

The qualifications for high and responsible positions are various as the positions themselves; and a man may possess brilliant talents, and yet lack some apparently minor but all essential endowment or acquirement without which a particular place must be forever inaccessible to him. It may be accuracy, it may be a reputation for probity, tried and tested by service in other subordinate but responsible positions, or judgment matured by experience; whatever it is it must be acquired before he can reasonably expect corresponding promotion. If a young man feels that he possesses the necessary ability for success in learned professions, yet lacks the courage to endure the self-denial which is usually to be expected at the outset of a career in any of them, he is small potatoes, and will probably go through life with the feeling that he might have made some noise in the world had not cruel destiny been so unfavorable to his youthful aspirations. So if a young man lacks courage to live within his income, and allows himself to become a slave to debt, he is small potatoes, and the chances are much against his ever being anything else. As a straw at the source of a river may change its current, so a single act at the outset of business life may direct its entire course. Only the greatest minds can reclaim a misdirected life, and secure success in spite of the lost opportunities, and accumulated difficulties resulting from it.

We do not believe that men often fail to reach their proper level; and it is fair to infer, that, when a person is found at mature years occupying a very inferior position, that there was something about him that made him small potatoes. The exceptions to this, if there are any, only prove the rule; and it may be said to be as certain as any principle in business can be, that, in any profession, good ability, close application, and patient courageous effort, during the day of small things, will ultimately be rewarded by success.

IMPROVEMENT IN WATER WHEELS.

It is rare that it falls to our lot to notice a patent so simple and so obviously useful that it can be fully described without engravings. In this case, however, we are enabled to do this, as the improvement does not relate to the general structure of water wheels, but only to the prevention of the oxidization of iron wheels, without reference to their form, and also to the reduction of the friction of the water upon the working parts of such wheels. The improvement is the invention of Mr. James P. Collins, of Troy, N. Y., and consists in enameling all portions of any water wheel exposed to the action or force of the water with some suitable material, or combination of materials, thereby giving a smooth and glazed surface, over which the water flows with greatly diminished friction, of course adding proportionally to the efficiency of the wheel. It is obvious, also, that all chemical action of the water must be entirely prevented by such a coating. The patent upon this improvement does not limit the inventor to any particular silicious substance or combination of substances, and he is at liberty to use any materials for the purpose above described that he may find upon experiment to be useful. The inventor does not intend to confine the application of this improvement to the wheels of his own manufacture, but will dispose of rights to manufacturers of water wheels throughout the United States. All applications should be made to J. P. Collins, Troy, N. Y.

The New English Ironclad.

The shipwrights at Chatham dockyard, England, commenced laying the blocks and ways for the new armor-clad turret ship *Glatton*. An exchange says, "The drawings and plans received at Chatham dockyard from the Admiralty, show the *Glatton* to be a vessel of 2700 tons burden, with a length of 245 feet, and a breadth of beam of 49 feet. It is, however, in her armor plating that she will surpass in defensive powers every ship yet constructed; it being intended to plate her with armor 12 inches in thickness along her most exposed parts, while on her turrets the *Glatton* will carry armor 14 inches in thickness, laid on a 10-inch backing of teak, with the usual inner "skin" plating. Unlike the *Monarch*—the deck of which is encumbered with a topgallant fore-castle—the single turret of the *Glatton* can be directed towards every point of the compass. Her offensive will, at the same time, be on a par with her defensive powers, it being intended to arm her with a couple of 25-ton guns—the most formidable armament yet given to a vessel of war.

What Breaks Down Young Men.

It is a commonly received notion that hard study is the unhealthy element of college life. But from tables of the mortality of Harvard University, collected by Professor Pierce from the last triennial catalogue, it is clearly demonstrated that the excess of deaths for the first ten years after graduation is found in that portion of each class inferior in scholarship. Every one who has seen the curriculum knows that where Eschylus and political economy injures one, late hours and rum punches use up a dozen; and that the two little fingers are heavier than the loins of Euclid. Dissipation is a swift and sure destroyer, and every young man who follows it is, as the early flower, exposed to untimely frost. Those who have been inveigled in the path of vice are named "Le-gion," for they are many—enough to convince every novice that he has no security that he shall escape a similar fate. A few hours of sleep each night, high living, and plenty of "smashes," make war upon every function of the human body. The brains, the heart, the lungs, the liver, the spine, the limbs, the bones, the flesh, every part and faculty, are over-taxed, worn, and weakened, by the terrific energy of passion loosed from restraint, until, like a dilapidated mansion, the "earthly house of this tabernacle" falls into ruinous decay. Fast young man, right about!

Singular Optical Effect of Certain Sounds.

A correspondent from Michigan writes, that whenever he hears sounds of a certain bell in his neighborhood, he experiences a sensation of flashes of light, or, rather, shadows, which, upon the ceasing of the sounds, give the effect of flashes of light upon the eye. The phenomena are doubtless to be referred to reflex nervous action. The sense of sight is more liable to such reflex effects than any other, often being affected by disturbances in remote organs, as, for instance, the stomach. Instances are on record where sight was so depraved by disordered digestion, that apparitions of people, distant places, etc., were seen by the patient, these symptoms entirely disappearing upon the removal of the disturbing cause.

JAPANESE PAPER.—The Japanese manufacture and use paper to as great an extent as perhaps any other nation. There are very few of their industrial operations that do not involve the use of this material. Both for ornamental and useful purposes it seems to be the *sine qua non*. Fans, lanterns, umbrellas, pocket handkerchiefs, cloaks, and windows are made of it. The paper strings and hats lately introduced into this country have been in use for centuries in Japan.

OFFICIAL REPORT OF PATENTS AND CLAIMS
Issued by the United States Patent Office.

FOR THE WEEK ENDING SEPTEMBER 1, 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.....	\$30
On granting the Extension.....	\$50
On filing a Disclaimer.....	\$10
On filing application for Design (three and a half years).....	\$10
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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.

81,572.—FLEXIBLE PIPE-JOINT COUPLING.—Squire Ainsworth, Pittsburg, Pa.

I claim, 1st, A pipe connection, consisting of a conical recess in the end of one pipe, a d. a trustum of a cone at the termination of the end of the other, said pipes being so held together, by a clamp or other means of support, as to permit the rotary movement of one or both of the said pipes without variation from the plane of said movement, all as and for the purpose heretofore described.

2d, In combination with the foregoing, the spring-hinged coupling nut constructed substantially in the manner described, for the purpose specified.

3d, The chain, G, in combination with the spring coupling, C', substantially as and for the purpose set forth.

81,573.—RAILWAY CHAIR.—Samuel T. Alexander, Pittsburg, Pa.

I claim a railroad chair, composed of a bed plate, A, and movable clamping pieces, substantially as and for the purpose set forth.

81,574.—HAND MILL.—Edwin Ainsop, New York City.

I claim the arrangement, herein described, of the vertical shaft, F, removable grinding cone, H, tapering cylinder, I, corrugated vertically on its inside bottom, J, scraper, L, cylinder, K, with discharge orifice, E, wrought-iron frame, A, screw pipe, G, shaft, C, by wheel, B, and bevel gearing, D, E, for the purpose set forth.

81,575.—MACHINE FOR MAKING BARRELS.—Saxton J. Arnold and Amos F. Clark (assignors to Saxton J. Arnold), Raymondville, N. Y.

We claim the adjustable flanged cone-shaped hubs, C, when provided with twisting pins, F, and springs, F, in the flange, E, in combination with the cone-shaped nuts, G, and screw shaft, A, as herein shown and described.

81,576.—NON-CORROSIVE VALVE SEAT.—E. H. Ashcroft, Boston, Mass.

I claim, 1st, An alloy of nickel and copper, in any proportions, as set forth, for the construction of valves or valve seats for steam, &c.

2d, An alloy of iron and silver, in any desired proportions, for the construction of valves or valve seats for steam, for the purpose set forth.

3d, An alloy of aluminum, or aluminum alone, for the construction of valves or valve seats for steam, for the purpose set forth.

81,577.—MACHINE FOR COVERING CORD.—John Bachelder, Norwich Conn.

I claim, 1st, The miter gears, a' a', central shaft, C, supports, A1 A2, bobbin gears, d1, covering-cord carriers, F, guide, J, and gears, I, L, in combination, a d operating so that each strand of a strand is covered with finishing material, and the several strands thus covered, twisted; the finishing material being laid on a converse direction to the twist imparted to the respective strands, all substantially as set forth.

2d, The shaft, e, gears, a', a', shaft, C, sleeve, e', and pinions, c, d, stationary support, A1, geared spool-carrying plates, d1, support, A2, gear, D, covering-cord carriers, F, and guide, J, combined and operating substantially as and for the purpose set forth.

3d, In combination with the above, the winding-and-twisting flyer, constructed and operating as described.

81,578.—SHUTTLE FOR LOOM.—Edward Baggett, Fall River, Mass.

I claim the combination, with the spring, A, and shoulder, C, of the spindle of the secondary spring, B, noched, notched, and sliding substantially as and for the purpose described.

81,579.—MARKING WEATHER-BOARDING.—Joseph W. Bailey, New Orleans, La.

I claim the marking of weather boards in the manner herein described, during the operation of manufacturing them in the saw mill, or afterwards, during the process of dressing them in the planing machine, as and for the purpose set forth.

81,580.—WELL TUBE.—David Baker, Boston, Mass.

I claim, 1st, The double strainer, D, with intervening filtering material, arranged and operating in combination with or in continuation of a well-tube, substantially as and for the purposes set forth.

2d, The point, B, coupling, C, tube, A, and strainer, D, all constructed, arranged, and operating substantially as and for the purposes above set forth.

