback constructed as described consisting of the V-shaped strap, B, attached at its angle by a ring, c, to the neck yoke and at its other end by snap hooks, b, to the rings, a, of the harness as herein shown and described.

69,413.—METALLIC HAME TUG.—J. M. Curran and J. C. Baxter, Washington, D. C.

We claim a hame tug having its body, A, formed of a single strap of metal with the eye, B, having the hinged or detachable piece, b, and its rear end formed for attaching the buckle, F, substantially as shown and described.

69,414.—AGUE MEDICINE.—F. M. Daniel, Athens, Ga.

I claim a composition or medicine composed of the ingredients in about the proportions herein set forth and for the purpose specified.

69,415.—MUCILAGE POT.—Otis Dean (assignor to Robert W. Young), Richmond, Va.

I claim 1st, The provision, in combination with the reservoir, A, for mullage, varnish, or other material of a brush receptacle, D, to contain a suitable material to keep the brush moist, as explained.

2d, In combination with a pot for mucilage or other material claim the bar, F, for the purpose specified.

3d, The bar, F, applied to the lid, in the manner and for the purpose set forth.

69,416.—DYKES AND LEVEES TO RIVERS.—S. B. Driggs, New York City.

I claim 1st, The metallic wall or core, when arranged in a curved, corrugated, or zig-zag form, substantially as and for the purpose set forth.

2d, The combination of the plates, D, constructed with lap joints at the junction of the plates to compensate for expansion and contraction, and arranged at an angle to the horizon in combination with the braces, D, substantially as specified.

69,417.—CAST STEEL.—Francis Eilershausen, Ottawa, Canada. Patented in Canada, Sept. 14, 1867.

1st, I claim the furnace above described consisting of the retort, B, hearth plate, D, and lower fire chamber, A, when the parts are constructed combined and arranged in the manner above set forth and for the purpose specified.

2d, The hearth plate, D, in a furnace containing the retort, B, and fire chamber, A, substantially as and for the purpose set forth.

3d, The process of obtaining cast steel directly from iron, or from iron ore in connection with wrought iron, substantially as above described.

69,418.—INDEX GAGE AND CALIPER.—D. F. Elmer, Springfield, Mass.

1st, I claim the cylinder, g, slotted and graduated as specified in combination with the jaws, a, a', dial plate, B, hand, c, and bolt, H, substantially as described.

2d, The combination of the graduated dial plate, B, with the cylinder, g, in the manner and for the purpose set forth.

3d, The jaws, a, a', in combination with the slotted and graduated cylinder, g, and bolt, H, as and for the purpose specified.

4th, The combination of the bolt, H, with the graduated cylinder, g, as and for the purpose specified.

69,419.—COFFINS.—T. B. Estep, Cincinnati, Ohio.

1st, I claim a coffin, whose joints are hermetically closed by means of cemented rubber strips, D, and sheet metal strips, E, the same being applied and secured substantially as herein described and set forth.

2d, In combination with the rubber strips, D, and metal strips, E, I claim the angle iron, D, d' as and for the purpose explained.

69,420.—COFFINS.—T. B. Estep and W. C. Hofferman, Cincinnati, Ohio. Assignors to Thomas B. Estep.

We claim a coffin whose upper edges of the body, A, are provided with corrugations, a, when used in connection with grooved lid, b, c, and inside rubber gasket, E, the whole being arranged and operating substantially as herein described and set forth.

69,421.—MACHINE FOR COILING SPRINGS.—J. W. Evans, N. Y.

1st, I claim the revolving mandrel, I, made capable of a sliding motion in direction of its length in combination with the spirally grooved roll, K, and serving to detach the spring when formed essentially as herein set forth.

2d, In combination with the sliding and revolving mandrel, I, the guiding dog, b, and spirally guiding collar, d, for operation on the wire of which the spring is formed, substantially as set forth.

3d, The sliding and revolving mandrel, I, with its locking dog, b, and band wheel or its equivalent, H, in combination with the spirally grooved rotating roll, K, having formed in it a recess or notch, s, essentially as herein set forth.

69,422.—LOOMS.—Danl. K. Fretz, Cono, Iowa.

I claim the combination and arrangement of the spring, F, and hinge, Z, with the lay and picker staff, substantially as described.

69,423.—AIR PUMP.—Henry Getty, Brooklyn, N. Y.

I claim the gage, K L M, cup, O P, coupling, I, having recess, Q, all arranged to operate in connection with an air pump, as herein shown and described.

69,424.—TELEGRAPH APPARATUS.—Elisha Gray, Oberlin, Ohio.

1st, I claim the commutator or pole changer relay, and key arranged to operate conjointly with the main and local circuits so that the operator at any point on the line can reverse the current over the same, from the main battery in the manner substantially as set forth.

2d, The peculiar construction of the commutator when arranged with the line and local circuits for the purpose of obtaining the attraction and repulsion of the direct and reverse currents by means substantially as specified.

3d, The commutator with its electro-magnet or vibrating core armature so arranged that its poles are between the poles of the electro-magnets and so connected with the line and local circuits, that when both are closed one magnet is attracting the armature and the other is repelling, in the manner substantially as described.

4th, The arrangement of the magnet, J, electro-magnets, C D, lever, H, and spring, K, combined and operating conjointly in the manner and for the purpose substantially as set forth.

69,425.—WEIGHING ATTACHMENT TO FAUCETS.—L. C. Fisher and A. D. Holliday, El Paso, Ill.

We claim the bar, L, with clutch, D, plate, E, bars, H and F, rods, c, c, with springs, G G, and plate, A, the various parts constructed and operating in the manner substantially as and for the purposes set forth.

69,426.—GLASS WARE PRESSES.—Jonathan Haley, Cambridge, Mass.

I claim a press organized substantially as described so that the bed and plunger have simultaneous movements relative to each other in approaching and receding.

2d, The combination as arranged of the cranks, connecting rods, movable bed and plunger-carrying crosshead for the purpose specified.

