But this does not prove that cheaper engines of war may not be devised, and still be more effective. That this system of defence is the cheapest may be demonstrated by comparison with the cost of one of the British iron-clads. Let us take the *Minotaur*, which was built as a model war ship, fully up to the times. The weight of her hull alone is 7,586 tuns —five times more than this fort. Armor and backing 6,124 tuns—four times more than the fort; engine and coal 2,540 tuns —more than half as heavy again; making, exclusive of armament, 16,250 tuns, within a fraction of ten times the weight of this fort. The hull alone cost £365,365; with double armor and backing, would cost £757,350—equal to about $3,756,750. But the *Bellerophon* is claimed to be an improvement, though smaller and lighter, with a saving of a quarter of a million pounds. These statements are taken from a paper read by Mr. Reed before the Royal Society, London. We are not prepared to say just what this fort will cost, but other things being equal, it will be nearly in proportion to their respective weights, not exceeding $400,000, or about one tenth of the *Minotaur*; and it would be safe to say that our Government could build ten forts and equip them for action, for every single iron-clad of this type that any foreign Government could build and send against us, at the same time the commander of such iron-clads might hesitate to attempt to pass two of these forts and one battery properly located in the Narrows below this city.

But the construction account is not the only or most unfavorable comparison, the cost of maintaining these sea monsters on a war footing is simply enormous, to say nothing of the deterioration, even when laid up in ordinary. It requires a strong detail of officers and men to keep them afloat and in repair, whereas this fort is never in danger of sinking, or getting out of repair in its machinery, and in time of peace these forts are to be laid up, by drawing off the water and allowing the fort to settle down on its ways, when the iron has only to be protected from oxidation, and a detail of one man to a fort would be a sufficient guard. When in a case of emergency, by having connection with a reservoir, in twenty minutes the fort could be set afloat, all in fighting trim. Neither is this all the saving by this system, as in case of the batteries they may be manufactured to order (exact duplicates), and stored in all the arsenals and seaports, when, if occasion requires, they could be put into working order with all their equipments in thirty days, more or less, according to the emergency.

The discrepancy between their respective powers of offence and defence, may be presented in a few words. The forts are to be absolutely impregnable against any and all shot that can be hurled against them; each one armed with a battery of eight or more guns, double, or perhaps quadruple the weight that will be carried by any iron-clad; with projectiles in proportion, delivered with almost the accuracy of a rifle marksman, at the rate of one every minute, against the sides of a ship made of iron and wood, probably in its strongest parts equivalent to eight inches of iron; for it must be remembered that ships of this type are not entirely clad with iron, the exposed parts being of about the same value for defence that a cigar box would be to a minie ball. Nor would their iron plating amount to much more in resisting projectiles of 500 or 1,000 pounds, propelled with from 100 to 200 pounds of powder; and it remains to be seen what effect a thousand pound shell would have, exploded alongside of an iron-clad, charged with fuminating powder, gun-cotton, or nitroglycerin. Doubtless the ship would be relieved of some of its iron plates. Of course no nation will ever send ships to fight such forts, but only to pass them, if they could.

Further information may be obtained by addressing James T. Ryan, St. Nicholas Hotel. Patent pending.

Correspondence.

The Editors are not responsible for the Opinions expressed by their Correspondents.

Is the Age of Invention at a Stand Still?

MESSRS. EDITORS:—A period of forty years past may be termed the "Age of Invention." We can compare the present with the past: the old stage-coach, or diligence, in Europe, with the steam locomotive of to-day; the old sail ships with the present steamships. We can find in our mother's list of old letters large foolscap sheets, sealed by wax—no envelopes—and bearing date four or five weeks from that at which they were received; and we can compare these missives with those transmitted by our present postage system and the telegraph. We call to mind, also, the great improvements in the art of printing. Then glance at the machinery used in the department of agriculture—mowing machines, horse rakes, reapers, thrashers, plows, cultivators, etc.—and consider the manual labor of forty years ago. The department of war, with ironclads, breech loaders, etc., furnishes a striking comparison. The household, with sewing machines, washing machines, and a number of minor labor-saving machines, still adds to the comparison. We could continue in this strain indefinitely, but we are led to the question: "*Is the age of invention at a stand still?*" That is, will there be, in the coming forty years, so great an improvement in the modes of transit as there has been in this past forty years? Will there be as wonderful an improvement in the means of transmitting messages? What improvements are we to have in the arts? Is the science of to-day to be still more revolutionized? Will the farmer be aided as much in the future as he has been in the past? Is the age of invention at a stand still? Forty years from now will tell! Inventors, have you among you a Stephenson, a Watt, a Jacquard, a Morse, a Fulton, and a Howe? Will there be with you, forty years to come, an Ericsson or a Hoe? Your deeds are to be inscribed on the tablet of time. Will your names stand in the list alongside of these illustrious ones? The field is large, and it is merely fenced in—the space is open, and rich crops will repay the tilling!

We hazard an answer that the coming forty years will witness some marvelous improvements. That wonderful agent, electricity, is only yet half harnessed. We now, for a few cents, send word to, and hear from friends a thousand miles away, it being inconvenient only as regards time. Will we not, some day, sit down to a family telegraphing machine and send messages by lightning, without the bother of the mail, and the inconvenience of writing at all?

We speed over the ground, "rattling over bridges," whizzing through the forest, journeying from New York city to San Francisco in seven days; but will it be done in seven hours? No! is the answer of to-day. An old authority on railroads, Wood, in 1825, wrote in his able work: "Nothing can do more harm to the adoption of railroads than the promulgation of such *nonsense* as that we shall see locomotive engines traveling at the rate of 12, 16, 18, and 20 miles per hour!" A later authority on this subject has added, "an express train on the Great Western Railway, drawing 59 tuns, has traveled, for three hours, at the rate of 63 miles per hour!" (Ritchie on Railways). Comment is unnecessary. Will the Pneumatic process of transmission effect the coming great stride from seven days to seven hours, for time across the continent? *Why not?* No running off the track; no collisions! Really, the "coming man" need not drink in going from New York to California!

Look around you, inventors, and see the endless labor yet to be saved. A thousand and one wants stare you in the face. Steam is yet to be half utilized. Who is the coming man for this? Is it Ericsson with the solar heat and "Sun engines?" Why, almost at the moment of writing, a sewing machine is being bothered with, because it pulls the work, from the fact that all machines are defective in that the feed is only at one side of the work. Who is the coming man for this?

There is no end to the wants of the present day. Will the next forty years supply them all? Time will tell. N. F. P.

Paterson, N. J.

Burning of Powder in Fire Arms.

MESSRS. EDITORS:—I notice in No. 21, current volume of SCIENTIFIC AMERICAN, page 330, an article headed "Carefulness in the Management of Fire Arms." Now, I perfectly agree with you as to the necessity of keeping a gun clean, but differ with you in other respects. I am over fifty years old and have made gunnery my business, making many experiments. The dirt that collects in a gun barrel will not explode or burn, even by bringing a red hot iron in contact with it. You carry the idea that only a limited amount of powder will burn, and that a gain twist will foul more at the muzzle than at the breech. This is the case with the breech loader, but with the muzzle loader the dirt is driven down at each loading, and if you are able to get your ball down to the powder there will be no danger of bursting the gun.

Now I will give a detail of an experiment that I made about ten years ago in Marshall, Michigan. I spent one day with three men to assist me. I had a heavy target rifle, cast steel barrel, weighing 32 lbs., and carrying 120 round balls, or 50 conical slugs to the lb., and the slugs were one inch long. It was a fine, still morning in the winter, after a snow that fell that night without drifting. I measured accurately one half mile on the ice of the Kalamazoo millpond, and commenced with a light charge of powder after first driving a slug ball through the barrel with the breech pin out, and saving the ball in order to compare it with those fired at the target, but not hitting anything but skipping along in the soft snow until finally they would stop without a scratch or a bruise, just as they left the rifle. After finding one from the first or small charges, I increased my powder half an inch more in depth in the barrel, and throwing clean snow in front of the gun in order to detect if any powder was thrown out unburnt, and then adjusting my sight until I could hit the target. I kept on in this way until I used six inches of powder in depth, measuring from the breech at each charge. The result was that each half an inch of powder raised or carried the ball about three feet higher at each increase of charge, and no more dirt in front of the gun; and each successive ball or slug was stove up, or more properly "upset," and showed the impression of the grooves or rifling still further up, until the last filled them from butt to point. Now this proves not only that all the powder burns, but burns instantly before the ball starts, or else it would not upset it any more with a large charge than a small one. I think it impossible to throw out a single grain of powder if you filled the barrel full with a ball on top of it to confine it; for before the pressure of the gas comes against the ball the fire has found its way between the grains to the utmost extremity of the place of confinement; and for this reason, in blasting rocks every grain must explode before anything gives or else there would be no need of more powder for a deep heavy blast than for a light one. But powder when not confined acts differently, for when the first grain ignites it has plenty of room to escape without being forced through the other until it catches from one grain to another, except what resistance the atmosphere produces.

There is one thing I forgot to mention, viz., that by using a very small charge of powder and by wetting the wad or patch very wet there will a few grains stick to the wad or patch unburnt, for the heat is not intense enough to dry it before it gets out of the gun, but with a large charge it will not only dry the wet powder but burn the patch as if a red hot iron had been pressed against the butt of the ball with a patch drawn over it.

M. L. ROOD.

Denver, Col.

THE strain of belts is always in the direction of their length; thus holes cut for the reception of lacings should be either oval, the long diameter in line with the belt, or placed in the line of a double or V-shaped angle across the width.

OFFICIAL REPORT OF PATENTS AND CLAIMS

Issued by the United States Patent Office

FOR THE WEEK ENDING DECEMBER 8, 1868.

Reported Officially for the Scientific American.

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

On filing each Caveat	$10
On filing each application for a Patent, except for a design	$15
On issuing each original Patent	$20
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☞ *Pamphlets containing the Patent Laws and full particulars of the mode of applying for Letters Patent, specifying size of model required, and much other information useful to Inventors, may be had gratis by addressing MUNN & CO., Publishers of the Scientific American, New York.*

84,670.—PUNCHING MACHINE FOR TIN AND SHEET METAL.—John Annear, Philadelphia, Pa.

I claim the rotary bed plate, C, the punch, D d', and the "former," E e', the same being constructed and arranged to be operated together, in any suitable frame, A B, substantially as and for the purpose described.

84,671.—DEVICE FOR PREVENTING INCRUSTATION IN STEAM GENERATORS.—Robert Breckenridge Baker and Charles James Adolphus Dick, Paris, France, assignors to the American Anti-Incrustation Company.

