also a definite amount in weight of that substance; thus, O stands not only for oxygen, which is the most common substance in nature, but it also stands for 8 parts of oxygen; H stands not only for hydrogen (water generator), but also for 1 part of hydrogen; and the formula H O, therefore, means 1 part of hydrogen combined with 8 parts of oxygen, the most common compound existing, and known as ice, water, and steam, according to the amount of heat it contains.

When two or more substances have the same initials, another letter of the name is added to the less frequent one; in the same way as we indicate the different States of our American Union, Mo. for Missouri, and Miss. for Mississippi. Osmium, one of the rare noble metals, is indicated by Os, and Mercury, after the Latin name Hydrargyrum, by Hg. Both symbols standing respectively for 100 parts of the substance.

Ag. stands for Argentum (silver), 108 parts.
Al. " " Aluminum (metal of alum), 14 parts.
As. " " Arsenium (metal of arsenic), 75 parts.
Au. " " Aurum (gold), 200 parts.
B. " " Boron (similar to coal), 11 parts.
Ba. " " Barium (similar to calcium), 68 parts.
Bi. " " Bismuth (similar to tin), 208 parts.
Br. " " Bromine (similar to chlorine), 80 parts.
C. " " Carbon (coal), 6 parts.
Ca. " " Calcium (metal of lime), 20 parts.
Cd. " " Cadmium (similar to zinc), 56 parts.
Cl. " " Chlorine (found in salt), 36 parts.
Co. " " Cobalt (a hard, rare metal), 30 parts.
Cr. " " Chromium (analogous to iron), 26 parts.
F. " " Fluorine (analogous to oxygen), 19 parts.
Fe. " " Ferrum (iron), 28 parts.
I. " " Iodine (analogous to chlorine), 127 parts.
Ir. " " Iridium (similar to platinum), 90 parts.
K. " " Kalium (potassium), 39 parts.
Li. " " Lithium (analogous to potassium), 7 parts.
Mg. " " Magnesium (metal of magnesia), 13 parts.
Mn. " " Manganese (very similar to iron), 27 parts.
Mo. " " Molybdenum (similar to lead), 18 parts.
N. " " Nitrogen (part of our atmosphere), 14 parts.
Ni. " " Nickel (metal), 29 parts.
Na. " " Natrium (sodium, found in salt), 23 parts.
P. " " Phosphorus (found in bones), 31 parts.
Pb. " " Plumbum lead), 104 parts.
Pd. " " Palladium (similar to platinum), 53 parts.
Pt. " " Platinum, 90 parts.
S. " " Sulphur (brimstone), 16 parts.
Sb. " " Stibium (antimony), 119 parts.
Se. " " Selenium (similar to sulphur), 40 parts.
Si. " " Silicon (found in silex, flint, etc.), 22 parts.
Su. " " Stannum (tin), 59 parts.
Sr. " " Strontium (similar to calcium), 44 parts.

The above numbers represent the quantities in weight by which the different substances will mutually combine. As, for instance, 27 parts of iron will combine with exactly 16 parts of sulphur, and the symbol Fe. S., expresses not only the compound of iron with sulphur, but also the above proportion of quantities. These numbers are called atomic weights or chemical equivalents.

Besides these forty elementary substances, there exist some thirty others, which, being very rare, are omitted here. The whole crust of our globe is made up of different combinations of these seventy elementary substances, of which, however, only fourteen or fifteen constitute the chief mass of the mineral and of the organic world. In regard to the last, the different products of the earth's crust, vegetable and animal, they are chiefly made up of only three or four of these substances, with the incidental combination of the remaining ten.

THE WEST SIDE ELEVATED RAILWAY.

On Friday last the members of the city press were invited to inspect the working of the new elevated railway on Greenwich street. As has been before noted in our columns, the section now completed, running between the Battery and Greenwich street, was built as an experiment, to test the practicability of the plan. On Thursday, the Legislative Commissioners and Governor Fenton examined the railway, and expressed their entire approval of its mode of working.

The road is about one half mile in length, is fourteen feet in the clear above street level, and is supported by cast-iron pillars placed from twenty to forty feet apart. An endless wire cable of three quarters inch diameter, carrying with it a series of small trucks every fifty yards, is put in motion by steam power below ground, midway between the extreme stations. Motion is imparted to the car on bringing a projecting lip below the car floor in contact with the swiftly moving trucks, but by means of a series of leafed elliptic springs, having india-rubber buffers between each, there is far less shock at starting than is experienced in ordinary horse-cars, being hardly perceptible. The car can be stoppod at any time by releasing the truck and applying the brake. The rails are of the ordinary pattern used on steam roads, and their wheels flanged so that no apprehension need be felt of the cars leaving the track. To make assurance doubly sure, each end of the car is provided with an extra axle and guide wheels with safety flanges. The speed attained on Friday was from ten to fifteen miles per hour. The projectors propose making the wire-cable larger, so that the rate can be considerably increased; other minor alterations and improvements, which the trials have suggested, will also be introduced.

Our city sadly needs increased traveling facilities within its limits. No more surface roads can be accommodated in our streets, and such as now exist are open to serious objections from which both the elevated and underground railways are free. Steam power can be safely applied on these, and increased speed be attained, a great consideration for those journeying morning and night from one end of the island to the other; besides, there is little liability on either road of travel being incommoded or stopped by track obstructions. The friends of the underground road are organized, and tunneling operations will soon begin, and with this section of elevated road actually in successful operation, the prospect surely brightens for a speedy improvement in city traveling accommodations.

Experiments with Dynamite.

Dynamite, the new explosive agent, manufactured by Mr. Alfred Nobel, of Hamburg, consists of porous silica, saturated with nitro glycerin to the extent of about 76 per cent, the compound forming a powder of reddish yellow color. It is, in fact, nitro glycerin, rendered safe to handle, without any diminution of its prodigious explosive force. As shown in the course of recent experiments, it is as safe as gunpowder against explosion by concussion. Nor does it, under ordinary circumstances, explode on the application of fire, but burns away quite quietly, leaving behind a whitish ash. To produce explosion by fire, the powder must be inclosed in a bore or vessel, perfectly air-tight. The portion brought in contact with the flame will simply burn, but when the gases produced by such combustion have accumulated to a certain pressure the remainder will explode. In actual practice the explosive pressure is supplied by a sort of percussion cap placed in contact with the powder, and connected with an ordinary gunpowder fuze. The force exerted by exploding dynamite is said to be about three times greater than that of gun cotton, or some twelve times greater than that of gunpowder. Whatever the exact proportion may be, the power of the new agent is unquestionably tremendous. A couple of tablespoonfuls laid quite loose on a thick beam proved sufficient, when fired, to break the timber right across, and project one of the fragments to a considerable distance. A charge of six pounds, exploded in a horizontal bore, brought down about 4000 cubic feet of whinstone rock. Four pounds, fired in a tough rock, produced results which, it is averred, could not have been obtained by any possible charge of gunpowder. In another experiment four tenths of a pound of dynamite were placed in a small bore in the center of a mass of malleable iron, measuring twelve inches by ten. The charge was not plugged in; but even without that advantage, the explosion sufficed to shiver the iron into half a dozen pieces. Still more remarkable was the force exerted in a subsequent trial. A block of wrought iron, measuring nine inches by eight, was placed vertically in the ground, and a quantity of dynamite, covered only with loose rubbish, exploded on its upper surface. The result was to convert what had been a convex surface into a concave one, the mass of iron being at the same time split in several places. A five-ounce cartridge laid on the top of a huge block of whinstone, and covered with a little clay, served, by its explosion, to shiver the block into workable pieces. In addition to the blasting experiments, trial was made of the powder as a means of signaling at sea. For this purpose it seemed highly recommendable—a one-lb. cartridge, suspended by a cord, producing a report like that of a 32-pounder cannon.

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PATENTS AND CLAIMS

Issued by the United States Patent Office,

FOR THE WEEK ENDING JUNE 30, 1868.

Reported Officially for the Scientific American.

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79,293.—MACHINE FOR CLIPPING HORSES' HAIR.—Patrick Adie, of the Strand, England.

I claim the combination of the teethed plate, A and B, screws, I and I, handle, A H, with handle or lever, L K D H, the whole constructed and operated in the manner and for the purpose above set forth and described.

79,294.—HOT AIR FURNACE.—James Albee (assignor to Moses Pond and Company), Boston, Mass.

I claim the arrangement and combination of the flue, N, with either or both the pipes, M, the fire pot, A, the drum, F, the conduit, f, the escape pipe O, or its branch pipe, h', provided with a damper as described, the case, I, being furnished with a throat or opening for the passage of the evaporating pan, P, to and from the top of the flue, N, as set forth.

Also, the arrangement and combination of the deflector, H, with the case, I, the fire pot, A, the drum, F, the series of pipes, G, and their extensions, G', arranged with the drum and the fire pot, as specified.

Also, the combination of the damper, or the partition, n, having a hole, o, as described, with the two pipes, M M, and the flue, N, arranged with the fire pot, the drum, and the case, and combined with the conduit, f, and the escape pipe, O, as set forth.

Also, the arrangement of the evaporating pan and its throat with the flue, N, and the fire pot.

79,295.—KEYBOARD FOR PIANOS, ETC.—J. S. Allen and A. P. Wilkins, Allen's Grove, Wis.

We claim a keyboard to a pianoforte or other musical instrument, to which additional keys, whether one or more series, are employed or arranged for operation upon the ordinary keys of the keyboard, substantially as and for the purpose described.

79,296.—TREADLE FOR SEWING MACHINES.—A. Q. Allis, Dayton, Ohio.

I claim the arrangement upon the frame, A, of the spring, F, on shaft b, the ratchet wheel, c, pawl, d, and gear wheels, e g e1 g1 e2 g2, driving shaft, B, pulley, E, fly wheel, D, friction pulley, h', brake, b, rod, k, spring, m, treadle, n, and rack, p, as herein described, for the purpose specified.

79,297.—SPINNING MACHINERY.—Robert Atherton and Geo. Singleton, Paterson, N. J. Antedated June 19, 1868.

We claim in silk spinning machinery the combination of the stationary pin B, stationary thimble cap, K, and thread guide traveler, W, with the movable tube, E, and bobbin, H, constructed and arranged substantially in the manner described and for the purpose set forth.

79,298.—MANUFACTURING GLASS WARE WITH HANDLES.—J. S. Atterbury and T. B. Atterbury, Pittsburg, Pa.

We claim a glass lamp, or other article in glass, having a molded or cast handle and a blown body, produced substantially as described.

79,299.—WHIP.—Dexter Avery, Westfield, Mass.

I claim as a new article of manufacture, a whip having its covering woven with a weft and warp, as herein described for the purpose specified.

79,300.—HARVESTER.—Darius Babcock, Warsaw, Ill.

1 claim 1st, The dome-shaped frame, A', in combination with the dome, A, and in combination with any mowing and reaping machinery, substantially as shown and described and for the purposes set forth.

2d, The annular frame, P, in combination with the frame, A', and the axle, M, substantially as shown and described, and for the purposes set forth.

3d, The combination of the axle, M, gear wheel D pinion, C, shaft, B, crown wheel, a, pinion, E, and shaft, H, with the frame, P, all constructed arranged, and operating substantially as and for the purposes set forth.

4th, The frame, f, in combination with the lever, L', and chain, and arm, i, substantially as shown and described and for the purposes set forth.

5th, The hook, g, in combination with the arm, i, and any flexible bar, R, substantially as shown and described, and for the purposes set forth.

79,301.—BROADCAST SOWER.—Alfred B. Beaumont, Grand Rapids, Mich.

I claim, 1st, The adjustable disks, k" k"', for regulating the discharge of the grain, substantially as and for the purpose shown and described.

2d, The stop, s"', in combination with the disk, k"', substantially as and for the purpose shown and described.

3d, Arm, m'', substantially as and for the punoses shown and described.

4th, Arm, m"', substantially as and for the purposes shown and described.

5th, The slot, v, on the arm, m"', substantially as and for the purposes shown and described.

6th, The spring, v', on the arm, m"', substantially as and for the purposes shown and described.

7th, Operating the disk, k", by means of a rod, M, spring, S', lever, P, and hook, r, or other equivalent devices, substantially as and for the purposes shown and described.

8th, The guiding cone, K, substantially as and for the purposes hereinbefore shown and described.

9th, The arms, m and n, of the cone and hopper, substantially as and for the purposes shown and described.

10 h, Constructing a scattering wheel, i, with a central opening, k, and channels, o, whereby the grain can pass into a portion of its said channels, substantially as and for the purposes specified and shown.

11th, The cylindrical slides p, of the disk, k", for the purpose of retaining the latter in the throat of the hopper, whereby the said disk is permitted to partially rotate, substantially as and for the purposes hereinbefore described.

12th, The bevel wheel, F, on the axle, x, and connected with an independent ratchet disk, f, substantially as and for the purposes hereinbefore shown and described.

13th, The hollow pulley, H, with its bevel wheel, G, within it, in combination with a grain sowing machine, substantially as and for the purpose shown and described.

14th, The coupling devices, f''' b', in combination with a grain-growing machine, substantially as and for the objects shown and described.

15th, The disk, k', attached to the cone, K, and provided with openings for dropping the grain or plaster, substantially as and for the purpose shown and described.

79,302.—BED SPRING.—Henry Beyrodt, Louisville, Ky.

I claim the combination and arrangement of the outer cylinder, No 3, the spiral spring and its covering, No, 4, and the presser, No, 6, constructed and operated in the manner as shown and described and for the purposes set forth.

79,303.—GILDING AND ORNAMENTING GLASS SIGNS.—J. B. Blair, Philadelphia, Pa.

I claim the production of duplicates in plain or ornamental gilding or painting, substantially as and for the purposes set forth.

79,304.—CULTIVATOR.—A. R. Blood, A. Hathaway, and V. R. Beach, Independence, Iowa.

We claim, The levers, J J, strips, a a, bar, L, and pivoted frame, I, when all are arranged and operating substantially in the manner and for the purpose set forth.

2d, The set screw, H, seed slide, b', levers, J J, strips, a a, bar, L H, pivoted frame, I, all combined and arranged as and for the purpose described.

79,305.—CRUTCH.—A. E. Bowen, Baltimore, Md.

I claim, 1st, An adjustable crutch, constructed in the manner and for the purpose herein set forth.

2d, The combination of the legs, A A and B B, the thumb-screws, i i, the elastic top or arm-rest, and the elastic bottom of the crutch.

79,306.—WRENCH.—Wm. Bradshaw and Charles Lyon, Delphi, Ind.

We claim the open-backed jaw, E, in combination with the links, b, and shanks, C, substantially as described for the purpose specified.

79,307.—NAIL EXTRACTOR.—J. D. Breathitt, Cooper county, Mo.

I claim the fulcrum, B, of the nail extractor, A, when pointed at its lower end, and adapted to be adjusted longitudinally of the extractor, A, to increase or decrease the leverage of the latter, as herein described for the purpose specified.

79,308.—DOOR BELL.—Asa T. Brooks, New Britain, Conn.

I claim, 1st, An oscillating arm, k', and vibratory cam, u, secured and oscillating both upon the same stud pin, n, in combination with the arms, d k, substantially as described.

2d, In combination with the above, the anglelever, v, oscillating upon the pin, v,' all arranged and operating substantially as and for the purpose described.

79,309.—RAILROAD RAIL.—R. M. Brooks, Griffin, Ga.

I claim the combination of the railroad rails, A and B, provided with corrugated flanges, a a and b b, and fitting together, substantially as and for the purpose set forth.

79,310.—WASH BOILER.—Stephen Buynitzky, St. Petersburg, Russia.

I claim a loose plate, C, provided with the guides, E, or their equivalents, substantially as described, to be placed on the top of the clothes in the wash boiler, for the purposes set forth.

79,311.—WAGON BODY.—Matthew M. Carr (assignor to himself and Thomas S. Carr), Ringwood, Ill.

I claim the combination of the hinged sections of the bottom, C D E, the bars, F, pivoted as described at H, the springs, J, latches, I, levers, K, cordsor chains, G and N, and levers, L and M, all arranged and operating in the manner set forth.

79,312.—STOVE GRATE.—Gardner Chilson, Boston, Mass.

I claim the square or rectangular grate, as arched or curved both longitudinally and laterally, and having its side bars trussed or made deeper at their middles than at their ends, as represented.

Also, the combination and arrangement of the elbow of the grate arm, with such arm and the grate, constructed and disposed relatively to each other, substantially as specified.

79,313.—APPARATUS AND PROCESS FOR MAKING STEEL.—T. J. Chubb, Williamsburg, N. Y. Antedated Dec. 30, 1867

I claim, 1st, The construction of a series of deoxidizing and carbonizing retorts or chambers, A A A, arranged so as to prevent the gases from the heat-producing fuel from coming in contact with the ore or the materials in the retort, in combination with a melting chamber for the purposes set forth.

2d, The arrangement of the melting chamber, B B', with openings and doors at both ends, in such a manner as to facilitate the manipulation of the ore or metal, under treatment from both ends, substantially as described.

3d, Making provision for feeding loose ore and metallic and other substances in at one end of the melting chamber or furnace, B', and tapping the molten metal at the other end, substantially as described.

4th, Making provision for conducting heated air and gases over the ore or molten metal, said air and gases entering at one side or end of the said melting chamber or furnace, and passing out at the sides or other end therefor, for the purpose of reducing said ore, metal, or metallic substances therein into a liquid or molten mass, substantially as described.