69,427.—WATCHES.—J. A. Harmann, New York City.

1st, I claim the key, c, constructed as described and adapted to screw into the pendant, E, substantially as described for the purpose specified.

2d, The construction and arrangement of the pendant, B, spindle, F, and hollow screw key, C, as herein set forth for the purpose specified.

69,428.—BEEHIVE.—Edward Harrison, Springfield, Ohio.

1st, I claim the open bottomed cup, A in combination with a removable strainer, D, substantially as and for the purpose set forth.

2d, In combination with the open bottomed cup, A, the ring, B, for the purpose of readily applying or removing the strainer, D, substantially as and for the purpose set forth and described.

3d, A bee feeding apparatus which can be filled through the top, and from which the feed can only be obtained through the bottom, so that it may be placed to cover an orifice in the top of the hive and the bees enabled to feed while observing their natural inclination to cluster together, and so that it may be replenished with feed without removal or disturbance of the bees as set forth.

69,429.—HORSE COLLAR.—J. G. Haymaker, Salem Cross Roads, Pa.

1st, The catch, B, secured to plate, D, on one end of the collar and spring, b', in the opposite end with or without the pin or entering piece, C, and hole, C', applied to the lower portions of a divided horse collar and locking them together substantially as described.

2d, The pin or entering piece, C, and hole, C', with or without the catch, B, and spring, b', applied in like manner and for the purposes substantially as described.

69,430.—CHAIR SEAT.—Geo. Heesen, Tecumseh, Mich.

I claim an improved article of manufacture a chair seat formed or constructed of paper twine substantially as set forth.

69,431.—BEEHIVE.—J. H. Hendrick, Clinton, Ill.

1st, I claim the comb-frames, E E', with their cross bars, f, f', perforated as and for the purpose described, in combination with the lower division, A, of the hive, and the door, C, and its adjuncts, substantially as set forth.

2d, The surplus honey boxes or drawers, H, constructed substantially as and for the purpose set forth.

3d, The combination of the surplus honey boxes, H, when constructed and arranged substantially as described, with the upper division, F.

69,432.—HAY RAKER AND LOADER.—J. W. Henry, Pocatoni, Idaho.

The upper and lower frames, composed of the uprights, E and D D', with their endless aprons and shafts and drums, arranged with the rake, L, and rods, M M, in such a manner that hay is carried up and emptied forward of the machine as and for the purpose set forth.

69,433.—FILTER.—Foster Henshaw, Washington, D. C.

1st, I claim the alternate sand and cone chambers either with or without the removable coil chambers, g, g, when arranged and combined with the head pieces and the perforated plate, e, e, and I, one or both substantially as described and for the purposes set forth.

2d, The said filter when provided with the extension pipe, h, as a syphon in connection with the water holder or tank when arranged and combined as set forth.

69,434.—SUSPENSION HOOK FOR HORSE HAY FORKS.—Edward Hicks, North Hempstead, N. Y.

1st, The hook constructed with its prong, e, situated at an angle to its shank, A, substantially as and for the purpose specified.

2d, The eye, A, of the hook constructed with the angles or corners, a' b' c', substantially as and for the purpose set forth.

69,435.—CHAIR.—G. H. Hoagland, Port Jervis, N. Y.

I claim the seat frame and back, or either, secured to the side frames of the chair by means of metallic fastenings, c, d, forming mortise and tenon locks, substantially as specified.

69,436.—LAMP.—Peter Hoffmann, Constableville, N. Y.

I claim the reservoir, B, provided with the tube, C, adapted to slide in or over the tube, a, for the purpose of pumping the oil from the reservoir, A, as herein set forth for the purpose specified.

2d, The combination of the reservoir, A, sliding reservoir, B, tube, a, sliding tube, C, carrying the tubes, e, o, spring, l, and valves, i and k, substantially as and for the purpose set forth.

69,437.—STEAM CAR BRAKE.—Thomas and Hatfield Hopper, Newark, N. J.

1st, We claim the combination of the sliding rods, A and D, with the pulleys, C1 and C2, chains, B, and rope, G, when arranged to operate the brake levers, F, in the manner and for the purpose herein described.

2d, The sliding rods, D, and adjustable pulleys, C, when constructed and arranged in the manner and for the purpose herein set forth.

69,438.—CAM FOR LOOMS.—F. E. Howe, and Leonard Washburn, Stafford, Conn.

We claim the combination of the cam wheel, B, having the guide, b, guide, c, guide, e, and guides, f, with the lever, A, having the projections, a, d and g, the wedges, d, in combination with the whole being arranged and operating substantially as and for the purpose described.

69,439.—LAMP CHIMNEY CLEANER.—J. P. Howell, N. Y. City.

I claim the lamp chimney cleaner with a flexible jointed handle that will yield to the curves of the glass, and covered with cloth or other suitable material in such manner that such cloth may be readily applied or detached substantially as shown and described for the purpose set forth.

69,440.—WASHING MACHINE.—Richard Hubbard, Cadiz, Ind.

1st, I claim in combination with a revolving rubbing cylinder, E, the adjustable washboard, C, and bands of elastic webbing, D, arranged to operate substantially as set forth.

2d, The revolving cylinder, E, when constructed with buckets, E1, and rubbing surfaces, E2, substantially as set forth.

69,441.—BED BOTTOM.—H. L. Ashan, Plattsburg, N. Y.

I claim the combination of the slats, C C, with the narrow slots at each end for securing the beams, a, a, to connect the slats to the cross pieces, B, and additionally connecting the slats, one with the other, by the bolts, D D, whereby the slats are prevented from turning as herein specified.

69,442.—CULTIVATOR.—C. M. Jenne, Young America, Ill.

1st, I claim the arrangement with reference to the seat, u, of the beam, l, working upon universal joints and provided with suitable shares and handles, substantially as and for the purpose specified.

2d, The shares, a, and guides, n, pivoted to the beams, l, and furnished with stems, x, extending through the slotted guides, e, substantially as and for the purpose specified.

