could be learned from a perusal of the story of his life than the value of these most essential qualifications for highest success, it would a thousand times repay perusal. Casually opening the volume, almost the first thing which catches our eye is the story of the author's first attempt at smoking. "A number of half smoked cigars had been left on the mantel, and some evil genius suggested to us tow-headed urchins that it would be smart and clever to indulge in a general smoke. Like older fools, we went in, and I was soon the sickest mortal on the face of this planet. I cannot say as to my comrades in this folly; but that half-inch of cigar stump will last me all my life, though its years should outnumber Methuselah's. * * * * * From that hour to this, the chewing, smoking, or snuffing of tobacco has seemed to me, if not the most pernicious, certainly the vilest, most detestable abuse of his corrupted sensual appetites whereof depraved man is capable."

This incident, and the language in which it is told, are characteristic of the man. His convictions are never halfway, and for that reason his language is strong. It is born of earnestness, the parent of strength in all things. Horace Greeley is a strong man every way; strong in his likes and dislikes, in his opinions and prejudices. Mentally and physically his powers of endurance are such as to excite the admiration of all who know the amount of work he daily gets through. As a self-educated, self-made man, he ranks with Franklin, although the two men differ widely in some respects. Their tastes exhibit many points of contrast, while their habits of life and general views of affairs have many resemblances. Greeley is a philanthropist, and a genial kind-hearted man, who yet has the nerve to apply the scourge to any one whom he esteems a willful wrong-doer. His pen is a lash of scorpions, when his ire is aroused. As a vigorous, caustic, and humorous writer, he has not his equal on the American press. His humor is of the quiet sort, the most effective of all styles. Take this example from his description of a night ride of forty-three miles on a hand car over a Western railroad: "I only tried my hand at propelling for one short mile, and that experience sufficed to convince me that, however it may be as a business, this species of exercise cannot be conscientiously commended as an amusement." Or this: "I presume if I ever were to have the week I covet I should find it insufferably tedious—the musketoes biting superbly; the trout shyly, or not at all—and should long for a return to civilization, with its hourly toils and struggles, its thronged pavements, and its damp newspapers with breakfast." Or this: "I conceive it all but an axiom, that he who asks a stranger to lend him money will never pay it; yet I have known an exception. Once, when I was exceedingly poor and needy, in a season of commercial revulsion, or 'panic,' I opened a letter from Utica, and found therein five dollars, which the writer asked me to receive in satisfaction of a loan of that sum which I had made him—a needy stranger—on an occasion which he recalled to my remembrance. Perplexed by so unusual a message, and especially by receiving it at such a time when every one else was seeking to borrow—no one condescending to pay—I scanned the letter more closely, and at length achieved a solution of the problem. The writer was a patient in the State lunatic asylum."

The book is interspersed with just such gems of humor, as these we have quoted, from each of which a lesson of instruction as well as a hearty laugh may be obtained. As a moral tonic we have seldom seen a book that we would more readily place in the hands of a family, or one that we should expect to see sooner well thumbed.

J. B. Ford & Co., Printing House Square, New York, 1688.

Photographing the Sun during the Total Eclipse.

The *Augsburg Gazette*, of September 13, contains the following extract from a letter written by Dr. Hermann Vogel, who accompanied the North German expedition to Aden, as a photographer:

"At four o' clock, on the 18th of August, we left Aden, where the expedition had established its head-quarters. Nine-tenths of the sky was overcast, and we endeavored to feel as resigned as possible to our probable disappointment. Our object was to obtain as many photographs as could be taken of the phenomena during the three minutes they would last, and in order to do this we had practiced with our machine, like soldiers with fire-arms. Dr. Frische was charged with the preparation of the plates, Dr. Zenker with putting the slides into the machine, Dr. Therle with drawing them out when they had been exposed a sufficient time, while my business was in the tent. With this division of labor we found that it would be possible to obtain six photographs in the three minutes. As the important moment approached, to our delight we saw, through a break in the clouds, the disk of the sun partially covered by the moon. The landscape around us assumed a strange hue, neither sunlight nor moonlight—the chemical color rays were exceedingly weak. As a test, we exposed a plate in the machine for fifteen seconds, and obtained a good impression of the clouds; as the disk of the sun grew smaller, the clouds opened out. The last minute before the total eclipse arrived, Dr. Frische and I crept into our tent—our work began. The first plate was experimentally exposed five and ten seconds, in order to be sure of the right time. Mahommed, our black servant, brought me the first slide into the tent. I prepared the plate, and anxiously watched to see what would appear. Just then my light went out. I rushed out of the tent with the plate in my hand, and came back with a small oil lamp, which, in case of accidents, I had placed on a table outside. Eagerly I gazed on the plate—the dark border of the sun was surrounded on one side by peculiar protuberances, and on the other was a re-remarkable horn. The phenomena were the same in both pictures. My joy was great, but I had no time to indulge in it. The second plate, and, a moment afterwards, the third plate, were brought into the tent. Dr. Zenker shouted to us that the sun was reappearing. The total eclipse was over. The last two plates only showed slight impressions of pictures, as they had been spoilt by the clouds, which, while they were exposed in the machine, had closed in. The three plates showed protuberances on the lower border. We washed, fixed, and lacquered our plates, and took several copies of them on glass, which will be sent separately to Europe in order to insure their safe arrival."

Total Eclipse in 1869.

Asia it seems is not to enjoy a monopoly of total solar eclipses. It is announced that a total eclipse of the sun, visible in the United States, will occur in 1869. The sun will rise eclipsed in the interior of Siberia, on the morning of August 7, 1869, whence the shadow will move in a northeasterly direction; then, turning eastwardly and southwestwardly, will pass over Behring's straits and northern Alaska at noon, local time. Thence, moving across part of British North America, it will re-enter the United States in Montana, between 2 and 3 p. m., local time. Moving thence across Western Nebraska, it will pass diagonally through Iowa, passing over Sioux City, Des Moines, and Keokuk, about 5 o'clock. Thence it will pass still to the southeast, over Jacksonville, Illinois, across Southern Indiana, Central Kentucky, Eastern Tennessee, into and across North Carolina, and will touch the sea coast in Pamlico sound; and will finally leave the earth not far from the Bermudas. It will be visible in all parts of the United States, and total over a belt about 100 miles wide along the line just indicated, the sun being hid more than four minutes.

Editorial Summary.

Cigar Making by Machinery.—The Bright's American Cigar Machine, patented through the Scientific American Patent Agency, was exhibited a few days ago at 171 Broadway, New York City, to members of the press and experts On an examination of the machine (or machines, for there are several) and the operations, we must confess we were favorably impressed with the feasibility of producing good cigars, of equable smoking properties, by means of these machines, which resemble in size, portability, and finish the ordinary sewing machine. The rapidity of the processes, and the perfection of the result seem to promise an early and general introduction of the process and the machines, which may be driven by foot, hand, or steam power. Manufacturers of cigars or chewing and smoking tobacco would do well to examine this machinery.

Hindoo Writing.—Writing is a curious art as practiced by the Hindoos. They may be often seen walking along their native streets writing a letter. An iron stile and a palm leaf are the implements. In writing neither chair nor table is needed, the leaf being supported on the middle finger of the left hand and kept steady with the thumb and forefinger. The right hand does not, as with us, move along the surface, but, after finising a few words, the writer fixes the point of the iron in the last letter, and pushes the leaf from right to left, so that he may finish the line. The characters are rendered legible by besmearing the leaf with ink like fluid. A letter is generally finished on a single leaf, which is then envolved in a second, whereupon is the address.

Joseph not a Carpenter.—The *Builder* says: "When the British Archæological Association were inspecting the gallery of the paintings at Charlton House, attention being called to the picture of Joseph working as a carpenter, assisted by the child Jesus, Mr. Black said he wished that Joseph had been represented in his proper business as a mason, the original term used signifying architect, builder, or mason, and not carpenter. The term carpenter, he urged, was undoubtedly an error, as in the climes where Joseph dwelt no wood was used in the erection of the structure of their houses but stone only."

Sale of Prof. Silliman's Mineralogical Cabinet.—We learn that the Executive Committee of the Board of Trustees of Cornell University have purchased the private mineralogical cabinet of Prof. Silliman, of Yale College. Prof. Silliman says of the cabinet, "My collection has been formed almost exclusively by my own personal exertions, during more than twenty years of active experience as a collector in the field, and by the system of exchanges instituted from an early day with the most active collectors both in America and Europe."

New Dye for Woolen Goods.—Tar water, it is asserted, may be employed for dyeing silk and wool with the color called *gris cendre*, or ash gray. The stuff is first mordanted with weak perchloride of iron, by soaking in the solution for some hours. It is then drained and passed through the bath of tar water. The oxyphenate of iron, which is thus precipitated on the fabric, gives a very solid color

The North Star Gold Mine of Grass Valley, Cal., are exhibiting at the Mechanic's Fair some specimens of ore which are valuable as showing stratification in veins, thereby proving the impossibility of volcanic ejection in the filling up of those veins with quartz, pyrites, and gold.

The New York *Times* does not give us credit for the article upon "Solar Engines," which first appeared in the Scientific American, Sept. 16th. The translation was furnished to us by Mr. Delamater, and is the same in the *Times*, word for word, as it appeared in our columns.

Official Report of Patents and Claims

Issued by the United States Patent Office,

FOR THE WEEK ENDING OCTOBER 6, 1868.

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	$20
On appeal to Commissioner of Patents	$20
On application for Reissue	$30
On application for Extension of Patent	$50
On granting the Extension	$50
On filing a Disclaimer	$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.*

82,673.—Sheep-shearing Device.—J. K. Alwood, Delta, Ohio.

I claim, 1st, The bladed wheel, a a a, with its blades, K K K K, substantially as described, for the purpose specified.

2d, The semicircular protuberance, P, of the shear case, S, in front of the dotted line, d, with the fingers, v v, substantially as described, for the purpose specified.

3d, The combination or connection of the bladed wheel, a a a, with the cord wheel, Y, so as to receive motion therefrom.

4th, The combination of the several parts described, for the purpose of forming a cutting device for sheep shearing

82,674.—Mode of Transmitting Motion.—Marcus M. Ammidown, Boston Mass.

I claim, 1st, The combination of the hub, a, and the cylindrical shell, d, provided with the eccentric, d', substantially as and for the purpose set forth.

2d, The combination, with the eccentric, d', of the pawl, e, and toothed wheel, f, substantially as and for the purpose specified.

82,675.—Axle Grease.—J. J Barrett, Chillicothe, Ohio.

I claim the axle grease compounded substantially as above described.

82,676.—Nozzle for Hose Pipe.—Oscar J. Backus, San Francisco, Cal.

I claim the combination, with a nozzle, throwing a single stream of water, the sprinkler, D, constructed and operated with the holes, E F G G, in the stop cock, and holes, C C, leading into the nozzle chamber, substantially as and for the purpose specified.

82,677.—Sadiron Handle.—Arad Barrows, Philadelphia, Pa.

I claim the cast sadiron handle, A, including the wires or rods, C C, constructed and arranged substantially as described, as a new article of manufacture.

82,678.—Slat Matting for Cars, etc.—William Barton, Troy, N Y.

I claim a flexible slat matting, consisting of the slats, A, and flexible lines, B, the knots or protuberances for keeping the slats apart being formed by the said lines, B, as set forth.

82,679.—Nail-Cutting Machine.—W. H. Battelle, Youngstown, Ohio

I claim, 1st, The arrangement of sliding nipper bar, A, provided with the spring nipper, F, the spring, C, cam, E, adjusting pin, e, and retractor, C', substantially as and for the purpose set forth.

2d, The arrangement, with the feeding guide, N, of the slide, U, rod, T, weight V, pulleys, X Y, rod, P, and cord, W, all substantially as and for the purpose set forth.

3d, The arrangement, upon the carriers, H, of the headers, G, enlargements I, set screws, M, and detachable brackets, K, substantially as described for the purpose specified.

82,680.—Axle Head.—R. E. Bean, Franklin, N. H.

I claim, 1st, An axle, with a projecting cross bar, in combination with a head, the latter having an opening in its inner face corresponding with the cross bar, and also a spring plate, provided with a depression or boss, by which latter means the cross bar is prevented from turning when once secured in place.

2d, The head, C, plate, c, constructed as shown, projection, c4, spring, c1, rod, c2, and button, c3, in combination with collar, B, with opening, b, as and for the purpose described.

3d, The head, C, constructed as described, in combination with the projection, a, of axle, A, substantially as and for the purpose explained.

82,681.—Hasp Lock.—J. H. Beauregard Kingsbury, N. Y.

I claim, 1st, The locking circle, constructed with the internal cog, V, and the tooth, W, in combination with bolt, A, and lever, L, substantially as and for the purpose described.

2d, The bolt, A, fastened substantially as described, and provided with the ears or stops, O P, as and for the purposes substantially as described.

3d, The pivoted engaging lever, L, with tooth, l, in combination with the locking circle, D, pin, M, and bolt, A, substantially as and for the purpose described.

82,682.—Apparatus for Defecating Cane Juice.—H. B. Bond, Houma, La.

I claim, 1st, The closed cistern, A, provided with the removable manhead and the stuffing boxes, constructed and operating substantially as and for the purpose set forth.

2d, The combination, with the cistern, A, of the agitator herein described when the latter is constructed substantially as set forth, and is provided with vanes, or the equivalent thereof, arranged in such manner as to produce a pressure or packing of the gas inside the cistern, substantially as described.

3d, The pipe, G, made removable and adjustable, as described, in such manner that it can be used for discharging the juice on either side of the cistern, A, as set forth.