5th, Making provision for shielding the ore, metal, and other substances from the direct action of the gases of the fuel, by arches T.

6th, Making provision for shielding and protecting the molten metal in a melting chamber from the direct action of the air, flame, and gases of the fuel, by floating shields, or an equivalent refractory substance or substances floating on the top of the metal, as described.

7th, Making provision for skimming off the surface of molten metal by floating scrapers, or their equivalents, substantially as described.

8th, Effecting a separation of the cinder or upper layer of substances floating on molten metal by the means herein specified and described.

9th, The construction of a vessel or melting chamber of a furnace, so arranged that it may be heated solely from above, by which means the metal therein becomes fully melted into a liquid state previous to skimming, tapping, and drawing off the same, substantially as herein described.

10th, Making provisions for and effecting the melting of metals by heat applied solely from above the metal, when said heat is derived from a gas regenerative apparatus or furnace.

11th, The arrangement of a furnace or of a vessel or vessels in a furnace for melting metals therein, in combination with and heated by the flame produced by the mingling together of the air and gas rising from and having passed through an air heating and gas heating or reheating furnace, chamber, or apparatus, in separate currents.

12th, Providing for keeping the under side of the melting chamber, or chambers in which the melting chamber or vessel is placed, cool, or from melting or leaking, by the arrangement of a cold air chamber or space below the same, C.

13th, The employment of slats or arch pieces, T T, for the purposes set forth.

14th, The employment of scrapers or skimmers, S S, or their equivalent, for the purpose set forth.

15th, The employment of floating fire shields and heat conductors, S S, or their equivalents, for the purpose set forth.

16th, Constructing slabs, arches, and shields with an uneven or irregular surface on one or both sides thereof, for the purpose set forth.

17th, The method or process of refining metals, and separating the dross and other extraneous matter from the surface of melted metal by mechanical power and appliances, or of inserting of refractive or infusible colder substances than the dross and scum, cooling and congealing them that they may be skimmed or removed from off the surface of the molten metal, substantially as set forth.

18th, Making provisions in the construction of a melting chamber of a furnace for reducing iron into such a liquid state by igneous fusion that highly carbonized iron ore, or pig iron, cast or steel, and natured iron ore, or wrought iron, may fuse and mix with each other, and the impurities and surplus carbon, silicon, and other matter that is not essential to the production of good cast steel, may be flooded and removed from the surface of the molted steel, refining and running the same into vessels or molds, substantially as described.

19th, Obtaining cast steel, or products of any degree of malleability or ductility, by melting together in a vessel or chamber in a furnace, combinations of pig iron and wrought iron, or of natured or partly natured iron and cast iron, and fusing, mixing, refining, and running the same into molds, substantially as described.

20th, The production of cast steel by mixing together, in a fixed or stationary melting vessel, chamber, or furnace, cast iron and iron ore, when such iron has been previously reduced, or natured, or partly natured, or carbonized in a separate vessel, retort, or furnace, and when mixed with manganese or titanium, or the ores or compounds thereof, and fusing, mixing, and running the same into molds.

21st, The production of cast steel by first melting the iron or metal containing the most carbon in a stationary vessel, and adding the metal or ore containing the least carbon to the molten metal, and when the whole is reduced to the proper consistency of cast steel, running the same into molds.

22d, Effecting a continuous process or reducing or melting and refining ores and metals by mechanical appliances, and at one heating, and in one furnace chamber substantially as described.

23d, Effecting a continuous process of making cast steel from iron ore by submerging it into a bath of molten cast iron or highly carbonized iron, whereby the whole will be liquified and brought to the consistency of cast steel and refined and run into molds.

79,314.—MAKING STEEL DIRECT FROM THE ORE.—Thomas J. Chubb, Williamsburg, N. Y. Antedated Jan. 15, 1868.

1 claim, 1st, The arrangement and employment of fuel supporters, a a, and d d' a for the purpose set forth.

2d, The arrangement and employment of stirrers and conveyers, b b b, for the purpose set forth.

2d, The process of decomposing mineral substances by currents of heated gas or gases passing through and among finely divided particles of the same, substantially as described and herein shown and for the purpose set forth.

4th, The carbonization of iron or iron sponge, or the metallic particles therein by a current or currents of heated gas or gases, as herein described, passing through and among finely divided particles of the same, substantially as described.

5th, The steel melting chamber, C, in combination with a heat-reclaiming apparatus, or a gas-regenerative, or an air and gas heating apparatus or furnace.

6th, The process of making cast steel, in combination with a heat reclaiming and regenerative apparatus or furnace.

7th, The employment of aluminous substances, such as fire clay crucibles, as a substitute for plumbago crucibles, for making or melting steel therein, in combination with a gas generative furnace and a heat reclaiming apparatus.

8th, The employment of a stationary melting chamber, vessel or furnace in combination with the appurtenances employed in the process of decomposing or deoxidizing iron ore, and carbonizing the metallic particles thereof.

9th, The employment of a stationary melting chamber, vessel, or furnace, in combination with the process or processes of decomposing or deoxidizing iron ore, and carbonizing the metallic particles thereof.

10th, The process herein described of decomposing or deoxidizing iron ore and carbonizing the metallic particles thereof.

11th, The process herein described of making cast steel direct from the ore.

12th, The employment of coal tar, rosin, petroleum oil, or the gas or gases thereof, for the purpose set forth.

13th, The employment, in the deoxidizing chamber, in combination with carbon, of ammonia, or some ammoniacal compound, or of fusible compounds of cyanogen, or the gas or gases therefrom, to facilitate the conversion of iron ore, or iron or steel spunges, into molten or cast steel, substantially as described.

14th, The employment of the chamber, A A', in the manner described, and the appurtenances and process employed therewith, for the purpose set forth.

15th, deoxidizing and carbonizing iron ores in a chamber separate from and previous to melting the same in a cupola or a blast furnace, substantially as described.

16th, The combination of the process or processes of deoxidizing and carbonizing iron ores with the process of reducing and melting the metallic particles thereof, in a cupola or a blast furnace.

17th, The arrangement of a melting or remelting and refining chamber, as described, in combination with a cupola or a blast furnace, (figs. 3 and 4).

18th, The combination of the process of reducing iron ores, and melting the metallic particles thereof in a cupola or a blast furnace, with the process of melting or remelting and refining, substantially such as herein described.

19th, Producing refined iron or steel by the process of deoxidizing and carbonizing the ore in a separate chamber, and melting the metallic particles thereof in a cupola or a blast furnace, substantially as described and shown, (figs. 4 and 6).

20th, Producing refined iron or steel by the process of reducing the ore, and melting the metallic particles thereof in a cupola or a blast furnace, and reheating and refining the same in a melting or remelting and refining chamber, substantially such as is herein described.

21st, The arrangement or employment of an air heating and gas heating or reheating apparatus, in combination with a cupola or blast furnace, for the purpose set forth.

22d, The arrangement or employment of an air heating and a gas heating or reheating apparatus, in the process or processes of deoxidizing and carbonizing iron ore, substantially as described.

23d, The employment of the chamber, C, in the manner described, and the appurtenances and process employed therewith, for the purpose set forth.

79,315.—CAR STANDARD.—Robert Clarke, Mount Vernon, Ohio.

I claim the box, A, provided with the side supports, G G, and confined to the car by means of the stirrup, B, and the pin, E, when used in combination with the standard, D, which is provided with a slot, a, through which the pin E, passes, as and for the purpose set forth.

79,316.—IMPLEMENT FOR SHARPENING THE CALKS OF HORSE SHOES.—Henry M. Close, Chariton, Iowa.

I claim, 1st, The jaw, D, with the block, E, and the upright, F, substantially as specified.

2d, The combination of the cutter, H, block or rest, E, and set screw, G, substantially as and for the purpose described.

79,317.—COW MILKING MACHINE.—L. O. Colvin, New York city.

I claim, 1st, A pump cylinder, for actuating a cow milking apparatus, having a variable osculating movement imparted to it, substantially as and for the purposes described.

2d, The combination, with a pump having a variable oscillating movement, substantially as and for the purpose described, of the tubes, E' and E1, for supporting the milker, and communicating the various motions to the same, as herein described and for the purpose set forth.

3d, The combination of the tubes, E and E1, of the caps, d and d3, bracket d1, set saw, d4, and pin nut, when constructed and arranged substantially as and for the purpose described.

4th, The combination, with a pump piston rod, of the bent arm, c, pivoted to the end of a bent hand lever, D, and oscillating joint, a, substantially as and for the purpose described.

5th, The stall, constructed as described, in combination with the cow milking device, as herein set forth and for the purpose specified.

6th, The combination, with the oscillating cylinder, A, of the pipe, E, when jointed to the same in the manner described, as and for the purpose described.

7th, A pump cylinder for the cow milking apparatus, to which the same is connected, as described, provided with a swivel joint, d, whereby the cylinder may be susceptible of oscillation on its oxis, substantially as and for the purpose described.

79,318.—WATER CLOSET AUTOMATIC SUPPLY REGULATOR.—George Conron, New York city.

I claim the combination and arrangement, with relation to the bowl, A, and discharge bowl, B L, of the chambers, E C b, valve, G, float, D, lever, a, rod, b c, valve, d, and box, I, having the shoulder, j, and openings, e f, adapted to communicate with the supply pipes, J K, substantially as herein shown and described, for the purpose specified.

79,319.—HORSE SHOE CALK SHARPENER.—Richard Crocker, Marshalltown, Iowa

I claim the device consisting of the lever, B, provided with the cutting edge, a, the lever, D, provided with the abutment, c, and face, b, said lever, B, with cutting edge, a, lever, D, with abutment, c, and face, b, being combined, operating as described, and for the purpose set forth.

79,320.—SAD IRON HANDLE.—S. H. Cummings, Norway, Me.

I claim, as a new article of manufacture, the handle, B, formed of a single piece of wire, which is bent and coiled to form vertical columns, the horizontal central portion being left plain, for the application of the part, C, said handle being also provided with the shield, D, all as herein shown and described for the purpose set forth.

79,321.—METALLIC REED FOR MUSICAL INSTRUMENTS.—C. N. Cutter (assignor to Davis, Hill & Co.), Worcester, Mass.

I claim a metallic reed for musical instruments, in which the tongue of the reed and frame, or part to which the same is attached, are combined with an interposed rubber or other elastic packing, substantially as and for the purposes shown and set forth.

79,322.—METALIC REED FOR MUSICAL INSTRUMENTS.—C. N. Cutter (assignor to Davis, Hill, and Co.), Worcester, Mass.

I claim, 1st, The combination, with the base, a, of the tongue, B, and the main or frame part, A, of a holding staple, clasp, or loop, substantially as and for the purposes set forth.

3d, The combination, with the tongue, B, and frame or base, A, of the clasp C, having projections, b b, and shoulders, d d, substantially as and for the purposes set forth.

79,323.—COMPOUND LENSES FOR PHOTOGRAPHIC USE.—John Henry Dallmeyer, Middlesex county, England. Patented in England, September 27th, 1866.

I claim the double combination lens, composed of two positive achromatic or actinic combinations, each having the higher refracting denser material at the exterior.

2d, Also, the construction of the double combination lens, with the denser higher refracting material at the exterior, and with the posterior achromatic combination of smaller diameter than the anterior combination.

79,324.—LETTER POUCH.—P. Davis, Newport News, Va.

I claim a letter pouch, having its exterior lined or ruled off, with addresses printed or written thereon, substantially as shown and described.

79,325.—CAR REPLACER.—Rees Davis, Utica, N. Y.

I claim a railroad car replacer, constructed of wood and iron, with the frogs of different lengths, arranged and adapted to the rails, substantially as described, and for the uses and purposes mentioned.

79,326.—LUBRICATOR FOR NAIL MACHINES.—Lucius A. Dodge, Keeseville, N. Y.

I claim the stock, A, provided with the chamber, C, the wick-chambers, C' and C', passages, d d, and the set screws, a a, substantially as and for the purpose described.

79,327.—HAY LOADER.—N. B. Douglas, Cornwall, Vt.

I claim, 1st, The removable frame, G, attached to a frame, F, hung on the rear axle of the wagon, in combination with the toothed bells, o, and the discharger, Ax, all arranged to operate in the manner substantially as and for the purpose set forth.

3d, The rake head, s, hung to the frame, G, in such a manner that by freeing the springs, u, upon the head, from the stops, w, upon the frame, the rake, J, can be turned up and rendered inoperative, as herein shown and described.

79,328.—HORSE HAY FORK.—James Drinkwater, Adams, Ohio.

I claim the combination of the handle, G, latch, H, spring, I, notch, L, and trigger, K, with the hay fork, as herein described, for operating substantially as set forth.

79,329.—SKATE.—Stafford A. Du Bois, Chicago, Ill.

I claim, 1st, A skate, made in two separate and distinct parts, one to be attached to the heel of the boot, and one to the sole thereof, substantially as herein set forth.

2d, In combination with the plates, H and F, of the skate, the flanges, M and I, and the thumb screws, L, when constructed and operating substantially as described.

79,330.—RELAY MAGNET.—Charles Durant (assignor to Geo. F. Durant), Jersey City, N. J.

I claim, 1st, The application of a spring or springs, a cushion or cushions, or other elastic substance, to the electro magnetic relay machine, substantially as and for the purpose herein shown and described.

2d, The shield or protector, S, for the conducting wire, I, substantially as and for the purpose herein shown and described.

79,331.—RELAY MAGNET.—Charles Durant (assignor to Geo. F. Durant), Jersey City, N. J.

I claim, 1st, The jaws or fork in the armature or armature lever, of an electro magnetic relay machine, substantially as and for the purpose herein shown and described.

2d, The jaws or fork in the post, B, substantially as and for the purpose herein shown and described.

3d, The weight, T, applied substantially as and for the purpose herein shown and described.

79,332.—BROADCAST SEEDER AND CULTIVATOR.—George Easterly, Whitewater, Wis.

I claim, 1st, The construction of the cap, F, with an upwardly flaring throat d, with a hollow projection, d2, for receiving a packing, i, and also with a discharge passage, f1, substantially as described.

2d, The construction of the bearing, G, with discharge openings, h, and f2, through its bottom, and with a recess on one side of it, over opening, h, for receiving the circular flange, S, said bearing being applied to the cap, F and adapted to serve, in conjunction therewith, as a receptacle for the rotary distributer, J, and cylindrical cut-off, J', substantially as described.

3d, The flange, S, with segmenial projections, S' in combination with the distributer, J, and cut-off, J', arranged to operate substantially as and for the purpose described.

4th, Applying the distributer, J, and cut off, J', loosely upon its shaft, K, in combination with the cap, F, and bearing, G, substantially as described and for the purposes set forth.

5th, Constructing conical scatterers, I, for seed discharging tubes, with circular ribs or corrugations upon their surfaces, substantially as described.

6th, The combination of the driving wheel, N, pinion, K1, clutch, n n', and lever, P, with the device, K2 K3, for regulating the discharge of seed, substantially as described.

7th, The construction of the plate, E, with the lateral offset, c, serving as an end bearing for the rod, D2, for carrying drag bars, D, substantially as and for the purposes described.

8th, The adjustable clamp stops, pivoted to hoe standards, D1, when such stops are so constructed as to resist ordinary backward pressure against the hoes, and also to allow the standards to slip backward when subjected to an extraordinary pressure, substantially as described.

79,333.—PUMP FOR OIL WELLS.—Mandana D. Fenner, Rochester, N. Y.

I claim an apparatus for washing or producing an agitation in a well, consisting of a tube opening directly into the liquid of the well, and having a solid plunger, in combination with an elevating tube having a valvular piston, when the plunger and piston have an inequality of leverage, substantially as described.

79,334.—BRIDLE.—E. R. Ferry, New Haven, Conn.

I claim, 1st, The levers, f f, fitted loosely on or permanently attached to the bar, e, of the bit, and having a curb strap or chain, j, attached to their upper ends, in connection with the reins D D, passing through the outer ends of the levers, i, and passing over pulleys, c, at the upper part of the bridle, and down to the bit, all arranged to operate in the manner substantially as and for the purpose set forth.

2d, The springs, E E, and stops, k, applied to the reins, D D, in connection with the levers, f f, and pulleys, c c, on the bridle, all arranged substantially as and for the purpose specified.

3d, The application of the pulleys, c, with or without the pulleys, h, in connection with the reins, D D, arranged substantially as and for the purpose set forth.

79,335.—ENAMELED METALLIC ICE PITCHER.—Charles C. Foote (assignor to Meriden Britannia Company), West Meriden, Conn.

I claim coating the inside of metallic ice pitchers with enamel, by applying the enamel in a liquid state to the metallic inner surfaces, substantially as herein shown and described.

79,336.—HOP PICKER.—Henry Fornecrook, F. J. Shepperd, and Andrew Garton, Watertown, Wis.

We claim, 1st, The manner of adjusting the inclined of the bolt, F, by means of the movable strip, a2, in combination with the jack, g2, suspended to the frame by one screw upon each side, substantially as herein shown and described.

2d, The combination and arrangement of the picker, B, cleaner, D, bolt, F, shaker, H, and feed rollers, O O and P, in the manner and for the purpose substantially as herein set forth.

3d, In combination with the above, the elevator, M, arranged substantially as herein specified.

79,337.—COMPOSITION FOR KALSOMINING WALLS, ETC.—N.A. Frank, Chicago, Ill.