3d, The wedges, g, in combination with the inclined bars, f, rods, h, and beams, i, whereby the said beams with the shares attached thereto may be raised or lowered substantially as herein set forth.

4th, The wedges, d, in combination with the oblique bars, c, in such manner that the position of the said bars may be changed to adjust the position of the beams, substantially as herein set forth.

69,443.—GATE.—Hans J. Johnson, St. Peter, Minn.

1st, I claim the combination of the spring, G, toothed plate, F, bent lever, H, plate, E, rod, D, and loops or eyes, B, and C, with each other and with the post, A, and rear end of the part, I, of the gate, substantially as herein shown and described and for the purpose set forth.

2d, The combination of the double jointed hinges, K, toothed segments, L, and plate, M, with each other and with the adjacent ends of the parts, I, and J, of the gate, substantially as herein shown and described and for the purpose set forth.

3d, The combination of the adjustable catch, V, with the lower edge of the part, I, of the gate, substantially as herein shown and described, and for the purpose set forth.

4th, The combination of the catch plates, P, lever plates, S, spring, T, and lever, U, with each other and with the post, R, and plate or bar, O, attached to the forward edge of the part, J, of the gate substantially as herein shown and described and for the purpose set forth.

69,444.—FENCE.—Nelson Johnson, Jasper, N. Y.

1st, I claim the skeleton metallic sockets having either hollow or solid gudgeons and otherwise constructed and operating substantially as described for the purpose set forth.

2d, The boards, C C', having bevelled upper edges, c', substantially as and for the purpose specified.

3d, The combination of the battens, A2 A3, strips, a3, post or stake, A4, pin ad, and base, D, substantially as and for the purpose described.

4th, The combination of the socket, B, wedges, c, c, and board, C, substantially as and for the purpose specified.

5th, The slots, a, a3, gudgeons, b, and pins, a' a6, combined and arranged substantially as described.

69,445.—FENCE.—Nelson Johnson, Jasper, N. Y.

1st, I claim the pin, a, in combination with the fence panels, B, the said pins constituting the supporting pivots of the panels and part or all of them being removable to facilitate the withdrawal of the panels substantially as set forth.

2d, In combination with the parts, A A1 A2 A3, and panels, B, I claim the buttons, C, constructed and applied substantially as and for the purpose specified.

69,446.—KING BOLT.—Enos A. Keasey, Ligonier, Ind.

I claim a king bolt made with a shoulder piece, b, and a projection, c, at the lower end forming a swivel joint with the clip, B, constructed and operating as herein described.

69,447.—STRETCHER FOR PAINTERS' CANVAS.—Miner K. Kellogg, Baltimore, Md.

I claim the application of a knee and screw to stretchers by which canvas can be readily kept tight upon its surface, substantially as herein described and represented.

69,448.—LADDER AND CHAIR.—E. Kohn and J. L. Natcher, Sidney, Ohio.

I claim the combined step ladder and chair, consisting of the upright, A, and seting or diagonal piece, B, composed of the hinged sections, C D E, together with the brace, F, all combined and arranged as shown and described.

69,449.—CORN PLANTER.—Joseph Krebs and August Johns, Masillon, Ohio.

I claim an improved corn planter formed by the combination of the marking plow, W, adjustable covering plow, A1, roller, E1, lever, D1, and dropping wheel, T, with each other, said parts being constructed, arranged and operated substantially as herein shown and described and for the purpose set forth.

69,450.—TELESCOPE.—William Kuebler and F. Seelhorst, Philadelphia, Pa.

I claim the adjusting ring, C, when applied to telescopes and to all optical instruments of a similar nature substantially as and for the purposes herein shown and described.

69,451.—PROPELLER.—William Lawton, Green Point, N. Y.

I claim the combination of the arms, F, pivoted gear wheels, C, stationary internally toothed gear wheel, H, and gear wheel, D, with each other and with the driving shaft, E, and working shaft, G, substantially as herein shown and described and for the purpose set forth.

69,452.—DIRT SCRAPER.—Cyrus Laitley and Joel L. Little, Van Wert County, Ohio, and Reuben M. Dalbey, Springfield, Ohio, assignors to themselves and Doty & Rawlins.

1st, We claim the plates, G G, constructed as described in combination with the springs, e, c, on the bar, C, in the manner and for the purposes set forth.

2d, The rod, D, bar, C, and springs, e, e, arranged in combination with the scraper, A, as constructed and for the purposes specified.

69,453.—SEWING NEEDLE.—G. A. Lloyd and S. Fetlow, San Francisco, Cal.

We claim making the eyes far from the rear end of the shaft that it will

carry the bight of the thread or twine through the cloth sewed when the needle is pushed through the cloth by the thimble or palm, substantially as described.

2d, We also claim diminishing the shaft of the needle from a little behind the eye gradually to the rear end, both in width and thickness, substantially as described.

69,454.—MACHINE FOR FOLDING LEATHER.—Johnson Lombard, Springfield, Me.

1st, I claim the table, B, hinged to the horizontal frame, A, as and for the purpose described.

2d, The combination of rollers, c, c', hung in the hinged side pieces, D, D', the rollers, c, c', hung in the double standard, E, the roller, c', hung in the side, g, on the table, B, the main shaft, F, hung in the posts, C, C', and the belt, H, passing over all the rollers, the whole being arranged and operating substantially as and for the purpose herein described.

3d, The slide, g, and the brake, m, in combination with the roller, c, arranged and operating as described.

69,455.—GATE.—Christian Mack, Leipsic, Ohio.

I claim the combination of part, B, latch and lever, H, I, gate, a, triangular swinging and supporting frame, E, F, D, and post, C, constructed, arranged and operating in the manner as shown and described and for the purpose set forth.

69,456.—SASH LOCK AND STOP.—Donald D. Mackay, White-stone, N. Y.