81,581.—WELL TUBE.—David Baker, Boston, Mass.

I claim, 1st, A conical point, F, formed with perpendicular sides, and with shoulders between the apex being formed with one or more drill edges, the sides, a, being elongated more or less, whereby the earth may be forced at right angles from said point in penetrating the ground, all substantially as shown and described.

2d, The combination of the interior perforated tube, A, and the exterior screen, H, when a chamber is forced between said tube and strainer, substantially as and for the purposes set forth.

3d, Securing the flanges and forming the carrying-holes for the guard by means of eyelets at d, substantially as described.

4th, The brackets or ledges, F, for supporting and carrying the guard at a distance from the main portions of the base, substantially as specified.

5th, The rod or ring, J, for strengthening the base and supporting the bracket or ledge without materially obstructing the light, substantially as specified.

6th, The extended guard rods, N, when such extended portion, e, is used for a hook or catch, substantially as described.

7th, The combination and arrangement of the guard, provided with hooks, e, with the brackets, F, substantially as and for the purposes specified.

8th, The spring top, E, for combination with the hooks, e, and bracket, F, for preventing the detachment of the guard, substantially as specified.

9th, The inclines or cans, b, for securing and tightening the lamp, in combination with the pins, c, substantially as specified.

81,585.—CAN TOP.—Lewis F. Betts, Chicago, Ill.

I claim, 1st, The inclines or cans, a, when hurred or turned down so as to form the cam on the edge of the metal of which the breast or permanent portion of the top is constructed, and operating substantially as specified.

2d, The handle, f, when projecting through the removable top or cover, B, so that its ends will form the lugs or pins, d, substantially as described.

3d, The permanent portion of the top or breast, A, provided with the cans or inclines, a, in combination with the removable portion or cover, B, and lugs or pins, d, substantially as and for the purposes specified.

81,586.—CHURN Dasher.—A. T. Bleyley, Conception, Mo.

I claim, as a new article of manufacture, the churn dasher, consisting of the inverted funnel shaped tube, A, B, dish-shaped perforated flange, C, and radial wings, D, all constructed and arranged to operate as herein shown and described, for the purpose specified.

81,587.—DECOLORIZING TANNIN LIQUID.—George Bossiere, Paris, France.

I claim, 1st, The use of the herein named substance, for decolorizing tannin liquors, substantially in the manner described.

2d, The method of decolorizing tannin liquors, by mixing with it the ingredients herein named, or either of them, in the proportions substantially as specified.

81,588.—REFRIGERATOR.—Edwin D. Brainard, Albany, N. Y.

I claim the employment of independent metallic chambers, closely sealed and secured together by clamps, in the construction of refrigerators, substantially in the manner and for the purposes above described.

81,589.—CHURN.—Victor M. R. Branch, Richmond Va.

I claim, 1st, The combination of the external dasher, B, with the internal dasher, B', when constructed as shown and described, and revolving in opposite directions as specified, and for the purpose set forth.

2d, The combination of the dasher, B, hollow spindle, D, and pinion, F, with the dasher, B', spindle, C, and pinion, G, all as and for the purpose specified.

81,590.—APPARATUS FOR CARBURETING AIR AND APPLYING THE SAME.—Arthur Brin, Paris, France.

I claim, 1st, In apparatus, such as described, the combination, with the fluid reservoir and carbureting chamber, of an interposed feeding vessel, connected with both the reservoir and the carbureting chamber, in the manner described, and communicating with the latter by means of wicking, which supplies the quantity of fluid required to charge the air in said chamber, as set forth.

2d, The combination, with the feeding vessel, and trough formed therein for receiving the liquid from the reservoir, of a series of siphons, of graduated length, and racks, and pinions, and shaft for elevating or lowering said siphons, and thus regulating the flow of the liquid to the carbureter, in the manner shown, and specified.

3d, The employment, in connection with an apparatus such as described, of blow pipe, to which a stream of air from the carbureting chamber, are supplied, substantially in the manner described and illustrated in fig. 5.

4th, The combination, with a tubular boiler, of two series of nozzles, arranged with relation to each other, and the boiler flues, as represented in fig. 6, the one series communicating with a boiler or air supply apparatus, and the other with the gas generating chamber of the carbureting apparatus, substantially as and for the purposes herein set forth.

81,591.—ORGAN PIPE.—George H. Brock, Huntington, N. Y.

I claim, 1st, Constructing an organ pipe of a curved plate, A, held between the disks, B, as set forth.

2d, The plate, D, for guiding the wind from the wind chest against the mouth of a curved organ pipe, as specified.

3d, The pendant arrest-r, d, arranged in the curved organ pipe, substantially as and for the purpose herein shown and described.

81,592.—ADVERTISING SHOW-FRAME.—William P. Brown, Watertown, N. Y.

I claim the bulletin frame, as constructed of the outer frame, A, and inner frame, d, the latter divided by sash strips, a, and provided with panes of glass, and removable backs, B, the frame, A, having moings and fastening devices, adapted to secure the sash strips, all arranged substantially as herein shown and described, for the purposes specified.

81,593.—SAFETY ATTACHMENT FOR EGG-CARRIER.—Abner H. Bryant, Wilmington, Del.

I claim the frame, with its cloth bottom arranged and constructed, as shown, as a safety attachment for the suspension egg carrier hereinbefore mentioned.

81,677.—CAR AND TRACK FOR ELEVATING ON INCLINED PLANS.—John W. Pearce, Sulist, Cal.
I claim, in combination with the double-inclined track of the described construction, a store or freight truck, having one axle shorter than the other, to adapt it to run on said track, and keep a horizontal position while passing up or down the same, substantially as described.

81,678.—WHEEL FOR ANIMAL CAGE.—George R. Peckham, Worcester, Mass.
I claim a wheel for animal traps or cages, with the bars, y, formed by cutting slots, x, in a sheet of metal, as described and for the purposes set forth.

81,679.—BOILER FEEDER.—William Crellin Pickersgill, Providence, R. I.
I claim the combination of the float, B, rod, C, lever, D, with the steam valve, F, steam cylinder, G, and cocks, H and I, substantially as and for the purposes set forth.

81,680.—QUARTZ MILL.—Roswell Plummer, Brooklyn, N. Y.
I claim the within described mill for grinding quartz, consisting of the reversible metallic disks, C and D, and E, F, constructed, arranged, and operating as and for the purpose set forth.

81,681.—PUMP.—John Poppe, Greenpoint, N. Y.
I claim the combination of the inclined arm, C, with the valve, H, wheel, B, and valve plate, L, substantially as herein shown and described and for the purpose set forth.

81,682.—IRON PIER.—William B. Porter, Plattsmouth, Nebraska.
I claim an iron pier composed of a series of tubes encompassed or enclosed by ashell filled with concrete, and all secured together in the manner substantially as herein shown and described.

81,683.—KNITTING MACHINE.—E. K. Pray, Holderness, N. H.
I claim, 1st, The ring, A, constructed with that part to which the cams are secured, detachably, substantially as and for the purposes set forth.
2d, The comb nut with the ring, A, having the detachable part, B, of the segment, C, substantially as and for the purpose described.

81,684.—EYELET.—George W. Prentice, Providence, R. I.
I claim the article of an eyelet, of the composition of material herein set forth, as a new manufacture.

81,685.—HARVESTER RAKE.—K. H. C. Preston, Manlius, N. Y., assignor to himself, Stephen Cheney, and M. B. Snook.
I claim, 1st, The combination of the crank arms, d, of the beaters, F, the spiral springs, e, revolving wheel, D, conical roller, G, and arm, g', all constructed, arranged, and operating as described for the purpose specified.
2d, The arm, g', attached to the inner end of the rake, E, in combination with the projection, h, attached to the arm, g, all arranged substantially as described for the purpose of keeping said rake down or near the platform, while traveling over the same.

81,686.—HARVESTER.—K. H. C. Preston, Manlius, N. Y., assignor to himself, Stephen Cheney, and M. B. Snook.
I claim, 1st, The joint, L, when the screw bolts, carrying the boxes, n, are provided with eyes, m, to receive the journals of the cross-head, E, upon the connecting rod, K, or as herein described, for the purpose specified.
2d, The projections, f, on the pawls, F, on the wheels, B, in connection with the beveled sliding collars, H and I, on the axle, E, all arranged to operate in combination with the ratchet, G, substantially as and for the purpose set forth.

81,687.—BOOKCASE BEDSTEAD.—Eliza Putnam, Boston, Mass.
I claim the combination, with a case and bedstead, of a removable dividing piece, E, substantially as and for the purpose described.

81,688.—WASHING MACHINE.—William Ross and James M. Jamson, Day's Store, Pa.
We claim, 1st, A washing machine, for washing clothing, composed of the tub, A, and rubber, B, and a clamp, C, for holding the clothing, operated by a handle upon the side, said clothing being held down upon the rubber, B, by a treadle, G, substantially as shown and described, and for the purposes set forth.
2d, The clamp, C, composed of two parts or jaws, connected to the arm, D, by a universal joint, substantially as shown and described, and for the purposes set forth.
3d, The arm, D, and connecting rod, F, and upright, E, and trestle, G, in combination with each other and with the clamp, C, and washing tub, A, and rubber, B, substantially as shown and described, and for the purposes set forth.

81,689.—CAR COUPLING.—Alfred Sanders, Penn Yan, N. Y.
I claim the combination of the side lugs, i, oblong openings, k k and pins, l, with the spring lever, C, and cam rod, d g h, the whole so arranged as to form a double fastening, and allow the strain to be transferred from the pin to the lever, as herein set forth.