I claim a kalsomine composed of the ingredients herein named, and compounded substantially as specified.

79,338.—MACHINE FOR PRESSING HATS.—Wm. E. George, Wrentham, Mass

I claim the combination and arrangement of the socket piece, m, the head, G, the diaphragm, k, the elastic covering, l, and flanged ring, q, of the die, the said socket piece, m, and flanged ring, v, being connected substantially as described.

And for use with the steam chest, C, when combined with a mold and die, and mechanism for forcing the die into the mold for the purpose of pressing a hat, the combination, substantially as described, for fastening a mold, B, to the mold of the steam chest, the same consisting of the flange, a, the annulus F, the clamp ring, E, the screws, g, the projections, e (of the flange, a), and notches, f, of the said ring, the whole being arranged in manner and to operate substantially as described.

The combination of the presser or elastic die with the head, G, by the tenons, s, their pins and holes, the same being so arranged as to enable the said presser or die to be readily removed from the head, G, without disturbing the connection of the diaphragm and the elastic covering of the presser.

79,339.—REGISTER FOR RAILROAD CARS.—P. S. Gerhart, Philadelphia, Pa.

I claim the combination of a turnstile with pending arms, with any car or other vehicle, the whole constructed, arranged, and operating in the manner as and for the purpose above set forth and described.

79,340.—MODE OF REPAIRING BARRELS.—Edmund W. Gillman, Hunter's Point, N. Y.

I claim the hoop, B, slotted to receive the adjustable gripes, C D, and provided with lugs adapted to be drawn together by means of the screw, E, substantially as and for the purpose set forth.

79,341.—LOCOMOTIVE STEAM ENGINE.—Anton Haeupel and John Reinhardt, Philadelphia, Pa. Antedated June 13, 1868.

We claim, 1st, A valve regulating wheel or disk, M, in combination with the shaft, D, having notches, d', movable collars, P Q, key, S, and bar, T, all arranged and operating substantially as herein set forth.

2d, The combination with the movable collars, P Q, of the releasing trigger, O, lever, N, and forks, n o, with their described connections, substantially as herein set forth.

3d, The slides, L D, friction rollers, L2 L2, and vibrating levers, K K, in combination with the wheel, M, for communicating motion to the valves, substantially as described.

79,342.—APPARATUS FOR HOPPING BEER.—Wm. S. Haight, Waterford, N. Y.

I claim, 1st, Arranging a rotary stirrer, F f, in a hopping apparatus, between two perforated shelves, D and E, substantially as herein shown and described.

2d, The arrangement in a beer hopping apparatus of the discharge pipe, H, and overflow pipe, L, both arranged substantially in the manner herein shown and described, the overflow pipe entering the discharge beyond the tap, g, in the latter, as set forth.

3d, A beer hopping apparatus consisting of the box, A, air tight cover, B, perforated false bottom, D, and perforated false cover, E, of the stirrer, F f, discharge pipe, H, overflow pipe, L, and aroma, conductor, J, all made and operating substantially as herein shown and described.

4th, Making the stirrer shaft, f', removable, by suspending one end upon the pin or arbor, c, of the driving crank or pulley, substantially as herein shown and described.

5th, The application of the plug, L, or its equivalent, through the real and false bottoms of the box, A, for the purpose of facilitating the discharge of the spent hops, as set forth.

79,343.—HOSE COUPLING.—Wm. Hamilton, Chicopee, Mass.

I claim the combination of the two parts of the coupling, each having a lip, B, and rim, A, with the fastening pin, D, with spiral slot, H, and eccentric face, J, the parts being constructed and arranged together substantially as herein given.

79,344.—CULTIVATOR.—Major E. Hanover and David D. Bailey, Lamoille, Ill.

We claim, 1st, The frame, C, constructed and arranged substantially as herein shown and described, in combination with the axle, B, as and for the purpose set forth.

2d, The combination and arrangement of the pivoted oblique beams, P, connecting bars, U, levers, V, and connecting rods, W, with each other and with the frame, C, and hounds, D, substantially as herein shown and described and for the purpose set forth.

3d, The combination and arrangement of the hounds, D, frame, C, lever hooks or catches, coiled or equivalent spring, F, and operating rod, G, with each other, substantially as herein shown and described and for the purpose set forth.

4th, The combination of the angular or bent brace bars, T, with the pivoted plow beam, P, axle, B, and frame, C, substantially as herein shown and described and for the purpose set forth.

5th, The bent levers, A', pivoted at their angle points to the axle, B, in combination with the connecting rod, B', in rear of the axle, B, draft rods, C', horizontal bar, E', hounds, D, and slotted vertical arms, D', all operating as described, for the purpose specified.

79,345.—PAPER SHEARS.—Alfred Hathaway, Charlestown, Mass.

I claim, 1st, The mechanism for securing the cutting action of the blade, E, by means of wrist pins acting in slots, F and G, shaped as set forth, and located in arms attached to the lever, D, substantially as described.

2d, shear blades when one or both are denticulated upon the edge, and they are united by self-adjusting fulcra, substantially in the manner and for the purpose set forth.

3d, The combination of the stationary block, B, and lever, D, with adjustable blocks, C C', and levers, d d, the latter being so connected with the lever D, by intermediate levers and rods, that they may be operated simultaneously with the latter by a single movement, substantially as and for the purpose set forth.

4th, The combination of the lever, D, and denticulated shearing blade, E, substantially as and for the purpose set forth.

79,346.—HAMMER.—Peter C. Havely and Wm. W. Coggshall, Rensselaerville, N. Y.

We claim the implement herein described, consisting of the hammer, B, adze, E, nail holder, a, claw, F, movable jaw, G, notched socket, C, graduated handle, A, and removable screwdriver, D, all constructed and arranged to operate in the manner as herein set forth.

79,347.—CLASP HOOK.—Daniel Hayes, Cambridge, Mass.

I claim the application to iron hooks of a clasp or bar, attached to said hook as aforesaid, and a spring attached to the outside of aforesaid hook, in the manner above set forth.

79,348.—COMBINED STOVEPIPE, OVEN, AND WATER HEATER. Harvey Herrick, Dixon, Ill.

I claim, 1st, Constructing a heater, C, without an inner wall, so that the oven or boiler forming the inner wall thereof may be exposed to the direct action of the heat in the flue, substantially in the manner and for the purposes herein specified and shown.

2d, In combination with a heater constructed substantially as described, an oven, D, arranged to operate as and for the purposes set forth.

3d, In combination with a heater constructed as described, a boiler, F, constructed so as to form the inner wall of the heater, substantially as and for the purposes specified.

79,349.—CHURN AND ICE CREAM FREEZER.—Charles Higley, Port Byron, N. Y.

I claim the receptacle, F, constructed as described, with double walls and bottom, forming a water or ice chamber, H, having no communication with the interior of the receptacle, and closed at the top by means of the annular flange, I, beneath which, within the receptacle, upon one side, the curved spout, L, is suspended, as herein described, for the purpose specified.

79,350.—DRESS PROTECTOR.—Theodore Himes, New Albany, Ind.

I claim the dress protector consisting of the drawers, D, leggins, E, double covering, A B, attached to the drawers, and skirt, I, all held up and suspended by straps from waistbands, f g, substantially as and for the purposes set forth.

79,351.—SHINGLE MACHINE.—Miller J. Hine, Equality, Ill.

I claim, 1st, The combination of the circular toothed wheel, F, pinion wheel, G, vertical shaft, H, ratchet wheel, P, pawl, O, arm, N, rock shaft, M, arm, L, connecting bar, K, and crank, wheel, J, with each other and with the carriage, D, and driving shaft, I, all constructed and arranged to operate substantially as herein shown and described and for the purpose set forth.

2d, The combination of the swiveled screw, B', and sliding bed plate, C', with the carriage, D, and block, A', substantially as herein shown and described and for the purpose set forth.

79,352.—MEDICAL COMPOUND.—A. J. Hobbs, Van Wirt, Ga.

I claim the medicinal compound substantially as above set forth.

79,353.—MATCH SAFE.—Alfred Hoyt, New York city.

I claim a match safe formed of the parts, A B and C, constructed, arranged and operating substantially as herein shown and described.

79,354.—FLOUR BOLT.—Jos. G. Humes, Gravios Mills, Mo.

I claim the construction and arrangement of the radial arms, b, affixed to the bosses, a, the adjustable screw bolts, B, and adjustable eye bolts, c, whereby the bolting cloth is strained radially and longitudinally, as herein described, for the purpose specified.

79,355.—LETTER BOX.—D. P. Jordan, Chicago, Ill.

I claim the letter box, C, in combination with the box, A, when constructed and operating substantially as shown and described, for the purposes set forth.

79,356.—CLEANING AND BORING DEVICE.—John B. Jordan Aurora, Wis.

I claim, 1st, An apparatus for boring and cleaning wells, consisting of the metallic cylinder, A, shaft, D, with auger lips, F, provided with flanges, F, and valves, c, constructed and arranged to operate substantially as herein described.

2d, In combination with the cylinder, A, shaft, D, with the auger lips, E, provided with flanges, F, and valves, c, the scraper, G, with its adjustable wings or curved arms, e, when constructed and arranged to operate substantially as herein described.

79,357.—BOOT-CRIMP.—F. L. Kathan and E. D. Rummer, Roscoe, Ill.

We claim the combination of the hinged crimp, A A A, block and screw, D, with the gripes, C C C, when arranged, constructed, and operating as herein described, and for the purposes as set forth, as an article of manufacture.

79,358.—MAKING SOAP.—J. L. Klein, New York city.

I claim a new and improved process for making soap, as herein described, using for that purpose the aforesaid ingredients or compositions of matter, or any other substantially the same, and which will produce the intended effect.

79,359.—MACHINE FOR DRESSING MILLSTONES.—Azel Lane, Addison, N. Y.

I claim the combination with the platform, A, provided with the rack bars, B, of the shaft, C', provided with the sliding blocks C C, and pinions, F, substantially as and for the purpose set forth.

79,360.—MACHINE FOR ROLLING LEATHER.—Wm. H. Leach (assignor to Bradford Stetson) Uxbridge, Mass.

I claim 1st, The arrangement of the lever frame e, C, provided with the projections, c, and the compound lever, C' D T, when the parts are constructed and made to operate the roller, B', as and for the purpose set forth.

2d, The flanges, d d, on the bearings, b, of the lever frame, C, as and for the purpose set forth.

79,361.—PIPE WRENCH.—R. H. Lecky, Allegheny City, Pa. Antedated June 13, 1868.

I claim a pipe wrench and cutter combined in one instrument, constructed arranged, and operating substantially as herein described, and for the purpose set forth.

79,362.—BRICK MACHINE.—W. O. Leslie, Philadelphia, Pa.

I claim 1st, The combination of the hopper having the inclined bottom, with the screw, E, located therein, with the spout F, and box, I, all constructed and arranged to operate substantially as shown and described.

2d, In combination with the box, I, the plunger, R, and shaft J, having the cam, K, and wheel, P, mounted thereon, for rotating the mold wheel continuously, and operating the plunger intermittently, substantially as herein described.

79,363.—SPIRIT LEVEL.—Homer Lewis, Bennington, Vt.

I claim 1st, Making a level-vial adjustable in its block by securing one end of the box, C, in which tha vial is held, to a spring, D, and the other end, by means of a screw, b, to a plate, E, or its equivalent substantially as herein shown and described.

2d, An adjustable pump vial F, when secured in a box, G, which is by means of screws c c connected with a plate, H, or its equivalent, all being arranged within a slot, cut through the block, A, the ends of the slot being covered by means of plates, d d, as set forth.

79,364.—MACHINE FOR FORMING EYES OF PICKAXES, ETC.—H. L. Lowman, New York city.

I claim the second set of dies and inside swage in combination with the first set of dies and inside swage, substantially as and for the purpose specified.

Also, forming the second pair of dies with that part of the cavity towards the inside swage, with an outward bevel or curve, substantially as herein described, in combination with the inside swage, the forward end of which is wedged-shaped, and with a cutting edge, substantially as and for the purpose specified.

79,365.—CURD MILL.—Jas. Macadam, Little Ealls, N. Y.

I claim the combination and arrangement of the hopper provided with a grate of straight bars beneath, and the toothed cylinder turning in said hopper, and having its teeth to pass down between said bars, substantially as described, and for the purposes set forth.

79,366.—LATHING MACHINE.—O. C. Macklett, St. Paul, Minn.

I claim 1st, The combination of the frame, A, cross head or hook pins, B, short levers, C, and verticle bars D, with each other substantially as herein shown and described, and for the purpose set forth.

2d, The combination of the adjustable sliding blocks, F, and pivoted dogs, G, with each other, and with the top bar of the frame, A, substantially as herein shown and described, and for the purpose set forth.

3d, The combination of the frame, H, and adjustable sliding gage, I, with the frame, A, substantially as herein shown and described, and for the purpose set forth.

79,367.—WASH-BOARD.—R. M. Mansur, Augusta, Me.

I claim the combination, with the washboard, B, constructed as described, of the pivoted props, I, the projections, O, and cam, H, arranged and adapted to operate as herein represented and described, and for the purpose specified.

79,368.—DEVICE FOR STOP MOTION FOR REVOLVING SHAFTS.—Eli J. Manville (assignor to Blake & Johnson) Waterbury, Conn.

I claim 1st, The key, d, sliding across the shaft to be moved, to couple or uncouple the same with the motor, substantially as set forth, in combination with a latch-stop, moved laterally, substantially as specified, to operate upon said key and stop the revolution of the shaft, as set forth.

2d, The latch-stop, g, mounted upon a hollow axis, in combination with the cam lever, n, and key, d, substantially as and for the purpose set forth.

79,369.—LAMP BURNER.—Geo. A. Mason, Chelsea, Mass.

I claim 1st, The arrangement of a chimney sustaining spring intermediately between the deflector or cone, C, and the base, A, of the lamp top, substantially as and for the purpose set forth.

2d, In a burner having an elevated deflector, the guide piece, G, and socket, D, in combination with the base plate, A, and wick-tube, B, when said guide-piece and socket are constructed as and for the purpose herein specified.

79,370.—CUTLERY.—Samuel Mason (assignor to the Beaver Falls Cutlery Company), Beaver Falls, Pa.

I claim attaching each bolster piece to the tine of knives and other articles of cutlery by means of a pin or pins on the bolster piece, upset into the countersink of a pin hole in the tine, in the manner hereinbefore described, and for the purpose set forth.

79,371.—CUTLERY.—W. C. Mason, Beaver Falls, Pa.

I claim securing the scale to knives, forks, and other articles of cutlery by bevelling and indenting the edges of the bolster pieces, and fitting the edges of the bolster pieces, and fitting the edges of the scale into such bevels and indentations, the bolsters being attached to the handles by rivets in the ordinary manner, substantially as described.

79,372.—HEDGE TRIMMER.—T C. Mathews, Yates City, Ill.

I claim 1st, The curved arm, d, to support finger bar and carry crank pinion substantially as shown, as and for the uses and purposes herein set forth.

2d, The sleeve, l, connected so as to support the finger bar, the stop, n, the mortise to admit the stop, the grooves in axles, b, and the levers, m and o, all arranged and in combination substantially as shown, as and for the uses and purposes herein set forth,

3d, The attachment straps, r r, fastened to finger bar and pivoted to arm, d near crank pinion.

4th, The arrangement of the crank connecting rods J and k, the sickles and bent finger bar, substantially as shown and described.

5th The construction of a finger bar, bent in or near the middle, at any desired angle, and carrying a short sickle bar in each end, substantially as shown.

6th, The arrangement and combination of two connecting or driving rods, J k, upon one crank, and now fully and particularly disclaiming every other part of this machine, other than those above specifically claimed.

79,373.—WHISKEY STILL.—J. G. Mattingly and B. F. Mattingly, Louisville, Ky.

We claim the water jacket, and the use of water around the boiler, in order to prevent the beer from burning or encrusting on the bottom of the boiler, when used for distilling purposes, when arranged, constructed, and operating as set forth.

79,374.—SYMPATHETIC INK.—D. C. McNeil, Osceola, Md.

I claim an ink composed of the ingredients and in about the proportions substantially as herein named and described.

79,375.—STEAM ENGINE CUT-OFF.—Jas. McPherson, Brooklyn, N. Y.

I claim 1st, The arrangement and combination, with each other, of the rotating wheels F, fitted around the tubes or loose axles, e, and of the splu

dles, j connected eccentrically with the axles, e, and also with the cut-off slides D and E, substantially as herein shown and described.

2d, The movable sleeve, I, of the governor, levers, i h, and rack, g, with the tubes or axles, e e, arranged substantially as herein shown and described whereby to vary the cut-off with the motion of the engine, as set forth,

3d, The construction and arrangement of the eccentric spindle, j, whereby to convert the rotary motion of the wheel, F, into the reciprocating motion of the cut-off, and which is adjustacle in and by the axle, e, of the wheel, F, that turns loose in the wheel, as set forth.

79,376.—TINSMITHS' STAKE.—Edmund H. Meigs, East Berlin, assignor to Roys and Wilcox Company, Hartford, Conn.

I claim, as a new improved article or manufacture, a tinsmith's stake, constructed substantially as and for the purpose described.

79,377.—REVERSIBLE ORDNANCE.—John D. Murphy, Baltimore, Md.

I claim, as a gun, having two communicating bores, B C, of different calibers, arranged as represented and described, and adapted to be mutually employed as the charge and air chamber, by removable plugs or tompions, D E, substantially as set forth.