We claim an insulated mass or block of carbonaceous matter, suspended within a boiler, near one end of the same but connected by a wire to the shell of the boiler, near the opposite end of the latter, all substantially as set forth.

84,672.—SHAFT COUPLING.—Charles Bennitt, Bristol Station, Ill.

I claim the combination of the band, H, journal, G, pulleys, E E, jaws, C and D, with the rods, B B, as and for the purpose herein specified and shown

84,673.—MACHINE FOR CUTTING EYELETS.—George B. Brayton, Providence, R.I.

I claim an apparatus for cutting tubing into sections, for eyelet blanks or other purposes, consisting of a series of revolving cutters, a a, a surrounding revolving jacket, B, for holding and conveying the tubing, and a pressure cylinder, C, all in combination, substantially as described, for the purposes specified.

Also, making the openings, D, in the jacket or casing, B, for holding and conveying the tubing inclined to the axis of the series of cutters, a a, as herein set forth, for the purposes specified.

84,674.—SELF-REGULATING AIR VALVE FOR STEAM HEATERS.—Moses P. Breckenridge Meriden, Conn.

I claim inserting the frame, B, which holds the spring, C, into the case or cylinder, A, by this means allowing the said cylinder to be constructed in one piece, and thereby doing away entirely with the use of packing.

84,675.—GAS BURNER.—Julius Bronner, Frankfort-on-the-Maine, Prussia.

I claim, 1st, The use of a slit as aperture to a gas burner, the top exterior surface of the head of which is concave or funnel shaped, substantially as and for the purposes set forth.

2d, The combination of the two gas burners thus made, in other words, of two fish tail slit burners, to form a compound economic or double burner, or of one such fish tail slit burner, with an ordinary burner, substantially as described.

3d, The use of the fish tail slit burner head or insertion, c, constructed and applied substantially as herein set forth.

84,676.—RUFFLING DEVICE FOR SEWING MACHINE.—Reuben Brooks, Jr., and William N. Manning, Rockport, Mass.

We claim, 1st, The combination of the bar, B, slotted plate, H, and screw, G, all constructed substantially as described, and for the purpose set forth.

2d, The rubber presser, D, combined with the bar, B, and tension plate, E, substantially as specified.

3d, The adjustable spring guide, F, in combination with the tension plate, E, and presser, D, as specified.

84,677.—FASTENER FOR LASTS.—Hiram Brown, Burton, O.

I claim the slide, D, so arranged in such relation to the last, B, that the lower end of said slide is received directly into the last, in the manner as and for the purpose set forth.

84,678.—MECHANICAL MOVEMENT.—A. R. Buffington, U.S.A.

I claim the improved mechanical movement, consisting of devices herein described, by means of which angular motion may be transmitted from one body to another, increased in velocity to twice, or reduced to one half, the power varying, but the motion uniform, according as the one from which the initial motion proceeds acts upon the other, by means of surfaces on which slide or oil parts connected with this other body, or through the intervention of projections, axles, hubs, or pins simply, or these with blocks or wheels fitted on them, sliding, rolling, or moving in contact with surfaces of said other body, as substantially herein described.

84,679.—GAS RETORT.—Mills L. Callender, New York, assignor to himself and Sidney L. Holdredge, Greenburg, N. Y.

I claim a double retort, made, arranged, and operated in the manner and for the purposes substantially as described.

84,680.—WEATHER STRIP.—E. Carpenter, Carbondale, Pa.

I claim, 1st, The arrangement of the weather strip, A, having the two projections, a a', with the slots, e e', in the plates, E E, attached to the jamb, or in the jamb itself, substantially as herein described and shown.

2d, The combination of the strip, A, levers, B D, and door, when the several parts are constructed and arranged to operate in the manner described and shown, and for the purposes specified.

84,681.—FRICTION CLUTCH PULLEY.—Andrew B. Clemons, Ansonia, Conn.

I claim, 1st, The screw-threaded levers, E and E', in combination with the friction plate, D, and threaded hub, C, of the pulley, for the purpose of drawing the two parts together, substantially in the manner and for the purpose specified.

2d, The shoe, F, in combination with the levers, E and E', and pins, a a, for the purpose of operating the said levers upon the hub, C, of the pulley, substantially as herein set forth.

84,682.—WAGON TONGUE SUPPORT.—N. A. De Long, New Scotland, N. Y.

I claim the combination of the tongue and axle with the slotted adjustable plate spring, embracing the standard, F, and having four points of support, as and for the purpose set forth.

84,683.—LEVER GRAPNEL.—Edwin B. Dewey, Pontiac, Mich.

I claim the bearing lever, F, provided with suitable hook, G, when connected with curved and pointed levers, A and B, and constructed and operating substantially as and for the purposes herein set forth and described.

84,684.—HORSESHOE.—Fordice W. Edison, Port Huron, Mich.

I claim the arrangement of the expanding springs, C C, on the toe piece, E, to which the wings, A A, are pivoted, substantially as and for the purposes set forth.

84,685.—MAGAZINE GUN.—W. R. Evans, Thomaston, Me.

I claim the combination of the fluted shaft, D, which contains one or more flutes, with the fixed spiral thread or partition, B, substantially as specified.

84,686.—APPARATUS FOR DEODORIZING, DESICCATING, AND MIXING MANURES.—Henry S. Firman, New York city.

I claim, 1st, Arranging a close desiccating and mixing pan, constructed substantially in the manner described, and provided with mixers, as set forth, in a close heating chamber over a furnace or heating flue fitted with dampers, and constructed substantially as described.

2d, The combination of the supply hopper, constructed substantially as described, with a close desiccating pan for the purpose of introducing the material to be treated in the pan, as set forth.

3d, Combining, with a close desiccating and mixing pan, a deodorizing or absorbing chamber for the purpose of utilizing the offensive gases, and avoiding the nuisance occasioned by their escape from the pan.

4th, Creating a circulating of the air and gas in the desiccating pan by by means of an air pump affixed thereto, through the agency of pipes, arranged substantially as described.

84,687.—FASTENING FOR HORSE COLLARS.—James P. Force and John E. Force, Constantine, Mich. Antedated November 21, 1868.

We claim the combination with the collar A A' A'', of the flexible straps or latches, B, and catches, C, constructed and employed as and for the purpose described.

84,688.—CAR SPRING.—Perry G. Gardiner, New York city.

I claim the arrangement of an india-rubber spring, H, surrounded by steel spring rings, n m, and w, and india-rubber springs, J, enclosed in a suitable casing, E, in combination with a plunger, P, acting upon the central india-rubber spring, H, the whole being combined and operating together, in the manner and for the purpose substantially as described.

84,689.—GAS-LIGHTING DEVICE.—E. P. Gleason, New York city.

I claim, 1st, Charging or filling an elastic gas-tight receptacle with gas, and then supplying the same to a burner connected thereto for lighting purposes, whether the same shall be accomplished in the precise manner shown, or in an equivalent manner.

2d, The combination with an elastic gas-tight reservoir, B, of a suitable case, A, and an exit-pipe, D, constructed and operating substantially as described for the purposes specified.

3d, The combination of an elastic gas-tight reservoir or receptacle, B, case, A, and exit pipe, D, with a spring, G, placed either within or beneath the receptacle, B, for the purposes fully described.

4th, The combination of the case, A, receptacle, B, exit pipe, D, and spring, G, with the cord, E, for the purposes set forth.

84,690.—MACHINE FOR STRETCHING HAT BODIES.—William C. Griswold, Brooklyn, N. Y.

I claim the combination of the tip-stretching mechanism consisting of the spokes, c', and star, m, with the brim-stretching mechanism, consisting of inclined stationary arms, d', and the expansible or spreading arms, i, all constructed arranged, and operating substantially as herein specified.

84,691.—MANURE HOOK.—Michael Stoll and Henry Gross, Middletown, Pa., assignors to Henry Gross

We claim,1st, The handles, A, provided with the slots, i i, and the stops, p p, in combination with the beam, B, and hook, C, substantially as described, and for the purposes set forth.

2d, The lever, e, to act in conjunction with the slot, j, as and for the purposes specified.

84,692.—IMPLEMENT FOR TRENCHING AROUND PLANTS TO PREVENT THE APPROACH OF WORMS.—W. H. Halleck, Ann Arbor, Mich.

I claim the invention of an implement to prevent the cut or wire worm from destroying corn and plants, using for that purpose the aforesaid stamp, (circular, rolling, square, sliding) or any shape substantially the same, for the same purpose as herein set forth

84,693. —GRAIN BINDER.—Virgil Hayes, Campbell G. Waldo, and Harlan A. Main, Tekonsha, Mich.

We claim, 1st, The stationary arm, J, and the tilting rack, K, with its disengaging lever, f, the bracket, M, and stationary rod, N, provided with rests, O, spool pulley, P, with its spool, Q, pin, X, and hollow arm, R, with its opening, S, or their equivalents, when arranged and operating substantially as and for the purposes specified.

2d, The clutch pulley, V, provided with inclined plane, 2, clutch lever, W, shifter, Y, clutch, 1, shaft, 3, the pulley, Z, provided with wrist pin, 7, and hook, 8, spur wheel, 4, pinion, 5, ratchet wheel, 6, hinged binding apron, U, spring latch, 10, closing spring, 12, provided with wire or rod, 11, and the knife, 9, or their equivalents, when arranged and operating substantially as and for the purposes set forth.

84,694.—CLOTHES RACK.—I. Hogeland, Indianapolis, Ind.

I claim, in a rectangular clothes frame, the two rigid stays or cross bars, B B, pivoted at one end to one of the side pieces, A A, and having the end which is not pivoted attached to the opposite side piece, in such a manner that it is easily detachable, substantially as described and for the purpose specified.

84,695.—SHEARING MACHINE.—Samuel W. Huntington, Augusta, Me.

I claim, 1st, The construction and arrangement of the fixed blade, a, the post, c, and goose neck, e, the lever, i, attached to and moving in the slot formed in said goose neck, and the movable shear blade, connected with both the post, c, and lever, i, as herein shown and set forth.

2d, In conjunction with the fixed and movable blades, a and f, and the lever, i, arranged as specified, the auxiliary cutting blades, d and g, formed in rear of the pivotal point, a', the one upon the post, c, and the other upon the prolongation of the shear, f, as herein shown and described.

84,696.—BURGLAR ALARM AND TABLE BELL. — Anthony Iske (a signor to himself and Benjamin Mishler), Lancaster, Pa.