1st, I claim the spring catch, e, pivoted at its lower end, sliding rod, f, and knob, c, arranged in relation with the spring rollers, a, a', and the sash, A, for operation substantially as set forth, the whole forming a combined sash stop and lock as described.

2d, The sliding bars, b, furnished with rollers, a, and operated by spiral springs, c, as arranged and operating in relation with the sash, A, substantially as and for the purpose specified.

69,457.—FOLDING BEDSTEAD.—S. H. Mapes, Almond, N. Y.

1st, I claim attaching the slats, b, of each section to the rubber or elastic bands, c, which will be more or less stretched when the sections of the slats are to be connected together in the center, that being done by suitable hooks, i, substantially in the manner and for the purposes set forth.

2d, The arrangement of the folding bedstead, with the enclosing case composed of the hinged or swinging sections, s' and D, and the hinged top, E, substantially as described.

69,458.—GOVERNOR.—T. B. McConaughey, Newark, Del.

1st, I claim the combination of notched levers, g, g', with spiral spring, h, constructed as and for the purpose set forth.

2d, The lever, L, when combined with brake, S, in the manner and for the purposes described.

3d, The governor, B, in combination with arms, e, e', notched levers, g, g', the spring, h, and lever, L, the whole constructed and operating in the manner and for the purpose substantially as herein set forth.

69,459.—MODE OF VENTILATING MILL STONES.—H. McEl-downey, Dixon, Ill.

I claim the spiral flange, C, at the inner side of the curb, B, in combination with the openings, D, E, at the upper and lower parts of the curb, all arranged substantially as and for the purpose set forth.

69,460.—WINDOW SCREEN.—James McFeely, North Woburn, Mass.

I claim the perforated or slotted tank, D, reservoir, E, and spout, G, in combination with the frame, A, and screen, B, substantially as described for the purpose specified.

69,461.—TUCKING ATTACHMENT FOR SEWING MACHINES.—John McNeill, New York City.

1st, I claim the combination of the crassing device, I, the pressure plate, E, the folding plate, F, the guide plate, G, and the forming plate, H, constructed as described, that by its mode of operation the plaits or tucks of shirt bosoms or other garments may be crease, d, folded and finished by sewing when attached to a sewing machine.

2d, In combination with the above the following plate, K, having the end, m, doubled and turned in upon itself for forming the first or outside one of a set of plaits or tucks constructed and operating substantially as described.

69,462.—FENCE.—M. D. Messler, New Lebanon, Ohio.

1st, I claim the rods, E, having spirally shaped lower ends, their upper ends bent and secured to the upright of a fence, substantially as described.

2d, The wires, d, forming the connection between the panels of a fence, constructed and operating substantially as described.

3d, In combination with the above the pivoted cleats, a, a', secured and arranged substantially as described.

69,463.—NEEDLE SETTER FOR SEWING MACHINES.—Thomas C. Michener, St. Louis, Mo.

I claim the combination of the spring arms, B, B', with the adjustable arm, A, A', and the pointed needle guide, c, all arranged in the manner and for the purpose described.

69,464.—CAR COUPLING.—Daniel W. Miller and Michael Breattle, Jr., Middletown, Pa.

1st, We claim the sliding block, C, provided with pin or bolt, e, and constructed with recesses, o, (one or more) when said recesses are arranged at an angle to the horizontal plane, substantially as and for the purposes set forth.

2d, The sliding block, C, and its pin, d, combined with the link, G, and sheath, A, all constructed arranged and operating substantially as herein set forth.

69,465.—SHIFTING STEP FOR VEHICLES.—Edward Miller, Milwaukee, Wis.

1st, I claim an improved shifting step, A, formed with a hook or flange, a', upon its upper surface, substantially as herein shown and described, and for the purpose set forth.

2d, The combination of the hinged handle or top piece, B, with the step, A, substantially as herein shown and described, and for the purpose set forth.

69,466.—MACHINE FOR MILLING TWIST DRILLS.—L. B. Miller, Jersey City, N. J.

1st, I claim the spindles, D and E, one within the other revolving in a common head and locked together by the spring bolt, b, in combination with a longitudinal feeding device having a diagonal adjustment, to a rotary milling tool or cutter substantially as specified.

2d, The arrangement and combination of the vertical slide, I, adjustable slide, T, intermediate sliding bar, V, and slotted eccentric, R, for regulating the depth of cut, substantially as set forth.

3d, In combination with said vertically adjustable sliding carriage the adjustable cam or eccentric, V, elbow lever, W, and clutch, A, operated by the screw, b, for giving the desired depth of cut throughout the line or length thereof, substantially as specified.

4th, The reversing carrier or spring borne clutch, D', in combination with the clutches, g' A', nuts, e' c' and screws, d' b', for operation together as herein set forth.

5th, The arrangement of the driving shaft, J, the work holding carriage having a longitudinal swiveling motion as described and the burr or milling tool, A, substantially as specified.

69,467.—DOUGH KNEADER.—W. B. Morrison, Muskegon, Mich.

I claim the box, A, provided with a concave surface, B, in its bottom, in combination with the arms or rods, E, having shoes, G, attached and operated from a crank shaft, D, substantially as and for the purpose specified.

69,468.—CULTIVATOR.—J. Madison Morse, Sandwich, Ill.

I claim the combination of the cart and frame, B, C, D, E, F, G, H, constructed and arranged substantially as described, with an ordinary corn cultivator, as and for the purpose herein set forth.

69,469.—THRILL COUPLING.—E. M. Naramore (assignor to himself and W. M. Naramore), North Underhill, Vt.

1st, I claim the bed piece, A, constructed substantially as described, for the purpose set forth.

2d, The knuckle, B, formed of the parts, a, b, c, in combination with the bed piece, substantially as described.

3d, In combination with the bed, A, and knuckle, B, I claim the spring catch, C, with its link, f, and spring, J, substantially as and for the purposes herein set forth.

69,470.—COMPOSITION FOR IMITATION RUBBER.—J. B. New-brough and E. Fagan, New York City.