79,378.—HORSE RAKE.—C. E. Murray, Sugar Valley, Pa.

I claim 1st The rake, provided with two sets of teeth, R E', and hung at the rear end of the axle, A, as shown in combination with the ratchet, F, pawl, G, arm, i, on shaft, J, spring, h, and the rod, N, and slotted plate, M, all arranged to operate in the manner substantially as and for the purpose set forth.

2d, The resting of the front end of the foot board, K, on spiral springs, f, which rest on the thills, L L, substantially in the manner as and for the purpose set forth.

79,379.—CAR BRAKE.—David Myers, Chicago, Ill.

I claim 1st, The combined lever and pawl, V, and pawl and pawls, g and T, in combination with the drum, H, and spring, F, when constructed and operating substantially as set forth.

2d, The shafts, D and J and tumbling rod, Q, when arranged and operating substantially as and for the purposes above described.

3d, The lever, P, and bevel wheel, I, in combination with the pawl, N, and ratchet wheel, L, when arranged and operating substantially as herein set forth and described.

4th, The bar, Z, in combination with the lever, P, provided with the pointed arm S, for the purpose of releasing the dog, T, when constructed and operated substantially as and for the purposes herein described and specified.

79,380.—CAPSTAN FOR GRUBBING MACHINE.—B. B. Newell, Centreville, Mich.

I claim the construction of a capstan, combining the frame, A, center plate, B, cross tie, C, shaft, D, sweep, E, cylinder, F, loosely sleeved upon the shaft, D, flange and groove, G, lever and clutch, H, ratchet clutch, I, ratchet teeth J, upon the top of the cylinder, F, when arranged, constructed, and operating substantially as herein described.

79,381.—TOOL REST FOR ENGINE LATHES.—Cyrus Newhall, Hinsdale N. H.

I claim 1st, The combination, substantially as set forth, of the slide plate, E, with the rocking block, F, rocking on a central hinge directly underneath and parallel with the slot in which the tool post traverses, for the purposes specified.

2d, The combination substantially as set forth of the slide plate, E, and rocking block, with the adjusting screw, J, and its pivoted sockets, i i'.

3d, The combination as set forth, of the slide plate, E, the rocking block, the bearing, e, the hinge, e', the eye bolts, and the jam nuts, whereby the wear of the joints is compensated.

4th, The combination, with the brackets, F' F', of the tapering spindles, I I', constructed arranged and operating as described.

5th, The combination of the adjusting screw, J, with the swiveling spindles, I I', wedge blocks, k, and pinch screws, k', all constructed and arranged for joint operation as described.

79,382.—FLANGING FORGE AND FURNACE FOR BOILER HEADS. Joseph Nixon, Altoona, Pa.

I claim the tubular and chambered hearth, A, in combination with air chamber, c, and water and air orifices, all constructed and arranged substantially in the manner and for the purpose set forth.

79,383.—SHEEP TABLE, ETC.—Enos Page, Streetsboro, Ohio.

I claim hinging the legs, B and E, to the table or top, A, in the manner as and for the purpose set forth.

79,384. — HORSE HAY FORK. — Samuel Page, McAllisterville, Pa.

I claim the arrangement of the cross bar, J, with the tines, F F and D, the clip, A, and the bar, B, provided with teeth, c c, constructed and used as and for the purpose herein set forth.

79,385 — FEED-WATER HEATER FOR BOILERS.—H. O. Perry, Buffalo, N. Y. Antedated June 16, 1868.

I claim the heater, C, constructed and arranged within the smoke box and chimney, substantially as shown and described.

79,386.—MACHINE FOR MIXING FLOUR, ETC.—J. B. Peterson, Brooklyn, E. D., N. Y.

I claim a mixing machine, consisting of the rotary shaft, B', on which the arms, e, and disk, g, are mounted, the arms working over a perforated stationary plate, f, or its equivalent, and the disk throwing the particles to be mixed off, substantially as described, all working in a case or box, A, in the manner specified.

79,387.—CULTIVATOR.—E. Phiter, Trenton, N. J. Antedated June 16, 1868.

I claim, 1st, The skeleton frame, E G, constructed as described.

2d, The combination, substantially as described, with a tongue pivoted by a king bolt to the axle of a rock shaft, arranged parallel with the axle, to which it is connected by sectors.

3d, The combination substantially as described, with the tongue pivoted to the main axle by a king bolt, of a transversely slotted plate bolted to the skeleton frame, whereby the tongue can turn laterally without moving the frame.

4th, The combination, substantially as described, with a tongue pivoted to the main axle, of the rock shaft or skeleton frame, the treadles, J, and the driver's seat, for the purpose of steering the machine, as set forth.

5th, The combination, substantially as described, of the tongue and driver's seat with the detent lever, C', and slotted plate, e, whereby the driver can release the tongue or hold it rigidly, as required.

6th, The crank arms, G, constructed and arranged for joint operation, as described.

7th, The combination, with the crank arms, of the drag bars and removable sleeve, h h', for the purpose set forth.

8th, The combination, with the crank arms and sleeves, of the adjustable coupling arms, G' for the purpose set forth.

9th, The combination, with the sleeves, b h', of the looped drag bars, H, and adjusting clamps, I, for the purpose set forth.

10th, The combination, with the skeleton frame, E G, and adjustable drag bars, H, of the adjustable link bars, L, and slotted cross bars, M, on the lifting levers, for the purpose set forth.

11th, The combination, with the tongue, of the whiffletrees, connected directly with the cranks, C, as and for the purposes set forth.

12th, The combination, with a tongue pivoted to the axle by a king bolt, of a skeleton frame carrying plows, adjustable in pairs, with the wheels also adjustable on the axle, substantially as described.

79,388.—PERMUTATION LOCK.—O. E. Pillard (assignor to F. H. North), New Britain, Conn.

I claim, 1st, The incline, n, at the inner end of the spindle, with an irregular surface, in combination with the dog, f, and series of tumblers, e, as and for the purposes set forth.

2d, The ring, n, fitted loosely upon the inner end of the spindle, so that it may be stopped by contact with the dog, f, as and for the purposes set forth.

3d, The disk, x, with an irregular periphery, in combination with the spindle c, and incline, n, substantially as and for the purposes specified.

79,389.—HORSESHOE.—Z. V. Purdy, Washington, D. C.

I claim, 1st, Beveling the inner side of the calks, B B, and the upper side of the heel of the shoe, A, as and for the purposes herein set forth.

2d, Placing the calks, B B, upon the shoe at a point beneath the forward portion of the quarter of the foot for relieving and protecting the same, substantially as herein specified.

79,390.—COAL STOVE.—A. C. Rand, New York city.

I claim, 1st, In stoves, grates, or furnaces, the cone, A, when used alone, or in combination with the air passages, D D, or an equivalent device or means of retaining, supplying, or mixing air with the inflammable gases before final combustion of the fuel takes place in such stoves, grates, or furnaces, substantially as herein described and for the purposes herein set forth.

2d, In combination with the cone, A, and passages, D D, the slide or slides, B and E, for regulating the admission of air, the decomposition of the fuel, and consequent production of gas according to the amount of heat required, substantially as herein described.

79,391.—FIREPLACE GRATE.—Charles S. Rankin, Cincinnati, Ohio.

I claim, 1st, A grate, constructed with two series of front bars, o near ranged alternately with and in the rear of the other, substantially as described.

2d, The hinged and perforated summer front and blower, substantially as set forth.

79,392.—STOVE DOOR.—Wm. Resor, Cincinnati, Ohio.

I claim a stove door having an enameled iron knob or handle, for the purpose set forth.

79,393.—SEWING MACHINE FOR BUTTONHOLES.—H. E. Reynolds, Bristol, R. I.

I claim, 1st, The adjustable frame, L, carrying the reciprocating needle bars combination with the lever, P, and cam upon the shaft, A, substantially as described for the purpose specified.

2d, The combination of the lower needle bar with the right angled spring arm, a, and cam, C, substantially as described for the purpose specified.

3d, The combination of the lower needle bar, arm, a, pinion, b, rack, D, spring arm, E, and cam, F, substantially as described for the purpose specified.

4th, The combination of the cam, G, rod, H, arm, J, upper needle bar, having the curved slot, and pin, o', substantially as described for the purpose specified.

5th, The cam wheel, S, and hook, t', in combination with the spring slide, v, spring hook, t, and upper and lower rotating needles, substantially as described for the purpose specified.

6th, The slide, v, adapted to raise and hold the thread in a buttonhole sewing machine during the formation of the stitch, substantially as described for the purpose specified.

7th, The method, herein described, of threading the needle by means of the spring hook and the movement of the cloth.

79,394.—DEVICE FOR SECURING EYEGLASSES.—A. W. Roberts, Hartford, Conn.

I claim the combination of the case and pin, B B', spring and ratchet reel, L F, pawl and tape, M H, or their mechanical equivalents, for fastening eyeglasses to a garment, substantially as described.

79,395.—VENTILATOR.—E. L. Roberts, New York city.

I claim, 1st, In combination with means for effecting a distributed exhaust, as above described, means for effecting a forced exhaust, substantially as and for the purpose described.

2d, Mixed heated air, for heating rooms, with the inflowing distributed supply of fresh air, at or near the top of the room, by means substantially as and for the purpose described.

3d, The combination, with the supply passages, F or F', at or near the top of the room, of the vertical tube, D, substantially as and for the purpose described.

4th, The combination, with the tube, D, of the tube, E, substantially as and for the purpose described.

5th, The combination, with the supply passages through the ceiling, or near the same, and the vertical supply tube, D, of the exhaust passages through the floor, substantially as and for the purpose described.

6th, The combination, with a floor arranged as described, for effecting a distributed exhaust, of the flue, H, provided with a heater, substantially as and for the purpose specified.

79,396.—VALVE GEAR.—E. T. Robinson, Nashua, N. H.

I claim connecting both the valve rod, a, and the lifting rod, d, to the sliding block, c, and the arrangement of the rock shaft, D, arm, j, and eccentric k, for giving an equalized motion to the link C, when said parts are combined with the tumble shaft, G, rod, F, and lever, E, substantially as and for the purposes herein set forth.

79,397.—LOCK NUT.—J. Rogers, Sterling, assignor to himself and F. W. Pratt, Chicago, Ill.

I claim a self-locking nut, constructed and operating substantially in the manner and for the purposes specified.

79,398.—HAND COAL SIFTER.—G. H. Ruth, Boston, Mass.

I claim the arrangement and combination of the hand loop, B, the guard, C, and the scoop, A, made and provided with teeth, the whole being substantially as and for the purpose described.

79,399.—SCAFFOLD AND LADDER.—Robert Rowan, Parnassus, Pa.

I claim the bar, A, and the traversing frame, D, in combination with a ladder or scaffold, when arranged and operated substantially as and for the purposes herein shown and described.

79,400.—REAMER FOR WELLS.—A. J. Salisbury (assignor to himself and T. R. Bard), San Buena Ventura, Cal.

I claim the combination of the branches, A, cross bar, B, toggle bars, D, shank, C, and spring, S, substantially as and for the purpose set forth.

79,401.—ROCKING SWING.—Thomas H. B. Sanders, Philadelphia, Pa.

I claim the arrangement of the uprights, z and z', their stays, T and T' and X and X', movable seats, S and S', their swinging backs, S B and S' B' rope, w, with a rocker, A A', of any size or shape, the whole constructed and operated in the manner and for the purpose above set forth and described.

79,402.—MACHINE FOR CUTTING SOAP.—Horace Sargent, Chelsea, Mass.

I claim the combination, with a box-supporting frame, of a cutter carriage, provided with a series of parallel cutting blades, to operate substantially as described.

Also, combining with the blades, i, the plates, g h, for supporting the blades and cutting the soap at the side surfaces of the box, substantially as described.

Also, in combination with the blades, i, the stationary strippers, n, substantially as set forth.

Also, cutting soap in boxes by sliding a cutter carriage successively into the box, the box being changed in position relatively to the carriage after the first operation of the cutters, the operation first cutting the soap into slabs and from two sides of the box and then subdividing the slabs and cutting the soap from the adjacent sides of the box, substantially as described.

79,403.—COMPENSATING FLY WHEEL.—A. H. Smith, Charlton, N. Y.

I claim, 1st, the compensating weight, P, arranged to make two revolutions to every revolution of the crank, F, substantially as and for the purpose set forth.

2d, The pivoted or swinging arm, L, in combination with the compensating weight, P, for reversing it from side to side.

3d, Providing the compensating weight, P, with radial adjustment, to vary its effect as required, substantially as herein described.

79,404.—VAPOR BURNER.—Willard H. Smith, New York city.

I claim, 1st, In burners for light oil, the receptacle, C, connected with the feed pipe and burner, substantially as and for the purposes set forth.

2d, Providing the air tube, E, between the air passages, F F, and the base of the flame, with heaters consisting of the passages, x x, on a heat conducting flange or flanges, K K, substantially as and for the purpose herein stated.

79,405.—BALANCING POLISHING WHEELS.—A. W. Stephenson, Kensington, Conn.

I claim the adjustable balance plate, i, or its mechanical equivalent, in combination with the cap, h, and flange hub, b, and nut, d, constructed and operating substantially as and for the purpose described.

79,406 —HORSE HAY FORK.—W. W. Stevens and John Patchen, Jr., Fontogany, Ohio.

We claim the combination and arrangement of the stem, A rod, B, tines, C, spring, D, bell crank, E, and cord, F, substantially as and for the purpose set forth.

79,407.—BUNG FOR CASK.—A. A. Stimson, Boston, Mass.

I claim the bung, A, constructed with tube, D, cup, C, reservoir, B, for holding water, all constructed to operate substantially in the manner described and for the purposes set forth.

79,408.—BALL AND SOCKET JOINT.—M. W. St. John, Leonardsville, N. Y. Antedated June 18, 1868.

I claim the combination of the socket, a, ball, E, concave plate, b, rubber, d, and cap, F, when connected to the parts substantially in the manner and for the purposes specified.

79,409.—CHURN.—S. S. Stokes, Westboro, Ohio.

I claim, 1st, The outer dasher, consisting of blades, N N, annulus, n, and shafts, M, connected at the bottom to the central shaft, J, in combination with the inner dasher, consisting of blades, P P, mounted upon arms, O O, deriving rotation from the hollow shaft, L, and sleeve, I, all substantially as herein described.

2d, In combination with the described elements of the preceding clause, the detachable tripod frame, C C' D, c c' d, and screw, E, for the object explained.

3d, The triangular construction of the dashers, N and P, when said dashers are applied and employed substantially as and for the purposes specified.

79,410.—CARS, WAGONS, AND OTHER VEHICLES.—T. Stone, (assignor to himself and Virgil H. Lyon), Plainfield, Ind.

I claim, 1st, A wagon box, A, having the pivoted leaves, a a a, etc., in combination with the rods, e e, and rod, b, cleats, p p p, and lever devices, for operating the said rods and leaves, all substantially as shown and described and for the purpose set forth.

2d, The levers, j c c rods, e e, links, k k, substantially as shown and described, in combination with the leaves, a a a, and box, A, all substantially as and for the purpose shown and described.

3d, The levers, j j, in combination with rod, b, leaves, a a a, and box, A, substantially as and for the purpose shown and described.

79,411.—SALVE.—Coe Swartout, Joliet, Ill.

I claim, 1st, The use of the ingredients, in the proportions and manner described, as and for the uses and purposes set forth.

2d, The said salve, as a new article of manufacture.

79,412.—MACHINE FOR DRYING TUBULAR FABRICS.—O. C. Sweet, Albany, N. Y. Antedated June 19, 1868.

I claim, 1st, The heating devices, consisting of the chambers, c d, and spiral chamber, e, passage, p, and tube, F, in combination with the brushing and pressing apparatus, substantially as herein shown and described.

2d, The spreader, G, when consisting of the parts, s t u v and w, all made and operating substantially as herein shown and described.

3d, The vertical tube, F, and adjustable cap, I, as described, in combination with the spreader, G, made as set forth.

4th, The arrangement of the revolving platform, B, hinged arms, C, annular cloth support, S, and tube, F, as herein described for the purpose specified.

5th, The heating cylinders, D and E, constructed and arranged as described, the spiral chambers, e, cloth support, S, tube F, spreader, G, heating and ironing rollers, g and r, and brushes, L, all made and operating substantially as and for the purpose herein shown and described.

79,413.—HOP PRESS.—Henry Taylor, Middletown, Wis.

I claim the press, consisting of the posts, B B', bed plate, A, upper cross beam, A', screws, F, follower, G, keys, I, side rails, C, and side planking, b, all constructed and arranged to operate substantially as herein shown and described for the purpose specified.

79,414.—BAG TIE.—Edward Truslow, New York city.

I claim the lock or bale tie formed by bending the corners of the plate A, over, as shown at a a1 a2 a3, substantially as and for the purpose set forth.

79,415.—BRACKET FOR SHINGLE ROOF.—Peter B. Turner, Quincy, Mass.

I claim, 1st, The block, E, constructed as described, in combination with the adjustable bar, A, as set forth.

2d, The combination of the block, E, adjustable bar, A, bar, B, standards, C C', and movable bar, D, substantially as and for the purpose set forth.

79,416.—MACHINE FOR ROLLING TIRES.—T. E. Vickers, Sheffield, England.