81,690.—COUNTER AND SHANK FOR BOOTS AND SHOES.—Michael E. Savoy, Corinth, N. Y. Antedated August 29, 1868.
I claim the combination of the counter, A, and counter, B, when the latter is provided with the adjustable arms, d, for securing said counter at its forward end to the shank, c, constructed and arranged as herein shown and described, when stamped from one piece of metal.

81,691.—SOFA AND BED.—William H. Schwalbe, New York city.
I claim the combination and arrangement of screw bolts, K, back, I, arms, H, bed, A, C, D, and foot board, L, as herein represented and described.

81,692.—SHEET-METAL CAN.—Conrad Seimel, Greenpoint, N. Y., assignor to Chas. Pratt, New York city.
I claim the square or rectangular sheet-metal can, constructed as described, of the two pieces, A, A, bent to have the sides, a, at right angles to each other, and having formed at the angles the semi-cylindrical projections, b, the ends of said parts, a, being rolled to form projections, c, happing within and over each other, as herein described for the purpose specified.

81,693.—PROTECTING PLANTS, ETC.—James Shepard, Bristol, Conn.
I claim, as a new article of manufacture, a plant protector, when constructed and arranged specially as and for the purpose described.

81,694.—RATCHET DRILL.—Charles Sinclair, New York city.
I claim, 1st, The combination of the spindle, A, retaining handle, D, and operating handle, E, with the pawl, G, and ratchet wheel, F, and with the ratchet wheel or disk, C, having internal gear, with the pinion, e, toothed wheel, I, and spring bolt, J, all made and operating substantially as herein shown and described, the toothed wheel, I, having ratchet teeth formed on its inner edge, as set forth.
2d, The combination of the drill spindle, A, pinion, I, and spring bolt, J, when constructed and arranged as described, as an adjunct to the other mechanism for communicating rotary motion to the drill, substantially as described.

81,695.—HOT-AIR REGISTER ATTACHMENT.—Hector Sinclair, New York city.
I claim, 1st, An attachment for hot-air registers, provided with a hollow self-separating mechanism, substantially as and for the purpose described.
2d, The combination of the hot-air register, A, and casing, F, fan blower, D, and dustpan, E, substantially as and for the purpose described.
3d, The combination, with the hot-air register, of the casing, F, reservoir, C, and fan blower, D, substantially as and for the purpose described.
4th, In combination with a hot-air register, a fan blower, dust receptacle, and water reservoir, substantially as described, for the purpose specified.

81,696.—SELF-ACTING WAGON BRAKE.—T. Smith, California, Mo. Antedated Aug. 29, 1868.
I claim the self-acting wagon brake, composed of the block, e, pivoted to the adjustable slide, G, which is itself directly attached to the spring, E, and operated by the wheel, h, and I, and yoke, J, when the parts referred to are constructed as described, and combined and arranged in the manner and for the purposes specified.

81,697.—COMPOUND TOOL FOR CUTTING AND SHEARING BOLTS.—T. Smith, California, Mo. Aug. 21, 1868.
I claim the improved bolt cutting and shearing tool herein described.

81,698.—COMPOSITION FOR PAVEMENTS.—H. F. Snow and J. H. Davis, Dover, N. H.
We claim the combination of wood sawdust, or comminuted wood or bark, with the tarry residuum, and a mineral matter or matters and an acid, as specified.

81,699.—SLEIGH.—L. A. Spickler, Clear Spring, Md.
I claim, in a sleigh, adapted to be drawn by power applied in front, locating the point of attachment of the shafts behind the upturned part, D, upon the rive, C, or bifurcated iron, A, as herein shown and described for the purpose specified.

81,700.—GANG PLOW.—P. H. Standish, Marnez, Cal., assignor to himself and Oliver C. Coffin.
I claim, 1st, The wheel, E, lever, M, with pawl, I, and foot pawl, N, and manner of arrangement thereof.
2d, The tongue adjusting rod, J, clevis, R, plate, P, as arranged and secured to the bed or beam, B.
3d, The construction and arrangement of the bed, B, and the manner of attaching the standards thereto, in combination with the tongue adjusting rod, J, clevis, R, and plate, P, as shown and described.
4th, The crank-shaped standards, with slotted end and set screw, substantially as set forth.

81,701.—SULKY PLOW.—A. R. Stanley and H. W. Ensign, Shullsburg, Wis.
We claim, 1st, The pivoted plow beam, N, spring catch, O, and eccentric, H, arranged to operate in the manner substantially as and for the purpose set forth.
2d, The combination of the lever, G, attached to the eccentric, H, the shaft, F, pinion, E, rack, D, and spring catch, O, fitting over the end of the plow beam, N, substantially as described for the purposes specified.

81,702.—VEGETABLE FIBER AS A SUBSTITUTE FOR HAIR.—Werner Staufen, Paris, France.
I claim the manufacture, substantially as above set forth, of a species of vegetable hair from the fibrous material which grows through and proceeds from the bark situated near the foot of the palm known as the *Levistonia Chinensis*, *Roch.*, of *Lactonia Chinensis*, *Tacq.*

81,703.—VENTILATING-SASH ADJUSTER.—W. C. Stickney and J. McGee, Steubenville, Ohio.
We claim the combination of the three-armed plate, C, and sliding rod, E, with the coiled spring, G, friction block, H, and thumb, F, substantially as herein shown and described.

81,704.—WATER WHEEL.—Brush Sutherland, Chicago, Ill.
I claim, 1st, The combination of a stop-water, C, with the flange of the wheel and the gate, D, arranged to operate in the manner and for the purposes shown and described.
2d, The dome, G, provided with a vertical rim, H, and supporting arms, I, arranged in relation to the flange, F, substantially as described and for the purposes set forth.
3d, The combination of an adjustable stop water, h, with the rim, H, and the flange of the wheel, in the manner and for the purposes specified.

81,705.—OILER FOR MACHINERY.—Newton Tallman, West New Brighton, N. Y.
I claim, 1st, The perforated inner chamber, a, and spring, F, in combina-

tion with each other, and with the nozzle and bottom of an oil can, substantially as and for the purposes herein set forth.
2d, The adjusting screw, b, and nut, c, in combination with the spring, E, and cylinder or chamber, a, substantially as and for the purpose herein specified.

81,706.—HORSE HAY RAKE.—Benj. C. Taylor, Dayton, Ohio.
I claim the pieces, E, B, and their arrangement, with reference to the bars, A and B, the spring, F, and bolts, C, G, in the manner substantially as described, and for the purposes specified.

81,707.—REVERSING CUTTING MACHINE.—S. D. Tripp, Lynn, Mass. Antedated August 21, 1868.
I claim, 1st, The means employed for operating the cutter shaft, B, to wit, the bars, g, h, i, pivoted guide, L, and the pivoted bar, M, on plate, H, in connection with the cross head, G, on the journal of shaft, E, provided with the pins, e, e, all arranged to operate substantially in the manner as and for the purpose set forth.
2d, Attaching of the plate, H, to the framing, A, in such manner as to admit of the same having a reciprocating movement imparted to it, substantially as shown and described.

81,708.—SAW SET.—John Uhl, Brooklyn, N. Y.
I claim the construction and arrangement of block, A, swinging table, B, screw, G, adjustable plate, D, anvil, E, punch, d, holding device, e, spring, f, substantially as herein described and for the purpose specified.

81,709.—BLEACHING AND DYEING FEATHERS.—Adolphe Pierre Viol and Césaire Pierre Dufo, Jr., Paris, France.
We claim the within described process of treating black, gray, brown, or otherwise tawny-colored feathers, by first subjecting them to a bleaching, and afterwards to a dyeing operation, substantially as and for the purpose set forth.

81,710.—LAMP CHIMNEY CLEANER.—N. A. Vurgason, Brooklyn, N. Y.
I claim a lamp chimney cleaner, having four brushes, B, C, C, C, affixed to the bars, a, b, in combination with the staff, A, and spring band, d, of rubber or other suitable material, all substantially as and for the purpose shown and described.

81,711.—MEDICAL COMPOUND FOR TREATING HORSES, CATS, ETC.—Garrett Van Wageningen, Racine, Wis.
I claim the remedial compound, composed of the above mentioned ingredients, and prepared in the manner described.

81,712.—CAR SEAT.—F. F. Wagner, Harrisburg, Pa.
I claim, 1st, Providing the projecting lugs, i, on the axles or pins, B, by which the swinging arms, C, D, are pivoted to the seat frame for the purpose of elevating the front end of the seat, so as to have the seat inclined backward in whatever position the arms may stand, as specified.
2d, The pin, or bolt, a, for locking the swinging arms, C, D, in any desired position, when said pin is fitted into one of the tooled wheels or segments, by which the arms are connected for the purpose of having them move simultaneously, as set forth.

81,713.—PAPER RESERVOIR FOR COMPRESSED AIR.—C. W. Walley, New Orleans, La., assignor to New Orleans Pneumatic Propelling Company.
I claim the paper air tank, A, when closed at the extremities with metallic heads, B, and otherwise constructed in the manner and by the use of the means herein described for the purpose set forth.

81,714.—STOVE PIPE DRUM.—George S. Walker, Erie, Pa.
I claim the arrangement, within the drum, H, and with relation to each other, of the curved fire-plates, F, F', to direct the products of combustion in the described manner herein set forth and shown.

81,715.—HAT.—M. S. Watkins, Mansfield, Texas.
I claim, as a new article of manufacture, a hat formed with radial indentations in the crown and rim, as described, and provided with a lining, perforated opposite the said indentations, the metallic band of the lining being at the front of the hat, as and for the purposes herein set forth.