4th, Perforating the strainer or diaphragm, N, with holes that expand as they pass to the under surface of the same, for the purpose set forth.

5th, The sliding gate or fender, V, when constructed and operating as described and for the purpose set forth.

6th, The combination of the juice-receiver, M, when provided with the perforated strainer, N, and sliding gate or fender, V, with the cistern A, and its component parts, substantially in the manner and for the purpose set forth.

82,683.—Children's Carriage.—Francis Boylston, New York city.

I claim the brackets, C C, having extensions, b b, bolted to the ends of the sills, B, and provided with an internal screw thread into which the ends of the front axle are firmly screwed, as herein set forth for the purpose specified.

82,684.—Temple for Loom.—Lucius Briggs (assignor to himself and George Baxter), Grosvenor Dale, Conn.

I claim, in a roller temple, the center pin, as extended beyond the trough head, as set forth, and provided with passages leading into the extension, and through the pin, substantially as and for the purpose specified.

Also, in a roller temple, the center pin, as made with an oiling passage made through it lengthwise, and opening out of the side of the pin.

82,685.—Straw Cutter.—Joseph W. Brockway, New York city.

I claim, 1st, The cutter, n, and stock m, in combination with the handle, r, applied directly to such cutter or stock so that the same can be vibrated by hand, and swing in contact with the bars, o o, at the end of the feeding trough substantially as set forth.

2d, The arrangement of gearing, h d d' k and l, in combination with the feed rollers, c c, cutter stock, m, and cutters, n, as and for the purposes set forth.

82,686.—Mold for Making Acupuncture Instruments.—A. R. Brown, M. D., Albion, Mich.

I claim the former, F, having slits or mortises cast through it, as described, to receive the blades of puncturing lancets, 1 2 3, &c., in combination with a mold for casting the plungers, E B, substantially as and for the purpose specified.

82,687.—Spring Bed Bottom.—George A. Brown, Kalamazoo, Mich.

I claim the application of spiral springs, M M, combined with cords, R R, and their attachment, P P, and pulleys, K I, and pins, N N, when constructed and arranged substantially as herein set forth and described.

82,688.—Mode of Securing Horse-power to the Ground.—W. H. Buell, Union City, Mich.

I claim, in combination with each other, and with a horse power frame, the stays, C, rods, D, and stakes, S, when said parts are arranged relatively with each other, and with said frame, and constructed and connected substantially as and for the purpose specified.

82,689.—Truss.—John Burnham, Batavia, Ill.

I claim the attaching of the pad lever, C, of the truss to the spring, in the band or strap thereof, by means of a ball-and-socket joint, substantially as shown and described.

82,690.—Carriage Wheel.—J. G Buzzell, Lynn, Mass., assignor to himself and Charles Cummings, Hollis, Me.

I claim, in the carriage wheel, consisting of the hub, A, having the chambers, a a, and the caps, B B, of the spokes, C C, bent in the manner specified, the springs, E, inserted in the felly, D, all arranged and operating substantially as herein shown and described.

82,691.—Towel and Clothes Rack.—Chauncey Carrier, Columbus, N Y

I claim the graduated cups, B B, provided with lugs, a a, to form a seat for the end of the bar, and so arranged that the bottom of each cup, except the lowest, may fit into and turn in the top of the one next below it, substantially as described.

82,692.—Mortising Machine.—Charles Carter, Auburn, N. Y.

I claim, 1st, The tool-carrying slide, G G, guides, H H, and spreading wedge J, combined and adapted for lateral adjustment of the tools, g, substantially as described.

2d, The combination, with the tilting table, of the right and left screws, S' and wheels, s s t, arranged for operating both screws in same direction, and thereby operate clamps, R R, substantially as described.

3d, The adjustable stop, Z, in combination with the rack and pinion, i j, wedge, J, and spreading-tool slide, and guides, G H, substantially as and for the purpose described.

4th, The combination and arrangement of the spreading head or slide, G H, wedge, J, rack and pinion, i j, stop, Z table, L, clamp, R, and saw, U, all constructed and operating substantially as and for the purpose described.

82,693.—CHIMNEY CAP.—Wm Chappell, Buffalo, N. Y.

I claim the arrangement of the wheel, D, over the mouth of a flue or chimney, when made in diameter larger than the mouth let, and provided with overlapping spiral vanes, E E, so as to protect the mouth of the flue, as herein set forth.

82,694.—PADLOCK.—G. W Dana, Racine, Wis.

I claim the two bolts, C C, halved or recessed at one end, and lapped, one over the other, and beveled at their outer edges, in connection with the bent levers, D D', plate, E, and spring, F, all arranged substantially as and for the purpose set forth.

82,695.—TELEGRAPHIC INSTRUMENT.—S. F. Day, Balston Spa, N. Y.

I claim, 1st, The combination of a relay and sounder, and the resistance coil, O or its equivalent, substantially as and to the effect hereinbefore set forth.

2d, The arrangement of parts herein described, or its equivalent, by which the sounder, while controlled by the relay, is also made to work the main line as a repeater, substantially as herein set forth.

3d, The combination of the magnets, D D, shafts, Q Q, clamping pieces, S and T, and adjusting screw, U, or their equivalent, substantially as set forth.

82,696.—LINIMENT FOR RHEUMATISM.—A. M. Dennen, Folsom City, Cal.

I claim the medical compound, substantially as herein described.

82,697.—SCREW PLATE.—J. S. Dutton, Jaffrey, N. H.

I claim, in combination with a screw-die plate and screw handle, C, the indexed collar, a, and the indexed shoulders, b and f, arranged substantially as described.

82,698.—MILK VAT.—J. A. Edwards, Waterford, Pa.

I claim the described arrangement, within the milk vat, of the agitators, C C, lever, D, bulkhead, F, gate, G, and furnace, B, as herein described for the purpose specified.

82,699.—CUTTER HEAD.—W. G. Farmer, Burlington, Vt.

I claim the circular grooved plate, A, provided with a collar, B, and movable grooved plate, E, in combination with the knives, D D and H H, all constructed as described and operating substantially as and for the purposes herein set forth.

82,700.—FLOOR CLAMP.—J. H Ferreira, Newark, N. J.

I claim the combination, in a clamping device, of cam G, plunger, D spring, E, and shackle, C, pins, H, operating substantially as and for the purpose described.

82,701.—BRAKE FOR SEWING MACHINE.—James S. Fowler, Racine, Wis.

I claim, 1st, The arrangement of the spring, F, the pivoted box or holder, E, and rubber block, D, with the table and fly wheel, as herein shown and described and for the purpose set forth.

2d, The combination of the sliding rod, G, with the pivoted box or holder, E, and rubber block, D, substantially as herein shown and described and for the purpose set forth.

27,702.—ABDOMINAL SUPPORTER.—Joseph Funkhouser Rockingham county, Va.

I claim the iron padded brace or support, A B C, the sack, E, the bands, and the manner of attaching the same, substantially as and for the purposes above described, using therefor the metal and material aforesaid, or any other substantially the same.

82,703.—SHAFT COUPLING.—J. P. Gates, Lincoln, Ill.

I claim, 1st, The disks, D and C, secured to proper shafts, with the slide or shuttle key, E, in relation to the channels, S and J, and recess, Q, or their equivalents, when constructed and operating substantially as and for the purposes set forth.

2d, The disk, C, having its shaft, K, protruding inwardly, in combination with the disk, D, having an opening in its inner face, which opening forms a bearing for shaft, K, substantially as and for the purposes set forth.

3d, The shuttle key or slide, E, with its studs, F and G, or their equivalents, for the purposes shown.

4th, The spring, N, in connection with the oscillating stud, O, and slide, E, or their equivalents, when operating substantially for the purposes set forth.

5th, The cam, L, with its semi-annular channel, J, arm, I, lever, V, head U, or their equivalents, when arranged and operating substantially as and for the purposes shown.

6th, The combination of all the above-mentioned parts and their attachments when constructed, arranged, and operating substantially as and for the purposes herein set forth and described.

82,704.—BARBERS' CHAIR.—Albert Gerdes and Julius Reiche, New York city.

We claim, 1 t, A barber's chair, whose seat, back, and head rest are upholstered on both sides, the same being so connected by such mechanism that that the said seat, back, and head rest may be reversed simultaneously, in the manner and for the purpose substantially as herein shown and described.

2d, The split tube and taper ferrule, r, for the purpose of adjusting and holding the head rest, substantially as shown and described.

82,705.—SCRUBBING BRUSH.—S. Gibson, Safe Harbor, Pa.

I claim the arrangement of the shouldered plate, A, and flanged keeper, E, inclosing the strips of rubber, D, upon the forward part of the bristle brush, G, all as herein shown and described.

82,706.—SLEIGH.—E. H. Gillman, Montpelier, Vt.

I claim the draw rods, D D, for sleighs, for the purposes and in the manner and form set forth.

82,707.—CAR COUPLING.—H. C. Glasgow, Cleveland, Ohio.

I claim, 1st, The quadrangular metallic box, B, divided into two or more spaces by the horizontal partitions, g, and provided with flanges, e e, to which the bent bars, f f, are pivoted, embracing the chafing timbers, c c, whereby the box is held between and guided upon said timbers, as herein shown and described.

2d, The coupling box, B, with or without the block, C, in combination with the block, D, follower, E, links, i and k, spring, l², and stop, l or m, all made and operating substantially as and for the purpose herein shown and described.

3d, So arranging the top and bottom plates, n and o, of a coupling box, by perforating the same, that the coupling link can be inserted from the rear, substantially as herein shown and described.

82,708.—CAR COUPLING.—H C. Glasgow, Cleveland, Ohio.

I claim, 1st, The arrangement of the floor beams, A' A', when they project through a sill, B, constructed to receive them, and serve as bumpers and to carry the sliding coupling box, substantially as herein shown and described.

2d, The manner herein shown and described of fastening the two ends of each U-shaped draft bar, e, to the coupling box by means of one pin, f, substantially as herein shown and described.

3d, The arrangement and combination with each other of the coupling box, G, block, I, spring, g, transom, b spring, H, and draft bars, e, all made and operating substantially as and for the purpose herein shown and described.

82,709.—TRACE BUCKLE.—William W. Gordon and Dexter Pettengill, Delhi, N. Y.

We claim the combination and peculiar arrangement of the frame, A, tongue plate, C, and tug strap, E, in the manner and for the purposes set forth in the above specifications

82,710.—DOUGH MIXER.—Francois Grenior, Beroserac, France, assignor to G. H. Mercer and A. S. Monod, New York city.

I claim, 1st, The rotating spiral blades, J J, and the rotating bearers, H H, arranged in pairs, each pair having a bottom scraper, b, in combination with the frame, A, substantially as described for the purpose specified.

2d, The dough-mixing machine, consisting of the rotating annular trough, C, rotating beaters, H H, rotating screws, J J, and fixed scrapers, I I, all made and operating substantially as herein shown and described.

82,711.—MANUFACTURE OF EDGE TOOLS.—Reuben C. Grover, Newton, Mass.

I claim the knife, A b, constructed as described, and as a new article of manufacture.

82,712.—APPARATUS FOR THE MANUFACTURE OF VINEGAR.—Theodore Grundmann, Cleveland, Ohio.

I claim, 1st, The braided strands, D D, when used in a vinegar apparatus, for spreading the mash and exposing it to the air, as set forth.

2d, The self-regulating swinging mash-distributing box, G, arranged substantially as herein shown and describe.

3d, The box, A, when composed of a series of detachable plates, as set forth, so that the suspended braids, D, may be exposed to the air to be dried.

4th, A vinegar apparatus, consisting of the box, A, vessel, B, frame, C, braided pendants, D, distributing box, G, and supply and discharge pipes, I and J, all made and operating substantially as herein shown and described.

5th, The device set forth in the foregoing clause, in combination with the filter, H, in which the two perforated plates, l and m, are arranged, as set forth.

6th, The distributing-sheet, E, arranged between the swinging box, G, and the braided pendants, D, substantially as herein shown and described.

82,713.—WASH BOILER.—J. A. Hammer and Thomas Chadwick, Newton, Iowa.

We claim, 1st, A clothes washer, so constructed as to form one lower or boiling chamber, one clothes chamber, and one or more reservoirs for supplying clean hot water, substantially as herein set forth.

2d, A clothes washer, constructed as described, with one or more reservoirs, connected by valves to the boiling chamber below, which valves can be opened and closed at will from the top of the boiler, substantially as and for the purposes herein set forth.

3d Passing the steam conducting tubes of a wash boiler, constructed as specified, through the water reservoirs, for the purpose of heating the water contained therein, substantially as and for the purposes herein set forth.

4th, In a clothes washer, the combination of a clothes chamber, boiling chamber, C, one or more reservoirs, E, tubes, F F, perforated mouth pieces, G G, perforated bottom, D, and valves, b d and e, all arranged as described, and operating substantially as and for the purposes herein set forth.

82,714.—EXPLOSIVE PROJECTILE.—A. O. H. Hardenstein, Clinton, Miss., assignor to himself and Marcellus A. Foute, New Orleans, La.

I claim, 1st, The combination of the disk, N, and rod, M, with a projectile, substantially as herein described, when these parts are constructed and operate substantially as and for the purpose set forth.

2d, The wedge formed bars, A, in combination with a projectile, substantially as herein described, when the same are constructed and operated substantially as herein described for the purpose set forth.

3d, The bar, A, in combination with the disk, N, when these several parts are constructed and operate as herein described, in connection with a projectile, substantially as herein described for the purpose set forth.