I claim so arranging a rolling mill that the parts of the rolls between which the work is performed shall overhang their bearing, and the remaining parts of the rolls be extended in opposite directions, as described, when the rolls are provided with flanges, the whole constructed to operate as and for the purposes set forth.

79,417.—MACHINE FOR MAKING HORSESHOE NAILS.—G. D. Walcott, Jackson, Mich.

I claim, 1st, The combination of the tongs, P, and supplemental gripers, r t, with the furnace, all constructed and arranged substantially as shown and described.

2d, The tongs, P, constructed and arranged as shown, when said tongs are placed in such a relation with a heater or furnace, Cx, that they will grasp the nail rod between the fire and the working parts of the machine.

3d, The supplemental gripers or jaws, r t, in combination with the gripers, n n, of the tongs, P, all constructed and arranged substantially as described.

4th, The plate, I, to which the tongs, P, are attached, when said plate is operated in a vertical and longitudinal direction for the purpose of actuating or moving the nail rod during the formation of the nails, in the manner and by means substantially as shown and described.

5th, The cam rim, Q, on wheel, E, roller, D, and spring, q, in combination with plate, I, and the lever, V, spring, a x, arm, W, on shaft, w, and the arm, T, on shaft, B, all arranged as shown for the purpose of operating the plate, as set forth.

6th, The pendent anvil, D, fitted in an overhanging block, C, and the devices for lifting and holding the nail blank thereto, in combination with the adjustable rollers, f, so arranged that the nail rod will be operated upon at the under side of the anvil, as shown and described.

7th, The rollers, f, fitted in adjustable arms, F, applied to the wheel, E, substantially as shown, in combination with the anvil, D, all arranged substantially as and for the purpose specified.

8th, The edgers, G G, fitted in pendent oscillating bars, H, hung on the anvil block, C, combined and arranged to operate in connection with the rollers, f, and anvil, D, substantially as and for the purpose set forth.

9th, The edgers, G G, each provided with two dies, h x, h x x, constructed and arranged substantially as shown and described, so that the upper dies, h x, will serve as working dies, and the lower ones, h x x, as bumpers to prevent the upper dies coming in contact.

10th, The cam wheels, K K', in combination with the bell crank lever, rollers, arms, and other devices for giving motion to the edgers, substantially as shown and described.

11th, The two cutters, c x f x, applied respectively to a swinging bar, V', and a vertically sliding bar, W', connected by the bars, X Y, the former of which is on the rock shaft, J, and all arranged so that the two cutters will be operated by a single cam or arm, U, on driving shaft, B, and the finished nail cut off at the spot where it was made, substantially as shown and described.

12th, The combination of the cam, Z, lever, V, and plate, l, arranged and operating substantially as described.

13th, The spreader, S, in combination with the wheel, E, tongs, P, and gripers, n n, all arranged in the manner substantially as and for the purpose specified.

14th, The combination of the wheel, E, provided with the rollers, f, the anvil, D, plate, l, with tongs, P, attached, and the edgers, G, all arranged and operated in the manner substantially as and for the purpose set forth.

15th, The combination of the two cam wheels with varying radii, one the counterpart of the other, with the bell crank lever, the rollers attached thereto, and other devices, or their equivalents, as shown and described.

16th, The cam, Z, lever, A x, and graduated bar, B x, in combination with the lever, V, and the other parts, necessary for adjusting the feed of the nail rod, substantially as herein shown and described.

17th, The lever, R, having jaw, r, the fixed jaw, t, in the bearing, s, and the pin, u, upon the wheel, E, in combination with the grippers, n n, all arranged substantially as described.

18th, The combination of the cutters, c x f x, with the cam wheels, K, K', and edgers, G G, with their intermediate mechanism, whereby the force of the blows of the edgers is increased for the first blow upon the nail, and the time required for such increase of force made available for the operation of the cutters, substantially as herein shown and described.

79,418.—BUTTONHOLE CUTTER.—F. H. Walker, Boston, Mass.

I claim, 1st, A stepped anvil or cutter bed, G, adapted for use in conjunction with a knife, E, for cutting buttonholes, substantially as described.

2d, A reversible stepped anvil or cutting bed, G, combined with retaining pivot pin, c, set screw, h, and cutter, E, substantially as described.

3d, A reversible stepped anvil or cutting bed, G, substantially as and for the purpose described.

79,419.—MUSKETO BAR FOR WINDOWS.—C. T. Warren, Linden, N. J.

I claim, 1st, Rolling and unrolling the musketo netting by the movement of the sash carrying the roller, d, upon the cord, i, substantially as described, for the purpose specified.

2d, The musketo bar or netting, operated as described, by means of the rollers attached to the sashes, the pulleys, g, cords, i, and screws, j, substantially as described, for the purpose specified.

79,420.—PAPER CAP.—Nehemiah Waterman and Alfred T. Perkins, Toledo, Ohio.

We claim as a new article of manufacture, the papercap or hat herein described, formed of paper or analogous material, with a number of sectors, a a, secured at the center by a seal, b.

79,421.—BOAT.—Elisha Waters and Geo. A. Waters, Troy, N. Y.

We claim the building of the entire shell or skin, and the decks (where used) of paper, as hereinbefore set forth, and thus forming a new article of manufacture.

79,422.—PLANT PROTECTOR.—Jeremiah M. Watson (assignor to himself and Wm. B. Wickes), Sharon, Mass.

I claim a plant protector in which a screen of gauze, netting, or equivalent woven and pliable fabric, is combined with the hoop or ring, A, and the supporting stake, D, in the manner and for the purposes shown and set forth.

79,423.—MACHINE FOR MAKING CIGARS.—Arnel Weeks, Syracuse, N. Y.

I claim, 1st, The combination in a cigar machine of the three peculiarly formed elastic rollers, C E F, mounted in rigid bearings and driven by a band, with the similarly formed elastic compressing roller, G, mounted in the vertically vibrating frame, H, and rotated by frictional contact merely with the other rollers, whereby I am able to apply both the binders and wrappers to two cigars simultaneously by one continuous operation of the machine, as set forth.

2d, The combination substantially as set forth, with the driving roller, C, of the beading dies, D, arranged at a distance apart greater than the length of the two finished cigars, whereby one end of each cigar may be finished by its respective die.

3d, The combination of the peculiarly shaped rollers, the flanges, f, and the interposed fixed head blocks, J, these parts being arranged as set forth, for joint operation.

79,424.—PAPER RULING MACHINE.—Wm. S. Wilder, New York city.

I claim, 1st, The wheel, N, having the adjustable and removable cam, P, for operating the pivoted feed plate, Z, through the medium of the pivoted lever, V, carrying the friction roll, W, the connecting rod, X, and pivoted lever, V, all constructed and arranged to operate substantially as herein shown and described.

2d, The combination of the wheel, N, having one or more adjustable and removing cams or lifters, O P, attached to it and projecting from each side, the friction wheel, T, and lever, R, with each other and with the cylinder, B, and pen beam, S, whether said lever, R, is connected with the front or rear edge of the said pen beam, S, substantially as herein shown and described and for the purpose set forth.

3d, The extension belt, D', adapted for the application to it of the lifters, O P, in combination with the adjustable roller, E, and levers, V R, by means of which a sheet may be ruled with lines which are not continuous, substantially as herein shown and described.

79,425.—MACHIME FOR KILN DRYING.—Ashbel B. Winegar, San Francisco, Cal.

I claim, 1st, A machine for drying salt and other substances, composed of the furnace, A, pan or disk, B, the radial arms, G G, spindles, H H, with the hoes or stirrers, I I I, attached to them, with the movable bar, J, for turning them in different directions, so as to continually stir and turn the salt in the pan or discharge it at will from the periphery, the whole constructed and arranged to operate substantially as herein described.

2d, The sliding board or plate, O, at the bottom of the hopper, operated by the spring, P, cords, S, lever, T, and beveled pinion, U, substantially as and for the purpose specified.

79,426.—MATCH SAFE.—H. M. Woodford, Kensington, Conn.

I claim a match safe constructed substantially as shown and described, as an article of manufacture.

79,427.—ELECTRO-PLATING AND PLATED WARE.—Howell W. Wright, Taunton, Mass.

I claim the art of electroplating polish ware at once, without dipping in acids or other dips that affect the polished surface.

Also as my invention, the process of electro-silverplating the previously polished electroplated article, with a protective transparent layer of pure silver, all substantially as and for the purposes set forth.

79,428.—COMBINED MOP AND WRINGER.—John A. Wright, Keene, N. H.

I claim the sliding and revolving handle, A, with the device for locking it in place, and the device for catching the mop cloth, in combination with the jaws, B C, substantially as and for the purpose described.

79,429.—FIFTH WHEEL FOR CARRIAGES.—Eliphalet H. Adams, Detroit, assignor to himself and C. F. Gardner, Pipestown, Mich.

I claim the construction of a circle or "fifth wheel" for land carriages, as above described, with the ring, C, working in Babbitt metal or other suitable material, confined in the circular channeled disk, A, when arranged and operating substantially as and for the purposes herein set forth.

79,430.—WAGON JACK.—Francis Arnold, Haddam Neck, Conn.

I claim, 1st, The adjustable collar, B, with hole to fit post, A, and provided with journals, a a, and lugs, b b, arranged substantially as and for the purposes herein set forth.

2d, The movable tongue, C, with corrugations on its upper side, and the rims, d d, on its lower side, substantially as and for the purposes herein set forth.

3d, The combination of the adjustable collar, B, movable tongue, C, and movable lever, D, arranged and operating substantially as and for the purposes herein set forth.

79,431.—LOW WATER ALARM FOR BOILERS.—Jearum Atkins, Washington, D. C.

I claim, 1st, The combination of the following devices in a low water alarm for steam generators, viz., the box, H, passages, I and V, each with a cock, float, k, valve, S, port, R, cylinder, G, piston, F, connected to the lever of the alarm cock, a discharge port from cylinder, G, closed or opened by cock, U, discharge port, L, and detachable cover, or the equivalents of these parts.

2d, The construction of the cock, J, with the ports, I and L, as described in combination with the box, H, substantially as set forth.

3d, The tubular piston rod, T, with the cock, U, substantially as set forth

79,432.—FLUID FOR EXCITING GALVANIC CHAINS.—Frands T. Bakker, Chicago, Ill.

I claim the fluid consisting of herein stated ingredients, mixed in proportions as described, to be used in combination with galvanic chains, in treating diseases by galvanism.

79,433.—COTTON PLANTER.—E. L. Barnett, El Dorado, Ark.

I claim the cotton planter consisting of the main frame, A, standards, D, handles, E, breaking plow, B, furrowing wheel, K, cogged wheel, I, hopper, G, provided with a shield, g, and teeth, b, all arranged, combined, and constructed substantially as described.

79,434.—MACHINE FOR FORMING RINGS ON CARBOYS AND BOTTLES.—Thomas Barrett, Charlestown, Mass.

I claim, 1st, The rolls, of any desired shape, having a simultaneous motion toward a central plug, whether operated by the mechanism herein described or any other substantially the same, for shaping or forming the rings of car boys or bottles.

2d, The expansive plug, C, constructed and operating substantially in the manner and for the purpose herein specified.

79,435.—CURTAIN FIXTURE.—G. F. Beardsley, Ithaca, N. Y.

I claim the construction and arrangement of the described parts, viz., the winding cylinder, F, crank, D, weighted knob, E, and case or frame, B, supporting and holding the same, so as to make a fastening or fixture for the cord or tape of curtains, substantially as set forth.

79,436.—STEAM SAFETY VALVE.—W. H. Bechtel, Philadelphia, Pa.

I claim, 1st, The weighted tube, D, with its two valves, e and h, in combination with the base, A, its chamber, a, hollow cross piece, d, the within described valve seats, i, and the casing, B, the whole being constructed and arranged as and for the purpose herein set forth.

2d, The webs or ribs on the tube, D, adapted to the opening, b, of the casing, B, as and for the purpose herein set forth.

3d, In combination with the tubular valve, D, the spindle, G, rod, I, and the arms, H and K, for the purpose specified.

79,437.—APPARATUS TO PREVENT HORSES CRIBBING.—S. S. Bent, Portchester, N. Y.

I claim the metallic roll for the edges of feeding troughs or mangers, formed substantially as specified, for preventing horses biting or cribbing, set forth.

79,438.—MACHINE FOR FORMING BREAD PANS.—M. L. Best, Canton, assignor to himself and J. F. Hess & Brother, Massillon, Ohio.

I claim, 1st, The plate, A, with cam face, n, and connections, m o, when constructed and used in connection with the plate, C, substantially in the manner and for the purpose herein specified,

2d, The peculiar arrangement and combination of the principal plate, B, with cam faces, k k, and working lever, L, the plates, A A with cam faces, n, the plate, C, the block, D, and die clamp, E, the several parts being constructed and arranged substantially in the manner and for the purpose herein specified.

3d, The peculiar arrangement and combination of the frame, K, with block, D, and arms, a and c, the die clamp, E, with arms, F and G, and the clamp lever, H, with slot, I, the several parts being arranged in the manner and for the purpose herem specified.

79,439.—POTATO DIGGER.—John W. Blodgett, Three Rivers, Mich.

I claim, 1st, The endless belt, G, constructed as shown and described.

2d. The sieve, M, in combination with the disk, a, shown and described, arm, O, elbow lever, P, standard, S, and connecting rods, R and L, all constructed, arranged, and operating substantially as specified.

79,440.—ELECTRO MAGNETIC BURGLAR AND FIRE ALARM.—Edmund Blunt, Jr., Bay Ridge, N. Y.

I claim, 1st, Combining with the armature, F, the springs, G, substantially as and for the purpose specified.

2d, The circuit breakers, J, formed of one or more strips of metal, secured substantially as described.

3d, Combining with the slab, provided with the openings and screw cups, 6 and 7, the arms, 11, armatures, 10, coils, 8, switch, 12, and buttons, 13 and 14, when the same shall be combined and operated substantially as shown, for the purposes indicated,

4th, Combining with the door the spring 2, plate of metal 3, and the regulating screw, 4, connected and operating substantially as described.

5th, Combining with the drum, 15, the disk, 18, when the same shall be combined, constructed, and operatmg substantially as described.

6th, In combination with the subject-matter of the third claim, the door and alarm, when the same shall be combined and operate substantially as and for the purpose specified.

7th, In combination with the subject-matter of the third clause of claim, the window and alarm, when the same shall be combined and operate substantially as for the purpose specified.

8th, In combination with the subject-matter of the third clause of claim, the drum, 15, and disk, 18, when the same shall be combined and operate substantially as described.

79,441.—PAPER FILE.—John W. Boughton, New York city.

I claim a paper file, consisting of one or more pieces of pasteboard or other suitable material, having notches or recesses cut in its edge, for the reception of ordinary elastic bands, with the bands applied thereto, all substantially as described,

79,442.—SPIKE MACHINE.—James Dryson and Alonzo Potter, New Castle, Pa.

We claim, 1st, The sliding plate, K, when provided with the arms, m and n, or their equivalents, in combination with cutter, F, and guide, O, all arranged and operating in the manner and for the purpose set forth,

2d, A slide or sliding arm, n, arranged on the bed of the machine, as described, in combination with its operative mechanism, for the purpose of moving the rod to position, substantially as described.

79,443.—BELT SHIPPER.—Erastus Buck. Vincennes, Ind.

I claim the combination of the shipper, H, pivoted lever, G, and pulleys, D' E, when arranged and operating substantially as described.

79,444.—INKSTAND.—C. Thurston Chase, Albany, N. Y.

I claim in combination with an ink well, having a rim, D. and catch d, the pivoted cover E, when constructed, attached, and operated substantially in the manner and for the purposes specified.

79,445.—DUMP CAR.—William Chisholm, Cleveland, Ohio.

I claim, 1st, The construction and arrangement of a section of a railroad track by means of trunnions or bearings to support the track, and thereby allow a longitudinal and transverse tilting and vibrating of the same, substantially as and for the purpose set forth.

2d, The segments, J K, in combination with the section of a track, A, and trunnions or bearings, as described.

3d, The combination of the sectional tilting track, A, with the turn table, L for the purposes set forth.

4th, The combination of the sectional tilting track, A, turn table, L, with a transfer table, M, in the manner as and for the purpose described.

79,446.—FISH HOOK.—John B. Christian, Mount Carroll, Ill.

I claim the revolving grooved plate, B, the artificial worm, A, the hooks, c c, and the wire, D, as arranged in relation to each other, substantially as herein described.

79,447.—TUCKING DEVICE FOR SEWING MACHINE.—William H. Cole, Quincy, Mich.

I claim the combination, with foot, A, of plates, C, E and G, the latter provided with stop, F, slotted arm, B, screw, 2, indicator, D, and strew, H, all constructed, arranged, and operatmg as herein described and shown.

79,448.—DREDGING MACHINE.—D. C. Cregier, Chicago, Ill.

I claim, 1st, The guides, d and screws, f, with the shaft, k, and bevel pinion, k and their connections, in combination with the vertical framework, E', and its connections, adapted to transmit the power at any elevation, as and for the purposes herein set forth,

2d, The inclined framework, E', mounted on the upright frame, E, as represented, and adapted to be adjusted in the several directions, and operating the dredging mechanism, H h, in an inclined position, while the rising and lowering motion may be vertical, as and for the purposes herein specified.

3d, The guides, m, formed and arranged as represented on the revolving parts, G1 G2, and adapted to guide the pitch chains, H, and consequently to control very exactly the working paths of the buckets, h, or their equivalents, as and for the purposes herein specified.