81,716.—CHURN.—Joseph Watts, Brazil, Ind.
I claim, 1st, The suspended screen, R, and hinged lid, O, in combination with the crank shaft, C, arms, J, and paddles, L, substantially as herein shown and described, and for the purpose set forth.
2d, The combination of the crank shaft, C, arms, J, and paddles, L, with each other, and with the body, A, and screen, R, of the churn, said parts being constructed and arranged substantially as herein shown and described, and for the purpose set forth.

81,717.—BELT PUNCH.—David M. Weston, Boston, Mass., assignor to Greene, Tweed & Co., Brooklyn, N. Y.
I claim the belt-punch, having its lower jaw, A, slotted at C, for the passage of the cutter, B, of the upper jaw, and provided with the gauge, D, carrying the slotted gauge, E, all operating as described, the jaws being opened by tension of the rubber spring, F, held in sockets or recesses of the handles, as herein set forth and shown.

81,718.—TUMBLER BRUSH.—Gerhart Wiesler, Chicago, Ill.
I claim the combination of the cylindrical head, B, provided with the bore, D, and the cylindrical filler or plug, C, arranged within the bore, as and for the purposes specified.

81,719.—STENCH TRAP.—F. H. Williams, Syracuse, N. Y.
I claim, 1st, A valve chamber, N, which is constructed with a tubular valve seat, B, and a pipe-connecting collar, C, substantially as and for the purposes described.
2d, The construction of valve chamber, N, of sections, A, A, one of which is internally and externally projecting collar, B, and the other an externally projecting collar, C, substantially as and for the purposes described.
3d, Valve, I, applied to the inner end of collar, B, and held up to its seat by a spring, G, which rests upon a bridge, applied to the upper end of said collar, in combination with the chamber, N, substantially as described.
4th, The inverted cup, I, applied over the upper end of valve stem, e, so as to protect the spring, G, substantially as described.

81,720.—ADJUSTABLE MEASURING RULE.—Isaac Williams, Westfield, Ind.
I claim the combination of the pivoted adjustable brace, J, slotted at, i, with the graduated part, B, and its slotted extension, G, and with the graduated part, A, a u its slotted extension, D, all constructed as described, for the purpose specified.

81,721.—PAINT COMPOUND.—Henry F. Wilson, (assignor to Jacob J. Kamm), Fort Wayne, Ind.
I claim the combination of the above specified ingredients, as and for the purpose specified.

81,722.—MACHINE FOR CARVING WOOD.—Hanson H. Adams, Newburyport, Mass.
I claim, 1st, The combination, with the vertical adjustable form, J, of the vibrator, K, and the carriage, L, and laterally sliding, or adjustable, cutter head and its cutters, under the arrangement and for the operation as herein shown and specified.
2d, The combination, with the frame, I, laterally adjusting cutter head, and vibrating truss frames, by which the cutter head is supported, of the lever, z, and spring, o, or its equivalent, constructed and arranged to operate substantially as and for the purposes set forth.

81,723.—LIQUID SAFE.—Garret D. Anderson, Montrose, N. Y.
I claim, 1st, An oil or liquid tank, constructed without any joint at either or all of the points lettered, h i k l, in the drawing, substantially as therein specified.
2d, An oil or liquid tank, provided with a bottom composed of two inclined surfaces, and provided with a depression at about the central point, substantially as and for the purpose herein set forth.
3d, The combination, with a tank constructed in either of the above specified ways, of an enclosing case, of wood or other material, substantially as herein specified.
4th, The combination, with said tank for containing oil or other inflammable liquid, of some suitable fire proof material, substantially as and for the purposes herein specified.

81,724.—GANG PLOW.—James H. Andrews, Benicia, Cal.
I claim, 1st, Pivoting the pole, C, to the bounds, D, D, by the rod, E, and linking the rear end of the pole to the arm, G, of the shaft, F, or equivalent device for raising and lowering the plows without lifting other parts of the frame, substantially as described.
2d, The double jointed frame, I, having an apron, J, attached and arranged to operate in the manner substantially as and for the purpose set forth.
3d, The manner of connecting the plows to the frame by the clips, M, M, slots, N, N, with bolts and nuts, substantially as described.

81,725.—GRINDING MILL.—George N. Annan, Buffalo, N. Y.
I claim the combination of the blocks, e, c, pressing inward upon the journals of the bed, and the screws, f, f, and g, g, pressing inward upon the four corners of the bed, thus opposing each other, the whole arranged as described, and operating in the manner and for the purpose specified.
Also connecting the heads, D, to the ends of the case, by the locks, c, l, in addition to the ordinary screws, whereby the great strain is removed from the screws, as herein set forth.

81,726.—HAY FORK.—Charles S. Ambruster, (assignor to himself and Charles H. Richman), Woodstown, N. J.
I claim, 1st, The combination of the plate, C, hook, c, stop, m, spring, n, trigger, o, and the rope or chain, r, substantially as and for the purpose described.
2d, The combination of the tripping attachment, above described, with the arms, a, s, s, s, t, t, block, I, and connecting rods, chains, or rods, e, e', substantially as and for the purpose specified.

81,727.—PAPER CLASP.—J. C. Arms, Northampton, Mass.
I claim the paper slide, B, constructed and applied to rolls of tape, ribbon, etc., substantially as described.

81,728.—CORK EXTRACTOR.—Jacob Autenrieth, Philadelphia, Pa.
I claim the application to a cork, of an endless flat strip or loop of non-elastic material, in the manner and for the purpose herein described and represented.

81,729.—BRAKE FOR MECHINERY.—D. S. Baker, West Bloomfield, N. Y.
I claim a friction brake, constructed and operating in the manner as shown and described.

81,730.—PLOW.—John Ball, Canton, Ohio.
I claim, 1st, The double point, I, when constructed as described, and operating substantially as and for the purposes herein set forth.
2d, The corrugated beam, D, in combination with the corrugated handles, E, E, when arranged so as to be adjustable, substantially as and for the purposes herein set forth.

81,731.—CLEVIS FOR PLOW.—John Ball, Canton, Ohio.
I claim, 1st, The clevis, C, constructed as described, in combination with the adjustable loops, D, D, for the purpose of raising or lowering the front end of the clevis, substantially as herein set forth.
2d, The levers B, B, pivoted to the sides of the plow beam, A, and their lower ends pivoted to the rear ends of the clevis, C, in combination with the rod, F, and spring, G, constructed as described, and operating substantially as and for the purposes herein set forth.

81,732.—SPINDLE STEP.—Joseph B. Bancroft, Milford, Mass.
I claim the arrangement and combination of the ring or flange, D, with the

spindle, its step, and cap, the whole being substantially in manner and for the purpose or objects as specified.

81,733.—GAS BURNER.—Arthur Barbarin, New Orleans, La.
I claim, 1st, The method, herein described, of letting on the gas to the burner or shutting off therefrom, by the employment, in connection with the pipe or conduit for supplying gas to one or more burners, of a reservoir of quicksilver, glycerin, oils or other non-freezing liquid in which the end of said conduit is immersed, the pressure of the gas in said conduit being regulated in the manner specified, so that so long as the pressure does not exceed a certain limit, the gas will be retained in its conduit by the resistance of the said liquid, without the use of stop-cocks or other means ordinarily employed, but whenever the pressure is increased so as to exceed the said limit, the gas will overcome the resistance of the liquid, and pass from its conduit to the burner, as set forth.
2d, The use and application, for the purpose specified in the preceding clause, of naphtha or other hydrocarbon liquid substantially in the manner described, so that the said liquid shall not only constitute the stop-cock of the gas conduit, but shall also carburet the gas when the latter is forced through it by the presence of the gas in said conduit.
3d, The combination, with a reservoir containing quicksilver or other suitable liquid, and carrying the gas burner, of the bent end of the gas induction pipe, held within the reservoir, and arranged as described, so that the said liquid is just to a greater or less depth in the liquid in which it is immersed, the said liquid operating in connection with the pressure of gas in said pipe, to shut off and let on the gas to the burner, as set forth.
4th, The combination, with a burner to which the flow of gas is regulated by means of quicksilver, oils, or other liquids, in connection with the pressure of the gas in the gas conduit, of a gas igniting device, composed of spongy or finely divided platinum, arranged above the opening of the burner so as to be brought in contact with the gas issuing therefrom, as and for the purposes set forth.

81,734.—SELF-LIGHTING GAS BURNER.—Arthur Barbarin, New Orleans, La.
I claim a gas lighting device, consisting of spongy or finely divided platinum, combined with fine projecting platinum wire and fine projecting wire points or ends in the manner herein specified, the said device being applied to a gas burner, and arranged to operate in connection therewith, substantially as shown and set forth.