82,715.—DEVICE FOR CASTING LUGS AND DOVE TAILS.—George W. Herrick (assignor to himself and H. H. Gibbs), Stuyvesant, N. Y.

I claim, 1st, The hand tool, B, for forming the mold in which the spur, b, is cast upon the lug, a, of a stove top, consisting of the hollow and slotted cone, C, bearing the lever, f, hung upon the transverse shaft, e, the projection, g, upon the lower end of said lever being held through the side of the cone by the spring, i, upon the upright, h, all arranged and operating as described for the purpose specified.

2d, The tool, H for forming the mold in which the spurs, k k, are cast upon pin, j, consisting of the cylinder, I, whose lower end is slotted upon opposite sides at r r, the rod, l, having the projecting foot, m, and hung loosely upon the shaft, n, which works in the slots, o, of the cylinder, I, said projecting foot being held above the slots, r, by means of the spring, p, bearing against the shaft, n, all arranged and operating as described for the purpose specified.

3d, The tool, M, for casting the beveled lugs, w w w, upon the stove plate, J, consisting of the plate, a', having the slides, b' b', provided with projections; c' c', which are kept within the projections, d', by means of the spiral springs, e' e', all arranged and operating as described for the purpose specified.

82,716.—SOLE-CUTTING MACHINE.—Micah Hobbs, Natick, Mass.

I claim the combination of the bed, B, and its mechanism for operating or moving it, as described, with the rotary cutter, A, and mechanism for elevating and depressing, and revolving it, in manner substantially as specified, the bed being arranged over the rotary cutter, as explained.

82,717.—BUTT HINGE.—H. Hockemeyer, Toledo, Ohio.

I claim, in combination with a loose pin butt hinge, the collar, d, the lip, e, and the slots, f and g, constructed and arranged substantially as shown and described for the purposes set forth.

82,718.—STAVE MACHINE.—James Holmes, Belfast, Me.

I claim the pinions, f, and shaft, A, arranged with reference to the racks, g, of the bolt carriage, the shaft, L, pinions, i, shaft, N, pawl, o, and lever, P, whereby the bolt carriage is moved evenly toward the saw, as herein described for the purpose specified.

82,719.—MODE OF PRESERVING FRUITS, MEATS, VEGETABLES, AND OTHER PERISHABLE SUBSTANCES.—J. Burrows Hyde, New York city.

I claim the material described for the purposes set forth.

82,720.—SUSPENDER AND SHOULDER BRACE COMBINED.—Ebenezer Jennings, Jr., New York city.

I claim, 1st, A combined shoulder brace and suspender, provided with the loop, C, on one end of each of the main straps, adapted to receive the reverse ends of the opposite straps, substantially as and for the purpose set forth.

2d, In combination with a combined shoulder brace and suspender, provided with the loop, C, on one end of each of the main straps, as and for the purpose described, the button hole tags, B, as and for the purpose specified.

3d, In combination with the subject matter of each of the said first and second claims, an adjustable slide, through which both of the main straps pass, crossing each other, substantially as shown and described.

82,721.—FURNACE DOOR.—Luman F. Johnson, Buffalo, N. Y.

I claim the rebated fire bricks, B, so arranged within the cast iron frame, as to overlap the flanges, a', thereof, and protect the same, substantially as described.

82,722.—WASHING MACHINE.—John Stafford Kelley, New York city.

I claim the combination, in a washing machine, of an oscillating drum, barrel, or box, A, with a number of floating rubbers, composed of pliant sleeves, containing buoyant balls, arranged in a row, all substantially as shown and described, and for the purpose set forth.

82,723.—DRUM FOR HOT-AIR FURNACE.—John H. Keyser, New York city.

I claim the radiating attachment herein described, constructed with an opening through the top of its drum, A, substantially as specified.

82,724.—TOY HOOP.—John L. Lay, Buffalo, N. Y.

I claim the relatively stationary hoop, B, supporting an image or images, in combination with an outer eccentric and rotating hoop, A, provided with rollers, e e, or their equivalent, which gives motion to the image through intermediate levers, h, and connecting rods, i, or their equivalent, substantially as set forth.

82,725.—STRAP BOLT.—William J. Lewis and Henry W. Oliver, Jr., Pittsburg, Pa.

We claim a new article of manufacture, iron rolled to constitute a series of blanks, in bars, for strap bolts of the form herein described.

72,726.—CARRIAGE SPRING.—Josiah R. Locke, San Francisco, Cal.

I claim, 1st, The box, J, elastic packing or spring, K, and the extension braces or rods, L L, attached to the side springs, G G, substantially as and for the purpose specified.

2d, The combination of the side springs, G G, with the C-spring, I, by the shackle connection, H, the C springs extending around the axle bed and attached to the reaches, substantially as described.

3d, The springs, E E, crossing the upper ends of the springs, G G, and passing over the bolster, and attached to the forward ends of the outside reaches, substantially as described.

82,727.—CARRIAGE SPRING.—Joseph R. Locke, San Francisco, Cal.

I claim, 1st, In combination with the wood and steel springs, A A, the goose neck springs, D D, constructed substantially as described.

2d The double-acting springs, F F, and the slides, E E, in which the lower ends move, or equivalent device, the whole constructed to operate substantially as described.

82,728.—ANTI-FRICTION STEAM ENGINE VALVE.—Kellogg H. Loomis, New York city.

I claim, 1st, An oscillating steam valve, suspended from and having its bearing and turning upon an adjustable center point above its seat, in the line of its axis, substantially as described.

3d, In combination, the valve stem, support, E, yoke, F, and set screw, H, all constructed and arranged substantially as shown and described.

3d, The arrangement of the ribs, b', between the posts, extending from the base to the outer surface and apex of the cone, substantially as set forth.

82,729.—GOVERNOR FOR STEAM ENGINE.—Jeremiah A. Marden (assignor to Augustus Lynch and Reuben K. Huntoon), Boston, Mass.

I claim the arrangement and combination of the float, D, its arm, e, the tubular shaft, C, the spindle, f, vessel, A, and its cover, a, as specified.

Also, the arrangement of the said float, D, arm, e, spindle, f, tubular shaft, C, lever, E, and its hanger, H, as set forth.

Also, the arrangement of the compensating arm, M, and weight, N, valve arm, I, hanger, H, lever E, spindle, f, tubular shaft, C, float, D, arm, e, and the vessel, A, substantially as specified.

Also, the combination of the cam, n, slotted arm, m, and the movable standard, o, with the hanger, H, lever, E, spindle, f, tubular shaft, C float, D, arm, e, and the vessel, A, substantially as set forth.

82,730.—AMALGAMATOR.—George A. Mariner and Julian Kune, Chicago, Ill.

We claim, 1st, The cylinder, a c, provided with the conical plate or bottom, b, in combination with the cylinder, d f, supported above the bottom, substantially as shown.

2d, The annular plate or diaphragm, e, to regulate the dispersion of the ores, when provided by the rods, u, substantially as specified.

3d, The perforated annular plate, r, when provided with the rods, substantially as and for the purposes described.

4th, The inclined partition or chute, B, constructed and operating in combination with the discharge spout, v, substantially as specified.

5th, The tube or pipe, b, when made to pass through the furnace, w, in combination with the escape or condensing-pipe, G, substantially as and for the purposes specified.

6th, The extension feed pipe, l g, whether used with or without a screw carrier, substantially as specified.

82,731.—MANUFACTURE OF ARTIFICIAL STONE.—A. H. Marret, Water Works, Ky.

I claim the process of manufacturing block, substantially, for all building purposes, as herein described.

82,732.—APPARATUS FOR WASHING, BLEACHING, AND CLEANSING YARNS, BOBBINS, AND OTHER MATERIALS.—James Garth Marshall, Leeds, England.

I claim, 1st, The combination, with the vessel, A, of the supply pipe, D, opening into a chamber, C, one or more sets of spool holding studs, e and h, and an exhaust pipe, N, substantially as and for the purpose described.

2d, The employment of the open web, S, in combination with a closed vessel, A, substantially as and for the purpose described.

82,733.—FENCE.—Nathan Maxson, Wilmington, Ohio.

I claim the fence, A B C, constructed as described, that is, having the foundation, A, interior, B, and covering, C, the latter being laid on in sections, with beveling edges, and being strengthened at regular intervals, by bars, formed in the manner described, the whole being combined and arranged as and for the purposes set forth.

82,734.—SCHOOL SLATE.—Frank Melville, New York city.

I claim the notches, a a, in the inner edge of the frame, B, of the slate, in connection with the spring, b, and the removable copy, C, all arranged substantially and for the purpose herein set forth.

82,735.—FILTER FOR SACCHARINE AND OTHER LIQUIDS.—Helen Merrill, New York city. Antedated September 30, 1868.

I claim, 1st, The arrangement of the filtering material, partly inside and partly outside the filter.

2d, Operating a sheet of filtering material so that it passes in and out of a filter, either continuously or at intervals, as may be required.

3d, Supporting and securing a traveling apron by means of endless belts, substantially as described.

82,736.—ROTARY BLOWER.—James Mitchell, Philadelphia, Pa.

I claim the combination of the direct tangential discharge port, H, rotary fan, D, eccentric casing, A, and concentric partition, E, all constructed and arranged as herein represented and described, for the purposes specified.

82,737.—WATER METER.—George R. Moore, Lyons, Iowa.

I claim, 1st, The water ways, o o o o, through the plate, n, in the manner and for the purpose herein set forth.

2d, The forcing plate, C, upon its journals, f, operated by the water, substantially in the manner and for the purposes herein set forth.

3d, The springs, d d, used in operating the valve, B, substantially in the manner and for the purpose herein set forth.

4th, The levers, a a, and regulating screws, g g, substantially in the manner and for the purpose herein set forth.

5th, The dividing plate, e, substantially in the manner and for the purpose herein set forth.

82,738.—CLAMP FOR IRON STRUCTURE.—James M. Moorehead, Brooklyn, N. Y.

I claim the four plates, A B C and D, formed and combined substantially as shown and described, for the purpose of clamping crossed rods, all as set forth.

82,739.—MACHINE FOR DESICCATING LEACHED TAN AND OTHER SUBSTANCES.—Charles H. Moseley, Winchester, Mass.

I claim the arrangement, as well as the combination of the endless apron or conveyer, B, the hopper, C, through which it passes, the auxiliary hopper, M, and the pair of hearing and expressing rollers, K L, such being provided with mechanism for operating them, substantially as described.

Also, the arrangement and combination of the leaching vat, A, the endless apron, B, the hoppers, C M, and the pair of expressing rollers, K L, the whole being disposed with a frame, as set forth.

Also, the combination of the elevator, N, with the expressing rollers, K L, the two hoppers C M, and the endless apron, B, or the latter and the leaching vat, A, the whole being arranged in a frame, and provided with mechanism for operating them, substantially in manner and for the purpose or objects as hereinbefore specified

82,740.—PATTERN FOR CUTTING OUT SHIRT.—Jas. H. Myers (assignor to himself and C. T. Rice), New York city.

I claim the diagram for cutting shirts, consisting of the back, yoke, front, bosom, neck band and sleeve patterns, of the configuration shown, having graduated measurements delineated thereon, substantially as shown, for the purpose specified.

82,741.—FEEDING AND COOLING DEVICE FOR GRAIN MILL.—John Nairn (assignor to himself and Mathew Pfafflin), Milton, Ind.

I claim the arrangement of the vessel, A, tubes, B B C, and curved lateral tubes, E E, and scraper, D, when combined and operated substantially as and for the purpose herein described.

82,742.—ROTARY STEAM ENGINE.—Elim Osborn (assignor to himself and Henry Beard), Economy, Ind.

I claim, 1st, The combination of the revolving disk plate valve, h, steam chest, D, and shaft, A, substantially as set forth.

2d, The arrangement of the steam pipes, E E, steam chest, D, and apertures, m, with reference to the shaft, A, and wheel, B, substantially as described.

82,743.—CIGAR PIPE.—Adolphe Achille Pathi, Paris, France.

I claim a tobacco pipe, having a lid, b, provided with a prolongation, d, terminating at the outer end in a form resembling a burning cigar, and perforated for the admission of air to support the combustion of the tobacco, substantially as and for the purpose described.

82,744.—RAILWAY RAIL JOINT.—E. G. Patterson, Pithole City P.

I claim, 1st, The chair, D, made with the inner side of its jaws inclined or wedge-shaped, substantially as herein shown and described, and for the purpose set forth.

2d, The clamps, F, constructed as described, and provided with bolts, G, and nuts, H, in combination with the fish-plates, C, by which they are supported, and with the wooden bar or bars, E, which they support, substantially as herein shown and described, and for the purpose set forth.

3d, The combination of fish plates, C, and chair, D, with each other and with the ends, A B, of the rails, substantially as herein shown and described, to form a rigid support for the said ends of the said rails.

4th, The combination of the fish plates, C, chair, D, wooden bar or bars, E, and clamps, F, with each other and with the ends, A and B, of the rails, substantially as herein shown and described, and for the purpose set forth.

82,745.—QUICKSILVER FEEDER FOR QUARTZ MILL.—John Pattison, Nevada, Cal.

I claim, 1st, The quicksilver fountain, C, with the vertical pipes, D, and F, above and below the horizontal shaft, substantially as described.

2d, The cup, G, in the horizontal shaft, E, graduated by the set screw, G, or their equivalents, substantially as and for the purpose described.

3d, Coupling the shaft, E, together by the slotted ring, H, and keys, H' H', and operating the machine by the lever, K, pawl, K', and toothed wheel, J, the whole constructed and arranged to operate substantially as described.