79,449.—RAILROAD CAR HEATING AND VENTILATING APPARATUS.—Samuel Darling, Bangor, Me.

I claim, in combination with an endless pipe for conveying a heated fluid, a blower, operates substantially as described, to cause a continuous circulation of the fluid in the pipe,

Also, the combination, in a stove or furnace, and beneath the fire chamber, of a water vessel, and an intermediate non-conductmg chamber, having a ball valve, or its equivalent, substantially as and for the purpose described.

Also, the combination, with the smoke pipe, of a conical chamber and a ball valve, or its equivalent, substantially as and for the purpose described.

79,450.—CULTIVATOR.—John H. Davey, Rockford, Ill.

I claim the frames, B and C, the standards, D D, pins, E, the chains, F F, the lever, K, the chain K', all constructed, combined, and operating substantially in the manner and for the purposes set forth,

79,451.—CULTIVATOR TOOTH.—Daniel Dean, Brighton, Mich.

I claim the reversible cultivator tooth, A, when constructed substantially as shown and for the purposes described.

79,452.—HARVESTER.—Charles Denton, Decatur, Ill., assignor to "Ames Plow Company," Boston, Mass.

I claim, 1st, Fulcruming the lever which actuates the sickle bar, at or near its centre, by means of a moveable lever, and driving it by a link, connected at the rear of the frame with the driving mechanism, which is located outside of the frame.

2d, Pivoting the sickle bar lever to a laterally moveable or vibrating lever, substantially as and for the purpose set forth.

3d. The combination of the floored offset, k1, and its side board, l1, with the auxiliary belt and the main belt of the spout.

4th, Combining with the conveyer rolls, a1, the clearers, s1, substantially as set forth.

5th, Combining with the reel, i, the truss wires attached to a central ring, and to disks or hubs at the opposite ends of the axle, substantially as set forth.

6th, Combining with the frame or carriage lever, k2, and with the post, 12, the box, m2, with its spring bolt, o 2, springing into the holes, n2, of the post, b2, and withdrawn therefrom, substantially as described.

79,453.—FURNACE AND CONDENSER FOR REDUCING QUICKSILVER AND OTHER ORES.—Thomas W. Dresser, San Jose, Cal.

I claim, 1st, The vapor tight hopper, J, and siphons, U U, in combination with this or other smelting furnaces, substantially as described.

2d, The division plate, H H, and the endless carriage, F, constructed and arranged to operate substantially as and for the purpose described.

3d, In combination with a vapor tight furnace, A, provided with a hopper, J, either of the pumps, Q R S, substantially as and for the purpose specified.

79,454.—BEE HIVE.—William J. Elvin, North Madison, Ind.

I claim the bee hive herein described, when its several parts are constructed, combined, and arranged as set forth.

79,455.—FRUIT PICKER.—Ralph Evans, Brant, N. Y.

I claim the metallic casting B, having a flange on its underside, and slotted so as to form a knife, and provided with an angular stem, as and for the purposes set forth.

79,456.—FIELD ROLLER.—A. L. Chubb, Grand Rapids, Mich.

I claim the yokes, B B, cast with projections for sustaining the weight box or driver's seat, in combination with straps, e e, all arranged as herein described.

79,457.—CHIMNEY COWL.—Austin E. Clement, Wapakonetta, Ohio.

I claim hanging the wings, C C', by the bent springs, D D', in the manner and for the purpose set forth, in combination with the cylinder, B, bolts, E E', and pipe, A, substantially as described.

79,458.—FUME CONDUCTOR.—William C. Davis and George H. Knight (assignors to W. C. Davis & Co.), Cincinnati, Ohio.

We claim, 1st, The arrangement of the perforated receiver, E, and notched or perforated rmg. D. for the purpose set forth.

2d, The notched rmg, D d, or its equivalent, for the use herein designated.

3d, The perforated receiver, E, fig. 3, having the cover, F, as and for the purpose stated.

79,459.—ROW LOCK.—Charles L. Dayton, North Buffalo N. Y.

I claim the combination of the yoke, A, bed plate, C, pivoted eye, D and pin, E, all employed and operating in the manner described, for the purpose specified.

79,460.—MACHINE FOR APPLYING CLOTH PATCHES TO PAPER COLLARS.—C. H. Denison, (assignor to himself, G. W. Ray, and V. N. Taylor), Springfield, Mass.

I claim, 1st, The combination of the plunger or plate, D6, with the bar, F1, attached thereto, the stamps, e, and sponge tubes, d5, all constructed and operating substantially as herein described and for the purposes set forth.

2d, The combination of the plunger or plate, D6, with the bar, F1, attached thereto, the stamps, e, the sponge tubes, d5, and the water pipe, g1, and box, g, when constructed and operating substantially as described and for the purposes specified.

3d, The stamps, e, having the dies, e4, counter dies, x3, and passage, x, therein, all constructed substantially as herein described and specified.

4th, The combination of the stamps, e, having the dies, e4, counterdies, x3, and the passage, x. therein, with the platen, x1, when constructed and operating substantially as described and in the manner set forth.

5th, The combination of the wheel, a1, with the projection, i, thereon, vibrating arm, a2, rock shaft, a3, lever, a6, rod, a8, arm, a9, ratchet wheel and pawl e3, i6, rolls, h8 h9, for the purpose of moving the strips under the dies, e4, substantially as described.

6th, The bar, F3, having the slot, F4, therein, in combination with the stamps e, having the projection, e6, thereon, all constructed and arranged substantially as herein described and set forth.

7th, The sponge tubes, d5, in combination with the water pipe, g1, having outlets, g3, therein, all constructed and operating substantially as herein described, and in the manner specified.

8th. The combination of the sponge tubes, d5, adjustable rod, o8, and valve and valve arm, m4, when constructed substantially as described and operating in the manner set forth.

9th, the sponge tubes, d5, having the side pans, d7, thereon, and the adjusting projection, o5, and its nut, o6, all constructed and operating substantially as described and in the manner set forth.

10th, Applying cloth patches to paper, or paper collars, as herein described, that is to say, by first dampening the paper or collar at the places where the patches are to be applied, and then pressing said patches theron by means of a punch or die, which, in its descent, cuts the patch from cloth which has been previously made adhesive upon one side by a suitable preparation, and then dried, said cloth being fed or moved automatically to or under the dies, all substantially as described.

79,461.—MACHINE FOR MAKING RASPS.—Major H. Fisher, Bridgeport, Conn.

I claim, 1st. Attaching the cutter, D, to the holder, B, by means of the stirrup, E, and spring, f, when the said stirrup is arranged to hold the cutter, and at the same time allow the point to turn up, substantially in the manner and for the purpose set forth.

2d, In combination with the holder, B, arranged and operated as above, the blank holder, G, and mechanism, substantially as described, for imparting to the said holder a movement relatively to the movement of the cutter across the blank, so that the teeth cut in each row shall be at right angles to the edge of the rasp substantially as herein set forth.

79,462.—HOE.—J. L. Fountain, New Milford, Ill.

I claim, 1st, Forming the curved shank, B, on its inner side or curve, V-shaped or sharp edged, as and for the purpose set forth.

2d, The forward projecting curved shank, B, having an acute angle on its inner side, C, in combination with the blade, substantially as and for the purpose specified.

69,463.—THREE HORSE CLEVIS.—Jos. Fowler, Allegan, Mich.

I claim, 1st, The bars, D, and friction wheel, F, or its equivalent, in connection with any suitable clevis, A, when attached and operating substantially as and for the purposes specified.

2d. The bar or lever, E, when attached to the upper end of the clevis, A, and provided with any suitable device, G, to which to attach a team, when constructed and operating substantially as and for the purposes set forth.

3d, The combination and arrangement of the clevis, A, the bars, D D, the lever, E, the friction roller, F, hook, H, and ring, G, or their equivalent, when constructed and operating substantially as and for the purposes herein described.

79,464.—MANUFATURE OF SUGAR.—Horace P. Gale, Washington, Vt.

I claim the peculiar construction of the inside of my arch, arrangement of smoke stacks, the application of flues in my pan, and the combination of dampers and stop cocks, to produce the advantages herein set forth.

79,465.—MEAT CHOPPER.—C. L. Gilpatric, Boston, Mass.

I claim the arrangement of the cutting or chopping knife, K, in the frame, I, and working in the arms H H, by means of wheels, G E and D, and a shaft through a hollow shaft, F, substantially as and for the purposes herein set forth.

79,466.—DOOR KEY.—Francis Green, Troy, Pa.

I claim the guerd, C, in combination with the arm, f, for closing the key hole, constructed and attached to the key, substantially as shown and described, and for the purpose specified.

79,467.—GRAIN THRESHER AND SEPARATOR.—George W. Greer, and Frank F. Landis, Lancaster, Pa.

We claim, 1st, The double chambered fan casing or flues, f1, and f2, made substantially in the manner and for the purpose specified.

2d, The arrangement of the double shoe, s1 s2, in combination with the regulating board, R, made substantially in the manner and for the purpose specified.

3d, In combination with the regulating board, R, and inclined board, r, the appendage of the wire rack, r r, to the same, made substantially in the manner and for the purpose described.

4th, The racking device when constructed with parallel beams, m, and tooth slates or rakes, u, revolving over each other in the manner and for the purpose specified.

79,468.—MACHINE FOR CUTTING AND TRIMING BRISTLES, FELT, FUR, WOOL, ETC., Charles F. Harlow, Boston, Mass., assignor to himself and Dexter S. King.

I claim, 1st, The combination of the stationay toothed knife, g, and movable toothed knife, g, with the guide, S, and slide, R, when constructed to operate as set forth.

2d, The combination of the sliding table, R, guide, S, slide and cutters, g g, with the slotted arm of the beam, D, and table, A, for the purpose of adjusting the cutters, g g, at any desired distance from the jaws or bars, X X, as specified.

3d, The feed shaft, p, adjusted in the slotted bars and held by the spring, q, in combination with the cutters, g g, arranged upon the sliding table, R, to operate substantially as set forth.

4th, the curved or horizotal bars, X X, when made adjustable to the posts, C C, and arranged as and for the purpose specified.

79,469.—COFFEE ROASTER.—Theodore Heerman's, Pleasant Hill, Mo.

I claim the wire cloth or perforated cylinder, E, when arranged eccentrically within the outer cylinder, D, as described and for the purpose set forth.

79,470.—TICKET PUNCH.—Warren Hill, Springfield Mass. Antedated May 5, 1868.

I claim the construction and arrangement of the spindle, C, projection, e, and spiral spring, f, in combination, with the lever, A, recesses e', and the slotted lever, B, substantially as described.

79,471.—BEE HIVE.—Jas. S. Hooton, New Carlisle, Ind.

1 claim, 1st, The device for entrapping the worms, as specified.

2d, Supporting the racks by the metal staples, S, as shown and specified.

3d, Supporting and holding to their places the racks by means of the metal pins, X", as specified.

4th, Supporting the racks solely upon metal bearings, by means of the pins, X, and staples, S, as set forth.

5th, The hive, R, when its several parts are constructed, combined, and arranged as set forth.

6th, Board, B, when constructed as specified.

7th, The combination of the metal strip, I", the screw, Z, the aperture, V, openings, P and T, through the board, B, with the wire cloth, as set forth and for the purposes specified.

79,472.—COMPOUND FOR COVERING ROOFS AND OTHER STRUCTURES.—Carleton B. Hutchins, Ann Arbor, Mich.

I claim the compounding of ingredients, as herein described, to make a composition for roofing, and for various other purposes, as herein described.

79,473.—POTATO DIGGER.—Moses Johnson, Three Rivers, Mich.

I claim a potato digger having wheel, A, grooved wheel, B, roller, D, arms C, shovel, E, arms, F, belt, G, box, H, lever, K, bar, M, spring, O, and pulley, S, constructed, combined, arranged, and operating substantially as set forth.

79,474.—CLOTHES DRYER.—Wm. Johnston, Appleton, Wis.

I claim, 1st, The movable metallic arms, H, folding into each other and oscillating upon a common fulcrum, operating in the manner described and for the purposes set forth.

2d, The combination and arrangement of the bracket, sides, A A, and the frame rod, B C, with the fulcrum rod, F, the metallic movable arms, H, and the bars, E E E E, with the slot, I, and rivet, J, when operating in the manner specified and for the purposes set forth.

79,475.—BALANCING POLISHING WHEELS.—Horace K. Jones, Kensington, Conn.

I claim, 1st, The use, for the purpose of balancing wheels, of two or more weights, swinging upon pivots located between the axis and periphery, and capable of being fixed at any point upon the side of the wheels, within the limit of their motion, by screw or other suitable means.

2d, The combination of the movable weights, B B, with the fixed weights, D, for the purpose specified.

79,476.—HORSE POWER.—Isaac Keller, Randolph, Ohio.

I claim, 1st, The solid metallic box, G, with the hole, g, therein, when used to contain the speeding gear, P J K, of a horse power, substantially in the manner and for the purpose set forth.

2d, The iron, N, with lip, n, when used in combination with the box, G, with its gear, P J K, and the master wheel, A B B, substantially as and for the purpose herein specified.

3d, The peculiar arrangement and combination of the box, G, axles, H and I, with gear wheels, P, J, and K thereon, iron, N, with lip, n, and master wheel, A B, the several parts being arranged in the manner and for the purpose herein specified.

79,477.—WASHING MACHINE.—G. H. Kidney, Cleveland, Ohio.

I claim, 1st, The cups, H, perforated tubes, G, cylinder, C, and holler, arranged and operating in the manner and for the purpose substantially as described.

2d, The rotary cylinder, C, provided with interior perforated tubes, G, in combination with the cups, substantially as and for the purpose specified.

79,478.—SAW CLAMP.—Wm. N. Kingston, Bowensburg, Ill.

I claim the saw clamp, having clamps, A, jaws, B, scaffold, C, upright bars, D, platform, J, plank, H, and hooks, G, constructed, combined, and arranged substantially as specified.

79,479.—FUME CONDUCTOR.—George H. Knight (assignor to W. C. Davis & Co.), Cincinnati, Ohio.

I claim, 1st, The perforated case or receiver, D E, formed and adapted to operate as set forth.

2d, The receiver, D d E, so enclosing a boiler or cooking vessel as to confine and direct the fumes, and conserve the heat thereof, when said vessel is so elevated above the stop as to permit the escape of said fumes in the stove flue in the manner set forth.

3d, A pot or cooking vessel, having protruberances, c, adapted and employed to rest either upon the plane of the stove top or within suitable indentations, b, therein, at the will of the operator, for the purpose herein designated.

79,480.—INDICATOR FOR STREET RAILWAY CAR.—James Knight, Philadelphia, Pa.

I claim, 1st, The minute band, G, and its pin, j, turned by clock work, as described, and moved toward or from the dial plate by a cam wheel, H, in combination with loose fndicating hands, h, which are turned by the minute hand, and released at certain determined points on the dial plate, all substantially in the manner and for the purpose specified.

2d, The wheel, J, having adjustable blocks, r, and being operated through the medium of the gearing described by a wire, l, connected with the wheel or axle of the street railway car.

3d, The above in combination with the arms, s', t, and u of a spindle, K, and with the arm, w, of a spindle, L, for starting and arresting the motion of the cam wheel, H, as described.

4th, The cam wheel, H, operated by a coiled spring, g, or its equivalent, for imparting a longitudinal sliding motion to the portion, c, of the spindle, F, for the purpose specified.

5th, The manner, substantially as herein described, of securing the indicating hands, h, to the stem, b, so that they may be turned either separately or together upon the said stem.

79,481.—CAR COUPLING.—Ph. Knoblock, Wyandotte, Ks.

I claim a car coupler, having jaws, A and B, slotted frame, K, crossbar, H, with cord attached as described, lever, G, and hook, M, constructed, combined, and arranged substantially as specified.

79,482.—EYLETING MACHINE.—A. Komp, New York city.

I claim, 1st, The friction spring, n, on the guide pin, e, in the punch, D substantially as and for the purpose described.

2d, The self acting dog, h, and cam, k, in combination with the guide pin, e, and punch, D, substantially as and for the purpose set forth.

3d, The yielding rest, J, in combination with the anvil, I, and punch, D substantially as and for the purpose set forth.

69,483.—SHTTLE.—Perley Saflin, Warren, Mass.

I claim the combination with the shuttle of a treading and guide piece or lip, constructed as described and for the purpose set forth.

79,484.—HEAD BLOCK FOR SAW MILL.—Dennis Lane, Montpelier, Vt.

I claim, 1st, The rollers or wheels, C, supporting the head block, and mounted on shafts eccentric to them, by which the wheels are forced upon the carriage or released from bearing thereon, constructed and operated as described.

2d, The scrapers, H, hinged to the head block, for the purpose of clearing the face of the carriage side from saw dust, constructed and operated substantially as described.

3d, The chain connection, E, attached to the upright supports, and operated by means of a friction pulley, G2, upon a bar, 14, through a treadle, M4, by which, as the carriage is gigged back, the supports will be drawn back on the carriage, constructed and operating substantially as described.

79,485.—VAPOR BURNER.—C. B. Loveless, Syracuse, N. Y.

I claim the pipe, a, retort, m, cap, j, jacket, k, gas pipe, c, burner, g, and chimney, h, constructed and arranged substantially in the manner and for the purposes set forth.

79,486.—PLOW.—Hammond Marshall, Atlanta, assignor to himself and T. W. Chandler, Fulton county, Ga.