I claim the combination and arrangement of the base, V, with its chambers for the affixed key, U, and the spiral spring, T, gearing, and bell attachment, all constructed and operating substantially in the manner and for the purpose specified.

84,697.—DEVICE FOR CUTTING OUT SECTIONS OF ANNULAR CYLINDERS.—Jacob O Joyce, Dayton, Ohio.

I claim the combination and arrangement of the bed plate, A, tool post, G, and cutter, I, with the gear wheel, C, shaft, E, worm, D, all substantially as and for the purpose specified.

84,698.—LATHE CHUCK.—Anson Judson, Brooklyn, N. Y.

I claim making the jaw, C, and the nut, B, or its equivalent, in two or more parts, instead of in a single piece, as has formerly been done, and so combining these parts that the action of the part, B, upon the part, C, shall draw the latter snugly to the face plate or bed, substantially as hereinbefore set forth

84,699.—MODE OF APPLYING CRYSTAL FROSTING TO GLASS. —Handy B. Kimball, Charlotte, Mich.

I claim, as a new article of manufacture, the "crystal frosting" on window glass, producing by flowing one side with any suitable efflorescing solution and protecting the efflorescence, when fully dry, with copal or other suitable varnish, substantially in the manner and for the purpose herein specified.

84,700.— CAR COUPLING.—Christian Kohler, Galena, Ill.

I claim the combination of the lever, a, pivoted pin, b, with a buffer head, which has cavities, i and j, therein, when constructed and arranged to operate in connection with a spring, k, substantially as described as and for the purpose specified.

84,701.—BOLT TRIMMER.—G. W. Lewis, Dansville, N. Y.

I claim, 1st, The curved handle, d, cast with the stock, A, in combination with the independent screw, l, the cam lever, g d', fulcrum, i, and the cutters, b c, substantially as described for the purpose specified.

2d, In combination with the above, the spring, h, substantially as and for the purpose described.

84,702.—WATER PROOF PAINT.—John A. Moffitt, Boston, Mass. Antedated November 25, 1868.

I claim, 1st, The combination of either India-rubber, gutta percha or balatta, with benzine or naphtha, and either arsenic arsenic acid, or the "universal deodorizing powder", as dryers, in manner and for the purposes hereinbefore described.

2d, The combination of either India-rubber, gutta-percha, or balatta, with benzine or naphtha, and either of said dryers, arsenic, arsenic acid, or the "universal deodorizing powder," with oils and pigments, in the manner and for the purposes hereinbefore described.

3d, The application of arsenic, arsenic acid, or the "universal deodorizing powder," as dryers for india rubber, gutta percha, or balatta.

84,703.—CHILD'S DIAPER.—Mary A. Moore, Lisbon, Ill.— Antedated November 23, 1868

I claim the combination of the diaper, A, with the elastic straps, B C D, constructed and arranged substantially as set forth.

84,704.—REVERSIBLE LATCH.—W. T. Munger, Brandford, assignor to P. and F. Corbin, New Britain, Conn.

I claim the lever, a, acting as a stop, and also retaining the reversible latch, substantially as specified.

84,705.—GRAIN SEPARATOR.—S. E. Oviatt, Richfield, Ohio

I claim, 1st, The finger bar, D, and conveyer, C, in combination with the roller, H, or its equivalent, to operate substantially as set forth, for the purpose specified.

2d, So hanging the finger bar, D of the conveyer to the endless belt, chain, or apron, as to allow the said finger bar to receive a turning or tipping motion, to throw or agitate the straw when it is being conveyed from the threshing cylinder, substantially as and for the purpose described.

84,706.—THRESHING MACHINE. — S. E. Oviatt, Richfield, Ohio.

I claim, 1st, The metallic bracket, C, when attached to and forming a support for the lower end of the stacker, B, and having its pivot or journal a hollow, forming a box or bearing for the carrier shaft, E.

2d, The metallic bracket, C, so connected with the stacker, B, and frame of the thresher as to form a pivot and support for the lower end of the stacker, substantially as set forth.

3d, The hinged tail board, H, and tail screen, I, in combination with the shoe, G, of the thresher, substantially as and for the purpose set forth.

4th, the hinged chute, K, cut off, L, and shoe, G, arranged in the manner and for the purpose as set forth.

84,707.—ADVERTISING DEVICE.—Cyrus Peabody and Patrick H. Delaney, Detroit, Mich.

We claim the combination, with an advertising board or frame, of a bell-striking clock-work, substantially as and for the purposes set forth.

84,708.—HORSE HAY FORK.—Cullen W. Reed, Chagrin Falls, Ohio.

I claim the cross head, A, when the same is slotted its entire length, the pivoted hinged tines, B and C, when the former is provided with a lever arm, E, in combination with a dog, E, and the whole is so arranged as to operate substantially as and for the purposes set forth.

84,709.—REPEATING CLOCK.—C. W. Roberts, Austin, Ill.— Antedated November 21, 1868.

I claim, 1st, The combination of the bell spring, J, bell, I, and standards, a b c, etc, substantially as set forth.

2d, The combination of the bell, I, spring, J, slide, G, cams, M N, and levers, D B, as and for the purpose set forth.

84,710.—STEAM GRADUATOR. — William Aspley Robinson, Auburn, N. Y.

I claim the arrangement of the graduating lever, B, with the reversing lever, A, quadrant, C, and joint, E, as shown and described.

84,711.—GATE LATCH.—John C. Rogers, Alden, N. Y.

I claim the oscillating catch, C, hinged to the getepost, and provided with notch, e, and socket, f, in combination with the rigid pin, g, and bolt, i, operating substantially in the manner and for the purpose set forth.

84,712.—HAY FORK.—E. G. Dorchester and Uri Scott, Geneva, N. Y.

We claim the tines, A, when constructed as herein shown and described, and wedge, B, and screw, c, or its equivalent, in combination with the ferrule, C, all acting conjointly, as and for the purpose set forth.

84,713.—MACHINE FOR SACKING POTATOES.—Edwin Seely, Elkhart, Ind.—Antedated November 23, 1868.

I claim the hetchel slides, C and D, bin, B, the whole constructed, arranged, and operated substantially as and for the purpose set forth.

84,714.—MACHINE FOR BENDING SHEET METAL. — Amos Shepard, New Britain, Conn.

I claim, 1st, The combination of the plate, C, bars, A A, and supports, L L, the whole connected and operating substantially as and for the purpose described.

2d, The combination of the plate, C, bars, A A, slides, B B, and set screws, c c, the whole connected and operating substantially as and for the purpose described.

3d, the combination of the plate, C, bars, A A, gauge, a, and table, K, arranged and operating substantially as and for the purpose described.

4th, Hinging the plate, C at one end so that the other end of the plate, C can be raised, substantially as and for the purpose described.

5th, The combination of the bars, A A and plate C, when arranged so that at each operation of the machine the plate, C, shall move edgewise towards the bars, A A, and gripe the metal previous to any action or movement of the bars, A A, substantially as and for the purpose described.

84,715.—WASH BOILER.—M. W. Staples, Catskill, N. Y., assignor to himself and John H Burtis, New York city

I claim the tubular legs, d, supporting the removable bottom, c, and provided with openings in their sides, near the lower ends, in combination with a tube, rising above the bottom, c, through which the rising water circulates, substantially as set forth.

84,716.—CAR COUPLING.—O. S. St. John, Willoughby, Ohio.

I claim, 1st The link, G, made with hook, b, and guide shoulders, C, thereon, operating in the manner and for the purpose described.

2d, In combination with the above, the cams, K and L, chain, N, and shaft, l, arranged as described, and operated by the means, and in the manner, and for the purpose substantially as specified.

84,717.—TACK HOLDER AND CARPET STRETCHER.—J. E. Sturdy, Augusta, Me.

I claim, as a new article of manufacture, a combined carpet stretcher and tack holder, composed of two hinged jaws, notched upon either or both of their contiguous edges, so as to receive and hold the tack, and having their carpet stretching teeth turned inwardly or towards the center, as set forth, either without or in combination with a spring of vulcanized rubber, or its equivalent, for holding said jaws together, substantially as and for the purposes described.

84,718.—BEEF STEAK CUTTER AND MANGLER.—De Witt C. Thompson, Ischua, N. Y.

I claim the combination of the forks, A, with the platform, D, and rollers, B, and shard knives, C, as above described, for the purpose specified.

84,719.—HYDRAULIC APPARATUS.—John Findley Thompson. Greensborough, Pa.

I claim, 1st, A pair of upright stationary cylinders, having ports for the admission of water from the forebay, in combination with the valves, a a', which open and close such ports, and pistons, c c', which operate inside the cylinders, and are attached to the opposite arms of a walking beam, substantially as and for the purposes above set forth.

2d, A reciprocating shaft, l, when used for actuating the valves of water-proof cylinders, b b', and constructed with adjustable connections, h and h', for securing an adjustable or variable cut-off, and giving any desirable lift to the valves, substantially as above set forth.

3d, Imparting to the reciprocating shaft, l, a greater or less length of throw, by raising or lowering in a slot, o', the forward or operating end of an eccentric rod, f", the devices being constructed and operated substantially in the manner and for the purposes hereinbefore set forth.

4th, The slotted levers, m m', when connected by supports, n n', with the valve lifters, n n', in such way that the open port of one cylinder may be closed before the completion of the downward stroke of its piston, without opening the ports of the other cylinder till the upward stroke of its piston shall be nearly or quite complete, substantially as and for the purposes hereinbefore expressed.

5th, The slotted arm, x, an the walking beam, C, of a water power, and the slotted circular head, y, or its equivalent, connected together by a pitman, x, adjustable at each end, the parts being arranged and operating substantially as and for the purposes hereinbefore set forth.

6th, The upright cylinders, b b', with valves, ports, and pistons, as a fluid meter, constructed and operated substantially as and for the purposes hereinbefore set forth.

84,720.—METAL LAST.—G. G. Townsend, Rochester, N. Y.

I claim the revolving metallic last, B, when made as shown, so as to withstand a blow from the hammer on any portion or point of the face or sole, in combination with the conical pointed standard, A, for the purposes set forth.

84,721.—MACHINE FOR GRINDING CIRULAR SAWS.—Stephen D. Tucker, New York city.

I claim, 1st, Making the head adjustable on the carriage, K, in combination with the rollers, E' F', for driving the saw, whereby the machine can be readily adjusted to grind saws of any diameter, substantially as described and specified.

2d, The movable rest, h, for holding the saw at the point of grinding, whereby the saw may be automatically ground of a concave, convex, or plane surface, substantially as described and specified.

3d, The rest, h, screw, l, provided with its arm, M', and the grooved and slotted guide, L', pivoted to the carriage, substantially as described and for the purpose specified.