82,746.—VENTILATOR.—Jethro Peckam and John Peckam, Middletown, R. I.

We claim the combination, with the ridge cover, A, supported on the vertically sliding studs, B of the winding shaft, C, and cords, D, substantially as and for the purpose specified.

82,747.—POROUS ALUM.—Henry Pemberton, Allegheny City Pa.

I claim as a new article of manufacture, the sulphate of alumina, prepared in a porous or visicular state, whether in lump or ground to a coarse or fine powder, substantially as described.

82,748.—MACHINE FOR STRETCHING AND BLOCKING HATS.—Starr Polley, Brooklyn, N. Y.

I claim 1st, The arrangement of the flat elastic ring or band, T, of rubber, over or outside of the hat body f as shown and described in combination with stretching device, B, when arranged to operate relatively thereto during the stretching operation, substantially as and for the purposes herein set forth.

2d, The elastic band, T, in combination with a hat-body and with the block, C, and stretching device, B so as to perform the double function of clamping or holding the hat body in place upon the stretching machine in the act of stretching the tip, and also of holding the body upon the block during the subsequent operation, substantially as herein described.

82,749.—HORSE HAY RAKE.—Peter Prescott (assignor to Isaac Hall, William J. Hall and C M. Prescott), Gooseville, N. Y.

I claim the plates, a a, rods, i, arms, b b, arranged substantially as described, for the purpose of lessening the pressure of the shafts or tongue of a revolving horse rake, all as set forth.

82,750.—LANTERN.—George W. Putnam, Boston, Mass.—Antedated September 26, 1868.

I claim the employment or use, with a portable lantern, of a movable magazine, when all are constructed and arranged substantially as shown and described.

82,751.—CUT-OFF FOR STEAM ENGINE.—George W. Rawson, Cambridgeport, assignor to himself and Michael Hittinger, Somerville, Mass.

I claim the arrangement and combination of the stopping chains with the steam chest, the sliding, main, and cut-off valves, the springs, k k, the rods, g g, the paws or catches, m m, and the tripper, p, to be applied to a governor, the whole being to operate in manner as described.

Also, the arrangement of the valve seat projections, c', or the equivalents thereof, in relation to the steam chest, A, the main and cut off slide valves, B e e, the stopping chains, the springs, k k, the cut off valve rods, g g, the paws, m m, and the tripper, p, the whole being as specified, the valve seat projections enabling the steam to effect the balancing of the cut-off valves as explained.

82,752.—MATCH SAFE.—Hiram Richmond (assignor to Chas. Parker), West Meriden, Conn.

I claim the match safe, constructed as described, of the back plate, A, the box, B, having the vertical opening, b, for the thumb and finger, and the inclined hinged lid, C, having opening, c, corresponding to the opening, b, in the box, all arranged as described for the purpose specified.

82,753.—CULTIVATOR.—William Rodgers, Lynnville, Ind.

I claim the rake, K, supported and braced as described, by the vertical and lateral rods, and having itself vertical teeth, in combination with the cultivator, provided with the steadying wheel, H, all constructed and arranged as and for the purpose set forth.

82,754.—FOLDING EASY CHAIR.—Charles C. Schmitt and Rudolph Wodrich, New York city.

We claim, 1st, The application to the roller, F, around which the band G, is wound, of the spring, c, ratchet wheel a, and spring pawl, b, all made and operating substantially as herein shown and described, for the purpose of locking the chair automatically in any desired position as set forth.

2d, The cam, J, arranged in connection with the spring pawl, b, for the purpose of allowing the band to be unwound and the seat to be lowered, substantially as herein shown and described.

3d, Pivoting the seat, I, to one set of supports only, of an X-shaped chair frame, when said frame is provided with a self-acting band, G, and roller, F substantially as and for the purpose herein shown and described.

4th, The rod, K, and lugs, g, when arranged on an X-shaped stool frame to prevent extreme expansion of the same, as set forth.

82,755.—FOLDING CHAIR.—Charles C. Schmitt, and Rudolph Wodrich, New York City.

We claim the folding chair, consisting of the combination of the seat, A, which is pivoted or hinged to the legs, B C, with the rods, a b d e, bands or staples, c f, rod, b, slotted arms, E, hinged to the legs, B, pins, k, and band, I, all made and operating substantially as herein shown and described.

82,756.—EXPRESS SIGNAL.—Chas. H. Seawell (assignor to G. F. Lewis), St. Louis, Mo. Antedated Sept. 24, 1868.

I claim the signs, c and c', placed in pairs on a pivot wire, b, and arranged with calling signs on one face, but blank on the reverse, so that the call shows on both sides when it shows at all, as described

82,757.—BEEHIVE.—Thomas Shields, Hillsboro, Ohio.

I claim 1st, The two series of removable honey frames, of different widths, arranged the one above the other, between the upper and lower ventilating air chambers, substantially as herein set forth.

2d, The glazing of the outermost of the lower series of honey frames in the hive, when the said glazed honey frames are located opposite to the removable sections, B B, of the side casings of the hive, substantially as herein set forth.

3d, The glass face of the alighting board, h, when the said alighting board is arranged with the other parts of the hive, substantially in the manner herein set forth.

82,758.—GOVERNOR FOR ENGINES, WATER WHEELS, ETC.—James P. Sibley and Arthur Walsh, Bennington, Vt.

We claim, 1st, The arrangement of the eccentric, L, on the shaft, B, for operating slide, N, and the collar, I, fitted on shaft, B, and connected by shaft, K, and levers, J T, and arm, S, for the purpose of operating the shell, R, substantially as specified.

2d, The slide, N, provided with the pawls, O O', in connection with the wheel, P, all arranged, substantially as set forth.

3d, The metallic strap, W, attached to the spool, X, on shaft, Q, connected with the shafts V and K, all arranged as specified.

4th, The slide, A', when arranged or placed in relation with slide, N, and wheel, P, substantially as specified.

82,759.—SAW SET.—L. T. Smart, Ossipee, N. H.

I claim the die, A, adjusted in the holder, B, by the screw, F, and provided upon its upper face with faucets of varying inclination, corresponding to the inclinations of the faucets upon the under side of the movable die, D, all constructed, arranged, and operating as herein described and shown, for the purpose specified.

82,760.—SPRING SEAT.—Chas. B. Smith (assignor to himself and Quincy A. Fisk), Springfield, Ill.

I claim the improved spring seat bottoms composed of the hooked strips, A, riveted together as described, in combination with the double coiled springs, supported on the frame, and provided with the loops, B, substantially as and for the purpose described.

82,761.—STOVE DRUM.—Chas. D. F. Smith, Geneva, Ill.

I claim constructing the inclined plane forming the spiral flue around a central drum, cylinder, or reservoir, wholly or in part in sections, susceptible of being adjusted to form a continuous circuitous spiral flue, or to open vertically and permit a direct vertical draft, substantially as and for the purposes set forth and described.

82,762.—WATER GAGE.—H. P. Stafford and H. H. Stafford, Decatur, Ill.

We claim, 1st, The employment of an independent registering pointer, R, in combination with the float pointer, P, substantially as and for the objects herein described.

2d, Operating the registering pointer, R, by means of the float pointer, P, substantially as and for the purposes shown and described.

3d, Having the registering pointer. R, pivoted upon the sector, substantially as and for the purpose hereinbefore shown and described.

82,763.—PROCESS OF TANNING HIDES.—Geo. A. Starkweather, Waymart, Pa.

I claim, 1st, The process of tanning hides or skins into leather, by the use urine, alkali, fermented wheat bran, and decoction made from plants, salt, oil of virtiol, and tan liquor, as set forth.

2d, The use of plants in laying away hides or leather.

82,764.—CLEVIS FOR PLOWS.—David Stewart, Corinna, Me.

I claim in combination with the spiral shaft, D, and link, E, the slotted plate, F, clamp bolt, C, and nut on the stirrup, G, for adjusting the side draft, as herein set forth.

82,765.—DESK AND SEAT.—G. A. Stewart, Des Moines, Iowa.

I claim a combination of the standards, A A, folding seat, C, bars, D D, blocks, E E, folding desk, F, shelf, G, box, H, and slide, I, all arranged and operating as herein set forth.

82,766.—SHEET METAL CAN.—John H. Stone, Philadelphia, Pa. Antedated Sept. 26, 1868.

I claim, 1st, In combination with the internal bead, a', a lap joint, consisting of three thicknesses of the sheet metal pressed closely together, and the upper half of the same then bent inward to a right angle, so as to produce the annular flange, d, around on the inner side of the chime of the vessel, and parallel with the end plate of the same, substantially as set forth and described, for the purposes specified.

2d, The sliding stopper or cover, E E, constructed and operated as set forth, for the purpose of closing the mouths of sheet metal vessels, as described.

82,767.—COMBINED FLOATING FIRE ENGINE AND WRECKING PUMP.—George W. Talcott (assignor to himself and Isaac D. Voak), Buffalo, N. Y.

I claim, 1st, The pipes, C D, provided with value, c, and valve, f, or cap, and uniting and connecting with a force pump, B, arranged in the hold of a vessel, substantially in the manner and for the purpose set forth.

2d, The combination and arrangement within a vessel of the pump, B, pipes, C D G G', and nozzle chamber, I, forming a combined floating fire engine and wrecking pump, in the manner described.

82,768.—BUCKLE.—Samuel A. Tenny, Muskego, Wis.

I claim a clamp or buckle consisting of the frame, A, having inclined grooves, E, made in the side pieces, D, and the block, B, provided with inclined flanges, F, and the loop, G, all substantially as described.

82,769.—ADJUSTING SPIRIT LEVEL.—Justus A. Traut (assignor to the Stanley Rule and Level Company, New Britain, Conn.

I claim, 1st, Suspending the vial case, c, within the stock, b, and adjusting the same to its relative position with the stock, b, by means of the plate, c', screw, or screws, e, and springs, d, substantially as and for the purpose described.

2d, The spirit vial case, B, constructed as described, with the springs, k, screws, n, operated through orifices in the plate, i, substantially as and for the purpose set forth.

3d, The combination of the adjusting plate or nuts, springs, k, and screws, n', substantially as and for the purpose described.

82,770.—HAY RAKER AND LOADER.—Lester Underwood, Ottawa, Ill.

I claim, 1st, The arrangement of the ropes, t t, and u u, in combination with the standards, h h, and braces, v v, substantially as described, and for the purpose of enabling the machine to be used from the wagon.

2d, The clevis, D, and pin, c', with rope attached, in combination with the loop, b', substantially as and for the purpose described.

3d, The peculiar arrangement of the shaft, e', grooved pulleys, d' d', wheel, f', lever, h', and stirrup, k', in combination with the rakes, C C C, substantially as and for the purpose described in the foregoing specification.

82,771.—DIE FOR STAMPING STOVE PIPE DAMPERS.—Isaac Van Hagen, Chicago, Ill.

I claim a die, A G, the movable part, A, of which has a V-shaped projection, C, fitting in a corresponding depression, E, in the stationary part, G, and the stationary part, G having V-shaped projections, D F, fitting in depressions, B B, in the movable part, A, as and for the purpose described.

82,772.—SKIRT SUPPORTER.—N. A. Vurgason, Brooklyn, N. Y.

I claim the skirt supporter, constructed as described, of the hinged metallic zone, A A, whose ends are secured together by the overlapping spring catch, D, and whose outer surface is provided with the hooks, a a, covered and protected by the flap or fillet, B, said zone being attached at its lower edge to the inner curtain or flap, G, all arranged as described, for the purpose specified.

82,773.—LOOM FOR WEAVING PILE FABRIC.—William Webster, Morrisania, N. Y. Antedated August 24, 1868.

I claim, 1st, The guide, C, pusher, G, and sliding block, in combination, when constructed, arranged, and operating substantially as described, and for the purpose set forth.

2d, The vibrating lever, D, having grooves, E E', and oscillating guide, F, or its equivalent, in combination with the pusher, G, or its equivalent, for the purpose set forth.

3d, In combination with the vibrating lever, D, with or without the grooves E E', and oscillating guide, F, the oscillating lever, H, oscillating block, I, having incline planes, and sliding rod, J, substantially as herein described, and for the purpose set forth.

82,774.—SUGAR PAN DERRICK.—Andrew J. Weed, Hardwick, Vt.

I claim, 1st, The pivoted or hinged frame, A, constructed substantially as described, in combination with the circular track, C, as and for the purpose set forth.

2d, The combination of the adjustable sliding frame, D, shaft, E, drum, e', shafts, F F', cross bar, I, adjustable vertical bar, H, and pivoted bar, G, with each other, and with the pivoted frame, A, substantially as herein shown and described, and for the purpose set forth.

82,775.—COMBINED HARROW AND CULTIVATOR.—N. W. Wheeler, Ripon, Wis.

I claim the combination, and mode of attachment of a harrow and cultivator, substantially as described, and for the purposes specified.

82,776.—DENTISTS' CHAIR.—Otis C. White, Hopkinton, Mass., and Austin T. Ashmead, Hartford, Conn.

We claim the combination and arrangement of the slotted arched bar, H', the swivel bar, G, the clamp screw, I, and the friction collar, g, applied to the spindle and the seat frame, as specified.

Also, the arrangement of the metallic seat frame, D, made with the foot and arm holes as described, the foot rest supporting frame, E, and the elevating screws, and their operative shaft and gears, as explained.

Also, the combination, applied to the stand and the seat frame, for effecting the adjustment of the latter in vertical and horizontal planes, as set forth, such consisting of the spindle, the feather connection, the rack, the scroll cam, with its cranked shaft, the collar, g, the clamp screw, I, the arched bar, H', and the swivel bar, G, arranged as specified and represented.