We claim as a new composition of stearine or margarine and sulphur, gum copal, or other suitable material, so combined and in such proportions as to form a compound of the nature herein described.

69,471.—WAFER AND DRESSER PLATE.—Ambrose J. Nich-ols, North Providence, R. I.

I claim the eyes, B, when placed in the holes in the copper, A, in such a manner as to turn loosely therein and allow the thread to wear equally upon all sides and prevent the formation of channels, as herein shown and described.

69,472.—PICKER FOR LOOMS.—Bradford W. Nichols, Phoenix Village, R. I.

I claim the combination of the picker of the picker staff and binder, b, with a raw hide case, a, the case having laps, h, projecting over the sides of the staff, and a shoulder, i, in the hide, to hold the filling, g, in place, substan-tially as described.

69,473.—PIPE AND BOLT CUTTER.—C. C. Parsons, Boston, Mass. Antedated Sept. 18, 1867.

I claim a pipe or bolt cutter having two rotary disk cutters arranged to operate substantially as set forth.

69,474.—KIN HOLDER.—Buel D. Pease, Madison, Pa.

I claim an improved kin holder formed by the combination of the frame, A, cam, B, and spring, D, with each other, substantially as herein shown and described and for the purpose set forth.

69,475.—CHURN.—W. C. Peck, Wheeling, West Va.

I claim the detachable cream box, D, dashers, G, bar, B, cross bar, I, and uprights, H, all constructed and arranged as herein shown and described.

69,476.—HARVESTER RAKE.—G. M. Peters, Granville, Ohio.

1st, I claim the reciprocating rake carriage, I, I', in combination with the reciprocating shaft, B, and chain, M, substantially as described.

2d, The rake head, J, pivoted to the reciprocating carriage, I, I', in combination with the reciprocating shaft, K, operating as described.

3d, The arrangement of the ways or guides, H, L, in relation to the platform and in combination with the rake carriage and lifting slide, substantially as described.

4th, The combination of the reciprocating and lifting rake, J, and carriage I, ways or guides, H, L, and endless chain, M, with the platform, G, substan-tially as described.

69,477.—APPARATUS FOR HEATING WATER AND CONDENSING STEAM.—Henry J. Phalen, Plantersville, Texas.

I claim the arrangement of the pipes, D, G, for the passage of the steam and of the water or other liquor, whereby the water or liquor is forced in the same direction as the current of steam, by which it is overtaken and with which it mingles in spray-like or other divided condition, substantially as and for the purpose herein specified.

69,478.—PLOW.—Mason Prentiss, Cambridge, N. Y.

I claim the adjustable shoe, D, applied to the curved rear part of the plow beam, A, substantially in the manner as and for the purpose set forth.

69,479.—MODE OF OPERATING HORSE HAY FORKS.—A. J. Purviance, Keosauqua, Iowa.

1st, I claim the conveyor, D, provided with the horizontal ribs, C, C', having

circular holes, d, roller, a, g, cam, F, and crank, G, constructed as described, for the purpose specified.

2d, The projection, J, in combination with the crank, G, and cam, F, substan-tially as described for the purpose specified.

3d, The fork head, E, provided with the shoulders, e, whereby it is held in position by the cam, F, as it enters the conveyor, D, substantially as described for the purpose specified.

4th, The combination of the fork head, E, conveyor, D, cam, F, crank, G, and projection, J, substantially as described.

69,480.—POTATO BAKER.—Adam Reid, Buffalo, N. Y.

I claim a potato baker made to sit upon or in the pot-hole of a cooking stove, having an inner shelf, D, for the support of the articles to be baked, and a double wall, forming an annular hot air chamber, A, with apertures, C, made through the inner wall, substantially as described.

69,481.—BULLET MACHINE.—C. H. Remington, Dubuque, Iowa.

1st, I claim the combination of the slides, b, b', actuated by the cams, a, a', the moving die, c, and the stationary die, c', the punch, d, and the feeding slide, g, arranged and operating substantially as and for the purposes herein described.

2d, The head block, k, the clamping jaw, k1, the sliding arm, k2, and slide piece, k3, actuated by the slide cam, m, combined and operating substantially as and for the purpose herein described.

69,482.—LOGOTROPE.—Charles Richardson and J. Graeme, Jr., New York City.

I claim the supporting rods, b, sleeve, c, and nut b', arranged in relation with each other and with the disks, furnished with suitable words at their peripheries, substantially as and for the purposes specified.

69,483.—GENERATING GAS FROM HYDROCARBON LIQUIDS.—M. S. Richardson and E. A. Pond, Rutland, Vt.

1st, We claim in the manufacture of gas from hydrocarbon fluids, the method herein indicated of discharging air in a divided state into the body of the carburating fluid, in such manner that the discharge of the said air may at all times take place at the same depth below the surface of the fluid, for the purposes set forth.

2d, The combination with the carburator or tank for containing the hydro-carbon, of a float provided with concentric compartments under the ar-rangement described, so that the air in passing from one compartment to another, shall be forced in a divided state into and through the body of the carburating fluid, as set forth.

3d, The float herein described, the same consisting of a series of open bot-tomed concentric chambers, communicating one with the other by means of tubes or pipes, and connected with the air supplying apparatus, substantially as set forth.

69,484.—SEEDING MACHINE.—Edwin Ritson (assignor to W. H. Burtis), Malvern, N. Y.

1st, I claim the combination of the rotary furrow openers, E, and covers, L, attached respectively to the frames, C, D, the former being connected by hinges or joints, a, to the front end of the frame, A, and the latter connected by hinges or joints, b, to the rear of the frames, C, substantially as and for the purpose set forth.

2d, The vibrating shoes, L, arranged and operated as shown, in connection with the seed box, K, provided with one or more compartments, and all ar-ranged substantially as and for the purpose specified.

3d, The attachment of the covers, L, to the rear bars, d, of the supple-mental frames, D, to admit of the adjustment of the covers, substantially in the manner and for the purpose set forth.