4th, The combination and arrangement of the clutch, p, pulleys, C' C', the worm, V', on the shaft, W', upright shaft, N', with its spring, y, and the adjustable stops, d d, on the carriage, for operating the carriage in both directions automatically, substantially as described and specified.

5th, The rod, N', provided with the arm, v, and pin, w, clutch, p', and adjustable stops, d d, on the carriage, for reversing the travel of the carriage substantially as described and specified.

6th, The scroll gear, G', and inclined rack, I', on the carriage, for giving a differential movement to the carriage, substantially as described and specified.

7th, The arbor or bearing, q, center pin, p, and cap, o, substantially as described and specified.

84,722.—SAW.—John L. Warren, Detroit, Mich.

I claim the construction of a saw, substantially as described, with two cutting edges, the one operating at any desired angle relative to the other.

84,723.—HOMINY AND SMUT MILL.—Warren Wright, St. Louis, Mo.

I claim, 1st, The "double case," consisting of the divided end plates, A B A' B', the divided cylindrical shell, C D, and the divided perforated scouring cylinder, E F, within and concentric with said shell, C D, all said parts being arranged to operate substantially as herein described, for the purposes set forth.

2d, In combination with the partitions, H, the wedge formed wings or cut-offs, S, arranged upon a rotating shaft, in the manner set forth.

3d, The longitudinally adjustable scouring and blowing shaft, O, constructed with the air gathering cup or scoop, P, and air discharges, o, and armed with roughened blades, R, wedge formed wings or cut offs, S, and spiral discharge blades, S', in combination with a horizontal partitioned and perforated cylinder, substantially as herein described, for the purposes specified.

4th, The combined arrangement with the descending grain discharge spout T, of the laterally traversing and upturned blast passage, U u u', substantially as described, for the purpose specified.

84,724.—BRICK MACHINE.—Jacob H. Ballard and Edward P. Bond, New Antioch, Ohio.

We claim the frame, A, shaft, B, with wheel, b, pug mill, C, with opening, c2, and shaft, C', having the wheel, c1, plungers, D, shaft, d', wheel, E, chambers, F, with openings, and wires, the whole being combined, arranged, and operated in the manner described and for the purposes set forth.

84,725.—HAY SPREADER.—A. B. Barnard, Worcester, Mass., assignor to Thos. C. Craven, Albany, N. Y.

I claim the combination with the screw standard of standards, F, provided with nuts as shown, of coiled spring or springs, K, substantially as and for the purposes set forth.

84,726.— COMBINED BAND CUTTER AND FEEDER FOR THRESHING MACHINES.—P. G. Biggs, H. A. Butler, and H. Granger, Macon, Mo.

We claim the spreader, H I, constructed as described, in combination with the band cutter, E G, carrier, C D, and frame or box, A, substantially as herein shown and described and for the purpose set forth.

84,727.—BRICK MACHINE.—Eli S. Bitner, Lock Haven, Pa.

I claim 1st, The pressure rollers, D D1, in the movable frame, A5, chain of molds, C, plank, H, and corrugated feed roller, E, constructed and arranged substantially as and for the purposes herein set forth.

2d, The mold, C, when provided with the movable side, c, and crank pin c1, operated by contact with the inclined planes, I, and pressure roller, D substantially as and for the purposes herein described.

3d, The combination of the feed screw, F, when deflected at f, with the disc, f1, and feed box, F1, all constructed and operating substantially as and for the purposes set forth.

84,728.—PROCESS AND COMPOSITION FOR PRINTING THE GRAIN OF WOOD.—Johann Bongardt (assignor to himself and L. H. Conn, New York city.

I claim, 1st, The method herein described of preparing wood to cause it to print its veneer or grain on paper or other material, as set forth.

2d, The combination herein described for treating wood, for the purpose set forth.

84,729.—GATE.—Edward Buckman and Alexander Buckman, Greenbush, N. Y.

We claim the combination and arrangement of the latches with the supporting posts and the stops upon the gate, substantially as and for the purpose specified.

84,730.—HARVESTER RAKE.—Orrin H. Burdick (assignor to himself and David M. Osborne), Auburn, N. Y.

I claim, 1st, The adjustable cam way, b, in combination with the permanent cam way, g, for the purpose of raising the rake over the grain that may be on the platform, when it is desired to use the rake as a beater only, substantially as described.

2d, Also, the combination of the two adjustable cam ways, G h, for controlling the action of the rake, substantially as herein described.

3d, Also, in combination with the fixed or permanent cam ways for guiding and controlling a series of rake and beater arms in their rotation, the lever, F, and movable cam ways, dog, and trigger, for allowing the driver from his seat to control rake, and throw it out of raking action, while the rake itself sets the parts for allowing it to go into raking action, substantially as described.

4th, Also, in combination with the rake and beater heads, the auxiliary arms, P, and the three adjustable fastenings, u v and v', for giving such heads and arms the requisite inclinations upon their arms, B, substantially as described.

84,731.—POULTICE CLOTH.—Maximilian L. J. Chollet and Celeste H. E. Hamilton, Paris, France.

We claim an article of manufacture consisting of a poultice composed of leaves of canvas or muslin, impregnated with mucilaginous substances, substantially as herein described.

84,732.—WASH BOILER.—L. T. Conant, New Lisbon, Ohio. [Suspended.]

84,733.—PRESERVING WOOD.—Eben L. Cowling, Boston, Mass., assignor to Jas. P. Bridge.

I claim the employment of dry superheated steam, in combination with vaporized chemicals, for the preservation of wood, as set forth, the natural moisture of the wood being first absorbed by the use of the dry superheated steam without the chemicals, and the air expelled, substantially as described.

84,734.—TANNING COMPOSITION.—Needham Cox (assignor to himself, Christopher M. Houss, and J. S. Moore), Salem, Ill.

I claim the use of all of said ingredients, when applied in the proportions heretofore given, or their equivalents, substantially as and for the purposes set forth.

84,735.—RAILROAD CAR HEATER.—Arnold Davidsohn, St. Louis, Mo.

I claim the car heating device composed of box, D, slide, d', influent hopper, E, valve, e, and effluent hopper, F, and discharge valve, f, when constructed to operate as described, and arranged with relation to the vehicle substantially as set forth.

74,736.—STOVEPIPE JOINT.—John Faint, Columbus, Canada.

I claim a section of stovepipe seamed longitudinally, except that portion lapping the adjoining section, such portion being lapped the width of the seam, or thereabout, as shown and described, for the purpose set forth.

84,737.—DOOR LOCK.—Charles Fleischel and Wm. C. Bussey, San Francisco, Cal.

We claim the plate, K, fastened upon the bolt of the lock, and provided with the wards, c c, etc., in combination with the cylinder, B, disk, C, and revolving tumblers, F F, substantially as described, and for the purposes set forth.

84,738.—PAPER FILE.—J. M. D. France, Washington, D. C.

I claim a device for filing papers, consisting of a frame, A A, notched as described, in combination with bar, B, base, C, sliding board, D, and pin, E, combined and operated in the manner substantially as hereinbefore described for the purpose specified.

84,739.—CONDUCTORS' PUNCH.—John Friese and G. D. Friese, (assignors to John Friese), Baltimore, Md.

We claim, in connection with the eyelet-cutting instrument having the two jaws, A and B, the tooth, a, the opening, e, and the spring, C, the rigid plate, M, when attached to the jaw, B, upon a raised bed, s, and provided with the opening to receive the tooth, a, and bent so as to hook over the end of jaw, A, the several parts being constructed to operate together in the manner and for the purposes herein set forth.

84,740.—MODE OF CONSTRUCTING THE HEATING AND LIGHTING Apparatus on Railway Cars.—Abram J. Gibson, assignor to himself, Benjamin J. Thurston, and Thomas A. Harrow, all of Cincinnati, Ohio.

I claim, 1st, A perforated metallic partition, inclosing and constituting a fire-proof lighting and heating chamber, in one end of a railway car, constructed in the manner and for the purpose substantially as herein set forth.

2d, One or more lenses, in the perforated metallic partition of a fire-proof lighting and heating chamber of a railway car, as and for the purpose above specified.

3d, The safety sash or window, when so constructed as to constitute the outer side of a lighting and heating chamber in a railway car, as hereinbefore described and set forth.

84,741.—POTATO DIGGER.—J. E. Giles and W. Ferry, Mead's Mills, Mich.

We claim arranging the shares, S S, to the landsides in such a position that the landsides will gather the vines together before the shares enter the hill, substantially as shown and described and for the purpose set forth.

Also, the construction and arrangement of the two shares, S S, as shown and described, viz, by making their front edges recede to the rear, and leaving an opening there between them, when said shares are combined with the landsides, substantially as and for the purpose set forth.

Also, the arrangement of the tines, N N, etc., in a double curve, as shown and described and for the purpose set forth.

Also, the combination of the brace, E, (applied to prevent the spreading of the land sides), with the bow, D, when said bow is arranged in position to prevent its engaging with the vines, substantially as and for the purpose set forth.

Also, the brace, A, when arranged as shown and described for the purpose set forth.

84,742.—SHIPS' DAVITS.—Seth Gill, San Pablo, and D. C. Woods, San Francisco, Cal.

We claim, 1st. The jointed davit arms, E E, with their tackle or an equivalent device, the whole constructed and operated substantially as and for the purpose herein described.

2d, In combination with the jointed arms, E, the traveler, L, with its in-haul and out-haul tackles, M and N, substantially as described.

3d, In combination with the davit arms, E, the uprights, D, with the lifts, H, and stanchion, I, the whole connected by rods with the davits on the opposite side, substantially as and for the purpose herein described.

84,743.—BOOT CRIMPER.—William B. Gleason, Conneautville, Pa.

I claim 1st, the grab bars, S S, spring block, M M, the movable spring grabs O O O O, all constructed substantially as set forth.

2d, The crimping board, L, combined with the grab bars, S S, spring block, M, and movable spring grabs, O O O O, for the purposes as set forth.

84,744.—ELEVATOR.—J. E. Hollister, Calais. Vt.

I claim, 1st, Combining the brake, A, and the pulley, G, with the car, as and for the purpose specified.

2d, The hoisting rope, c, and tackle block, J, in combination with the brake A, and pulley, G, for the purpose and substantially as described.

3d, The tripping rope, I, applied to the hook end, N, of the brake, as and for the purpose specified.

4th, The draw rope, H, in combination with the car, E, and eye, k, as and for the purpose specified.

5th, The adjustable and movable cam, h, constructed as described, and applied to the rail, C, for the purpose and substantially as described.