82,777.—HORSE POWER.—B. H. Wilcox, Petroleum Center, Pa.

I claim the combination of the table, A, having cam profiles, C, and mounted upon the cross timber and plate, J I, the pivoted lever, D, rollers a, connecting rod, F, dove tailed slide, H, and bed, G, all constructed and arranged to operate as described, for the purpose specified.

82,778.—BUTTON.—Frederick Wittram, San Francisco, Cal.

I claim, 1st, A button or stud, having an opening in its fastening disk or plate, closed by a movable segment or piece, substantially as shown and described.

2d, In combination therewith, a closing or retaining spring, substantially as set forth.

82,779.—CUTLERY.—Walter D. Woods (assignor to himself and Ebenezer F. Woods), Bennington, N. H.

I claim the handle, B, made tubular throughout its length, and having the connection piece, E, of the two bolsters arranged in the bore of such handle as specified.

Also the handle as made with the tang socket chamber, g, arranged in it in manner, and to open out of its upper end, and with a passage, f, extended from such chamber to the rear of the handle, as set forth.

Also, in combination with the chamber, or socket mold, g, formed in the handle, as set forth, the metallic bolster, C, and tang supporter, p, cast in one piece, in and against the handle, and on the tang, as set forth.

Also the combination of the rivet projection passage, h, of the handle, B, with the bore, f g, thereof, as set forth.

And in combination with the handle, B, and its metallic bolsters, C D, and their connection, E, when cast in one piece in the handle, as described, the rivet projecting molding passage of the handle, and the metal, o, cast therein and in one piece with the connection, E, as specified.

Also, the combination of the rear tang hole, l, with the metallic extension n, the rivet projection, o, and its molding passage, h, of the handle, B, as set forth.

Also, the handle as formed tubular throughout, or from end to end, and with the two bolsters and their metallic connection cast in one piece with respect to such handle, and upon the tang of the blade, the whole being substantially as described.

82,780.—MACHINE FOR SCOURING SHEET METAL.—Horace B. Wooster, Waterbury, Conn., assignor to Waterbury Brass Company. Antedated April 6, 1868.

I claim, 1st, The described arrangement of the revolving brushes, B, C, guide roller, F, winding up roller, D, gearing, E, and adjustable riders, b c, all operating as described, to polish thin elastic strips of sheet metal, as herein set forth.

2d, The revolving brushes, B and C, in combination with the adjustable riders, b and c, all made and operating substantially as herein shown and described.

3d, The described arrangement of the cylinder, D, with relation to the revolving brushes, B C, and adjustable riders, b c, for winding and unwinding the sheet metal, in the manner herein set forth and shown.

82,781.—COMPOUND DOUBLE TREE.—John Wykoff, Grant City, Mo.

I claim the double trees, D D, tongues, A A, singletree, E G E, chains, b b, or their equivalent, all constructed and operating substantially as and for the purpose shown and described.

82,782.—HARVESTER.—Geo. W. N. Yost (assignor to Corry Machine Company), Corry, Pa.

I claim the elastic floating bar, S, rigidly attached to the main frame or body, A and A', with the end, l, fastened to the middle of the hind end of the body, and with end, k, fastened to the middle of the fore end of the body, as described for grass and grain cutting machines.

82,783.—FURNITURE CASTER.—Anson T. Adams, Indianopolis, Ind.

I claim the combination of the spherical socket of the halves, B C, with the hexagonal edge, held together by the nut, d, and the conical screw, e, as and for the purpose specified.

82,784.—CLOD CRUSHER.—Dr T. H. Ashton, Defiance, Ohio

I claim the double harrows, A A, and rollers, D D, when the same are so combined and arranged as to operate substantially as described, as and for the purpose specified.

82,785.—EQUALIZING WHIFFLE TREE.—H. W. Austin, Portage, Mich.

I claim, 1 t, The arrangement of the equalizing eveners, E, with both of the double tree strips, A, grooved pulley, p, chain, F, and whiffle trees, D and D', all constructed and operating substantially as and for the purpose herein set forth.

2d, The arrangement of the eveners, E E, in such relation to the whiffle tree D', by means of the pulley, P, and chain, F, that when an outside horse starts, the reaction will be divided between the other horses, in the manner substantially as described.

82,786.—GAS MACHINE.—N. W. Bancroft, Worcester, Mass.

I claim, 1st, The pump or fan, consisting of the cylindrical case, F, with the curved partitions, b, and having the inlet openings, e, and exit holes, o, arranged substantially as described.

2d, The air chamber, C, having the partition, h, with the valve, i, and pipes p, arranged to operate as set forth.

3d, The reservoir, B, with the flexible diaphragm, f, and the gas pipe, X, with its regulating valve, Z, constructed and arranged to operate substantially as described.

4th, The copper plate, K, located under the chamber, J, for the purpose of conducting and equalizing the application of heat to the fluid as set forth.

5th, The circulating chamber, formed by the application of the plate, C, with its opening, m, arranged within the chamber, J, substantially as described.

6th, The use of the cement, herein described, for preparing the flexible diaphragm and other parts of the machine, as set forth.

82,787.—PROPELLING APPARATUS.—E. S. Barnes, Nebraska City, Nebraska.

I claim, 1st, The cogged sectors, C C1, in combination with the paddle, D, when arranged and operated substantially as set forth.

2d, The combination of the reversing sectors, E E1, and their operating bar E2, when acting to operate the bar, C3, and rack, c3, for feathering the paddles at either end of stroke, and reversing the same, substantially as set forth.

82,788.—COMPOSITION CLOCK DIAL.—Stephen Barnes, New Haven, Conn.

I claim, 1st, A composition clock face or dial, formed from a plastic composition, substantially in the manner described.

2d, A composition clock dial, in which the raised letters or ornamentations while made in one piece with the body of the dial, are formed of a composition differing in color from that of which the body is composed.

3d, The application, to a composition clock dial, of a perforated plate, or its equivalent, pressed into the dial while the latter is in a plastic state, substantially as set forth.

82,789.—SAW FOR FELLING TREES.—F. Bauschtliker (assignor to himself and Frederick Gentner), Washington, D. C.

I claim the double bladed saws, J J, screw, N, ratchet, P, and movable frame, G, when arranged, combined, and operated as herein described, and for the purpose set forth.

82,790.—BUSHING FOR WHEELS.—Thos. Blake, Stockton, Cal.

I claim the bushing, C, provided with the cylindrical bore, D, and having its external surface polygonal, as and for the purpose described.

82,791.—FOLDING CHAIR.—Peter Born, New York city.

I claim, 1st, The part, C, composing the arm pieces and front legs when constructed in one piece, attached to the back, B, by pivots, a, and arranged to fold up in the manner and for the purpose described.

2d, The parts, B and C, when constructed as described, in combination with the hinged seat, D, substantially as and for the purpose set forth.

3d, The stops, d, and cross bar, c, in combination with the part, C, seat, D, and part, B, of a chair, all constructed and operating as and for the purpose set forth.

82,792.—MACHINE FOR TENONING BLIND SLATS.—T. J. Bowdle, S. R. Lawder, and F. E. Johnson, Piqua, Ohio.

We claim, 1st, A T-shaped vibrating lever, P, in combination with toggle joint levers, N N, suitable connecting links, M M, and with sliding carriages, C C, carrying the shoulder-cutting bits, a a, of a slat-tenoning machine, all arranged and operating substantially as and for the purpose herein set forth.

2d, In combination with the foregoing devices, combining with one arm, p', of said vibrating lever, P, a connecting link, R, pivoted to a collar, G, embracing the tubular center bit, F, of the machine for the purpose of operating the same, all substantially as is herein specified.

82,793.—COMBINED LAND ROLLER AND CLOD PULVERIZER.—John Brewer, New Vienna, Ohio.

I claim the drums, B B, provided with knives, C C, in combination with the cultivator, E, when constructed and operating substantially as and for the purposes herein set forth.

72,794.—PEACH PARER.—James H. Brown, Mitchell, Ind

I claim the curved prong, a, pivoted in its center to the arm, H, above the stationary prong, b, and its rear end resting on a spring, d, in combination with the knife supporting shaft, I, pivoted at its lower end, and working in a slot in the frame, A, all as herein shown and described

82,795.—CHEESE CUTTER AND BOX.—Smith S. Brown, Woonsocket, R. I.

I claim a cheese box and cutter, having tables D and E, pivot, d, pin, e, cover, A, cutting wire, H, and guide, g, constructed, arranged, and operating substantially as specified.

82,796.—CURTAIN FIXTURE.—Smith S. Brown, Woonsocket, R. I.

I claim a fixture for window curtains, having roller, B, slotted plates, C D and G, with their respective thumb screws, head plate, E, swinging plate, O, pulley, Y, and cord, V, constructed, combined, and arranged substantially as herein specified.

82,797.—SASH FASTENING.—Wm. Brown, Duncannon, Pa.

I claim the device, composed essentially of the angular plate, D, with the with the shafts, E and F, bearing the slotted plates, H H, and the weighted handles, G G, when used in combination with the notches, n n, and block, I, upon a sash or door, substantially as and for the purpose specified.

82,798.—BOOT AND SHOE HEEL POLISHING MACHINE.—B. Q. Budding, Worcester, Mass.

I claim, in combination with the jack-supporting bearing or bracket, a jack, held up towards the polishing tool by a spring, substantially as set forth.

Also, in combination with the jack plate, r, the heel clamping mechanism, substantially as shown and described.

72,799.—HOISTING APPARATUS.—F. P. Canfield, Brighton, Mass.

I claim, 1st, The hoisting barrel, C, when supported independently of the fixed bearings, K K', arranged and operating substantially as shown, and for the purpose set forth.

2d, The levers, L L', when so arranged, in relation to the winding barrel, C, as to convey a portion of the weight suspended therefrom to act upon the brake device, substantially as described, and for the purpose set forth.

3d, The general arrangement of the levers, Q Q', bar, R, and guide rollers, S S', when acted upon by the lateral motion of the pull rope, T, substantially as described for the purpose set forth.

82,800.—BED BOTTOM.—John Christie, Lowell, Mich.

I claim, in a bed bottom, composed of the springs, A A, connected and constructed as described, the arrangement of the short bars, C C, cross bar, E, and slotted diagonal bar, F F, and screw, G, the whole operating as specified.

82,801.—BLIND SLAT TENONING MACHINE.—John J. Clark and Thomas Clark, Elgin, Ill.

We claim cylinder, P, provided with saws, e and e", knives, 1 2 and 3, in combination with wheels, W and W", constructed and arranged to operate together substantially as and for the purpose set forth.

82,802.—SLAT MACHINE.—Lyman S. Colburn, Oberlin, Ohio.

I claim, 1, The revolving heads, I, constructed with apertures therethrough, corresponding with the form of the cross section of the slat, for its insertion therein endwise, substantially as set forth.

2, The combination of the arms, H H', carrying the revolving heads, I, the wheel, X, segmental rack, J, and notched hub, f, all supported on the rock shaft, G, for operation substantially as described.

3d, The arrangement and combination of the sliding bar, M, and head, N, with the holding block, W, operating together by means of the wrist, t, toe, r, and springs, x x', substantially as shown and described.

4th, The staple holder, supported on the sliding head, N, consisting of two vertical standards, p' p", provided with a lower outlet at right angles to their position, for the passage of and to guide a single staple, when propelled by the driver, q, substantially as set forth.

82,803.—MACHINE FOR BORING WINDOW BLINDS.—Lyman S. Colburn, Oberlin, Ohio.

I claim, 1s, the marker, m, arranged and operating in combination with the notches, e, in the under side of the feed strip, N, the pawl, q, and reciprocating frame, F, essentially as specified.

2d, The feed strip, N, pawl, w, pitman, t, and wrist, s, arranged and operating substantially as shown and described.

3d, The combination of the reciprocating spindle frame, F, the eccentric pin, k, and wrist, s, on the revolving head, J, and the pitman, t, and pawl, w, when said pin and wrist are so arranged as to raise the bits, i, into the wood as soon as the pawl, w, has finished each feed motion of the stuff, substantially as set forth.

82,804.—DOOR AND GATE CLOSER.—Henry N. Conklin, Indianapolis, Ind.

I claim a gate or door closing device, having lever, a, pivot, b, and chain, d, constructed, arranged, and operating substantially as herein specified.

82,805.—MAKING CRANK SHAFT.—Jules Converse, Paris, France.

I claim the improved method, herein described, of making crank axles, by forging them first, as usually done, in one solid piece, then boring the shouldered parts thereof, and strengthening the same by introducing separate pins, D, of steel or other strong material, embraced entirely within the metal, as and for the purposes herein set forth.

82,806.—POTATO DIGGER.—W. J. Cowan, Cortland, N. J.

I claim the combination of the slides, b b, the point or share, a, and the curved rods, c c, with the apron, d, when constructed substantially as above described and for the uses and purposes set forth.

82,807.—RAILWAY CAR COUPLING.—R. A. Cowell, Cleveland, Ohio.

I claim, 1st, The connecting bolt or pin, C, constructed with the pivots, a, and arms, x, and operating in combination with the spring, f, and slot, b, substantially as and for the purposes described.

2d, In a railway-car draw head, arranging the chamber, D, with the superior recess or apartment, E, in combination with a connecting bolt or pin, as C, having a rotary and vertical action, all constructed and operated substantially as herein described.

82,808.—MACHINE FOR GRINDING CUTTERS OF MOWING MACHINE.—C. B. Curtis, Jordan, N. Y.