4th, The combination of the furrow openers, E, covers, L, and the seed-distributing device composed of the vibrating shoes, L, and perforated bot-tom of the seed box, provided with slides, o, all arranged substantially as and for the purposes specified.

69,485.—OIL CAN.—Martin Robbins, Cincinnati, Ohio.

1st, I claim a can or vessel for containing oil sirups or other liquid, pro-vided with a vacuum handle, and an adjustable nozzle, substantially as here-in shown and described.

2d, The nozzle, E, adjustably attached to the stopper, D, the latter being continued into the can to form the conducting tube as herein set forth, for the purpose specified.

3d, I also claim the combination of an adjustable nozzle, with the can or vessel substantially as herein shown and described.

69,486.—COMBINED CORN PLANTER AND PLASTER DROPPER.—Henry Rodas, Clarence Center, N. Y.

1st, I claim the combination with a planter, C, and plaster dropper, D, of a dropping arrangement that by a single movement shall open the one and close the other, substantially, and as herein set forth.

2d, The special combination and arrangement of the dropping apparatus, consisting of slides, E, G, connected with the single arm, J, and operating in the manner and for the purpose herein specified.

3d, The combination of the sliding gage plug, n, with the slide plates, l1', ar-ranged as described, and operating in the manner and for the purpose speci-fied.

4th, The construction, combination, and arrangement of the draw bars, l1', stirrup, r, and connection, w, with the drill tooth, t, and coverer, v, as here-in set forth.

5th, The combination and arrangement of the elastic connection, a1, and the pivoted plaster tube, m, operating in the manner and for the purpose set forth.

6th, The arrangement of hoppers, C, D, with dropping slides, E, G, the rock shafts, E, H, with connection, G, the cam and roller, c, a', and the draw bolts, l1', with stirrup, r, and connection, w, the whole operating in the manner herein set forth.

69,487.—COMBINED HORSE RAKE AND HAY SPREADER.—Charles Rogers, Barker, N. Y.

I claim the frame, G, arranged in rear of the axle, A, and supported by the cast wheel, E, in combination with the bearings, G, h, and the head of a rake or tedder, substantially as and for the purpose specified.

69,488.—TRUNK.—Alfred V. Ryder, New York City.

1st, I claim in a trunk, the body of which is composed of three main por-tions or compartments, A, B, C, the front upper, or upper front one, A, of which is hinged as at a, and made to open and close as described, con-structing the front of the rear portion, B, of a shelving or receding char-acter relatively to the dividing cut or cuts, b, substantially as and for the purpose specified.

2d, Hinging the front upper, or upper front portion, when the same is arranged to open as described, relatively to the remaining portion or por-tions of the trunk, at a point or in a line which is in advance of a verti-cal center, through the width of the trunk, essentially as specified.

69,489.—GRAIN AND SEED CLEANER.—Jacob Sattison (as-signor to himself and Ambrose Frayer), Ripley, Ohio.

I claim the bolt, B, in combination with the snake sieves, M, conductors, N and O, when arranged and operated conjointly with a fan or blower, in the manner and for the purpose substantially as set forth.

69,490.—SHOE KNIFE.—Henry Sauerbier, Newark, N. J.

I claim the sliding or adjustable guard, G, gage, C, provided with a lip, b, and turned in, in combination with the blade of the knife, substan-tially as and for the purpose herein set forth.

69,491.—SHOE KNIFE.—Henry Sauerbier, Newark, N. J.

I claim the guard, C, having the lip, b, at its outer end, when provided with the beveled recess, c, resting against the blade, A, as and for the purpose set forth.

69,492.—CENTER BOARD.—John G. Saunders, Narragan-set, R. I.

1st, I claim the raising and lowering of the center board, in an oblique direction, by means of an oblique slot or groove, and a fixed bolt, or their equivalents, arranged substantially as and for the purpose set forth.

2d, The raising and lowering of the center board, B, and the center board, B, all arranged substantially as and for the purpose specified.

69,493.—WASHING MACHINE.—John Schermerhorn, Spring Creek, Pa.

1st, I claim the construction of the boxes, D, of the square part, g, and the arm, d, with hooked end, e, for receiving the spring, f, in combination therewith, and with the rubber, B, C, substantially as and for the purpose de-scribed.

2d, The combination of the spring, f, adjustable boxes, D, g, d, e, and cor-rugated rollers, C, merging with the corrugation of the rounded bottom of case, A, substantially as described for the purpose specified.

69,494.—GATE.—William Serviss, Sidney, Ohio.

I claim the arrangement of the post, C, of the partial inclosure, relative-ly to the posts, a, b, when provided with a hinged stop, F, whereby the gate is retained between the points, C, a, of the inclosure, or may be opened at pleasure, substantially as set forth.

69,495.—WATER WHEEL.—Samuel Shive, Forks, Pa.

1st, I claim the wheel, A, mounted on the sliding frame, B, secured to the hinged pulley frame, D, and operating substantially as described, for the purpose specified.

2d, The hinged pulley frame, D, in combination with the wheel, A, con-structed and operating substantially as described.

69,496.—RAILWAY SWITCH.—Daniel Simmons, N. Y. city.

1st, I claim the horizontal operating bars, G, upright bars, I, steams, h, and springs, l, arranged to operate in relation with each other, and with the platform, J, in relation with the laterals, the projecting pins or studs, b, of the lever heads, A, substantially as and for the purpose herein set forth.

2d, The combination of the looking pawls, d, and rods, d', with the switch rails, C, and levers, D, substantially as and for the purpose herein set forth.

69,497.—BOB SLEIGH.—L. F. Skinner, Springvale, Wis.

I claim the hubs, a, a, a, spokes, d, d, d, forming the segment of a wheel when attached to runners, A, A, A, in combination with axles, B, B, constructed as described, and operating as set forth.

69,498.—BUTTER TRAYER.—Wm. H. Sloan, St. Louis, Mo.