6th, The rod, f, in combination with the brake, A, and the cam, h, for the purpose and substantially as described.

7th, The plate, e, or holding device, in combination with the hook end of the brake, A, for the purpose and substantially as described.

8th, The combination of all the operative parts specified, when arranged to operate substantially as and for the purposes set forth.

84,745.—HORSESHOE.—R. G. Jameson and W. H. Chamberlain, Bristol, N. H.

We claim the bar, C, of the form herein shown, and provided with heel and toe calks, when fastened to the shoe by means of the hooks, f f, and slots, b b, at the heel, and screw, i, at the toe, substantially as described for the purpose specified.

84,746.—PREPARATION OF STEEL FOR CORSETS, HOOP SKIRTS, etc.—Catharine Maxwell and I. N. Peirce, Philadelphia, Pa.

We claim coating steel with this composition, for use in female apparel, as herein described, or any other substantially the same, and which will produce the intended effects.

84,747.—CAR COUPLING.—C. McInturff, Greenville, Tenn.

I claim a car coupler, composed of the bars, A, with hooks, B, and springs, H, and sliding blocks, C, with springs, D, when used in connection with the levers, G, all constructed and arranged substantially as described and for the purposes specified.

84,748.—GANG PLOW.—F. McTarnahan, Santa Clara, Cal.

I claim, 1st, The frame or groundwork of the gang plow.

2d, The combination and arrangement of the beam, R, to which the plows are fastened, the beam to which said plow beam is fastened by hinges, the semicircular hinges, as constructed, and the manner of fastening the plows in the beam, all as shown.

3d, The screw slides, A, in combination with the frame,

4th, The combination and arrangement of the beam, L, to which the lever is fastened, the post on which it works, the chain, the pulley on which it works, the evener, and the guard all as described.

5th, The square block, D, under the axle tree, for regulating the amount of land, in combination with the evener.

6th, The construction, combination, and arrangement of the several parts, as shown and described.

84,749.—COAL CHUTE.—Henry Merriman, Bloomington, Ill.

I claim the inner weighted apron, C, having the loose catch rods, g, and described, whereby, as the outer apron is swung down to form a spout, the pivoted at its lower edge to the chute and the outer weighted apron, D, also pivoted at its lower edge and provided with the lugs, o o, all operating as lugs, o o, release the rods, g, from the catches, e, and permit the inner apron to open the chute for the discharge of coal, substantially as herein shown and described.

84,750.—PLOW ATTACHMENT (DOUBLETREE).—L. E. Morey, Vandalia, Ill.

I claim a plow attachment, having four connecting points, a b b and b', arranged substantially as herein described for the purpose set forth.

84,751.—SEED PLANTER.—James Musgrave, New Cumberland, West Virginia.

I claim, 1st, Detachably securing the buckets, H, to the belts, F, by means of the brackets, G, substantially as herein shown and described and for the purpose set forth.

2d, The combination of the tube, J with the hopper, I, and buckets, H, substantially as herein shown and described and for the purpose set forth.

84,752.—LAMP BURNER.—George Neilson, Boston, Mass.

I claim, 1st, The combination, with the cone and cone-supporting cylinder, of the chimney rest, chimney, and spring device, by which the latter is supported and steadied, under the arrangement and for operation as herein shown and specified.

2d, The combination, with the chimney and chimney rest, of the springs and hoop or ring for holding the upper ends of said springs, in the manner and for the purposes herein shown and described.

84,753.—LAPPET OR EMBROIDERING LOOM.—Frederick W. Newtown, South Orange, N. J.

I claim, 1st, the combination of the pattern mechanism with the stitch-mechanism, when the two are actuated by different powers, or are connected with the same power by intermediate gearing or attachment, so as to give to each mechanicism a motion distinct from the other, substantially as described.

2d, The friction rollers or cylinders, one or more, for the purpose of giving a definite yet adjustable quantity of whip yarn to the needles without tension, substantially as described.

3d, The roller, J, of irregular or cam-shape, in combination with the pin and needle-bars, for the purpose of giving them an irregular motion, substantially as described.

4th, The combined ratchet and pinion-wheel, G, in combination with the rack, H, substantially as and for the purpose described.

5th, The double wedge bar, I, for the purpose of regulating the quantity of whip yarn to be furnished to the needles, substantially as described.

6th, The lever, n, in combination with the bar, O, and its pin for raising the double-wedge bar, substantially as described.

7th, The traverse bar, M, in combination with the needle bar and friction rollers, substantially as described.

8th, The combination pinion and friction wheel, N, in combination with the friction wire, substantially as described and for the purpose set forth.

9th, The lever, e, with adjustable fulcrum, in combination with the traverse bar, M, and needle bar for regulating its movements, substantially as described.

10th, The friction sleeve having an upright stand, in combination with the pattern and stitch wheels, and traverse lever, e, substantially as described.

11th, The combination with the stitching mechanism, of the adjustable pawl, Q, constructed and operating substantially as described.

12th, The combination of the mechanism which makes the stitch with the mechanism which gives the whip yarn to the needles, arranged and connected substantially as described, so that the motion of the mechanism which gives off the whip yarn to the needles may be regulated and controlled by the stitching mechanism.

84,754.—PUMP.—Alozo Palmer, Hudson Mich., assignor to himself and N. H. Melcher.

I claim the disks, J' K and J' K', in combination with the rings, G G', bolt, H, rod, I, and plates, E E, with their valves, arranged and used as and for the purposes set forth.

84,755.—SEAT FOR RAILWAY CARS.—G. W. Perry and J. D. Billings, Wilmington, Del.

We claim, 1st, A seat, B, capable of longitudinal adjustment between side frames, A A', in combination with a reversible back, which is connected by arms, H, to the side frames, turns on an adjustable fulcrum on said arms, and which may be jointed to either edge of the seat, all substantially as and for the purpose described.

2d, The back, J, with its slots, z, and pins, s, sliding in the said slots in combination with arm, H, jointed to the side frames and to the pins, substantially as and for the purpose specified.

3d, The bent rods, E, pins, m at the ends, and sliding and turning at the sides of the seat, B, in combination with a reversible back, J, having openings, t, for the reception of the pins, m, substantially as described.

4th, The rods, E, with the pins, m, and arms, n, in combination with the box, B', the slotted plates, h, and the traversing plate, F, connected to the arms, n n, the whole being arranged and operating substantially as set forth.

5th, The sliding seat, B, with its ratchets, o o, in combination with the shaft, G, pinions, k and q, and a worm, for operating the said shaft, substantially as set forth.

6th, The frame, K, which is hung between the side frames, A A', and to which are hinged arms, u u, connected by cross strips, w w, substantially as and for the purpose described.

87,756.—DOOR RETAINER.—G. W. Perry and J. D. Billings, Wilmington, Del.

We claim a plate, a, having an opening for the reception of a block, E

which rests upon springs d, below the plate, the whole being constructed and operating substantially as and for the purpose described.

84,757.—WAGON BOX.—H. W. Persing, Centralia, Ill.

I claim the combination and arrangement of the eccentrics, e e, the staples, ff, and the swivel, d, attached to the rods, c c, substantially in the manner described, and for the purposes set forth.

84,758.—GRIDIRON.—Edward B. Phelps, New York city.

I claim, 1st, The combined frames, F and F', with the central axle, E, in connection with the trough, K, and stop, N, operated and vibrated in the manner and for the purpose substantially as herein shown.

2d, Providing reversible grmarons with a trough, K, to operate and to be used for the purpose herein described.

84,759.—WASH BOILER.—D. A. Porterfield, New Paris, Ohio.

I claim, in combination with the boiler, the conical or pyramidal spouts, as described, i. e, their bases resting in the bottom of the boiler, without the intervention of a horizontal partition, and so arranged as to admit the supply of water by spanning the sunken pit, or by means of an opening at the bottom, as set forth.

84,760.—HORSE RAKE.—Adam R. Reese, Pillipsburg, N. J.

I claim 1st, The teeth, N, provided with the return arm, arranged relatively to and operating in connection with the rake head, substantially as described.

2d, The shafts, E E, when provided with the gains or notches, as set forth.

3d, The standard, I, in combination with the transverse bars, H H, arranged upon opposite sides of the shafts, E E, said bars being provided with gains, and operating as set forth.

4th, The bars, H H, when provided with the gains as set forth.

5th, The combination of the notched shafts, E E, plates, G G, axle, B, and bolts, F F, substantially as set forth.

6th, The combination of the notched bars, H H, shafts, E E, and bolts, K K, all arranged and operating as set forth.

7th, The removable cleaners, adapted to be secured to the axle by means of screws or pins, and removable for transportation, as set forth.

8th, The spurs on the cleaner rods, for the purpose, and substantially as set forth.

84,761.—STEAM ENGINE VALVE GEAR.—Hugh Reid, St. Louis, Mo.

I claim, 1st, The arrangement of the balanced piston valves, D1 D2, with reference to the exhaust cylinder, C, steam port, a, and exhaust ports, E and F, substantially as set forth.

2d, The arrangement of the piston valves, D1 D2, with reference to the rod, toggles, G G', pin, g, slot, h, and rod H, substantially as described.

84,762.—SEED PLANTER.—Isaac Rexford, Malone, N. Y.

I claim, 1st, The combination of the side bars, D, bars or supports, G, seed box, H, dropping cylinder, E, and wheels, F, with each other and with the forward axle, B, said parts being constructed and operating substantially as herein shown and described, and for the purposes set forth.

2d, The coverers, J, constructed as described, and draft bars or chains, K, in combination with the seed box, H, substantially as and for the purpose specified.

3d, The combination of the levers, L, cross bar, M, standard, N, lever, O, and standard, P, with each other, with the cross bar of the thills, A, forward axle, B, drooping cylinder, E, and seed box, H, substantially as herein shown and described, and for the purpose set forth.

84,763.—CORN PLOW.—W. C. Rhinehart and Robert Gaston, Oskaloosa, Iowa.

We claim the inclined fenders, b b, for protecting the reins of the driver from the action of the wheels, in combination with the inclined frame, B, substantially as set forth.

84,764.—REVERSE MOTION FOR WINDING ON BOBBINS.—George Richardson, Lowell, Mass.

I claim the cam, B, yoke, C, reverse rod, E, springs, I I', detent, G, and reverse catch, M, all combined, substantially as and for the purpose set forth.

84,765.—LUBRICATOR FOR JOURNALS.—C. M. Ried, Greensborough, Ala.

I claim the screw, c, with its flange, C, frame, E, cog-wheel, D, cranks, G, pitmen g, spring arms, H, dipper, I, in combination with the "housing" or "grease box," when constructed and operating substantially in the manner and for the purrosesset forth.