I claim the shank, A, constructed as described, with a sharp cutting edge, d d, at the top, curved at the bottom, and provided with slotted projections substantially as and for the purpose herein set forth.

2d, The slotted and flanged projections, B B, on the shank, A, in combination with the lugs, 11, and grooves, h h, on the wings, for the purpose of fastening the same together, substantially as and for the purposes herein set forth.

3d, The pin, b, on the point, C, in combination with the hole, c, on the shank, A, for the purpose of fastening the same together, substantially as and for the purposes herein set forth.

79,487.—MEDICINE DROPPER.—Patrick McElroy, Cambridge, Mass.

I claim a tube for dropping medicine, or other liquid, constructed substantially as and for the purpose described.

79,488.—LAMP BURNER.—Rufus S. Merrill (assignor to himself and Wm. Carleton), Boston, Mass.

I claim, 1st, In a burner in which the upper section, consisting of the deflector, air distributing plate, and chimney holder, with its chimney, is removable from the lower section, composed of the base and wick tube, a sleeve united with the air distributing plate, and shaped in the manner herein described, so that while entirely removed from contact with the wick tube, it shall fit the cap of the lower section, and maintain the upper or removable section in position, substantially as and for the purpose specified.

2d, in combination with the parts arranged as claimed in the preceding clause, guides, or their mechanical equivalents, formed upon the cap and the sleeve, as described, so that the upper section of the burner may be readily adjusted upon the lower section, as set forth.

79,489.—WOOD-BENDING MACHINE.—Elisha Metz, Rochester, N. Y., assignor to himself and A. Cram.

I claim the combination of the annular-rolled concave, B, with the inner circle, D, and the feed rollers, R and R', for the purposes herein shown and described.

2d, The arrangement of the follower, G, with the inner and outer circles, B and D, constructed and operating substantially in the manner and for the purposes set forth.

79,490.—SHUTTLE.—James A. Metcalf, Lawrence, Mass.

I claim, 1st, A threading guide or guide wire, constructed and disposed relatively to the walls of the shuttle, so as to guide the thread directly to the slit, substantially as set forth.

2d, The combination of the threading guide, constructed substantially as shown and described, with a shuttle having a slotted eye.

3d, A thread guide, substantially as described, which performs the double duty of guiding the thread to the eye when threading the shuttle, and also of insuring the proper line of draft from the bobbin.

79,491.—CHURN DASHER.—David S. Miller, West Alexandria, Ohio.

I claim the reversible dasher, a b c d, in combination with the deflector board, g, when the parts are constructed, arranged, and operated in the manner and for the purpose described.

79,492.—WEAR PLATE FOR BOOTS AND SHOES.—Simon Minges, Rochester, N. Y.

I claim, 1st, The combination in the wear plate, B, of the rim, a, covering or enclosing the sole, and the shield, x, protecting the upper as herein set forth.

2d, The combination with the wear plate, B, of the curved cross connections b' b', for expanding the rim, and the dove tailed bearing or bearings, b, for shielding the toe, as herein set forth.

70,493.—REVOLVING HOSE NOZZLE.—Hiram B. Morrison, Le Roy, N. Y.

I claim 1st, The arrangement inside the bent nozzle, D, of the spiral wings, F F, adjustable to different positions across the water way, and capable of being fixed in place, and operating to impart a rotary motion to the nozzle by the current passing through, in the manner and for the purpose specified.

2d, The arrangement in connection with the spiral wings, F, of the elbow arms, d d, resting in the turning ring, l, which is tightened in position by nut, n, the whole as herein set forth.

79,494.—CARRIAGE SHACKLE.—F. B. Morse, New Haven, Conn.

I claim, 1st, A shackle constructed with the recesses, a a, in each of the internal angles, so as to receive the block, H, substantially as and for the purpose specified.

2d, The block, H, formed from india rubber, and with projections, d, upon each angle, corresponding to the recesses, a a, in the shackle, substantially as and for the purpose specified.

79,495.—CARRIAGE WHEEL.—James Nevison and Thomas Nevison, Jr., Morgan, Ohio.

We claim, 1st, The return or hook, b, and spring spokes, B, in combination with the key, F, and hub, C, substantially as set forth.

2d, Spring leaves, E, bolted to and in combination with the spring spoke, substantially as set forth.

79,496.—METALLIC HUB.—John Oliphant, Springhill Furnace, Pa.

I claim, 1st, The combination of the disk I, divided into the sectors or caps J J J', the annular groove, L, the projections, M M M2, and the recesses, N N1 N2, as and for the purpose set forth.

2d, The bevels, H H and T T, as and for the purpose set forth.

3d, The combination of the boxes, B B, tube, A, mud bands, C C, and screws D D, substantially as and for the purpose specified.

79,497.—GRAIN SEPARATOR.—E.C. Patterson, Rochester, N.Y.

I claim, 1st, The arms, E, upon pivots, F, operated by eccentric, G, and operating upper and lower sieves, substantially as described.

2d, The wedge, H, on the lower sieve, for the purpose set forth.

79,498.—TICKET PUNCH.—Wm. J. Phelps, Springfield, Mass.

I claim in a ticket punch a die and counter die, consisting of a group or series of projections, o o, and corresponding perforations, o' o', said group or series of projections and perforations being formed into any desired letter, figure, or character, all constructed and operating substantially as described and for the purposes herein specified.

79,499.—PURIFYING WOOD SPIRITS.—Julius Pollock, Morrisania, N. Y.

I claim the process of purifying pyroxylic spirit, substantially as herein described.

79,500.—HARVESTER.—Amos Rank, Salem, Ohio.

I claim, 1st, A vertically adjustable separating rod or cut off, vibrating in a circular horizontal path, substantially as set forth.

2d, A separating rod or cut-off, vibrating horizontally in a curved path, and adjustable horizontally relatively to the finger beam, substantially as set forth.

3d, A separating rod or cut-off, vibrating horizontally, and capable of adjustment at an angle to the finger beam, substantially as set forth.

4th, The combination, substantially as set forth, of a reel with a separating rod, vibrating horizontally over the platform.

5th, The combination, substantially as set forth, of a dropping platform with a separating rod, vibrating horizontally over the platform.

6th, The combination, substantially as set forth, of an overhung reel, a dropping slatted platform, and a horizontally vibrating separating rod.

7th, The combination of a horizontally vibrating separating rod, supported at one end only with a finger beam hinged to the main frame.

8th, The combination in a harvester of a laterally projecting hinged finger beam, a reel, a platform, and a horizontally vibrating cut-off, when the three latter are mounted on the finger beam and shoe only.

9th, The combination of a dropping platform with a horizontally vibrating cut-off, when so arranged that dropping of the platform interposes the cut-off, and the raising of the platform withdraws it.

79,501.—LUBRICATOR.—James Richey, Cincinnati, Ohio. Antedated April 10, 1868.

I claim a lubricator with its oil reservoir, A, cast in one piece with the stem, B, and furnished with windows, C C', all substantially in the manner herein described and for the purposes specified.

79,502.—CLOTHES PIN.—John G. Roth, New York city.

I claim in a clothes line clamp formed of two jointed levers provided with parallel or nearly parallel contiguous bearing planes, the quadrangular, self-retaining, rubber spring block, arranged and operating substantially as and for the purpose set forth.

Also, in a clothes line clamp formed of two jointed levers, A A, the abruptly terminating jaw recesses, a2 a2, arranged and operating substantially in the manner and for the purposes set forth.

79,503.—MECHANICAL MOVEMENT.—James See, Mitchell, Ind.

I claim the apparatus above described, consisting essentially of the shaft, C, wheel, E, shaft, F, wheels, f G, shaft, H, wheels, h I 1, cord or chain, J, pulleys, K M. levers, L N, weights, W W', dogs, Q Q', ratchet wheels, O P, and shafts, D, when the several parts are constructed and combined as above described, and for the purpose set forth.

79,504.—METAL FOUNDERS' BLACKING.—John Carrington Sellers, Birkenhead, England.

I claim utilizing the residue or coke left from mineral oils and other like substances, in stills, after the distilling process, by employing it for metal founders' blacking, substantially in the manner hereinbefore described.

79,505.—BASE BURNING STOVE.—S.B. Sexton, Baltimore, Md.

I claim, 1st, The exposed cylindrical coal-magazine, D, sustained upon the jacket, A, by means of an illuminating ring, C, in combination with a fire pot which is enclosed within the jacket, so as to leave a space around it for the

descent of the products of combustion on their way to the escape flue, substantially as described.

2d, An exposed coal magazine, D, an illuminating ring, C, an annular flue chamber, A', and a hollow base, B, arranged and combined substantially as described,

3d, The combination of a cylindro-conic coal supply magazine, the cylindric portion being exposed, an inclined illumination ring, C, furnished with mica or other transparent windows or doors, and a fire pot, all in the manner and for the purpose described.

4th, An escape pipe leading into the frame, K, from an exposed magazine, D, when this magazine is arranged over a fire pot surrounded by a descending flue and supported upon a hollow base, B, substantially as described.

79,506 —ANIMAL TRAP.—E. B. Smith, Marietta, Ohio.

I claim the box, A A', with platforms, B C, constructed as described, spring catches, D E, flat spring, e', passage, f, and trap door, f', the whole being combined and arranged substantially as described.

79,507.—HARVESTER RAKE.—Edgar M. Smith (assignor to Mitchell, Vance and Company, New York city.

I claim, 1st, In revolving, rising and falling, and rolling rakes, the elongating and shortening of said rakes by sliding them in their bearings, so that they will sweep an irregular shaped platform, substantially as described.

2d, Locking and unlocking and moving of the rakes out and in by devices, substantially as herein described, that are self-acting and require no attention on the part of the operator, substantially as described.

3d, The combination of the trigger, i, and sliding lever, k, for moving the rake out, so that it can roll in its bearings and thus become a rake instead of a beater, at the will of the operator, substantially as described.

79,508.—STOVE POLISH.—Edwin C. Smith, Brandon, Vt.

I claim a stove polish, composed of the ingredients set forth, substantially as described.

79,509.— GUIDE FOR SCREWS. — Norman Smith, Hartford, Conn.

I claim the combination of the tube, A B, and two or more springs, E, for the purpose of a guide for starting screws, substantially as herein specified.

79,510.—COOKING STOVE AND RANGE.—James Spear, Philadelphia, Pa.

I claim, 1st, The application of double doors to a cooking stove or range, above the fire grate, constructed in the manner and for the purpose substantially as herein described.

2d, The application of raised or ornamental knobs on the back plate of a cooking stove, for the purpose substantially as herein described.

79,511.—COMBINATION OF WOOD AND PAPER FOR CABINET PURPOSES.—A. C. Spencer (assignor to himself, E. B. Jones, and William H. French), Bridgeport, Conn.

I claim the herein described process for combining wood and paper for cabinet and other purposes.

79,512.—HORSE HAY FORK —G. H. Strough, Watertown, N. Y.

I claim, 1st, The tines, G G, constructed substantially as described, arranged to work in a recess, V, constructed as described, within the sheath or case constituting the body of a pointed fork, and attached to the central rod, F, by means of the pivoted links, t t', all substantially as herein described.

2d, The manner of locking the shanks of the tines, G G', between lips, v v, and shoulders, u, substantially as described.

3d, Effecting the retraction of the tines by means of a spring or springs, applied within the pointed portion, D, of the fork, substantially as described.

4th, The arrangement of the pivoted spring catch, c, nose, e, tripping latch b, and cross head, E, substantially in the manner and for the purpose described.

79,513.—STRAW CUTTER.—D. Sturgis, Byron, assignor to himself and M. Thatcher, Shiawassee, Mich. Antedated June 27, 1868.

I claim the arrangement of the cylinder, as constructed with the frame, A, box, J, and feed rollers, K and N, connected together and operating as and for the purpose set forth.

79,514.—STEAM BOILER FURNACE.—Frederick Sulter, St. Paul, Minn.

I claim the construction of the inclined and horizontal surfaces of the semi-circular hearth, D, with its side air passages, C C, and spark and draft chamber, E, when arranged and combined as herein described and for the purposes set forth.

79,515.—RAILWAY JOINT.—J. H. Swett, Birmingham, Pa.

I claim, in combination with the abutting ends of two railroad rails, the divided jaws, B, and the divided clamp, C C, said clamp being drawn up tight against the jaws, and the jaws against the rails, by a through bolt and nut, for the purpose of strengthening the joint, substantially as described.

79,516.—MACHINE FOR MAKING RIVETS.—James H. Swett, Birmingham, Pa.

I claim, 1st, The combination of the header, die, and rod, c, all arranged and operated substantially as described.

2d, In combination with the header, die, and rod, c, the bolder, T, for keeping the blank straight whilst being pushed up to the header, substantially as described.

79,517.—DEVICE FOR VENTILATING MILLSTONES.—Robert Symes, St. Charles, Mo.

I claim the blower, M, cold blast tube, h, fans, e e' e'' e''', tube, D, and condenser, E, all arranged substantially as specified.

79,518.—HARVESTER.—C. R. Tabor and J. O. Tabor, Salem, Ohio.

I claim, 1st, The arrangement of the lever, D', shaft, E', and arm, F'', in combination with the stay, J, and drag plate, I, for the purpose set forth.

2d, The lever, I', check lever, L', and pointed arm, G', all constructed and arranged to operate as and for the purpose specified.

79,519.—HARNESS BUCKLE.—Spencer P. Taylor, Oxford, Ohio. Antedated June 24, 1868.

I claim the buckle, E, constructed with bridge, A, and spur, d, in combination with tongue, C, when said tongue is formed in the manner specified.

79,520.—LADDER.—Carl C. T. Thomas and Frederick A. S. Raymond, Beverly, Mass.

We claim the movable foot, B, constructed and attached to the side of the ladder, substantially as and for the purposes herein set forth.

79,521.—COMPOSITION CLOCK CASE.—Samuel B. H. Vance and E. M. Smith (assignors to Mitchell, Vance & Co.), New York city.

We claim, 1st, A clock frame, made of the composition herein described, made plastic by diluted alum, and colored and moulded into shape or form, as herein described and represented.

2d, In combination with a composition clock case, made in imitation of marble, a metallic ring, embedded or cemented thereto, which ring serves as a seat for the clock gear, and other attachable or removable parts, as described and represented.

79,522.—METALLIC ROOFING.—Ethan P. Vaux, Washington city, D. C.

I claim a corrugated metal roof that will allow of expansion and contraction in all directions, when the same is constructed and arranged substantially as herein described.

79,523.—WATER HEATER FOR STEAM BOILER.—A. H. Walker, Oswego, N. Y

I claim the arrangement of the pipes, C C and C', chambers, h h, partitions, a, annular chamber, b, drum, A, and pipes, E and D, substantially as herein set forth.

79,524.—CLOTHES DRYER.—J. R. Watkins, Maine Prairie, Minn.

I claim, 1st, The plate, A, having the concave rear side, and provided with the cruciform slot, C, screw holes, D D, and the lug, B, substantially as and for the purpose set forth.

2d, In combination with the above, the screw rod, G, nut, H, and lug, F, having the head, m, and shank, n, substantially as described.

79,525.—SASH SUPPORTER.—John N. Watrous, West Meriden, Conn.

I claim the two spring frames, A and B, combined in a single case, provided respectively with springs, A1 and B1, and bolts, A2 and B2, the yoke of each bolt extending back to the follower or armed hub, D which has its bearings in the side projections, C and C', and operating by the rotation of the spindle H, so as to withdraw either of the bolts, substantially in the manner herein set forth.

79,526.—LAMP SHADE.—Gustav Wedekind, Philadelphia, Pa.

I claim a lamp shade clasp, stamped out in a disk form, in one piece, and with radial arms, which are bent into position to hold the shade to itself, and itself to the glass chimney, substantially as herein described and represented.

79,527.—CHECK VALVE.—J. Wilson, Chester, assignor to A. H. Simon, Philadelphia, Pa.

I claim the valve, B, hung to projections, h, in the casing, confined thereto by the screw cap, d, and arranged for introduction into and withdrawal from the said casing, all substantially as and for the purpose herein set forth.

79,528.—REGULATING DEVICE OF MILLSTONES.—S. Benson (assignor to himself, J. Benson, and J. F. Benson), Centralia, Ill.

I claim the combination of the springs, E E, the disk sections, D D', the pinion, C, and the spindle, A, arranged and operating substantially as and for the purpose herein described.

79,529.—CAR STARTER.—I. N. Bevens, Thomaston, assignor to himself, John H. Olcott, and G. G. Griswold, Plymouth, Conn.

I claim the lever, B', so constructed and applied as to act directly upon the ratchet wheel, D, and employed in combination with the lugs, E, sliding draft rod or bar, H, chain, F, pulley, G, and catch, m, arranged and operating in the manner and for the purpose explained.

79,530.—CLAMP FOR WOOD BENDING MACHINES.—J. B. Van Horn, Trenton, N. J.

I claim the clamp, A, having angular flanges, e e, in combination with the wedge, B, when the same is constructed as described, and the whole operated substantially as described and for the purpose specified.

79,531.—CLOTHES SPRINKLER.—J. W. Walters, Tiffin, Ohio.

I claim, as a new article of manufacture, a clothes sprinkler, constructed as described, and consisting of a vessel, A, having a perforated head, and provided with a hollow handle, B, valve, c, stem, E h, and springs, s, all arranged and operating as set forth.