I claim the scraper, B, when provided with a handle, b, and a convex scraper piece, b2, as described and set forth.

69,499.—STEAM GOVERNOR.—H. D. Snow, Bennington, Vt.

I claim the arrangement of the revolving head, m, segment arms, p, and governor balls, in combination with the valve rod and adjustments, u, v, as and for the purposes set forth.

69,500.—TOY PISTOL.—Fisher A. Spofford, and Matthew G. Rafterton, Columbus, Ohio.

We claim the toy pistol, consisting of a barrel open at both ends, with the aperture, E, opening directly into the barrel, near the breech, and having the spring, h, located therein, as shown, with the piston, B, operated by the spring, C, and the trigger, D, arranged to release the piston by elevating its front end, all as herein shown and described.

69,501.—ATTACHMENT FOR SCHOOL DESKS.—David J. Stag-g, New York City.

I claim the sliding frame, B, constructed as described, having the extended top-supporting rail, c, and attached to the desk by means of the spring catch, C, said frame adapted to fit in the slot, a, of the desk, substantially as de-scribed for the purpose specified.

69,502.—COMBINED CORN PLANTER AND CULTIVATOR.—J. F. Sterett and C. M. J. Reynolds, Ottumwa, Iowa.

I claim the arrangement of the hopper, D, upon the beam, with the pipe, J, slides, H and a, bar, F, and the round of the handles, with its lever, G, and arm, E, the several parts being used and operating as and for the purposes set forth.

69,503.—FIRE-ARM TELEGRAPH.—J. H. Stevens, Boston, Mass.

1st, I claim the rheotrope, D, and reversing magnets, I, in combination with each other, when connected with and operated by signal box, K, substantially as described.

2d, The arrangement and combination of the wires, M, M', switches, B, and knobs, C, so as to include in or exclude from the circuit the rheotrope, D, sub-stantially as and for the purpose described.

3d, The described combination and arrangement of signal box, K, start magnet, E, rheotrope, D, with its springs, L, and wires, M, with switches, B, and reversing magnet, J, substantially as and for the purpose described.

69,504.—ODOMETER.—M. W. Stevens and E. H. Drake, Stoughton, Mass.

We claim the application of the odometer with the hub, B, and its journal, D, in manner as specified, in connection with the formation of such journal with a notch, x, and the application thereto, and to the odometer train, of a pinion, y, and a spring, z, to operate the said train, substantially in manner and by the rotation of the wheel hub on the axle journal, as specified.

We also claim the combination and arrangement of the cap or guard, v, with the train, the dial plate, and the case, B, and its hollow shank, C.

We also claim the arrangement and combination of the spring, z, and the cranked shaft, t, and its pawl, r, with the train of gears and screws for operating the index arbor, e, as specified.

69,505.—FURNACE.—Wm. Stevens, Bloomington, Ill.

1st, I claim the tube, E, and pipes, l1, l, arranged in the manner as specified, and used for the purpose set forth.

2d, The arrangement of the chamber, D, perforated plate, G, in combina-tion with the tube, E, and pipes, l1, l, in the manner and for the purposes specified.

69,506.—STOVEPIPE JOINT.—Wm. Stine, Elmore, Ohio.

I claim the perforated metallic ring for securing the joints of stovepipes and smoke stacks, provided with the central flange, a, around its periphery, when constructed as described, with the ends upon both sides of the flange, a, of equal or of unequal diameters, substantially as herein shown and de-scribed.

69,507.—WASHING MACHINE.—T. B. Stout, Keyport, N. J.

I claim the rubber, B, having a vibrating or self-rocking movement, and arranged and operating substantially as and for the purpose herein speci-fied.

I also claim the wash board, C, rocking, or self-adjusting sidewise, in combina-tion with the rocking movement of the rubber, B, at right angles thereto, substantially as and for the purpose herein set forth.

I also claim the adjustment of the washboard so as to bring its flutings or con-cavities either parallel with or oblique to those of the rubber, substan-tially as and for the purpose herein specified.

69,508.—SLEIGH RUNNER.—W. H. Stroup, Philadelphia, Pa.

I claim the runners, A, at hinge, C, and keeper, B, arranged in the manner and for the purposes specified.

69,509.—GATE.—A. Tandy, Columbia, Mo.

I claim forming the upper hinge of a slot in the upper end of the bar, C, and guide, E, substantially in the manner herein shown and described and for the purpose set forth.

69,510.—WOOD MITERING MACHINE.—Robert F. Tomkins, New York City.

I claim the adjustable sector-shaped rest blocks, B, having guide pieces, U, in combination with the guide wing, M, adjusted by means of the set screws, in the slotted plate, K, and bearing the inclined cutter blades, N, and with the adjustable guide strips, R, substantially as described for the purpose specified.

2d, The adjustable grooved post, V, in combination with the cutter blades N, and rest blocks, B, as and for the purpose specified.

69,511.—CAR COUPLING.—Joseph Trent, Millerton, N. Y.

I claim the combination and arrangement of the revolving buffers, B, B1, buffer bars, D, D1, blocks, G, G1, springs, K, K1, and rods, H, H1, substan-tially as described for the purpose specified.

69,512.—MOP HEAD.—John Troxel, Reedsburg, Ohio.

I claim the arrangement of the heads, A, A', arms, B, B', levers, C, C', and D, and link, E, the several parts being constructed and operating in the manner and for the purpose set forth.

69,513.—SHEEP SHEARS.—Francis Van Doren, Adrian, Mich.

1st, I claim having two or more stationary guards or cutters, E, E', and one movable cutter, A, in combination with the sheep shears, substantially as and for the purpose here-in shown and described.

2d, The movable cutter, A, in combination with two or more stationary guards or cutters, E, E', and gages, a, b, all made and operating substantially as herein shown and described.

69,514.—SPRING BED.—Charles Van Dveck, Nashville, Tenn.