84,766.—COMBINED HORSE POWER AND TRUCK.—Cyrus Roberts and John A. Throp, Three Rivers, Mich.

We claim, 1st, The bevelled wheel, G, extended downward to the point, and in the manner represented for the purposes specified.

2d, A horse power, having cogged wheels, A, D, E, and G, staples, B, disk, C, friction rollers, c, and snaft, H, in combination with a truck, constructed and operating as herein specified, substantially as described.

3d, A truck, having V-shaped bottom, as described, bolsters, O, P, and Q, and rear V-shaped frame, as described, in combination with the horse-power herein described and shown, substantially as specified.

84,767.—DOOR FASTENER.—William J. Ross, Worcester, Mass.

I claim the slotted bar, A, in combination with the catch, B, and hooked sliding bar, D, provided with the thumb or set screw b2, all constructed, arranged, and operated substantially as and for the purpose set forth.

84,768.—GAS BURNER.—Edwin P. Russell, Manlius. N. Y.

I claim, 1st, The hollow cylindrical gas cock, B, constructed substantially as described, and operating as and for the purposes set forth.

2d, The combination of pipes, h and h', pipe or hole, z, and small cock, g, chamber, p, all as constructed with the gas cock, B, substantially as described, and for the purpose set forth.

3d, The sway bar, C, in combination with rods, W W', arms, f f', for operating the cock, B, constructed substantially as described, and for the purposes set forth.

84,769.—TRUSS.—Woodbury Sanborn, Chelsea, assignor to himself and Bailey West, Chicopee, Mass.

I claim, 1st, The shell, A, having a frame or spider attached to the inner side thereof, and provided with knobs attached to said spider, either with or without the cover, C, the whole constituting a truss pad, and constructed of the material and substantially in the manner set forth.

2d, The combination of the shell, A, the metallic frame or spider rigidly attached to said shell, and the T-shaped piece, F, pivoted to said spider, and mounted with knobs or buttons, the whole constructed substantially as specified.

3d, The construction and arrangement, in combination with a truss pad, substantially of the kind herein described, of the flexible body strap, D, and thigh strap, E, applied to said pad, substantially as set forth and shown.

84,770.—SALVE FOR BURNS AND SCALDS.—Andrew Schmitt, California, Mo.

I claim the formation of a salve for the cure of burns, etc., in the manner and of the materials herein described.

84,771.—HINGE.—William Shannon, Allegheny City, assignor to himself and Joseph Graff, Pittsburg, Pa.

I claim providing a hinge with a pintle, consisting of parts, C and D, the inner ends of which are upset, in the manner herein described and for the purpose set forth.

84,772.—HINGE.—William Shannon, Allegheny City, assignor to himself and Joseph Graff Pittsburg, Pa.

I claim, providing hinges with a pintle, C and D, made in two parts, the inner ends of which are beveled off at f, and provided with hooks, i, substantially as herein described and for the purpose set forth.

84,773.—STEAM ENGINE CONDENSER.—Joseph Shirt, and Charles Briggs, Tamworth, Great Britain.

We claim a condenser, constructed and operating as herein described.

84,774.—BEE-HIVE.—John Shoe, Pleasant Hill, Ohio.

I claim, 1st, The adjusting hinged inclined bottom, C, operating substantially as set forth.

2d, The top, B, provided with supports or strips, h h, to which are attached hooks, catching into staples on the hive, for the purpose of removing the said top, substantially as described.

84,775.—LAMP BURNER.—A. G. Smith, Jersey City, N.J. Antedated November 27, 1868.

I claim, 1st, In combination with the burner, A, and the cylinder, C, the ribs or projections, H H, substantially as and for the purpose set forth.

2d, The insulating ring, C, constructed with the flange, I, substantially as and for the purpose set forth.

3d, In combination with the burner, A, and elastic ring, C, the detachable plate, E, or its equivalent, for the purpose of rendering the ring, C, easily removable.

4th, The plate, E, secured to the wick tube, F, by a detachable device, substantially as set forth.

5th, Keeping the plate, E, always in contact with its detachable fastenings, by means of the elasticity of the material of the ring, C, as set forth.

84,776.—CULTIVATOR.—Garland B. St. John, Brooklyn, Mich.

I claim the securing of the standard, G, between the two beams, C C, by means of the bolt, m, arms, n n, and braces, H H, all arranged substantially as and for the purpose set forth.

84,777.—HORSE RAKE.—George E. Sutphen, Louisiana, Mo.

I claim the connecting rod, D, with seat, d2, when used in connection with spring, d1, upon rod, d3, as shown and described, and combined with the prop, C, having the foot piece, c, and lever, D', the whole being operated, in connection with the handle, B, and rake, A, as and for the purposes described.

84,778.—AUTOMATIC STOP FOR MINING CARS.—James Tamblyn, Virginia City, Nevada.

I claim the projections or stops, E E, arranged with the levers, C F, and spring, H, connected with the chain, G, and all applied to operate in the manner substantially as and for the purpose herein set forth.

84,779.—PILE FOR RAILROAD RAILS.—Thomas R. Taylor, Brodhead, Wis.

I claim the improved pile for forming railroad rails, when constructed and arranged as herein described.

Also, as a new article of manufacture, railroad rails, when produced from the improved pile herein described, as and for the purpose set forth.

84,780.—TIMBER GRAPPLE.—Moses N. Ward (assignor to himself, Benjamin S. Grant, and Thomas Hersey), Bangor, Me.

I claim the combination and arrangement of the double eyed and shouldered plate, B, made substantially as described, with the two pronged arms, A A, pivoted to such plate, as set forth.

84,781.—NUT MACHINE.—Francis Watkins, Birmingham, England. Antedated Nov. 28, 1868.

I claim the combination, with each other, of the reciprocating frames, D and E, stationary die, I, punches, F J and K, slide, G, punch, H, and stop, L, all made, arranged, and operating substantially as and for the purpose herein shown and described.

84,782.—BOLT MAKING MACHINE.—Francis Watkins, Birmingham, England. Patented in England, December 28, 1866.

I claim the arrangement, herein shown and described, of two bolt heading machines, constructed substantially as described, and so as to operate alternately, as set forth.

84,783.—GUIDING ATTACHMENT FOR SEWING MACHINES.—James Wensley, New Brunswick, N. J.

I claim, 1st, The pivoted gage, E, and pivoted transparent presser, C, in combination with the attachment, B, arranged and operating as described, for the purposes specified.

2d, The arrangement of the spring, I, and the notched bent arm, K, by which the presser plate is jointed to its support, whereby the spring is adjusted to the several notches in the bent arm, for regulating the pressure of the plate, as herein shown and described.

3d, The gage, E, provided with the stud, a, and adjustable part, b, substantially as and for the purpose described.

4th, The transparent presser, constructed as described, and hinged to the support by the rod, K, arranged, with reference to the guide, as herein described, for the purpose specified.

84,784.—CHURN.—Amos Westcott, Syracuse, N. Y.

I claim, 1st, The combination and arrangement of the segment hoop, c, socket, h h, with its projecting arms, k k, and the vessel for the reception of the material to be operated upon, substantially as shown and described.

2d, The combination of the segment hoop, c, and segment, b', substantially as shown and described.

84,785.—REFRIGERATOR.—Simeon Wheat, Middletown, and David B. Wheat, New York city, assignors to Frances M. Wheat and Ellen A. Wheat, Middletown, N. Y.

We claim an improved refrigerator, formed by the combination of the double-walled case or body, A, detachable ice-box, B, waste pipe, C, cup, D, drip pan, E, hinge shelf, F, middle shelf, G, having its middle part cut away, and plaster-of-Paris lining, K, with each other, substantially as herein shown and described, and for the purpose set forth.

84,786.—TRACK CLEARER FOR HARVESTERS.—George W. N. Yost, Corry, Pa., assignor to the Corry Machine Co.

I claim the combination of the track clearer, V, and the finger-bar shoe, W, a curved or bent part of the track clearer lying within a vertical mortise in and entering part of the shoe, made and used as described, for grass and grain-cutting machines.

84,787.—SHOULDER BRACE.—Alexander Adamson, Washington, D. C.

I claim the shoulder brace, consisting of a single elastic strap crossing its centre (where it is fastened), and forming the double loops, B B, as herein described, and for the purpose set forth.

84,788.—BEE-HIVE.—Thomas R. Allen, Syracuse, N. Y.

I claim, 1st, The frame holders, F F, separately, and also in combination with the sills, a a, substantially as and for the purposes described.

2d, Also, the same parts, in combination with the comb frames, c c, substantially as described, and independent of and detached from the outside covering, C D.

3d Also, the frame holder, F, constructed as described, in combination with the outer covering, C, and top, D, as set forth.

84,789.—CAR MOVER.—Fortune L. Bailey, Freeport, Ind.

I claim the arrangement of lever, A, bars, I I, and clamp, B, when combined with the griping devices on the lower ends of the rods, I I, as and for the purpose set forth.

84,790.—MOWING MACHINE.—L. D. Bidwell, Birmingham, Conn.

I claim, 1st, The arrangement of the revolving cutters, d, in a revolving head, so as to give to the said cutters a double movement, substantially as herein described.

2d, In combination with the above, the finger bar, P, constructed and arranged so as to operate in conjunction with the said cutters, substantially in the manner set forth.

84,791.—APPLE QUARTERER.—Clark E. Billings, Warren, Vt.

I claim the arrangement herein described of the fixed knives, F, placed at right at right angles to each other, and having the central point, g, the plunger, B, hollowed out upon its under side, the plunger rod, C, guides, h, slotted lever, D, pin, i, spring, E, and stand, A, as herein set forth, for the purpose specified.

84,792.—COMPRESSION COCK.—G. E. Boissilier, St. Louis, Mo.

I claim the valve, D, having a screw-thread cut upon its outer surface, and furnished with a smooth socket, J, in which the squared end of the valve stem, C, is fitted, said stem having a disk, i, bearing against the under surface of the packing placed in the recess of the cap, B, and resting upon the lower packing disk, secured to the shell, A, by the screw cap, all arranged and operating as described, for the purpose specified.

84,793.—"DRESSER COPPER" FOR WARP DRESSING MACHINES.—W. H. Boyden, Rockland, R. I.

I claim, 1st, The combination of the rack B, and wires, m m, in a frame, A, substantially as and for the purposes specified.

2d, The arrangement of the rack, B, frame, A, wires, m m m, thumb-screws, n n, and clamp, T, substantially as shown and described.