81,735.—APPARATUS FOR LIGHTING GAS.—Arthur Barbarin, New Orleans, La.
I claim, 1st, The application and use of clock work, or equivalent mechanism, in combination with the armature of an electro-magnet, to let on or shut off the gas, and control at the same time the operation of the illuminating agent, substantially as described.
2d, The combination of the rotary valves for supplying gas to the burners, and the mechanism for operating and stopping the same, with the armature of an electro magnet, under such an arrangement that the motion of the armature of the magnet shall leave the said valves free to revolve, substantially as set forth.
3d, The arrangement relatively to each other of the valves for supporting the hydrogen and illuminating gases to their respective burners, so that the hydrogen gas shall be supplied to its burners before the opening of the valve through which the illuminating gas passes, substantially as shown and described.
4th, The method of transmitting a current of electricity from a main battery to the magnets of one or more valve-operating apparatus, by means of an apparatus arranged and operating so as to effect the momentary closing of the circuit between the said battery and magnets, substantially as shown, and for the purposes described.
5th, The circuit-closing apparatus herein described, the same consisting of the combination of a revolving needle, and its actuating and stopping mechanism, with the armature of an electro-magnet, the whole being constructed and arranged so that the momentary passage of a current of electricity through the said magnet shall so move its armature as to effect the revolution of the needle, substantially as set forth.
6th, The combination with the said circuit closing needle, of a plate or disk, in and to which are secured the insulated wires of one or more apparatus for operating the valves which supply the gas to the burners, substantially as and for the purposes described.
7th, The method of closing the circuit of the local battery, by which the circuit closing apparatus is actuated, by connecting the same with the operative works of a clock or other time piece, under the arrangement herein described, so that said circuit may be closed at any desired hour.
8th, The construction and arrangement of the mechanism for closing and breaking the circuit between the operative works of a clock and the battery connected with the magnet of the circuit closing apparatus, substantially as shown and described.
9th, The combination, with the operative mechanism of a clock or other timepiece, of the gas lighting and circuit closing apparatus herein described, the whole being constructed and arranged so as to cause the simultaneous ignition of any number of gas jets at any desired hour, substantially as set forth.

81,736.—PROCESS AND MATERIAL FOR CARBURETING GASES.—John Allen Bassett, Salem, Mass.
I claim, 1st, The combination of absorbent materials having different capillary powers, for the purpose of holding hydrocarbon-liquids in suspension in carbonizing air and gases.
2d, Carbureting air or gases by the combined capillary materials described and shown.
3d, The apparatus shown and described charged with the materials specified, and used for the purpose set forth.

81,737.—SHAFT FOR VEHICLES.—Agustus Bean, Fairview, Pa.
I claim, 1st, The shaft, H, provided with a curved extension, I, sliding under the head of a cart in the guard, J, on the inner side of one of the short shafts, O, and held in position by means of a spring, K, substantially as and for the purposes herein set forth.
2d, The shaft, F, hinged to one of the short shafts, C, and connected, by means of a cross-bar, G, to the shaft, H, substantially as and for the purposes herein set forth.
3d, The combination of the shafts, F and H, when constructed and attached to a cart in the manner described, and operating substantially as and for the purposes herein set forth.

81,738.—MACHINE FOR PRESSING BRICK.—Cornelius Berrian, Clinton city, Iowa.
I claim the combination and arrangement of cap, B, shafts, N and K, pi-man, F, rods, S, S, arm, L, and travelling fulcrum, J, when constructed, arranged and operating substantially as and for the purpose herein set forth.

81,739.—TEASLING MACHINE.—Edwin Birkenshaw, Ashuelot, N. H.
I claim the spring, D, and books, C, C, for holding or attaching the gig-slats B, the teasing-zig cylinder, A, when constructed and arranged substantially as herein specified.

81,740.—FIBER AND GUM FABRIC.—Adolphus F. Boshop, John E. Alken, Norwalk, Conn., and John M. Pendleton, New York city.
We claim the within described compound of fiber and rubber cement, formed in the proper shapes, and vulcanized, as and for the purposes herein set forth.

81,741.—CAR COUPLING.—Thomas H. Bomar, Atlanta, Ga.
I claim the arrangement of the pivoted arm, D, angular elevating link, C, stop, E, inclined plane, A, and pin, B, in the drawhead, G, all constructed and used substantially as specified.

81,742.—CHARCOAL FURNACE.—C. W. Briggs, Springfield, Mass.
I claim, 1st, A charcoal furnace surrounded by the flange, F, and having a smoke flue, C', opening beneath the flange, and an air flue formed by the plate, B, prolonged as described, for the purpose of delivering the air supply at a point near the line of the diameter of the furnace, substantially as described.
2d, In combination with the plate, C, forming the smoke flue, the flanged vessel, A, having the side, G, below the flange flattened, substantially as and for the purpose set forth.

81,743.—APPARATUS FOR RENDERING LARD, TALLOW, ETC.—Amos Broadnax, Mont Clair, N. J.
I claim, 1st, Rendering fat or other oleaginous matter by putting it in a rotating or tumbling chamber, combined in or with a stationary chamber, to which the heat can be applied and regulated, substantially in the manner described.
2d, Rendering fat by putting it in a tumbling perforated chamber, out of which the fat and water are drained as fast as the melting proceeds, and in which the scrap can be dried, with a perforated tumbling chamber as confined in a chamber which can be heated to the required temperature.
3d, Combining a perforated rendering vessel which can be rotated, and which is confined in a hot chamber, over or in connection with a pan arranged to receive the fat and water set free in the process.
4th, Constructing a covered furnace with radiating flues, substantially as described, in the bottom of the rendering apparatus, substantially as set forth.
5th, Combining in a chamber to which the heat can be applied, and the temperature regulated, substantially as described, an open rendering kettle, divided by a perforated partition plate in such manner as to form an upper and a lower chamber, making the lower chamber large enough to hold all the grease or oil which can be extracted from a full charge of fat in the upper chamber, leaving the scrap, after the process is completed, on the plate above the surface of the rendered fat.
6th, Removing fat by forcing hot air out of a chamber in which the temperature can be regulated into a digester, by means of a pump, substantially as described.
7th, Rendering fat or other oleaginous matter by drawing a current of hot air into the digester, or upon the fat, out of a chamber in which the temperature can be regulated, by means of a partial or complete vacuum created in the digester through the agency of a condenser and pump, or in any of the well known methods of creating a complete or partial vacuum, substantially as described.
8th, Separating the offensive gases from the condense-water, and destroying the same by passing said condense-water, whether out of an open or surface condenser, through a heater combined or connected with the apparatus, by which the gas is driven out of the water, as it flows from the condenser, into the fire, or is otherwise disposed of, substantially in the manner described.

81,744.—RENDERING AND REFINING LARD, OILS, ETC.—Amos Broadnax, Mont Clair, N. J.
I claim, 1st, The use of steam heater in combination with a steam boiler or generator, and a rendering digester or distiller, and in which the temperature can be regulated, for the purpose of rendering fat or distilling oil by superheated steam or air, substantially as described.
2d, Rendering, refining, or distilling fat or other oleaginous matter by steam or air, superheated in a separate superheater, on its way from the boiler or generator to the digester containing the fat or oil.
3d, Superheating steam or air in a magazine or chamber, C, and carrying said steam or air into the digester or distiller by a blast or current of steam or air, substantially as described.

81,745.—BAILING PRESS.—Charles Brown, Buffalo, N. Y., and David L. Miller, Madison, N. J.
We claim, 1st, The arrangement of the covering plates, J, connected to the lower end of the revolving shaft, K, and substantially as herein specified.
2d, The arrangement of the removable side, K, of the part, B, of the press box suspended and moving upon the hinged bars, K1 K1, substantially as and for the purpose set forth.

3d, The combination and arrangement of the friction brakes, I, with the worm shaft, G, and worm wheels, F, F, and eccentric rock shaft, B, and its connections, substantially as described.

4th, The binged partition, L, arranged in the part, B, of the press box, as and for the purpose set forth.

81,746.—DOOR HOLDER.—George C. Bunsen, Belleville, Ill.
I claim the combination and arrangement of the spring door lever, H, with the case, F, for operating as a door or window holder, substantially as described.

81,747.—BEEHIVE.—Henry Burton, Richview, Ill.
I claim the hive, B, suspended within, but not in contact with, the base, A, upon legs, B1, which support above the hive, said parts being respectively constructed and arranged in relation to one another substantially as and for the purpose set forth.

81,748.—JOURNAL BOX.—Alonzo B. Caldwell (assignor to himself and Jacob Pinkerton), Syracuse, N. Y.
I claim, 1st, The knobs or hooks, h, h, or their equivalent, as a part of the bronze metal frame, B, substantially as and for the purposes described.
2d, The flanges, f, f, upon the ends of the arms, b, b, when made and applied in the manner and for the purposes described.
3d, The cast iron shell, A, which carries the heads of the knobs or hooks h, h, upon the bronze metal frame, B, in the manner and for the purpose as above described.
4th, The shoulders, s, s, upon the bronze frame, B, in combination with the knobs or hooks, h, h, and holes, a, a, in the cast iron frame, A, when used to hold more securely together and strengthen the bronze metal and cast iron box, in the manner described.

81,749.—LAMP.—James Calkins, New York city.
I claim 1st, The divided chamber, consisting of the reservoir, A, and consumption chamber, D, in combination with the duct or coil, C, and water chamber, B, arranged and operating substantially as and for the purposes set forth.
2d, The intervening air-space, G, between the chambers, A and D, as and for the purposes set forth.

81,750.—DEVICE FOR OPERATING WAGON-BRAKES.—Dennis W. Carleton, Lambertville, N. J.
I claim a slotted lever, ratchet, pawl, spring, and guard, when made and applied in the form and manner, and for the purposes herein described and set forth.

81,751.—LARD PRESSER AND SAUSAGE STUFFER.—Joseph B. Cassel, Worcester township, Pa.
I claim, 1st, The vessel, C, rendered detachable from the base, A, having a detachable spout, D, and adapted for the reception of a perforated casing, E, and of plungers, I, or C, the whole being arranged and operating substantially as and for the purpose set forth.
2d, The yoke, G, hinged to the vessel, C, and its spindle, H, and plunger, I, for operating the plunger rod, H, as described.
3d, The combination of the perforated casing, E, and a funnel-shaped ring, hinged to the casing, as and for the purpose set forth.
4th, The plunger, K, attached to the under side of the plunger, I, by a dove-tailed projection, r, or equivalent fastening, for the purpose specified.