I claim, 1st, A frame for supporting a cutter bar upon the frame of an ordinary grindstone, constructed with an adjustable slotted bed piece, A, and clamp hooks, B, and an oscillating support for the clutches, by which the cutter bar is secured, substantially as described.

2d, The combination of the bed piece, A, so constructed that it may be adjustably attached to the grindstone frame, the side pieces, E, attached to the bed piece, so as to be vertically adjustable, and the clutches, for holding the cutter bar, substantially as described.

3d, The clutches, H, attached to the frame by crank rods, or arranged that the knives may be set at any required angle, substantially as set forth.

4th, In combination with the end clutches, an intermediate clutch, attached to an adjustable standard, and sliding upon the cross bar, G, substantially as and for the purpose set forth.

82,809.—PLOW.—S. T. Denise, Red Bank, N. Y.

I claim, 1st, The coulter, when terminating at its lower end in the point, A, and its upper end in the bent lip, e', between which is the sharp cutting edge, c, the whole being constructed substantially as described.

2d, The brace rod, F, when constructed of a single piece uniting the beam and both handles, substantially as and for the purpose specified.

82,810.—RAILROAD CAR HEATER.—Isaac Dripps, Fort Wayne, Ind.

I claim an apparatus for heating and ventilating railroad cars, combining the following elements, viz: a double funnelled hood, A, with a centrally-suspended oscillating valve, V, pipe, B, water tank, C, heater, D, with with inclosing casing, arranged as described, a pipe, E, and registers, R, and a ventilator so constructed as to create an outward draft, substantially as described.

82,811.—HOT-AIR FURNACE FOR HEATER.—J. B. Driscole, New York city.

I claim the fire-pot, A, with a horizontal extension, G, of a pyramidal or conical form, constructed and operated substantially as and for the purpose set forth.

82,812.—LIQUID METER.—Ernest Marie Du Boys, Paris, France. Antedated May 9, 1867.

I claim, in combination with the shallow gaging vessel, divided into two compartments by an elastic diaphragm, which moves to and fro therein, by the pressure of the liquid on one side and then on the other side thereof, a mechanism constructed and operated substantially as herein described, for putting the compartments in alternate communication with the entrance and exit pipes or passages, as and for the purpose herein described.

82,813.—HORSE SHOE CALK SHARPENER.—William Duncan Vinton, Iowa.

I claim the shank or bar, A, spring, b, and cutting wheel, B, all combined and operating substantially in the manner and for the purpose specified.

82,814.—CULTIVATOR.—Daniel S. Early, Hummelstown, Pa.

I claim, 1st, The sliding bar, E, in combination with the central beam, A, the hinged side beams, D D', and the fastening, d, substantially as described and for the purpose specified.

2d, The arrangement of the beams, A D D', slide, E, clevis, F, wheel, B, handles, C C, and plows or teeth, P P P, in the manner shown and described.

82,815.—APPARATUS FOR TANNING HIDES.—Albert G. Eaton, Governeur, N. Y.

I claim, 1st, In combination with vats for tanning hides, a series of lifting pumps, arranged in and operated at the bottom of the vat, for raising the heavier and stronger liquids from the bottom to the top of the vat, and thus by mixing render it of more uniform strength throughout, substantially as described.

2d, Also, in tanning hides, the throwing of the tanning liquid against the hides, suspended in the air, by a force pump, or in a forced column or spray or jet, substantially as described.

3d, Also, in combination with a series of pumps, arranged in and operated at the bottom of the vat for raising the liquid in the bottom of the vat to the surface, an agitating or circulating pump, also arranged and operated at the bottom of the vat, for keeping the liquid mixed there, and of uniform strength, substantially as described.

4th, Also, in combination with a series of hides suspended in a vat, and at times dipped into the liquid and then raised therefrom and suspended in the air, a circulating and a lifting pump, or two or more of each, operated by or with the vibrating frame, carrying said hides, substantially as described.

82,816.—MACHINE FOR MORTISING, SLOTTING, AND DOVETAILING.—Jacob Felber, St. Louis, Mo.

I claim the combination of the arbor, B, pivoted by ball-and-socket bearing at D1, and guided by ball-and-socket bearing in the sliding head, D, with said head, D, the segmental plate, D2, pendulum, D3, its slot, d2, and the pivot pin, d3, when operating substantially as and for the purpose set forth.

82,817.—WASH-BOILER.—George Fenn, Boston, Mass.

I claim the combination, with the external boiler, a, of an internal boiler, b, provided with a perforated bottom, c, cover, d, and springs, i, and surrounded at the bottom and sides with a space, h, substantially as and for the purpose set forth.

82,818.—CONSTRUCTION OF POWDER KEGS.—Joseph B. Fleming and Daniel J. Fleming, Xenia, Ohio.

We claim, 1st, The process of making sheet-metal kegs, cans, etc., as above described, the essential feature of which process consists in leaving a large opening, E E, in the head that is last attached, through which opening a mandrel is inserted, upon which to form the joint around the edges or chimes, after the removal of which the opening is closed up by means of a piece soldered over it.

2d, A keg or can, constructed as above set forth.

82,819.—MAGAZINE FIRE-ARM.—Valentine Fogerty, Roxbury, Mass.

I claim, 1st, In combination with the magazine, the rocking finger, i, for throwing the cartridge laterally from line with the magazine into line with the barrel, substantially as set forth.

2d, Throwing the finger, i, laterally forward by the rear movement of the guard lever against the arm, l, on the finger journal or rock shaft substantially as described.

3d, Throwing the finger back to its former position by the forward movement of the breech pin directly against it, substantially as described.

4th, Combining with the breech block a notch, l', for receiving the cartridge flange and for preventing undue movement of the cartridge moving forward at the side thereof, when the same, in its retrograde motion, releases one cartridge and takes the next in rotation, substantially as described.

5th, The lever, q, with its tongue, v, and tip, w, constructed substantially as shown, and operating in conjunction with spring, t, to withdraw and expel the cartridge shell and to guide the cartridge into the barrel, substantially as set forth.

6th, The combination, with lever, q, having projections, y and e', thereon, of the studs or pins, a' and d', for tripping the lever in its forward and back movements, upwards and downwards, by positive action in both directions.

7th, Connecting the lever, q, with the breech block, e, by the link, r, by means of a pin, o 2, projecting into a groove, c 2, in the block, substantially as and for the purpose set forth.

8th, Combining with the magazine slide and the breech block the pin, f', and its notched spring, for arresting positively the feed of the cartridge, substantially as described.

82,820.—ROTARY ENGINE.—Charles G. Foote, Indianapolis, Ind. Antedated September 21, 1868.

I claim, 1st, The valve, C D E, constructed substantially as set forth.

2d, The combination of all the parts described in one device, constructed in the manner and for the purpose substantially as set forth.

82,821.—BUCKLE.—Merwin Fowler, Wolcottville, Conn.

I claim a buckle, consisting of the frame, A, the loop, B, and tongues, C C, the said loop and tongues being formed in one piece, and hinged to the frame, so as to be retained in their proper relative position, substantially as herein set forth.

82,822.—GRAIN DRILL.—C. O. Gardiner (assignor to J. H. Thomas and P. P. Mast,) Springfield, Ohio.

I claim, 1st, The cup, A, formed substantially as described, with the inwardly projecting flanges, e, on the inner face of its sides, as set forth.

2d, In combination with the cup, A, the cylinder, B, so constructed as to leave a space between its ribs, o, and the sides of the cup, to prevent the crushing of the grain, as described.

82,823.—BRANDING STAMP.—W. C. Garretson and Elwood Draper, assignors to W. C. Garretson, Oskaloosa, Iowa.

We claim the device herein described and set forth, consisting of the lamp, e, the stamp, a actuating lever, b, with suitable base, j, arranged substantially and to operate as described and set forth for the purposes specified.

82,824.—CURTAIN FIXTURE.—Amos F. Gerald, Kendall's Mills, Me., assignor to B. B. Belcher, Chicopee, Mass.

I claim the construction and arrangement of the cup shaped bracket, C, and the conical spiral spring, B, contained within it, and having the disk, A, rigidly attached to its smaller end, in combination with roll, R, and bracket, C', having projection, J, and tongue, D', all arranged, constructed, and operating as herein described and shown, substantially as described.

82,825.—SAW SET.—Wm. E. Goodenough, Newark, N. Y.

I claim, 1st, The combination of the guide bar, m, and adjustable frame, p, carrying the guide rollers, nn, with the stock, A, hammer, B, and adjustable guide roller, W, all arranged and operating substantially as shown and described

2d, The spring, c, having a projection, h, and notch, i, attached to the sector, D, in combination with the stud, a, on the trigger, and adjustable stud, e, for operating together, substantially as set forth.

82,826.—SLED.—D. W. Gould, Fostoria, Ohio.

I claim a cast iron bob sled, when each side, including runners, knees, and fender, is cast entire in one piece, as herein set forth and described.

82,827.—KEY FOR HYDRANT COCK.—Patrick H. Griffin, Albany, N. Y.

I claim, as an article of manufacture, the cast metal socket, C, constructed substantially as described and for the purpose set forth.

82,828.—MACHINE FOR GRINDING AND POLISHING SCHOOL SLATES.—Stinson Hagaman, Weissport, Pa.

I claim, 1st, In combination with one or more horizontally rotating rubbing wheels, an endless belt, with slate carriages mounted thereon, for the purpose of carrying the slates under the rubbing wheel or wheels, substantially as described.

2d, In combination with one or more rubber wheels, as described, and an endless belt, for the purpose of carrying the slates, as set forth, the slate carriages, H, with their friction wheels and springs, as described.

3d, In combination with the endless belt, and slate carriages mounted thereon, as described, the ledges or tracks, l, and shoulders, t, on the rails of the machine, for the purposes set forth.

4th, The combination of the driving shaft, G, the pulley wheels, E F and F', with the endless belt, E, for rotating the rubbing wheels, and the pinion, k, worm screw, J, and pulley wheels, C and C', for carrying the endless belt, D, all arranged and operating substantially as described.

82,829.—BED BOTTOM.—Henry J. Hale, Indianapolis, Ind.

I claim the corner guide pieces, C, in combination with the friction rollers, D, hung in adjustable bearings, e, attached to the upper metallic frame, substantially as and for the purpose set forth.

82,830.—BREAST YOKE FOR DOUBLE HARNESS.—A. F. Hammel, St. Louis, Mo.

I claim, 1st, The collar, A, and yoke, B, jointed at b and b', when combined and arranged substantially as described.

2d, The swivel, C c, in combination with the breast yoke, as and for the purpose set forth.

82,831.—AUTOMATIC GATE.—Elam Harter, Dowagiac, Mich.

I claim, 1st, The combination of the gate, truck wheels, inclined bars or rails, and vibrating platform, with the levers and chains, or equivalents of the latter, by means of which pressure upon the platform causes the gates to run asunder on the inclined rails, substantially as described.

2d, The mechanism, herein described, for locking and unlocking the gate, substantially as shown and described.

82,832.—GRAPPLING IRON.—William H. Hawley, Utica, N.Y.

I claim the combination of the pulley, A, with the grappel, constructed and operating substantially as described, and for the uses and purposes mentioned.

82,833.—ROTARY PUMP.—Charles H. Hersey, Boston, Mass.

I claim the pump, constructed as described, with semi-spherical shell or body, conical diaphragm, and flat surfaced bead, when the inlet and outlet passages are located and arranged as and for the purpose set forth.

Also, in combination with the parts last above named, the construction shown at 5, for the purpose specified.

82,834.—PAPER RULING MACHINE.—W. O. Hickok, Harrisburg, Pa.

I claim, 1st, Suspending the pen beam of a paper ruling machine, by means of the ball joints, D and D', in combination with sliding standards, B and B', operating together, substantially as and for the purpose described.

2d, The ball joint, D', consisting of the socket, b4, and the perforated ball therein, in combination with the srem. a''', on the end of the pen beam, the said parts operating together substantially in the manner described.

3d, In combination with the pen beam, A, and sliding ball joint, D', the solid ball joint, D, consisting of the spherical cavity within the clamp, a' a'', on the end of the pen beam, A, and the solid ball, g4 on the end of the screw, g'', the said parts being constructed and arranged to operate substantially as and for the purpose described.

4th, In combination with a pen beam, A, suspended upon the ball joints, D and D', as described, the sliding standards, B and B', operated by means of their respective screws, c''' c''', substantially as and for the purpose described.

5th, In combination with the pen beam of a ruling machine, the stem, a''', constructed and applied substantially as and for the purpose described.

82,835.—HARROW TEETH.—P. V. Hixon, Tioga, Pa.

I claim the gib, A, provided with projections, a, in combination with the shank, B, provided with corresponding indentations in all of its four faces, and tightening key, D, all constructed and operated in the manner and for the purpose set forth.

82,836.—FASTENING HORSE COLLAR.—B. H. Hobart, and D. C. Lamoman, Troy, Pa.

We claim the hollow end piece, B, provided with a spring actuated catch concealed within the same, when secured to one side of the horse collar, S, and made to fit into a socket, A, secured to the other side, the whole constituting an improved fastening for the collar, substantially as herein set forth.

82,837.—TILE MACHINE.—Asa Hockett, and Albert C. Hockett, Plainfield, Ind.

We claim the arrangement of the frame or box, A, tub, B, sliding frame, H, follower, G, gravel screen, L, and die, M, all constructed as described, and operating substantially as and for the purposes herein set forth.

82,838.—STALL FOR HORSES.—Alfred Hosmer, Watertown, Mass.