84,794.—ELEVATOR.—William D. Brooks, Bethany, Pa.

I claim the cap, b, and rod, a, for sustaining the swiveled pulley, C, and a series of hooks, D, in combination with, and arranged, with relation to the adjustable flexible gravity track, as herein set forth and shown, for the purpose specified.

84,795.—BOTTLING MACHINE.—Henry Carse, Pittsburg, Pa.

I claim the screen, I, when the closing thereof is controlled by the downward motion of the filling head, and its opening by the receding motion of the corking piston or its carrying frame, through suitable mechanism, substantially as herein described.

84,796.—MEDICINE.—M. Cary, Racine, Wis.

I claim the ingredients herein named, compounded and pressed substantially as and for the purpose specified.

84,797.—SPADE.—Michael Connolly, Newark, N. J.

I claim the described construction of the spade, consisting of the blade, A, bent at its center, so that the two parts, a b, shall form an obtuse angle with each other, and provided upon its upper end, next the bend with the widened foot-rest, C, as herein described for the purposes specified.

84,798.—PLOWSHARE.—George W. Cooper, Ogeechee, Ga.

I claim a cast-iron plowshare, A, made as described, without a landside plate, and with a concave front edge, substantially as and for the purpose set forth.

84,799.—FLUTING MACHINE.—William D. Corrister, New York City.

I claim the described arrangement of the operating screw, C, spring, i, nut, h, and bent bar, D, as herein set forth, for the purpose specified.

84,800.—HAY SPRADR.—Thomas C. Craven, Albany, N. Y.

I claim, 1st, The combination, with the ends of the central support, M, and caps, m, of the bars, N, substantially as and for the purpose set forth.

2d, The combination of the bars, N, having irregular shaped ends, with the heads or disks, L, and central support, M, substantially as and for the purpose set forth.

3d The combination of the caps, m, with the central support, M, substantially as and for the purposes set forth.

4th, The combination, with the frame or bearings which support the reel shaft of the eccentrics, E', substantially as and for the purposes set forth.

5th, The combination, with the eccentrics, E' and side rail, A, or their equivalents, of the arms, p, springs, s, and pins, r, substantially as and for the purposes set forth.

6th, The combination of the driving gears, K, with the wheels, F, substantially as and for the purposes set forth.

7th, The combination, with the frame which supports the reel and the frame which connects the journals of the wheels, F, of adjusting screw, R, and nuts, v v', substantially as and for the purposes set forth.

8th, The combination, with the frame of the machine and the driver's seat, of a metallic or other suitable guard or shield, W, arranged substantially as and for the purpose set forth.

9th, The combination, in hay tedder, of a triangular or three-barred reel, with caps, m, constructed substantially as shown and described.

84,801.—ARTICLE OF PREPARED CODFISH.—Elisha Crowell, New York city.

I claim a new article of prepared codfish, made substantially as described.

84,802.—STEP COVER AND WHEEL FENDER FOR CARRIGES.—John Curtis, Cincinnati, Ohio.

I claim the bracket, F, depending rigidly from the carriage door, in combination with the hinged flap, G, arranged and adapted to operate in conjunction with a carriage step, in the manner and for the purposes set forth.

84,803.—SCOOP.—Thomas B. Davis, New York city.

I claim a scoop, having its body, A, constructed out of a single piece of sheet metal, B, cut and bent in the form, and soldered, substantially as herein shown and described.

84,804.—LABEL HOLDER.—Chauncey A. Dickerman, New Haven, Conn., antedated Nov. 30, 1868.

I claim the frame, A, through which is formed an opening, B, and upon the under surface, upon three sides of the opening, a, rabbet, a is formed, and so as to leave an opening through the end, C, for the insertion of the card, and having combined therewith a convex plate, D, the whole constructed and arranged so as to be applied and operate in the manner set forth.

84,805.—BEE HIVE.—A. P. Durant, Athens, Ohio.

I claim the combination of the base or bottom, A, bars, B B, and frames, C D, side pieces, E F, connecting bars, G G, frame, H, and cap, I, all constructed and arranged substantially as herein set forth.

84,806.—ELECTRO-MAGNETIC RELAY INSTRUMENT.—Charles Durant, Jersey City, N. J.

I claim, 1st, The curving of the shifting or sliding bolt, L, and also the curving of the opening in the armature or armature lever, through which opening said bolt moves and operates, substantially as for the purpose herein shown and described.

2d, The spring, U, in combination with the adjusrable lever, V, or its equivalent, applied to the shifting or sliding bolt, L, moving through and upon the armature lever, substantially as and for the purpose set forth.

84,807.—HARROW.—O. W. Edwards, Bluffdale, Ill.

I claim 1st, The combination, with the beam, C, and shafts, B, of the harrow, of the spring F, substantially as and for the purpose described.

2d, The combination of the bushes, E, beam, C, shafts, B, and spring, F, as herein described, for the purpose specified.

84,808.—SAFETY BRIDGE FOR RAILWAY CARS.—Albert J. Elder, Kansas City, Mo.

I claim, 1st, Two plates, B B', one provided with a headed bolt, D, and the other with a slot, when hooked to the opposite ends of two railroad cars, substantially as and for the purposes herein set forth.

2d, The pivoted hooks, E E, held in place by the stirrups, I I, and secured to the platform, A', by the eyes, F F, in combination with the slotted plate, B', and plate, B, to operate substantially as herein set forth.

3d, The combination of the plates, B B', with the headed bolt, D, passing through the slotted plate, B', hooks, E and C, stirrups, I, and eyes, F, all substantially as shown and described.

84,809.—FEATHER RENEVATOR.—William H. Elliot, New York city.

I claim, 1st, The arrangement and combination of the draft pipe, f, steam pipe, e, central perforated cone, f, and diaphram, g, as specified.

2d, The combination of hollow bearings, k, diaphragm, g, and draft pipe, f", substantially as herein described.

3d, The combination of heater, c, central pipe, f, with its tubes, r, diaphragm, g, and draft piece, f', substantially as set forth.

84,810.—WIRE FENCE.—George William Ensminger, Richland, Iowa.

I claim, 1st, A portable wire fence, formed in sections, composed of the wires, A, movable posts, A1 A2, slats, B, supports, C, and corner posts, D D1, constructed as herein described.

2d, The rods, K, and plates, k, and the screws, E, and nuts, e, in combination with the movable posts, A1 A2, and corner posts, D D1, arranged and operating in the manner herein described, and for the purpose specified.

3d, The wires, H, and the screws, G, and nuts, g, in combination with the movable posts, A1 A2, and corner posts, D D1, arranged and operating in the manner and for the purpose herein described.

84,811.—SHUTTER AND BLIND FASTENER.—W. B. Farrar, Greensborough, N. C.

I claim, 1st, The tumbler, E, in combination with the stop, G, both operating in connection with the bolt, B, as and for the purpose specified.

2d, The combination and arrangement of the springs, F and G, plate, E shoulder, n, pins, m m, knob, e, and bolt, B, having the notch, b, when constructed to operate substantially as and for the purpose set forth.

82,812.—BEEHIVE.—James T. Fife, Tynercity, Ind.

I claim, 1st, The lid, C, when so arranged as to cover the main hive, A, as well as the side boxes, B B, and to lock the door to the main hive, A, as well as the side boxes, B B, and to lock the door to the main hive and the end doors to the wings, substantially as and for the purposes herein set forth.

2d, The chamber, F, constructed as described, and provided with the entrance, k, for the bees to enter the chamber when hiving them, and with entrances a and b, for the passage of the bees from said chamber to the different honey boxes, substantially as and for the purposes herein set forth.

3d, The combination of the side boxes, B B, chamber, F, honey boxes, D D, and E E, ventilating chamber, o, frames, f f, and robber catcher, J, to make and constitute a complete beehive, substantially as and for the purposes herein set forth.

4th, The arrangement of the case, A, and wings, B B, with the chamber, F, honey boxes, E E, and D D, and cover, C, all constructed and combined in the manner specified.

84,813.—KNEE BOOT FOR HORSES.—James Finlay, N.Y. city.

I claim, 1st, The knee boot, A, constructed and provided as described, with fixed pads, a a', a, and adjustable pads, c c', to slide upon fixed or sliding straps, b b', substantially as herein specified.

2d, A knee boat, constructed with upward projection, A', for protection of the knee, and the leg above the knee, substantially as herein described.

84,814.—APPARATUS FOR ILLUMINATING RAILROAD CARS, STEAMERS ETC.—William Foster, Jr., and George P. Ganster, N. Y. city.

We claim, 1st, Holding the gasoline in sponge, or equivalent absorbent material, on movable plates, substantially as and for the purposes herein set forth.

2d, Receiving the gasoline in sponges, and exposing it to evaporation therefrom, by holding the sponges in layers in the several chambers, F G H, as and for the purposes herein set forth.

3d, The perforated tubes, N M, arranged as represented, in the chambers, F G, and to the absorbent material, arranged as and for the purposes herein specified.

4th, The movable platforms, f g, etc., in combination with the absorbent material chambers, F G, etc., and provisions for conducting the air back and forwards through the same, and adapted to be moved vertically by suitable means, as herein specified.

5th, The upright, K, and cam, j, in combination with the movable platforms, f g, etc., and arranged to operate therewith, in the manner and for the purposes set forth.

6th, The reinforcing chamber, E, containing a fresh supply of volatile fluid, arranged relatively to the evaporating chambers, F G, etc., and their connections, substantially as and for the purposes herein set forth.

7th, The wicking, e2, arranged as represented, relatively to the reinforcing chamber, E, cock, e1, and evaporating devices below, substantially as and for the purposes herein set forth.

8th, The combination of a spring power or blowing mechanism, evaporating space, and absorbent material therein, forming an organized machine adapted for use in railroad cars, and analogous moving structures, with the advantages and for the purposes herein specified.

9th, The method, herein described, of illuminating moving structures by means of a portable gas apparatus, holding volatile fluid in capillary tubes, and operating by a force independent of gravity, and without disturbance from inertia, all constructed, combined, and arranged, substantially in the manner and for the purposes herein set forth.

84,815.—INSTRUMENT FOR TREATING FISTULA, ETC.—Edward F. Garvin, M.D., New York city.

I claim, 1st, The hollow conical slotted tube, a, with two or more slots, substantially as and for the purposes described.

2d, The cap, c, having the chamber, f, below tube, a, substantially as and for the purposes described.

3d, The plunger, g, operating in the supplementary chamber, i, also expander, h, both operating with or without screws, substantially as and for the purposes described.

4th, An expander, h, of equal diameter, operating in a conical tube of unequal diameter, as and for the purposes substantially as represented.