81,752.—EVAPORATOR.—B. F. Cauffman, Millerstown, Pa.
I claim the furnace, A, provided with double dampers, c, c, and dampers, g, e, m, in combination with small side furnace, D, boiler, F, and pan, H, and the lids, K, K, the several parts being constructed, arranged, and used as and for the purposes set forth.
2d, The arrangement of the track, d, car, E, and windlass, h, with the grate of the larger furnace, A, with the side furnace, D, when operated and used as and for the purpose set forth.

81,753.—ROPE MAKING MACHINE.—Charles Clark, Dayton, Ky.
I claim the arrangement of the hollow journaled revolving frame, E, gravitating friction bars, H, H, hangers, G, eyes, L, and rollers, K, triplet, W, positively rotated delivery rollers, N, N', for the purpose set forth.

81,754.—WHIP HANGER.—Pindar F. Cooley, Pittsfield, Mass.
I claim, 1st, The notch, n, with the upper curviform-surface line, g, substantially as and for the purpose set forth and described.
2d, The rim, A, constructed circular, square, oval, or any other form, provided with the notches, n, n, as described, and the supporting rods, o, o, o, or their equivalents, and all in combination with the swivel, C, as and for the purpose set forth and described.

81,755.—COMPOUND FOR EMBALMING DEAD BODIES.—Elliott H. Crane, Burr Oak, Mich.
I claim the discovery, application, and use of an embalming and mummifying compound for the preservation of the dead, and for taxidermic purposes, as prepared, compounded, and applied, substantially in the manner specified and described.
Also, the application of this compound, in dry powder, to the mouth, throat, and other natural apertures of the subject, substantially as specified and described.

81,756.—TRAVELLING TRUNK.—Geert De Bretton, (assignor to himself and Joshua E. Vose), New Orleans, La.
I claim, 1st, The combination of part, D, with the trunk body proper, when these parts are united, constructed, and arranged so as to be convertible into a system of shelves, substantially as herein described for the purpose set forth.
2d, The above combination in combination with the extra cover, A, when the several parts are united, constructed, and arranged for conjoint operation, substantially as described for the purpose set forth.
3d, The strap, J, and metallic straps, C, when severally constructed as described, in combination with a trunk provided with a part, D, and an extra cover, A, substantially as herein described for the purpose set forth.

81,757.—AUTOMATIC CRADLE.—Sylvanus G. Delano, Grand Blanc, Mich.
I claim, 1st, The adjusting plates, C, in connection with the cradle body, A, and frame, B, substantially as herein described.
2d, The pivoted plate, E, in connection with the vibrating lever, G, when attached and operating substantially as and for the purposes set forth.
3d, The combination of the above named parts with any suitable clock movement, when arranged, constructed, and operating substantially as described, and for the purposes designated.

81,758.—WHEEL FOR CARRIAGE.—W. H. De Valin, Sacramento, Cal.
I claim, 1st, Using the rim or tire to the hub or axle by means of a series of straps or flat bars, one at each end, at the middle, where it is attached to the rim, and having its diverging ends extending thence to the hub or axle, to which they are united in the manner set forth.
2d, The combination, with the elongated hub, and the axle upon which it is mounted, of the rim or tire, and a series of wrought iron straps or flat bars, for steadying and bracing the said rim, and for holding the same to the hub, the whole being arranged in the manner set forth.

81,759.—COAL MINING APPARATUS.—George Edmund Donisthorpe, Leeds, England. Patented in England, April 28, 1868.
I claim the combination, in mining machinery, of the traveling carriage that carries the mining mechanism, with a yielding pressure wheel, which, while pressing the said carriage upon its track and preventing its rise, permits it to be moved forward without relaxing the pressure, the combination being substantially as set forth.
Also, the combination and arrangement of the said traveling carriage, that carries the mining mechanism, with an air cylinder, to apply the pressure required to hold the said carriage upon its track, substantially as above set forth.

81,760.—COAL MINING APPARATUS.—George Edmund Donisthorpe, Leeds, England. Patented in England, May 22, 1868.
I claim the combining with a carriage (capable of being moved by mechanism slowly along the face of the coal or mineral), a cutting tool, which is supported and guided that a reciprocating (to-and-fro) motion may be imparted to it by the power of the workman, substantially as herein described.

81,761.—MACHINE FOR TURNING RODS.—Frank Douglas, Norwich, Conn.
I claim, 1st, The arrangement of the inclined cross cutting knife, e, with the knives, e', e', in a tubular cutter head, when constructed and operating substantially as and for the purpose above described.
2d, The guide, f, when constructed with the openings, m, m, and the notches, n, n, and operating in connection with the lock, o, and the tubular cutter head, substantially as and for the purpose set forth.
3d, The arrangement of the grooved rollers, R, R', at the rear end of the cutter spindle, substantially as described.

81,762.—REVOLVING FURNACE FOR ROASTING ORES.—Fredrick Ernst, San Francisco, Cal.
I claim, 1st, The hearth, D, revolving between the inner and outer walls, B, C, of the furnace, with the circular rack, F, and flange, G, operating in the grooves of the rollers, H, H, substantially as described.
2d, The discharging apparatus, operating transversely across the furnace, above the rotating hearth, and consisting of the scrapers, N, N, attached to the endless chain, M, operated by the wheel, L, substantially as described.
3d, The construction of the hearth, D, with the circular flange, E, E, so as to retain the ore upon the surface of the hearth, and the screw, M, or its equivalent, to turn the ore as the hearth revolves, the whole constructed and operated substantially as described.
4th, The dampers, U, U, and sliding plate, S, arranged to be operated substantially as and for the purposes described.
5th, In revolving furnaces, carrying the ore in one direction on the hearth, while the heat, flame, and gases pass in an opposite direction, substantially as described.

81,763.—ROTARY STEAM ENGINE.—Nelson B. Fassett (assignor to himself and William Humphrey), Adrian, Mich.
I claim, 1st, The two steam backets, S, and S', in combination with their respective radial pistons, P, and P', constructed and operating in the manner substantially as set forth and described.
2d, The circular disks, J, and K, in combination with the radial wings, a, b, c, and d, shaft, T, and rings, 1 and 1', constructed in the manner set forth and described.
3d, The combination of the convex faced bar, f, and concave faced bar, f', for packing against the concave case, B, and rotary piston, R, respectively in the manner set forth and described.
4th, The combination of the slot wheel, L, with the crank arm, K, friction roller, z, and stop wheel, M, constructed in the manner set forth and described.
5th, The steam channel, m, and m' or m'', in combination with rotary piston R, and center piece, G, respectively, as set forth and described.

81,764.—VISE.—Isaac Fisher, St. Louis, Mo.
I claim the combination of the steel facings, b, b, with jaws, a, a, of a vise, and the soft metal clamps, x, x, substantially as shown and described.
Also, the combination of the rectangular facings, c, c, with the vise jaws, a, a, by means of the removable blocks, d, d, fig. 2, substantially in the manner and for the purpose herein set forth.
Also, the arrangement of the pivot connection of the triangular block, j, with the removable block, d, when the said blocks are combined with a one of the jaws, a, of my improved vise, substantially as and for the purpose herein set forth.

81,765.—POTATO DIGGER.—Elias T. Ford, Stillwater, N. Y.
I claim, 1st, The dividers, E, E, with the tubes, H, H, shafts, J, J, armed with teeth, Q, Q, Q, arch, T, draft bars, V, V, in connection with legs, r, r, braces, L, L, L, the shafts, F, F, hinged to axle, B, with tubes, G, G, the adjustment of the dividers, E, E, varying the line of draft with pole's action, B, R, the section, b, b, hinged to centers, d, d, the position of the separating teeth, Q, Q, Q, U, under the dividers, E, E, and the open space, W, between, substantially as described.
2d, The pole section, B, hinged to the legs, r, r, underneath, and in rear of the axle, B, in combination with the dividers, E, E, the legs, r, r, to be adjustable in the manner and for the purpose specified.
3d, The vine cutter, o, o, with knives, S, S, plane or sickle edge, as hinged with swivel, U, underneath the pole sections, B, R, substantially as and for the purpose specified.

81,766.—RECIPROCATING STEAM ENGINE.—Alexander Caesar, Frederick Franklin, No. 4 Princes Square, Saywater, England.
I claim my improved engine, constructed substantially as described, that is, with each cylinder open at one end only to the atmosphere, and with the cranks of the driving shaft and the connecting rods of the pistons of such engines arranged to project from the shaft in the manner herein described.

81,767.—APPARATUS FOR AMALGAMATING GOLD AND SILVER.—Willard M. Fuller, Chicago, Ill. Antedated August 28, 1868.
I claim, 1st, Discharging the tailings of an amalgamator through a conduit or outlet, the mouth of which is immersed in liquid, so that it will close such conduit against the admission of air, and at the same time afford a free and uninterrupted passage for the tailings, substantially as specified.
2d, The steam jacket, D, in combination with the kettle or vessel, C, and shell or case, B, substantially as described.
3d, The shell or case, B, when provided with pipes, E, L, and A, so that it can be operated interchangeably, either by water or by exhausting the air, substantially as specified.
4th, Placing the kettle, C, within an air tight case, B, so as to leave an annular space or flues between them, and connecting such space or flues with a discharge pipe, E, placed below, substantially as specified.

81,768.—CARRIAGE SHACKLE.—Wm. F. Gilbert, Derby, Conn.
I claim the combination of the sleeve or bearing, D, arranged between the cheek, A, and B, and secured by the bolt, E, with the head, G, of the thill iron, the whole constructed so as to be united substantially as herein set forth.