I claim the animal stall, A, when constructed and arranged substantially as and for the purpose described.

Also, the gutter, B, provided, by means of its position or form, with an inclined groove, having one or more outlets, and applied to a double or single floor, for the purpose of draining the same, substantially as described.

82,839.—BRACE FOR CARRIAGE.—Joseph Howe, Mount Pleasant, Iowa.

I claim the ring, a, ball and socket joints, c and d, and plate, b, in combination with braces, C, attached to the body of a carriage, as described, and operating as and for the purposes set forth.

82,840.—WHIP HANDLE.—Liverus Hull, Charlestown, Mass.

I claim the improved whip handle or manufacture, as having one or more knit, woven, or braided bands, laid in one or more helices, about and cemented to a braided or wound covering of thread, previously laid or formed on the stock of the handle.

Also, the combination and arrangement of the "Turks' heads," or their equivalents, the body covering of thread, and the helical bands, laid on and cemented to such body covering as set forth.

82,841.—STEAM BOILER FURNACE.—Hosea H. Huntley, Quincy, Ill.

I claim a furnace, having grate bars, C, with apertures, D, passage, G, tubes, O and K, and chambers, B H L, and M, constructed, arranged, and operating substantially as specified.

82,842.—COMBINED MEASURE AND WEIGHER.—A. B. Hurd, Watkins, N. Y.

I claim, 1st, The combination of the hook, l, with receptacle, A, and hinged balance handle, b, in the manner and for the purpose specified.

2d, The combined arrangement of the receptacle, A, stiff arm, a, hinged handle, b, with balance, f, and the hook, l, the said receptacle answering the double purpose of weighing and measuring, and the balance being adjustable by nut, k, the whole as described, and operating in the manner and for the purpose specified.

82,843.—STEAM GENERATOR.—Chas. F. Jauriet, Aurora, assignor to himself and A. J. Ambler, Chicago, Ill.

I claim the construction of the inner lining, C, and outer jacket of the door way, B, riveted together on the outside of the fire box, whereby a single sheet of metal forms the lining of the water space around the door way, and another single sheet the frame for the door, as herein set forth.

82,844.—STEAM GLOBE VALVE.—N. Jenkins, Boston, Mass.

I claim the arrangement of the bearing surface, l, of the valve head and the elastic packing, held in an annular recess in the valve head, as described, with the valve seat, f', and the raised seat, f, in the manner as shown and specified.

82,845.—SAW SET.—Abijah Johnson, West Newton, Ind.

I claim, 1st, The reciprocating bar, B, furnished with the adjustable setting nibs, C C, and, in combination therewith, the adjustable guides, D and P, all arranged and operating substantially as set forth.

2d, Actuating the bar, B, by means of the disk, F, furnished with the cams, r and s, arranged and operating substantially as set forth.

3d, The feed mechanism, consisting of the lever, G, bent lever, H, catch, N, set screw, I, spiral springs, X and M, cam, J, and pins, t, all arranged and operating substantially as set forth.

82,846.—DITCHING AND BORING MACHINE.—I.B. Jones, Xenia, Ohio.

I claim, 1st, In combination with a ditching machine, the auger, H, constructed as described, in whole or in sections, with a cutting edge at the lower end, and the edge along its rod, turned up and sharpened, substantially as and for the purposes herein set forth.

2d, The combination of the cogged hub of the master wheel, E, feed wheel V, and miter wheel, W, for the purpose of communicating motion to the wheels, B, substantially as herein set forth.

3d, In a combined boring and ditching machine, the shaft, Y, miter wheels, X X, pinion, b, and wheel, c, in combination with the lever, Z, and notched latch, a, substantially as herein set forth.

4th, The combination of the auger, H, sheath, T, and mold board, U, all constructed as described, and operating substantially as and for the purposes herein set forth.

5th, The screw rod, d, provided with a crank, e, at one end, and attached to the axle of the hind wheels, for the purpose of turning the machine to the right or left, substantially as herein set forth.

6th, The arrangement of the movable cross head, S, provided with a shaft and pinions, as described, and operating on rack bars and slides on each side of the auger, H, substantially as and for the purposes herein set forth.

82,847.—SASH FASTENER.—H. H. Kelley, Philadelphia, Pa.

I claim the arrangement of the elastic roller, C, and wedge, E, and operating substantially as herein represented and described.

82,848.—STOVE PIPE DAMPER.—J. C. Kennedy, Chicago, Ill.

I claim a cone, B, or its equivalent, applied to a stove pipe, substantially as described, and employed in conjunction with a register, in the manner and for the purpose described.

22,849.—SIGNAL FLAG FOR VESSELS.—J. F. H. King, Port Richmond, N. Y. Antedated September 25, 1868.

I claim the constructing and combining the two frame pieces, a b, and the check chain or cord, g, with the halyards, for displaying or folding a signal flag, the whole arranged and operating substantially in the manner and for the purposes described.

82,850.—FOUNTAIN PEN.—Geo. Kneip, New York city.

I claim, 1st, The ink cistern, B, provided with a central tube, d, in its receiving end, and with a valve, f, at its discharging end, in combination with the pen holder, A, constructed and operating substantially as and for the purpose set forth.

2d, The opening, e, in the sides of the pen holder, in combination with the transparent ink cistern, B, substantially as and for the purpose described.

82,851.—BORING FAUCET.—Jotham R. Lawrence and Isaac G. Johnson, Cutler, Me.

We claim a faucet having boring tool, C, core chamber, B, clamp, E, thumb screw, G, lever, F, gate, H, pin, I, and cleats, o, constructed, combined, and operating substantially as specified.

82,852.—APPARATUS FOR ATTACHING HORSES TO VEHICLES.—Charles Leroy, Mexico, N. Y.

I claim, 1st, The clips, C C, constructed as described, and secured to the shafts of the vehicle as and for the purpose described.

2d, Draft bar, A, rods or traces, B B, spiral springs, D D, and clips, C C, all combined, arranged, and operating substantially as and for the purpose set forth.

82,853.—GRAIN DRILL.—M. F. Lowth and T. J. Howe, Owatonna, Minn.

We claim, 1st, The device, consisting essentially of the shaft, G, pinion, H, bearing, J, sleeve, L, and cylinder, M, having the grooves, m m, when constructed and operating together, as described, and in connection with a driving shaft, F, seed hopper, D, and a lever, K, for moving the shaft back and forth, substantially as described.

2d, The combination of the graduated plate, N, index lever, K, and clamp, o, for conning the lever at any point of the plate, when employed in connection with the apparatus above described, and for the purpose set forth.

82,854.—ELASTIC APRON FOR PAPER MACHINE.—A. B. Lovell, Pomfret, N. Y.

I claim the combination of a rubber or gutta percha apron with the couching press rolls of a paper machine, when the same is provided with a tension roller, in the manner and for the purpose set forth.

82,855.—HORSE RAKE.—Ellis Luther, West Troy, N. Y.

I claim, 1st, The screw or twisted bar, E, with the foot, D, substantially as described.

2d, The said bar, E, and foot, D, in combination with the transverse bar, L, and apperture, a, substantially as herein specified.

3d, The said bar, E, and foot, D, in combination with the tooth, t, of the rake, substantially as specified.

4th, The winclass, N, in combination with the chain, M, and the head, A, of the rake, substantially as herein shown and described.

5th, The wheel, I, in combination with the chain M, and windlass, N, substantially as specified herein.

6th, The ratchet and pawl, c, combined with the windlass, N, and chain, M, substantially as herein set forth.

7th, The cord, b, attached to the chain, M, substantially as and for the purposes herein specified and set forth.

82,856.—INDICATOR FOR STEAM BOILERS.—Andrew J. Maris (assignor to himself and Wm. H. Burnap), New York city.

I claim the expansion tube alarm and gage cock, arranged in substantially the manner set forth.

82,857.—MODE OF ATTACHING AND DETACHING SHAFTS AND POLES OF CARRIAGES.—Leslie Marmaduke, Arrow Rock, and Sidney T. Bruce, Marshall, Mo.

We claim, 1st, The coupling beads, D a2, and the coupling block, E, when arranged and operated substantially in the manner and for the purpose herein shown and described.

2d, The arrangement of the axle piece, A, traction rods, a a1, rod, B, lever, C, and coupling heads, D a2 E, substantially in the manner shown and described.

82,858.—PLOW.—Daniel Mater, Bellmore, Ind.

I claim, 1st, The arrangement of the transversely adjustable coulter or cutter, F, with reference to the beam of the plow and shovel, C, substantially as shown and described.

2d, In combination with the beam and standards, the brace rods, H, clamps, I, and nuts, I', arranged substantially as and for the purpose set forth.

82,859.—PREVENTING INCRUSTATION IN STEAM BOILERS.—Hugh McQuade, Canyon City, Oregon.

I claim the application in steam boilers of an amalgamated surface to the parts liable to incrustation, the iron plated with copper being coated with quicksilver, and being a liquid, on the surface of the copper, expands, as herein set forth, using for that purpose the aforesaid metals, or any other substantially the same, which will produce the intended effect.

82,860.—MECHANICAL MOVEMENT.—Geo. R. Metten, Cleveland, Ohio.

I claim a balance wheel, B, constructed with a flanged hub, having a friction band, p, applied thereto, in combination with a treadle motion and vibrating pawls, c c, arranged to operate substantially as described.

82,861.—MACHINE FOR MAKING DRAIN TILES.—James W. Milroy and John Cook, Galveston, Ind.

We claim the combination and arrangement of the box, sliding block, B, shaft, C, cog wheel, b, ratchet plate, c, friction rollers, d d, and friction roller D, molds, E and F, knives, G G, and table, G', substantially in the manner and for the purposes as herein set forth.

82,862.—BROADCAST SEED SOWER.—W. H. Mitchell and J. F. Mitchell, Macomb, Ill.

We claim, 1st, The stirrers, c, operated by the compound crank, R, when arranged to operate substantially as described.

2d, The distributor, L, constructed and arranged to operate substantially as set forth.

3d, The two slides, h and f, arranged to be operated independently or jointly, as herein described.

82,863.—WINDOW SPRING.—Edward W. Munson and Wm. P. Thomas, Waterbury, Conn.

We claim the case, A, within which is arranged the bolt, C, and combined with the rod, D, constructed with a shoulder, a, and with a rose, F the whole constructed and arranged so as to operate in the manner, substantially as specified.

82,864.—HORSE RAKE.—Geo. D. Neal, Mt. Vernon, Ohio.

I claim, 1st, The arrangement of the trap doors on the described frame, in combination with any suitable holding devices, as and for the purpose set forth.

2d, The central standard, E, connected to the rake beam and sliding through the mortise of central beam and in combination with the outer standards and arms, substantially as shown and described.

3d, In combination with such standard, the spring detent, with its catch, all constructed and operating substantially as and for the purpose set forth.

82,865.—PORTABLE FOLDING FENCE.—A. M. Olds, New York city. Antedated Sept. 26, 1868.

I claim the herein described combination, consisting of a fence constructed in pivoted panels, and supported by clamping braces, substantially as described and for the purposes set forth.

82,866.—APPARATUS FOR TREATING MILK.—Joel A. Otis and Thomas Barber, Watertown, N. Y.

We claim the arrangement of the double walled furnace, A, with the boiler, S, and flues, C C, when the furnace is made a part or extension of the boiler, and the flues are convoluted or bent back and forth, as shown, all the said parts being constructed, combined, and arranged in the manner described.

82,867.—HORSE HAY FORK.—Oscar Paddock, Watertown, N. Y.

I claim the combination with the center or claw operating bar in a fork, such as described, or a vibratory locking lever arm, arranged to catch over and press upon the head or upper end of the center bar, when the latter is depressed and connected with a tripping cord, or other suitable means for effecting its disengagement from the said center bar, substantially in the manner herein shown and set forth.

82,868.—PRUNING HOOK.—Benj. M. Parks, St. Louis, assignor to himself, A. C. Robinson, and Wm. Seymour, Louisiana, Mo.

I claim the hand slide, D, when operating by the rods, d and c, the lever, C, rod, b, lever, B, the lower knife, a', against the pressure of the spring, E, and arranged in combination with the rod, A, and the hook knife, a, substantially as herein set forth.

82,869.—ICE PRESERVER.—Julia W. D. Patten, New York city.

I claim an ice pitcher, consisting of a box or coves, having an outside wall of paper or pasteboard, lined with mica on the inside, substantially as described.

82,870.—STEAM ENGINE VALVE.—Benjamin F. Perkins, Holyoke, Mass.

I claim the combination and arrangement of the lock nut, D, with the stand, A, and packing nut, C, of a globe or angle valve, substantially as herein described.

82,871.—MODE OF PRESERVING MEAT.—Dr. M. Perl, Houston, Texas.

I claim covering meat with a flexible material, when said covering is saturated with a compound prepared substantially as herein set forth.

82,872.—HARVESTER RAKE.—D. J. Powers, Madison, Wis. Antedated September 28, 1868.

I claim, 1st, The combination of a hinged, pivoted, or yielding platform, located in the rear of the cutter bar, with a gaveler or rake, operating substantially in the manner for the purpose described.

2d, The combination of lever, a, cam, p, and sweep lever, g, operating substantially as specified.

3d, The combination of the lever, a, yielding platform, B, and spring, c, so arranged that the driver, while in his seat, may adjust the spring and regulate the size of the gaveler, substantially in the manner and for the purpose set forth.

4th, The combination of gaveler, D, with swinging apron, G, when said apron and gaveler are arranged to be operated by means of cord, y, and sweep lever, g, all being arranged and operated in the manner and for the purpose set forth.