I claim the combination of the three frames, C, a, b, mattresses, A, B, dia-phragm, H1, springs, D, D1 and H, arranged substantially as described.

69,515.—LOOM.—A. O. Verv, Andover, N. Y.

1st, I claim operating the treadle shaft of looms by means of a direct action of the lay on a cam formed on a loose jacket on the treadle shaft, substan-tially as described.

2d, The spiral cam, G, on the loose jacket, F, on the treadle shaft, C, sub-stantially as and for the purpose set forth.

3d, The roller pins, g, g, on the under side of the shuttle race, H, operat-ing the cam, G, on the loose jacket, F, substantially as and for the purposes set forth.

4th, Making the straps operating the picker staffs adjustable, substantially as described.

5th, The tripper arms, c, d, on the treadle shaft, C, substantially as and for the purpose described.

69,516.—LOOM.—W. B. Walker, Salem, Iowa.

1st, I claim the construction and arrangement of the downward projecting arms, b, slotted longitudinally in which the pickers, f, are pivoted and supporting the picker blocks, g, g', which are mortised to receive and inclose the upper ends of said pickers, as herein shown and described for the pur-poses specified.

2d, I claim the pickers, f, one in the end of each arm or exterior of the lay with the projections or arms, d, d', having a convex point and being con-cave from that to the main body of the picker, substantially as described and for the purposes set forth.

3d, The main springs, c, c', with the other end convex or bent up to work on the convex point of the projection, d, d', of the arms of the pickers, substan-tially as described and for the purpose set forth.

4th, The arrangement and combination of the platforms, l, fastened on the top of the sides of the loom with and for the purpose of holding the guide springs, l1, l1', and k, k', also the set springs or catches, r, r', and elbows, s, s', to which the set springs are attached, substantially as described and for the purpose set forth.

5th, The cloth beam, 7, with the ratchets, 2 and 3, attached and the surface covered by cards or filled with pins, the spring, s", and pawls, 4 and 6, sub-stantially as described and for the purpose set forth.

6th, The extra cloth beam or receiving beam on which the web will be re-ceived by the action of the take-up beam in the combination with the take-up beam, constructed and operated as described.

69,517.—WOODEN PAVEMENT.—C. G. Waterbury, N. Y. City.

1st, I claim the blocks, A, with their projections, B, and E, constructed and arranged substantially as and for the purpose set forth.

2d, In combination with the blocks, A, having projections, B, and E, I claim the movable strips, C, and bolts, D, substantially as and for the pur-poses set forth.

3d, In combination with the blocks, A, having projections, B, and E, I claim the bolts, D, with or without the strips, C, substantially as and for the purpose described.

69,518.—DROP HAMMER.—W. H. Waters, Springfield, Mass.

1st, I claim a pair of rollers, F, F, each of which is separately rotated by power applied to the pulleys, H, H', in combination with the board or strap and drop substantially as set forth so that lifting power is applied to each surface of the strap or belt in the manner and for the purposes set forth.

2d, In combination with the rod, 5, and drop I claim the mechanism sub-stantially as set forth, for sustaining the rod at any point to which it may be raised as specified.

69,519.—BREECH LOADING ORDNANCE.—Asa Weeks, Minne-apolis, Minn.

1st, I claim the arrangement of the pins, v, v', with coil springs, when used in combination with breech blocks, C, as constructed in the manner set forth.

2d, The combination of the sliding bar, k, and hammer, E, with the block, c, and cannon, A, for the purposes herein specified.

69,520.—HORSE COLLAR FASTENING.—D. C. Westfall, Miffin, Pa.

I claim the horse collar fastening consisting of grooved hollow caps for re-ceiving and concealing the ends of the collar, forming a bearing for the same and concealing in one part the spring sliding bar, f, which catches over the bevel hooked projections of the other part when constructed and operating as herein represented and described.

69,521.—SPIKE.—James A. Whitney, Jersey City, N. J. An-tedated, Sept. 26, 1867.

I claim a notched, toothed, or serrated spike constructed with a spiral or twisted portion, substantially as herein set forth.

69,522.—SKATE.—Fridrek Wichelhaus and Charles Rothe, Newark, N. J.

We claim the elliptic heel button, f, firmly secured to the spring lever, E, which plays in the recess, d, between the rear standard, D, and the sole plate B, and whose forward end drops into the rear end of the foot plate, A, in the manner and for the purpose herein described.

69,523.—SCHOOL DESK AND SEAT.—D. C. Wilson, Beaufort, N. C.

I claim the school desk and seat constructed as described consisting of the end frame, A, B, framed into each other and held in position by means of the top board and shelf, the seat being formed upon the timbers, B, secured to the front part of the frame, A, as herein shown and described.

69,524.—WATCHMAN'S REGISTER.—Adolph Witt, Cincinnati, Ohio.

1st, I claim in combination of the tubular central shaft, C, c', minute hand and stem, D, D', axial rod, E, e, spring hour hand, K, k, perforated dial plate, N, n, shutters, O, and closing follower, R, the whole being arranged and operating substantially as herein described and for the purpose specified.

2d, I also claim the combination of the hour wheel, F, f, in intermittent wheel, H, h, and spring, J, as and for the purpose set forth.

3d, In combination with the seven described elements of the first clause, I further claim the spring belt crank, T, t', and rod, U, u, for the objects ex-plaind.

4th, I claim the combination of lever, W, cam, X, shaft, Y, spring, Z, and operating knob or handle, Y', or their equivalents for the purpose described and for the purpose set forth.

69,525.—SAW SET.—James C. Woodward, Franklin, Conn.

I claim the hammer-head, C, constructed as described provided with the stem, K, fitting longitudinally into the outer or swinging end of the shank, B, and adjusted by means of the thumb screw, M, as herein set forth for the purpose specified.

2d, I also claim the set screw, Z, substantially as and for the purpose de-scribed.

69,526.—CUT OFF VALVE GEAR.—J. N. Wrigley and George Smith, (assignors to John N. Wrigley,) Newark, N. J.