81,769.—DRILL.—Frank Glasser, Mystic Bridge, Conn.
I claim the adjustable lever, attached to the drill stock, as described, and consisting of the pivoted handle, G, screw, E, and fixed arm, D, all operating as set forth.

81,770.—FLOUR DREDGE.—E. A. Goodes (assignor to himself and E. L. Miller, and W. H. Morford), Philadelphia, Pa.
I claim the flour dredge, B, C, so constructed that its perforations may be entirely closed, or a greater or less number be uncovered, substantially as shown and described for the purpose set forth.

81,771.—FENCE-POST DRIVER.—William S. Graves, Oberlin, Ohio.
I claim segmental stay, D, and slotted rail, E, as arranged, in combination with the ways or guides, b, and frame, C, for the purpose specified.

81,772.—POTATO DIGGER AND SEPARATOR.—William Green, Holly, Mich. Antedated Aug. 28, 1868.
I claim, 1st, Simultaneously adjusting the plow, and putting the apparatus in or out of gear with its driving wheels, by means of the sliding frame, E, E, and axle, D, when operating together for that purpose, substantially as described.
2d, The conveyer, G, in combination with the shovel, E, substantially as and for the purpose set forth.
3d, The use of the two rollers, H, H', for the purpose of detaching and separating the potatoes from the vines, substantially as described.
4th, The combination of the conveyer, G, cords, I, I, and rollers, H, H', substantially as and for the purpose set forth.

81,773.—MACHINE FOR STRETCHING HAT BODIES.—W. C. Griswold, Brooklyn, N. Y.
I claim the combination of the tip-stretching mechanism, consisting of the spokes, e, and struts, m, with the brim-stretching mechanism, consisting of the inclined stationary arms, d', and the expandible or spreading arms, l, all constructed, arranged, and operating substantially as herein specified.

81,774.—MACHINE FOR POLISHING WOOD.—Stinson Haganman, Weissport, Pa.
I claim the loose sleeve, I, set screw, j, nut, k, and slide, l, in combination with the shaft, E, and treadle, M, operating substantially as described, and for the purpose specified.

81,775.—MAKING IRON.—Alexander Hamar, New York city.
I claim, 1st, The method, herein described, of introducing steam, superheated steam, or hydrogen, into the boshes of a blast furnace above the ordinary blast twyers, for the purpose set forth.
2d, The method, herein described, of introducing steam, superheated steam, or hydrogen, into the stack of a blast furnace, for the purpose set forth.
3d, The method, herein described, of producing iron suitable for conversion into steel by the use of anthracite and a hot blast, in combination with the introduction of hydrogen or superheated steam into the furnace at different elevations.
4th, The combination, substantially as set forth, with a blast furnace, of twyers arranged at different levels in the boshes and stack, for the purpose set forth.
5th, The combination, substantially as set forth, with the furnace, of the jet pipes introducing into the interior of the boshes and stack, as and for the purpose set forth.

81,776.—PLANING MACHINE.—S. M. Hamilton, Baltimore, Maryland.
I claim the vertically moving guide, H, constructed and arranged substantially in the manner and for the purpose shown and described.

81,777.—HEEL PLATE FOR BOOTS AND SHOES.—W. E. Hamilton, Jr., Providence, R. I.
I claim the improved heel plate for boots and shoes, consisting of a plate made of two parts, A and B, constructed and fitted to each other so as to accommodate heels of different sizes, in the way substantially as described.

81,778.—SUBMERGED ROTARY PUMP.—D. D. Hardy (assignor to T. H. Foulds), Cincinnati, Ohio.
I claim a pump, consisting of the case, F, with the pistons, G, inclosed therein, connected by the pipe, C, with the hydrant, B, and operated by the rod, H, all substantially as described.

81,779.—LOCKING LATCH.—J. Hardy, 2d, Andover, and B. B. Floyd, Lawrence, Mass.
We claim a latch provided with the eccentric button, F, when arranged within the space, b, as illustrated, and operated either by removable key or retained knob, j, substantially in the manner and for the purposes specified.

81,780.—GRINDING MILL.—Edward Harrison, New Haven, Conn.
I claim, 1st, The husk or runner case, A, constructed in one and the same piece, with a discharge spout, B, frame, C, connections, D, bearings, E, and F, sockets, G, H, substantially as described.
2d, Fitting hopper, N, into sockets, H, in the manner described, when said sockets are a part of one of the husks of the mill.
3d, The rock, F, pivoted to the husk, and so as to be operated by an eccentric or cam, E, on the pulley or shaft, substantially as and for the purpose specified.
4th, A double-faced stone, provided on its edge with a central flange, L, when the surfaces of the said flange bear the relative position to the face of the stone as described, so as to be set and adjusted to present either face of the stone in the same relative position to the grinding surface of the other stone, substantially as and for the purpose specified.
5th, In combination with the subject-matter of the above fourth clause, the runner plate or bed-stone husk, constructed so as to receive the stone, substantially as and for the purpose specified.

81,781.—TUBULAR AIR HEATER.—B. R. Hawley, Normal, Illinois.
I claim the diaphragm, B3, when perforated at b2, and otherwise arranged, as herein shown and described.

81,782.—MITER BOX.—W. H. Herbert, Blissfield, Mich.
I claim, 1st, The oscillating bar, R, when constructed and operating substantially as and for the purposes herein set forth.
2d, An adjustable miter box, consisting of the two quadrants, D and L, frame, C, set screws, G, M, and P, the road, J, guards, K, saw guides, N, and oscillating bar, R, when arranged and operating substantially as herein described.

81,783.—DEVICE FOR BINDING LOADS OF HAY UPON WAGONS.—J. W. Hodges, Plymouth, Ill.
I claim the combination of the two upright rack bars, B, B, the horizontal beam, C, its pawls, g, z, with the lever, D, its fulcrum, h, with the rack, A, all constructed and operating as herein set forth.

81,784.—VENTILATOR FOR HAT.—W. M. Irvine and A. H. Moses, Montgomery, Ala.
I claim, 1st, A band or ring so constructed and arranged on the inside of a hat that it may be adjusted to different-sized heads, substantially as described.
2d, The band, A, constructed in either one or more parts, and furnished with tubes, e, and a, slots, C, and tube, E, all arranged in the manner and for the purposes set forth.

81,785.—APPARATUS FOR EXTRACTING WORT AND SIMILAR LIQUIDS.—F. Jacoby, St. Louis, Mo.
I claim, 1st, The application of a partial vacuum in the sub-compartment of a mash tub, to cause the wort to accumulate more quickly, and to cause its extract to more thoroughly out of mash, substantially as set forth.
2d, The combination of the pump, E, the connecting pipe, D, with the concentrating head, C, and the drain pipes, B, and mash tub, A, substantially as and for the purpose set forth.

81,786.—WHIP HOLDER.—Albert W. Johnson, New York city.
I claim, 1st, A holder for whips, etc., composed of jaws, B, in combination with a rest, M, or their respective equivalents, connected together so as to be operated and to operate substantially in the manner described.
2d, The jaws, B, sleeves, E, F, center-shaft, G, spring, O, and rest, M, when all constructed and arranged together for operation substantially as described.

81,787.—HARNES MAKERS' CLAMP.—Jesse F. Johnson, Monrovia, Ind.
I claim, 1st, The guide plates, C, attached to the jaws, A, A', substantially as and for the purpose set forth.
2d, The holding bar, E, lever, G, H, e, and elastic strap, I, arranged substantially as and for the purpose set forth.
3d, The channeling tool, L, constructed and applied substantially as set forth.

81,788.—HARNES.—W. A. Jordan, New Orleans, La.
I claim a metallic connecting termination or tip for certain parts of harness, as herein indicated, when the same consists of the self-fastening, annular tapering socket clamp, A, and a projecting loop, B, and is otherwise constructed substantially as herein described for the purpose set forth.

81,789.—ESCAPEMENT.—W. C. Kellum, San Francisco, Cal.
I claim, 1st, The escape wheel, C, having escape teeth either on the side or

rim, and the notched impulse rollers, D and D', above and below, constructed and operating substantially as and for the purpose herein described.

2d, The detent lever, F, with the adjustable double-headed screw, c, c', or its equivalent, locking each tooth of the escape wheel twice at each revolution, either by spring or gravitation, substantially as herein described.
3d, The point, d, on the arm, G, and the point, e, on the roller, D, for unlocking, substantially as herein described.

81,790.—SEEDING MACHINE.—G. King and L. T. Shope, Frederick City, Md.
We claim the lower section of the seed spouts, P, V, to the tubes or spouts, R, M, as and for the purposes specified.

81,791.—HAY RAKE.—Watson King, Springfield, Ill.
I claim, 1st, The rotating of the axle, A, by means of the gearing, C, B and D, herein described, whether spur or beveled, as applied to hay rakes.
2d, The lever, B, C, as shown in fig. 2, as applied to hay rakes.
3d, The collar, F, in combination with the geared lever, B, and C, as herein arranged and described.
4th, The teeth, as constructed in fig. 4, in combination with the adjustable brace, L, and nut, M.
5th, The adjustable brace, L, as herein arranged and described.

81,792.—CAM FOR OPERATING SHUTTLE BOX.—C. H. Knowlton, Camden, N. J., assignor to Furbush & Gage, Philadelphia, Pa.
I claim, 1st, In a drop-box loom, the within described system of ratchet wheels and cams adapted to each other, carried by one spindle, and arranged to be operated and to operate substantially as and for the purpose herein set forth.
2d, The friction clamps, T, in combination with the cams which operate the drop boxes of looms.