82,873.—MEDICAL COMPOUND.—John Ramsburgh, Sr., New Madrid, Mo.

I claim the improved medicine, prepared of the materials and substances as set forth.

82,874.—STEAM ENGINE GOVERNOR.—John H. Randall and Charles E. Randall, Boston, Mass.

We claim, 1st, The combination of the double acting force pump, with the pipe, b'', cylinder, i, and with the throttle valve, m, and waste pipe, n, as herein specified.

2d, The arrangement of the cock, p, with the waste pipe, h, cylinder, i, pipe, h'', and double acting force pump, substantially as herein set forth.

82,875.—CORN PLANTER.—Simon B. Reeder, Meacham, Ill.

I claim a corn planter, when the same is provided with a roller, C, having in it two or more dropping boxes, a, with springs, b, attached, which springs are operated upon by a cam catch, c, substantially as described and for the purpose specified.

82,876.—MACHINE FOR WORKING IRON.—Jacob Reese, Pittsburg Pa. Antedated October 2, 1868.

I claim, 1st, The combination of a pair of reciprocating and compressing die blocks (or jaws) with one or a pair of non reciprocating compressing die blocks (or cheek plates), acting perpendicularly thereto and alternately therewith, substantially as described.

2d, An arrangement of mechanism for imparting to one or both of a pair of compressing die blocks a reciprocating movement simultaneously or alternately with a movement of approach toward or recession from each other, substantially as described.

3d, In combination with one or more compressing die blocks, a pair of reciprocating and compressing die blocks, the coacting faces of which are, in their normal condition, more widely separated from one another at the point where the metal is introduced between them than at the point where the metal is extruded from them, substantially as described.

4th, In combination with one or more compressing die blocks, a pair of reciprocating compressing die blocks, the coactmg surfaces of which, one or both, are curved substantially as described, for the purpose, in part, of permitting, and aiding to produce, a more or less retrograde or backward movement of the metal while the same is being acted on alternately with the general forward movement of the same, substantially as hereinbefore set forth.

5th, In combination with a pair of reciprocating and compressing die blocks, operating substantially in the manner described, an inclined feeding trough, for guiding and facilitating the forward movement of the bloom or paddle ball to and between said die blocks, substantially as herein described.

6th, As a whole the improved machine, consisting of the several parts, constructed and combined, substantially as and for the purpose described.

82,877.—PROCESS OF ELECTRO PLATING WITH NICKEL.—Wm. H. Remington (assignor to himself, Sarah A. T. Peabody, and George D. Allen), Boston, Mass.

I claim suspending or supporting or holding a mass of the particles of nickel within the solution so as to present an extended surface, and connecting them with the positive pole of the battery by means of platinum or other suitable conductor of electricity, not materially affected by the electric current or the solution employed, substantially as described.

Also, a positive electrode, composed of a plate of metal, carbon, or other conductor of electricity, upon which a coat of nickel of sufficient thickness shall have been deposited, substantially as set forth.

Also, the within described solution, prepared of the ingredients and in a manner substantially as described.

Also, a substance coated or plated with nickel, as herein set forth, as a new article of manufacture.

82,878.—LUBRICATOR.—David M. Reynolds, Port Deposit, Md.

I claim the employment, in combination with the oil vessel, having arranged in the bottom thereof an internal chamber or receptacle, so that the sediment or other impurities of the oil shall collect around said chamber, of a fibrous or other suitable filtering substance, together with a disk, whether perforated or not, but provided with a regulating screw, the whole being so arranged within said internal chamber that the filtering medium may be more or less compressed, thereby regulating both the supply of the oil and the density of the filtering medium, substantially as herein set forth.

82,879.—COLLAR FASTENING.—Charles H. L. Roberts and William C. Dudley, Morrison, Ill.

We claim the arrangement of the adjustable straps, D D, looped wires, j j and l l, with the collar A, provided with the pad, B, loop, g, and slotted housing, C, all constructed and used as and for the purposes set forth.

82,880.—BEEHIVE.—Geo. C. Schneider, Adrian, Mich.

I claim a beehive constructed of three or more similar interchangeable sections, DD' and D'', etc., in combination with the hollow cap, A, feed box B, opening, S, and small movable lid, h, the whole constructed and operating in the manner and for the purposes set forth and described.

82,881.—RAILROAD RAIL.—E. R. Shepard, Scranton, Pa.

I claim, 1st, A rail consisting of two sections, A B, the former having an inclined bearing below the head, adapted to the inclined edge of a rib on the lower section, and the latter having at the base an inclined bearing for the rib on the upper section, substantially as and for the purpose described.

2d, The lower section, B, with its rib, d, the upper section, A, with its slotted rib, b, inclined at the outer side, and the bolt, D, with its head bearing against the inclined side of the rib, b, the whole being constructed and arranged substantially as and for the purpose specified.

82,882.—MACHINE FOR POLISHING PAPER.—Samuel Shepherd and Ammi M. George (assignors to Samuel Shepherd and Joseph Greeley), Nashua, N. H.

We claim, 1st, The combination with any number of burnishing rolls, B operating substantially as described, of a revolving annular bed, C, supported at or near its periphery, and of open character or construction at its center, or within its interior periphery, for operation relatively to each other essentially as and for the purpose or purposes herein set forth.

2d, The combination with a circular traveling bed, C, of a reducing emery or other equivalent roll, D, having a rotary and longitudinal reciprocating action on or against and in contact with said bed, substantially as and for the purpose specified.

82,883.—BURNISHER FOR ENAMELED PAPER.—Samuel Shepherd and Ammi M. George (assignors to Samuel Shepherd and Joseph Greeley), Nashua, N. H.

We claim a polishing surface or device made of stoneware, substantially as specified.

82,884.—FRUIT JAR COVER.—John Siddons, Rochester, N.Y. Antedated Sept. 26, 1868.

I claim providing fruit jar covers, consisting of two metal disks, a b, with a corrugation, e, or its equivalent, for the purposes herein set forth.

82,885.—RAILROAD CAR HEATING APPARATUS.—Thos. Smith and John O. Reilley, Baltimore, Md.

We claim, 1st, The compressed air reservoirs and radiators, H, located in the passenger cars, in combination with a heating apparatus located outside of said cars, substantially as set forth.

2d, The combination of the air pump, A, compressed air receiver, B, and furnace, C, substantially as described.

3d, The combination of the pipe coupling, F, and conducting knuckle joint G, as and for the purpose set forth.

4th, The combination of the elastic conducting pipes, D E E', air forcing and heating apparatus, A B C, and reservoir, H, substantially as described.

5th, The construction and arrangement of the valve mechanism, I J K, in combination with the pipes, E', and reservoirs, H, for the purposes explained.

6th, The air conducting and discharging pipes, M N, in combination with the reservoirs, H, and cocks or valves, L, as and for the object specified.

82,886.—APPARATUS FOR CUTTING METALLIC BARS.—Theodore Snell and William Tucker, Philadelphia, Pa.

We claim, 1st, Locating the two cutting dies in their respective die stocks, so that a bar placed within them to be cut shall extend in the direction and occupy the position of the axis of rotation of one or both of said cutting dies, substantially in the manner described.

2d, In a rotary shears constructed as specified in the preceding clause, the dies, K L, made each in two parts, and pressed together by screws, C'', for the purpose of clamping the metal bars between them, as explained.

3d, The differential screw, H H', in combination with the levers, B' E, die stocks, B and C, and supporting frame, A substantially as described.

4th, The pawl, J, and toothed segment lever, D d, in combination with the arm, E, and the stock, C, for the purpose stated.

82,887.—CANAL BOATS AND OTHER VESSELS FOR THE TRANSPORTATION OF GRAIN.—Daniel E. Somes, Washington, D. C.

I claim, 1st, A canal boat or other vessel or vehicle having a perforated lining or casing, with spaces for the circulation of air between it and the walls of the vessel or vehicle, substantially as and for the purpose set forth.

2d, A canal boat or other vessel or vehicle with a perforated false floor, with an air space between it and the bottom of the vessel or vehicle, substantially as set forth.

3d, Heating apparatus in combination with ventilating tubes, G, perforated tubes, E, and hoods, f, substantially as set forth.

4th, Perforated lining, B, ventilating tubes, G, hoods, f, openings, c, guards c1 c2, substantially as described.

5th, A canal boat or other vessel or vehicle having a perforated casing or lining, inclosing air flues and a heating apparatus, substantially as and for the purpose set forth.

6th, The perforated lining, B, perforated tubes, E, and air ducts, F, or their equivalents, substantially as described.

7th, The perforated lining, with inclined partitions, forming flues between it and the walls or bottom of the vessel, or both, substantially as described.

8th, The heating apparatus, in combination with the perforated lining and ventilating tubes, G, as set forth.

9th, The air tube, E, in combination with the ventilating tubes, G, as set forth.

82,888.—OIL CUP.—Henry Stanley (assignor to G. & W. Todd & Co.), St. Louis, Mo.

I claim the combination of the oil cup, A, stopper, a', wooden end piece, B, slotted at b2, and capped by the metallic cap, C, having the minute perforation, c, substantially as hereinbefore set forth.

82,889.—MACHINERY FOR PRINTING YARN.—Edward J. Stephens, North Providence, R. I.

I claim the contrivance and arrangement of the color carriers, F F, as shown in the drawings, and their combination with the color rollers, E E, and the fluted or ribbed rollers, A A, so as to put different colors upon different flutes or ribs of the rollers, A A, and thus to print the yarn with different colors, with distinct intervals or spaces between.

82,890.—HARVESTER.—Lyman B. Stilson, Woodland, assignor to himself and August Leich, St. Anthony, Minn.

I claim the arrangement, in a front draft machine, of the finger bar, A, and bars, B B, the latter hinged to the axle of the machine, and connected with the bar, A, as shown and described, and constructed substantially as set forth.

82,891.—MODE OF PREPARING PLASTER CASTS.—Thomas Taylor, Washington, D. C.

I claim, 1st, The use of silicate of soda or other soluble silicate, with or without glycerin, as a varnish, for the purposes as substantially set forth and described herein.

2d, The use of alkalies, or their equivalents, when used as solvents of silicates, when used substantially as in the manner herein set forth and described.

82,892.—CHURN-DASHER.—Morgan H. Thomas, Dansville, N. Y.

I claim the cone shaped top, A, perforated with holes, a a, as described, and dasher rod, B, in combination with the cross bars, C C, when the latter are hinged to the lower part of the top, A, on one side, and fastened to the opposite side of said top A, by a clasp, all arranged, constructed, and operated in the manner and for the purpose set forth.

82,893.—STEAM GENERATOR.—C. F. Trill, Baltimore, Md.

I claim, 1st, The combination of the boiler, A, with the layer or layers of wire, a a, wound around it, as described.

2d, The arrangement, within the steam generator, A, of the chambers, E F G, with the pipes, D J K, and burners, I, substantially as described.

82,894.—TEA TRAY.—S. N. Trump, Baltimore, Md.

I claim, as a new article of manufacture, a tea tray, composed of the wooden body, A, metallic rail, B, standards, C C, and feet, D D, substantially as described.

82,895.—BOXING, BANDAGING, AND PREPARING CHEESE.—Albert M. Utley, H. N. Kimball, and William Reynolds, Watertown, N.Y

We claim, 1st, The use, in connection with covers for the top and bottom of the cheese, of a paper bandage, encircling and permanently united, during the process of curing, with the sides of the cheese, substantially in the manner and for the purposes set forth.

2d, The combination, with the paper bandage for encircling and holding the sides of the cheese, of top and bottom flaps of cotton, or other suitable fabric, applied and used in the manner specified.

82,896.—GRAIN HARVESTER.—Medders Vanderpool, Polk county, Oregon.

I claim, 1st, The arrangement of the spiral screw, A, with the right head board of the concave, 20, whereby the standing grain is conducted to said head board without being pulled from the ground, as herein shown and described.

2d, The combination of the obliquely ribbed drums, O, ribbed concaves, 20, and spiked drums, 2 2, substantially as described, for the purpose specified.

3d, So constructing and arranging the rod, D D, provided with tapering spurs, that the standing straw is forced to the rear, to deposit the threshed grain upon the bed, X, before said straw is drawn out of the machine, substantially as herein shown and described.

4th, The combination of the ribbed drums, O O, spurred wheels, 2 2, ribbed concaves, 20, and troughs, 40, substantially as described, for the purpose specified.

82,897.—COOKING STOVE.—Nicholas S. Vedder, Troy, N. Y.

I claim, 1st, The piece, F, when constructed as and for the purposes herein described.

2d, The plate, C, forming the air chamber, E, when made sliding, as herein shown and described.

82,898.—SMUT MILL.—J. C. Waggoner, St. Louis, Mo.

I claim, 1st, The feed spoon, F, arranged with two short inclined floors, f, upon which the falling grain shall strike and from which it shall be precipitated in a "shower" upon the pocket, G1, and in combination with the superposed blast tube, G, substantially as set forth.

2d, The discharging wings, H, in combination with the curved beaters, C, acting substantially as set forth.

3d, The blast tubes, G and K, and their ducts, G2 K2, the regulating slides, L and L', and the fan, E, all acting substantially as and for the purpose set forth.

82,899.—RAILWAY CAR SEAT.—F. F. Wagner, Harrisburg, Pa.

I claim, 1st, The curved body frame, K K', connected to the arc rails, x, of the support, by means of the clips, P, and with the sliding seat, by means of the clips, P, and with the sliding seat, by means of the cams, S, pins, n, and the fulcrum rods, B O n, all constructed and arranged substantially as and for the purpose specified.