79,532.—ATTACHING HANDLES TO MOLDBOARD OF PLOWS.—Chas. Williams, Jackson, Miss.

I claim the lugs, a a, bolts, d d, nuts, c c, and handle, e, the whole combined, arranged, and operated substantially in the manner herein shown and described and for the purpose set forth.

79,533.—SPOKE AND FELLY CONNECTION.—Geo. Allen, Winchester, Mass., assignor to B. W. Conroy, Port Huron, Mich.

I claim the within-described device, consisting of the tubular socket, A, the transverse concave seat or rest, B, the attaching arms, C C, and the tenon or projection, D, the latter being formed or cast with the metallic connection, and extending entirely through the felly, in order to cause the tire to be supported by the said tenon, D, substantially as and for the purpose set forth.

79,534.—BABY JUMPER AND CRADLE.—George H. Mellen, Chicago, Ill.

I claim, 1st, The cradle, A, provided with the openings in the bottom, a a', made substantially in the manner and form and for the purpose described.

2d, The cradle, A, provided with openings in the bottom, a a', in combination with the adjustable slides, e e', and spring or springs, B, constructed and made in the manner and form and for the purposes described.

3d, The cradle, A, and openings, a a', combined with the slides and adjustable spring or springs, B, and movable platform, C, constructed and made in the manner and form and for the purposes described.

REISSUES.

66,935.—SKATE FASTENER.—Dated July 23, 1867; reissue 3,007.—E. H. Barney and John Berry, Springfield, Mass.

We claim a skate fastener or key, composed of the socket, B, point, f, and button, e, when made of one or more pieces, substantially as described, and for the purposes specified.

74,799.—MODE OF TREATING MINERAL PHOSPHATE FOR THE MANUFACTURE OF FERTILIZERS.—Dated February 25, 1858; reissue 3,008.—John Commins, Charleston, S. C.

I claim uniting, while hot, phosphatic minerals or earths, with a solution of common salt (chloride of sodium), and water, in part or whole, as and for the purpose herein described.

12,382—BASE BURNING STOVE.—Dated February 13, 1855; reissue 3,009.—Division 1.—James Easterly, Albany, N. Y.

I claim constructing a stove, as herein described, with openings for the admission of air to the burning fuel at some point or points above the grate, including between said points and the grate sufficient fuel for ignition, at any one time, substantially as described.

12,383.—BASE BURNING STOVE.—dated February 13, 1855; reissue 3,010.—Division 2 —James Easterly, Albany, N. Y.

I claim, 1st, A cooking stove, which is provided with a coal supply magazine and a combustion chamber, arranged without the space enclosed by the outer walls of the stove, substantially as described.

2d, The combination of a coal supply magazine, with a cooking stove, when such magazine is wholly outside of the outer walls of the stove, substantially as described.

3d, In a cooking stove having a magazine for supplying the combustion chamber with fuel, inlets for the admission of air to the burning fuel, arranged at some point or points above the grate, substantially as described.

4th, The relative arrangement of the several parts of the stove, whereby the heated products are caused to circulate around the oven, substantially as described.

55,217.—CIGAR MACHINE.—Dated May 29, 1866; reissue 3,011.—George Moebs, Detroit, Mich., assignee by mense assignments of G. Albert Reiniger

I claim, 1st, The table, A, provided with the troughs, M, in connection with the cigar machine, substantially as and for the purpose described.

2d, The spring books, j, in combination with the table, A, apron, b, and roller, a, constructed and operating substantially as and for the purpose specified.

74,941.—CHURN.—Dated February 25, 1868; reissue 3,012.—John B. Raynor, Mazo Manie, Wis.

I claim, 1st, The shaft, C, provided with a series of straight arms, H H, when arranged in combination with the box, B, having a series of I I, in the manner and for the purposes set forth.

2d, The angular arms, G, constructed as shown and described, and arranged upon the dasher shaft, to operate substantially as and for the purposes specified.

66,202.—COTTON GIN.—Dated June 25, 1867; reissue 3,013.—Henry Valentine Scattergood, Albany, N. Y.

I claim, 1st, A ginning cylinder, formed with circular ribs or projections containing or supporting the teeth, said ribs or projections being elevated above the other portion of the surface of the ginning cylinder, and thus leaving grooves for the reception of the guards, substantially as specified.

2d, Forming the ginning cylinder of a series of rings, between which rings or segments of rings, containing teeth, are secured, substantially as specified.

3d, In combination with a cylinder carrying circular ranges of needle pointed teeth, the guards, R, for with openings to their upper ends, as and for the purposes specified.

4th, Attaching the delivering or doffing roller upon arms extending from the axis of the perforated condensing roller or cylinder, so that said delivery roller is allowed to rise and accommodate the thickness of the bat, and is kept properly in contact with the condensing cylinder as set forth.

5th, In combination with the condensing roller or rollers formed with smooth perforated surfaces, the screen, V, and brush blower, B, for conveying the cotton to the condenser, as specified.

6th, A condensing roller or rollers formed of smooth perforated surfaces, in combination with a ginning cylinder and a brush blower to pass the cotton fiber from the said cylinder to the said roller or rollers, substantially in the manner for the purpose above described.

9,653.—CORDED ELASTIC FABRIC.—Dated April 5, 1853; extended seven years; reissue —, dated June 18, 1867; reissue 3,014.—Division B.—William Smith, New York, N. Y.

I claim the corded fabric, substantially as hereinbefore described, in which the cords are elastic, and are held between the upper and under weft threads, and separated from each other by the interweaving of the upper and under weft threads with the warp threads in the spaces between the cords, and only there, substantially as above shown.

15,309.—WATER WHEEL.—Dated July 8, 1856; reissue 3,015.—John Tyler West Lebanon, N. H.

I claim the curved bucket head, e, when the said head is combined with the series of segment shape buckets, d d, substantially in the manner herein set forth.

Also, the segment shaped buckets, d d, when the said buckets are formed with and project from the concave surface of the curved bucket head, e, substantially as herein set forth.

Also, the combination of the buckets, d d, with the bucket head, e, when the said buckets are located in positions tangential to the inner guiding circle, c, substantially as herein set forth.

Also, the combination of the scalloped edged rim, f, with the lower edges of the series of buckets, d d, substantially as and for the purpose herein set forth.

Also, the combination of the elevated cover, D, with the curb of my improved water wheel, when the said cover is so proportioned as to receive and sustain the upper bearing box of the shaft a of the wheel, substantially as hereinset forth.

Also, the combination of the detachable gate box, B, with the mouth of the water way of the water wheel, all substantially in the manner and for the purpose herein set forth.

66,576.—LAMP SHADE.—Dated July 9, 1867; reissue 3,016.—James Emery, Bucksport, Me.

I claim a lamp shade, made of a screen, A, and a carrier, B, designed to be attached, by its upper end, to the chimney of a lamp, with a portion of its body formed to rest against the side of the chimney, which thus serves as a fulcrum on which to support the shade in an inclined position, constructed and applied together, substantially as specified.

31,566.—DRIER.—Dated February 26, 1861; reissue 3,017.—Francis H. Smith, Baltimore, Md.

I claim, 1st, The tunnel, A B C, furnace, R, and chimney, L, when the former is so constructed and arranged that the current of warm air is supplied to the same at the opposite point from which the articles to be dried enter, which causes the articles to be subjected to the action of a varying temperature, substantially as described, and for the purpose specified.

2d, The tunnel, A B C, furnace, R, and chimney, L, and gates, F G H, when the same are so combined and arranged as to operate substantially as described and for the purpose specified.

3d, The tunnel, A B C, furnace, R, chimney, L, and gates, F G H, when the same are in combination with the rails, E E, and car, J, and the whole operates substantially as and for the purpose specified.

20,406.—WATER WHEEL.—Dated June 1, 1858; reissue 3,018.—John Tyler, West Lebanon, N. H.

I claim the hinged section, m, of the inner face of the scroll shaped water way of said wheel, when arranged and operating in conjunction with the movable curb section, k, thereof, substantially in the manner herein set forth.

40,226.—LAMP.—Dated October 13, 1863; reissue 3,019.—Lewis J. Atwood, Waterbury, Conn., assignee, by mesne assignments, of himself.

I claim, 1st, A concave draft plate, having an elongated slot, in combination with a chimney holder, below the edges of that draft plate, and attached to the burner, substantially as set forth, so that the flame will be spread and the light shine both above and below the draft plate.

2d, An opening or series of openings between the said concave draft plate and the interior of the chimney, to allow an auxiliary draft to pass to the flame, in combination with a foraminous air distributor, connected to the burner, substantially as set forth.

3d, A foraminous air distributor, e, formed with or connected to the burner, in combination with a draft plate, supported from the burner and within the chimney, substantially as specified, whereby the action of the air on the flame is regulated by the joint action of said draft plate, air distributor, and chimney.

4th, An air distributor, substantially as specified, in combination with the draft plate and a glass chimney, having a contraction or neck at or near the said draft plate, whereby the said draft plate can be made smaller than with a straight or tapering chimney, and not obstruct the light, substantially as shown.

5th, The chimney holder and the aforesaid draft plate, in combination with mechanism, substantially as specified, for connecting the chimney holder to the burner, whereby the chimney can be removed for trimming or lighting without being detached.

6th, Connecting the said draft plate to the burner by a slide, so that it may be adjusted in position or removed, substantially as and for the purposes set forth.

DESIGNS.

3,072.—SODA WATER FOUNTAIN.—Chas. W. Anderson, Cincinnati, Ohio.

3,073.—LABEL.—Samuel Crump (assignor to E. C. Hazard), New York city.

3,074.—SHOW CASE FRAME.—F. A. Howell, New York city.

3,075.—SCREEN.—Calxin L. Hubbard, New Haven, Conn., assignor to "New Haven Steam Heating Company."

3,076.—COFFEE URN.—George Jones, New Haven, Conn.

3,077.—BOTTLE.—A. Legrand Aine, Fecamp, France.

3,078.—BADGE.—Edward Moore, Portland, Me.

3,079.—COOK'S STOVE.—J. A. Price, Scranton, Pa.

3,080.—DOORS OF A COOK'S STOVE.—Chas. J. Woolson, Cleveland, Ohio.

3,081.—TOY GUN.—Spencer H. Brown and Chas. H. Willets, New York city.

3,082.—SCROLL TO BE APPLIED TO ENVELOPES.—Maro S. Chapman, Hartford, Conn.

3,083.—TRADE MARK.—Spencer M. Clark, Washington, D. C.

3,084.—HANDLE OF SPOON OR FORK.—Augustus Conradt, Philadelphia, Pa.

3,085.—FORK OR SPOON HANDLE.—Augustus Conradt, Philadelphia, Pa.

3,086 and 3,087.—MEDALLION SCARF RING.—Ralph S. Jennings, New York city,

3,088 to 3,093.— FLOOR OIL CLOTH PATTERN.—Charles T. Meyer, Bergen, N. J., assignor to Edward C. Sampson, New York city.

3,094.—CARD BASKET.—Geo. L. Underwood, Boston, Mass.

EXTENSION NOTICES.

John J. Weeks, of Oyster Bay, N. Y., having petitioned for the extension of a patent granted to him the 26th day of September, 1854, which patent was surrendered and application made for reissue in four divisions, for an improvement in harvesters of grain and grass, for seven years from the expiration of said patent, which takes place on the 26th day of September, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 7th day of September next.

Joel F. Keeler, of Pittsburg, Pa., having petitioned for the extension of a patent granted to him the 26th day of September, 1854, for an improvement in platform scales, for seven years from the expiration of said patent, which takes place on the 26th day of September, 1868, it is ordered that the said petition be heard at the Patent Office on Monday, the 7th day of September next.

Inventions Patented in England by Americans.

[Compiled from the "Journal of the Commissioners of Patents."]

PROVISIONAL PROTECTION FOR SIX MONTHS.

1,250.—HEATING AND VENTILATING APPARATUS.—John Johnson, Saco, Me. April 16, 1868.

1,728.—REMOVING INK AND COLORS FROM PAPER, ETC.—Joseph A. Veazie, Boston, Mass. May 26, 1868.

1,732.—ROTARY, STEAM, AND OTHER ENGINES.—J. M. Boorman, Scarborough, N. Y. May 26, 1868.

1,734.—PACKING FOR STEAM ENGINES, ETC.—Ivon B. Miller, Hackney Road, Middlesex, Eng., and Wm. H. Miller, Philadelphia, Pa. May 26, 1868.

1,736.—BREECH-LOADING FIRE-ARMS AND CARTRIDGES.—B. Burton, Brooklyn, N. Y. May 26, 1868.

1,737.—PLOWS AND OTHER IMPLEMENTS FOR CULTIVATING LAND.—S. G Reynolds, Bristol, R. I. May 26, 1868.

1,760.—APPARATUS FOR HOPPING BEER.—Wm. S. Haight, Waterford, N. Y. May 28, 1868.

1,853 —PROJECTILES FOR RIFLED CANNON OR ORDNANCE.—E. A. Dana Brookline, Mass. June 5, 1868.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The largest gold brick ever seen in Montana was lately on exhibition in a bank in Helena. Its weight was 1,682 ounces, and its value $31,050.

The Superintendent of the Pennsylvania railway, investigating the relative cost of making high and moderate grades, has shown that if of two roads, each one hundred miles long, the one has grades of twenty-five feet to a mile, and the other level, and the demand for transportation on each amounts to 2,000,000 of tuns per annum, the difference in favor of the level road is $600,000, or the interest on $10,000,000.

At the steel works of John Brown & Co., at Sheffield, Eng., is a machine for cutting iron rails cold. A circular saw, sixteen inches in diameter and one quarter inch thick, making twenty revolutions per minute, has the power and actually does the work of cutting six steel rails every hour. A feature admirable for the order and cleanliness of the same mill, is a cemetery for the rolls not in use, where they are all buried in special tombs provided for their reception under the iron floor of the mill, whence they are easily removed by the hydraulic cranes.

Professor Hitchcock, of Amherst College, in a recent public lecture, said there was enough copper ore in Gardner's Mountain, New Hampshire, to supply all the United States for two hundred years, the metalliferous vein extending for five miles, and having an average depth of five hundred feet.

The mineral wealth of Algiers is represented to be inexhaustible. At the iron mine Makta-el-Hadeel, near Bône, the mineral in some places crops up above the surface of the ground, and is worked in immense, crater-like cuttings to a depth of one hundred feet. About 200,000 tuns of ore, yielding 65 per cent of pure metal, are annually sent to France from these mines.

The most expensive railway line in England, and probably the costliest ever constructed, is that of the London and Southeastern company's, from Charing Cross to Sevenoaks. Upon this road, less than twenty-six miles in length, the enormous sum of $47,500,000 in gold has been expended. We were informed by an engineer in London that the Charing Cross connection in the city, in length about two and a half miles, cost $5,000 per yard forward, including stations and two bridges across the Thames.

The large alum works in the province of Brandenburg, Prussia, has been purchased by two enterprising New Englanders engaged in business in Hamburg. The number of American firms in that city have doubled since 1866.

Recent investigation has proved the fact that the Island of Newfoundland possesses mineral treasures in large variety and abundance. Since the discovery has been made, the project has been revived of building a railway from St. Johns across the country to the western shores of the island. The projectors of the road—among whom is our energetic countryman, Cyrus W. Field—have secured a tract of land twenty miles in width, and extending over the whole length of the contemplated route, the land being wonderfully rich in copper ore of the very best quality. The railroad will open up the entire inland country, and render it accessible for mining operations.

At a recent *conversazione* of the London Institute of Civil Engineers, a curious process for manufacturing steel by friction was explained and commented upon. By the aid of machinery pig iron is ground to powder by a rapidly moving cutter. The great amount of friction generated produces a heat so intense that the iron is set on fire, and after scintillating falls down as reddish-brown dust, the combustion having caused the riddance of the superfluous carbon. The dust is collected, put into a crucible, melted, and when cooled is found to form ingots of steel of superior quality.

In boring a well to obtain water in the town of Dax, Department of Landes France, a bed of rock salt was discovered at the depth of one hundred feet By the use of water, injected through a pipe, the perforation was continued through the rock salt some fifty feet further, and the result is a saline fluid containing nearly ninety-eight per cent of pure salt. A company has been formed to work these remarkable deposits.

NEW PUBLICATIONS.

ENGRAVED PORTRAIT OF GENERAL GRANT.

Many of our readers are doubtless familiar with Marshall's celebrated engraving of Abraham Lincoln, which as a work of art has received the unqualified praise of critics both in Europe and our own country. The same artist has produced, from his own oil painting, a very fine engraving of Gen. Grant, which has received the indorsement of his family. As a superb work of art it equals that of Lincoln, and is worthy of the highest commendation It is published by Tickner & Fields, No. 63 Bleeckerstreet, New York, and is sold by subscription only. We are asked to state that agents are wanted for its sale.

THE MECHANIC'S TOOL BOOK. By W. B. Harrison. D. Van Nostrand, 192 Broadway, New York city.

The author and compiler of this manual very justly says that "no two mechanics work alike," and it needs but little observation to verify its truth. In many shops, particularly the jobbing machine shop, a readiness to adapt with celerity the tools or appliances on hand, or to contrive plans for an exigency, is a rare and valuable quality in workmen, and such men are not easily found. To enable the apprentice to learn and the journeyman to command the use of such appliances is the intention of this volume. As a practical mechanic we think the writer has succeeded in imparting information valuable because given by a practical man, and useful because well arranged and profusely illustrated.