81,793.—BURNING KILN.—Balthasar Kreisler, New York city.
I claim, 1st, The arrangement of passages, E, F, controlled by dampers, m, substantially as herein described, for carrying off the gases and products of combustion, through the door ways, C, of the kilns, and openings, e, f, d, controlled by dampers, g, and j, communicating with an adjoining kiln or lower flue, D, as required.
2d, The top flues, F, F, in combination with the hollow doorways, C, and connecting tubes or passages, E, essentially as herein described.
3d, The double arch, G, to the kilns, in combination with the openings or tubes, H, and chamber or passages, p, made in the side walls of the whole structure or fire-end of either kiln, and connecting with the grate or fireplace as herein set forth.
4th, The bottom flue, D, arranged below the floor of the kilns, and transversely to them, in combination with the branches running to or from each kiln, in direction of the length thereof, and connecting, by suitable openings, g, the kilns at their ends or door ways, G, with either a chimney or stack, and controlled by suitable dampers, substantially as and for the purposes specified.

81,794.—MACHINE FOR SEPARATING ORES.—S. R. Krom, New York city. Antedated Aug. 5, 1868.
I claim, 1st, Introducing the material upon the bed, I, in a thin stratum, close to the surface of the bed, substantially in the manner and for the purpose herein set forth.
2d, Traversing the material across the perforated bed, I, transversely to the length of the machine, that is to say, extending the bed, I, longitudinally of the length of the framework, A, and causing the material to traverse across its narrowest dimensions, substantially as and for the purpose herein set forth.
3d, The roller, L, arranged and operating as represented relatively to the discharge passage, J, for the purposes herein set forth.
4th, The trip wheel, C, and lever, F, G, or their respective equivalents, arranged, relatively to the bellows, D, and to the perforated bed, I, and its connections, as and for the purposes herein set forth.
5th, In combination with the perforated bed, I, and with the means for introducing and removing the material as specified, mounting the bellows, D, on a rocking shaft, S, and operating it by an adjustable vibrating motion, substantially as and for the purposes herein specified.
6th, The gates, N, and K, so arranged as to allow the separate or simultaneous changes in the thickness and velocity of the strata on the ore bed, I, substantially as and for the purposes herein set forth.
7th, In combination, the ore bed, I, with its feeding and discharging devices, the adjustable oscillating bellows, D, the trip wheel, C, and its connections, and the means, H, H', or their equivalents, for varying the rate of discharge through the passage, S, all arranged for joint operation, substantially as and for the purposes herein set forth.
8th, The within-described arrangement of the operating parts, C, F, and their connections, at the end of the main frame work, A, so that they may operate by a direct connection through the rocking shaft, S, with the bellows, D, and that the closed end of the frame, A, shall form one entire side of an enclosing case to protect the working mechanism, all as and for the purposes herein set forth.

81,795.—PLANE FOR CUTTING BLIND SLATS.—Carl Kupfer, (assignor to himself and Kund J. Fleischer), Madison, Wis.
I claim, 1st, The bit, A, when constructed with sharpened upper and lower edges, 1 and 2, leaving two lips, 3 and 4, said lips to be at right angles with the upper and lower cutting edges, substantially as and for the purposes set forth.
2d, The combination of the bit, A, as described and claimed, with the plane stock, for the use and purposes specified.

81,796.—HORSE SHOE.—Benjamin Ladd, Ottumwa, Iowa.
I claim, 1st, Making the inside face of the clip, where it joins the top face of the shoe, in a line with or even with the outer edge of said top face, substantially as described.
2d, In combination with the clips arranged as above claimed, one or more springs on the top of the shoe, substantially as described.
3d, The shoe, as above described, provided with nail holes, as a means of fastening it on, if the clips, or some of them, get broken off.

81,797.—CONSTRUCTION OF ARCHES, TUNNELS, &c.—George T. Lape, Summit N. Y.
I claim, 1st, The construction of sections or voussoirs, with horizontal dove-tailed tongues and grooves along their abutting ends, substantially as and for the purpose specified.
2d, In combination with said dove-tailed tongues and grooves, constructing said voussoirs or sections with rebates along their abutting sides, so that they will snap over each other at their joints or points of contact.
3d, The construction of sewers, aqueducts, and arches for bridges, culverts, tunnels, &c., by combining and abutting or securing to each other a series of sections or voussoirs, substantially as and for the purposes herein set forth.

81,798.—ANIMAL TRAP.—H. S. Leshner, Galesburg, Ill.
I claim, 1st, The tilting platform, g, so arranged in combination with the trigger, I, and spring, m, that when the animal presses the platform down, it is retained in position to prevent its escape.
2d, The hinged plate, k, so arranged in combination with spring, m, trigger, I, and tilting platform, g, that when the animal seeks escape over the plate, R, the tilting platform will be liberated, thus allowing it to fall to its original position.

81,799.—SULKY PLOW.—J. B. Lewis and J. E. Udall, Concord, Ill.
We claim, 1st, The flanges, G, eccentrics, I, wrist pins, J, and pins, L, when constructed, arranged, and operating substantially as herein described, and for the purposes set forth.
2d, The compound lever, M, when constructed, arranged, and operating substantially as herein described, for the purpose specified.
3d, The combination and arrangement of the above named parts with the frame, A, axle, B, bolt, H, seat, C, traction wheels, K, plow beam, D, plow, E, and quadrant, N, substantially as and for the purposes specified.

81,800.—WAGON BODIES.—Thomas E. Lewis, Pennville, Ind.
I claim a wagon body constructed and operating substantially in the manner described.

81,801.—WELL TUBE.—Lorenzo Lovejoy, Malden, Mass.
I claim the combination, with a well tube, of a series of curved or bent perforated tubes, when constructed, applied, and operating substantially as and for the purpose set forth.

81,802.—RESERVOIR FOR COOKING STOVE.—Albert Lyman, Troy, N. Y.
I claim a metallic reservoir, constructed in the manner described, in combination with sliding covers, all arranged and for the purposes substantially as set forth.

81,803.—FLOORING CLAMP.—Donald D. Mackay, Whitestone, N. Y.
I claim, 1st, The levers, A, pivoted together as at a, and furnished at their lower ends with adjustable fulcrum stops, c, having spurs, c', substantially as shown and described, for the purpose specified.
2d, The combination of the tripping lever, m, with the pusher block, B, the toggle brace, g, g', and the levers, A, substantially as and for the purpose specified.
3d, The arrangement of the pivots, e, of the pusher block, the slots, d, in the levers, A, and the springs, f, substantially as and for the purpose herein set forth.
4th, The arrangement of the ring, b, at the upper ends of the levers, A, carrying the pusher block, B, and toggle brace, g, g', substantially as and for the purpose specified.

81,804.—CHECK VALVE FOR PUMPS.—William R. Malone, Mason, Va.
I claim the valve seat for check valves provided with the conical form from A to B, and the taper prolongation provided with the opening in the side and with the stem and valve, constructed and arranged substantially as and for the purpose specified.

81,805.—HINGE.—Thomas D. McCall and Samuel Bushnell, Walton, N. Y.
We claim the clasp hinges, s, s, and n, n, with their joints, a, and the revolving cylinder, e, with its grooves, g, g, when constructed, combined, and arranged in the manner and to operate substantially as described.

81,806.—PUMP.—Theodore J. McGowan, Cincinnati, Ohio.
I claim the "vacuum" chambers, b, b', when cast or otherwise formed upon the valve chest, substantially as herein described for the purpose specified.

81,807.—CULTIVATOR.—D. McNeely and C. J. Cady, Spurgeon, Ind.
We claim, 1st, The combination of the draft beam, A, with plates, J, J, slots and set screws, s, s', and wheel, D, substantially as described.
2d, The arrangement of the beam, A, handles, B, wheel, D, plows, E, E, standards, C, C', cross beam, L, braces, K, o' o', and detachable rake, F, substantially as shown and described.

81,808.—MOTH FLY TRAP FOR BEE HIVES.—James D. Meador, Independence, Mo.
I claim the tongueed floor, B, in combination with an illuminating floor, D, all arranged and employed as herein described and set forth.
Also, the several parts, A, B, C, of the screen covered way, c, when constructed and combined as herein shown and described.

81,809.—HOT AIR FURNACE.—Martin Metcalf, Grand Rapids, Mich.
I claim, 1st, The pipes, R, or their equivalents, when arranged with a drum, D, and extending downward as described, and for the purpose specified.
2d, The combination of a case, A, provided with passages, x, and a box, B, provided with a projecting flange, f, and slots, x, with the pipe, R, and th

drum, D, when constructed and arranged substantially as and for the purpose herein set forth.
81,810.—CHURN.—John L. Middleton, Zanesville, Ohio.
I claim the churn, A, having an opening, G, constructed as described, in combination with the metallic lid, G, locking bar, H, screw, G, and handle, knob, or button, G, substantially as and for the purpose set forth.

nation with the drag bar, D, shoe, T, and the finer bar, G, substantially as and for the purpose herein specified.
Also, the spring, U, in combination with the lever, R, vibratory arm, S, sliding pinion, L, and the clutch wheels, M, or their equivalents, substantially as and for the purpose herein specified.

81,860.—PULLEY.—John A. Burnap, Albany, N. Y.
I claim, 1st, The pulley and block, having two friction rollers constructed and arranged so as to be self-guiding, in the manner as described.
2d, The combination of the pulley, A, pulley block, B, and two sets of cylindrical rollers, C C C and C' C' C', and flange, F, all constructed and used as shown described.