5th, All the parts of the described instrument, singly or in combination as and for the purposes described.

84,816.—BRICK MACHINE.—Evans Geary, Harrisburg, Pa.

I claim the arrangement herein described of the tempering tub, A, compressing plunger, B, adjustable feeding box, C, cut off, f, tilting plate, o open bottom molds, r, and sliding table, B, all operated as herein set forth.

84,817.—MORTISING MACHINE.—D. L. Gibbs, Worcester Mass.

I claim, 1st, The employment, with the treadle, D, of a mortising machine, of a catch or stop mechanism adapted to retain said treadle in its depressed position without the aid of the foot, substantially as set forth.

2d, The combination of the arm, J, spring, g, beak, and lever, K, in the manner described, the whole constituting a catch mechanism, arranged to operate in connection with the treadle, D, substantially as herein set forth.

3d, The arrangement, with the main frame, A, of the treadle device herein described, and the devices for elevating and depressing the table, as shown and described.

4th, The combination with the chisel arbor, O, of the band lever, P, spring, S, and cam, I, having projection, o, as shown and described.

5th, The arrangement with the guide frame, U, of the rack carriage, V, lever, 3, connecting rod, 4, standard, 15, stop, 11, weight and cord, 6 7, stud S, pinion, S', and hand wheel, W, as and for the purposes set forth.

6th, The arrangement in connection with the treadle rod, D', of the weight, D", and double grooved pulley, Z, and cords or chains, z z', as shown and described.

84,818.—HARVESTER RAKE.—Mason Gibbs, Homer, Mich.

I claim the pinion and head, G, placed on the reel shaft, B, in connection with the sleeve, C, sector, O, with the teeth, R, levers, H I, and the cam, M, all arranged for joint operation, substantially in the manner as and for the purpose set forth

84,819.—STEAM ENGINERY.—William Goodwin, Boston Mass.

I claim the combination and arrangement of the steam cylinders, E E, their pistons, and cranked shafts, g g, with the driving shaft, B, gears, h i, and several cranked shafts, as described.

Also, the combination and arrangement of the two hollow or tubular annuli, D D, with the series of steam engines, and their cranked and main shafts g B, gears, h i, and frame, C, as set forth.

84,820.—ROOFING COMPOSITION.—Marien Gould, Chicago, Ill.

I claim the combination of the ingredients herein named, compounded substantially as and for the purpose specified.

84,821.—MATCH FOR LIGHTING CIGARS, AND FOR OTHER PURPOSES.—Gustav Graetz, Alexandria, Va.

I claim a match, constructed substantially as described.

84,822.—IMITATION STONE FOR BUILDING PURPOSES.—Thos. F. Hamilton, New Haven, Conn.

I claim the herein described process for forming blocks with a wood foundation and cement covering, substantially as herein set forth.

84,823.—CULTIVATOR.—C. A. Harper, Wheeling, Ind.

I claim, 1st, Connecting the wheel, D, to the cultivator beams or frame, A by means of the hinged or jointed slotted plate or frame, E, substantially as herein shown and described, and for the purposes set forth.

2d, Securing the flanged shaft, H, or clodder, in its bearings, by means of balls or heads formed upon the ends of said shaft, substantially as herein shown and described, and for the purposes set forth.

3d, The combination of the swinging arm, J, with the rear end of the flanged shaft or clodder, H, and with the frame of the cultivator, substantially as herein shown and described, and for the purpose set forth.

84,824.—BED SPRING.—H. N. Hemingway, Rochester, N. Y.

I claim the metallic holder, h, having double open sockets, c, (for holding the ends of the elastic loops, g,) and a projecting shank, s, with a lip, a, when constructed substantially as herein set forth, for the purpose specified.

84,825.—FLY TRAP.—James Hoover, Gratis, Ohio.

I claim, 1st, The revolving circular plate or disk, B, constructed on its upper side with the S-shaped shoulder or elevation, C, arranged and operating substantially as and for the purpose set forth.

2d, The employment of the trap door, F, provided with the spring bar, f, attached to bar, f' and spring, g, secured to bar, g', constructed, arranged, and operated substantially as and for the purpose described.

3d, Platform or casing, A, plate or disk, B, elevation or shoulder, C, casing or covering, D, flange or partition, d, trap door, F, spring bar, f', spring, g, bar, g', and reservoir, E, provided with opening, e, all combined, constructed, arranged, and operated substantially as and for the purpose set forth.

84,826.—BEEHIVE.—Henry O. Hughes, Judson, Mo.

I claim, 1st, The lower or bottom part of the hive, A, constructed as described, in combination with the hinged and sliding inclined doors, c c', and cone-like shaped piece or bottom, e, operated substantially as and for the purpose set forth.

2d, The employment of the cut offs, D D', constructed or grooved so as to change the draft or cut it off from one part of the hive to the other, arranged and operated substantially as described.

3d, Frame, B, outer and inner casings or walls, A A', doors, c c', bottom, c comb frame, C, partition or floor, g, honey boxes, g1, g2, doors, h and a, and ventilating cut offs, D D', all constructed, arranged, and combined, substantially as described.

84,287.—CABLE SHACKLE FOR BRIDGES.—Theodore G. Hulett, Niagara, N. Y.

I claim the adjustable cable shackle, constructed and operating substantially as described.

84,828.—POTATO DIGGER.—Marion Jacobs, Sturgis, Mich.

I claim the arrangement of the plows, A, with the devices, D F and G, forming the digger, all as shown, and for the purposes described.

84,829.—CARRIAGE LOOP AND BILLET COVER.—Nicholas Jenny, Jr., Pittsburg, Pa.

I claim the metal sockets or receptacles into which the straps, B B, are inserted, and provided with flanges, b b, and rivets, b' b', in combination with the straps, D D, and metal plates, C C, all constructed, arranged, and operated as and for the purpose set forth.

84,830.—COFFEE URN.—George Jones, New Haven, Conn.

I claim, in combination with the perforated cylinder, C, within the body, A, of the urn, the arrangement of the annular chamber, B, and flange, a, of the cover, without communication from the chamber, B, to the urn below substantially as and for the purpose set forth.

84,831.—OX BOW PIN.—Henry P. Judson, Bethlehem, Conn.

I claim, 1st, The self-acting wire side springs D D when constructed and

arranged as described, in combination with the pin C, and cross head, B, substantially in the manner and for the purpose set forth.

2d, The peculiar method, herein described, of attaching and supporting the side springs, D, consisting of the pipes F, and hooks a, in combination with the cross head, B, and loops, E, as and for the purpose specified.

84,832.—CLOTHES BOILER.—D. Kellogg, Ypsilanti, Mich.

I claim the removable caps, D, with their branch spouts, f, when combined with the perforated and slotted plates, a b, as herein shown and described.

84,833.—HARVESTER RAKE.—Wm. A. Kirby, Auburn, N. Y.

I claim, 1st, A combined rake and reel, the arms of which are capable of having a rolling motion on their axes, and in which any arm acting at the time being as a beater, or all of the beaters, can be raised or lowered while acting as such, by the operator riding on the machine, so that it or they may pass over the grain on the platform at any desired hight, substantially as described.

2d, Also, in a combined rake and reel, in which any arm thereof may be a rake or a beater, at the will of the operator, the so constructing and arranging the cam ways as that the arm that acts as a rake shall pass over the platform at a uniform fixed hight, while the arms that act as beaters may be raised or lowered in parallel lines, to pass over the grain on the platform at such hights as the operator may desire, substantially as described.

3d, Also, hanging the arms of a combined rake and reel at points remote from the center of motion of the wheel or head that carries them, so that in dropping or rolling the rake or beater arms into their working position they shall do so in a direction contrary to that in which the wheel, frame, or head that carries them is moving, and so that they may roll into a position to reach the adjustable-hinged lifting and lowering cam way, when used as beaters, and pass beyond or outside of it when used as a rake, substantially as described.

4th, Also, uniting a series of rakes and beaters to their journals, respectively, by curved or bent axles, crossing each other, one bent upward and the other downward, for the purpose of getting the centers of motion of the beaters or arms all in the same plane, so that they may all receive a uniform motion from the cam ways that guide or influence them, substantially as described.

5th, Also, the combination of the sleeve with its hinged dogs, the forked latch, k, and the cam way 12, for the purpose of enabling the operator on the machine to throw the arm that has been acting as a rake out, and hold it out, or to allow it or any other arm of the series to run into action as a rake while the remaining arms of the series act as beaters, substantially as described.

6th, Also, in combination with a series of arms that have a revolving, rising-and-falling, and a rolling motion on their journals, a hinged cam way that may be raised or lowered, to raise or lower the beaters, by means of a lever extending therefrom, so as to be within the reach of the driver upon the machine, substantially as described.

7th, Also, in combination with a series of arms, one of which acts as a rake, and the others as beaters, a series of hinged dogs, g, one of which shall serve to adapt an arm specially to raking, while the others shall adapt the other arms specially to reeling in the grain, substantially as described.

84,834.—HORSE SHOE.—Rudolph Laporta, New York city.

I claim the combination of the screw bar, C, with calk, I', nut, E, cross bar, H, having calks I I, with the shoe, A, when constructed and arranged to operate together substantially in the manner and for the purpose described.

84,835.—APPARATUS FOR MAKING PAPER BOXES.—Francois Leclere, Boston, Mass.

I claim for the purpose specified, the described process of using thin pulp in high columns over pervious formers, suostantially as set forth.

Also, the combination of the wheel, b, with cylinders, r, arranged to rise and fall over the formers, m, substantially as and for the purpose set forth.

Also, the combination of the wheel, b, and slides conveying the formers, m, with inclines to move the slides outward and inward, as the wheel revolves, substantially as and for the purpose set forth.

Also, the combination with the cylinders, r, and their conveyer, b, of the valves, o, and the incline, c1, operative thereon, substantially as and for the purpose set forth.

Also, the process of condensing the pulp on the former, and expelling the water therefrom against atmospheric pressure by covering the pulp-covered former with a close vessel, d1, and admitting therein air under pressure, substantially as and for the purpose set forth.

Also, the process of removing the paper from the pervious former, by covering the pulp on the former with a cap fitting thereon, and admitting an air-blast within the former, substantially as and for the purpose set forth.

Also, the process for removing the paper from the cap which received it from the former, and for transferring the paper to a receiving block, by covering the receiver-block with the cap, and admitting an air blast into the cap, substantially as and for the purpose set forth.

84,836.—BOTTLE-FILLING APPARATUS.—John Matthews, Jr., New York city.

I claim, 1st, The combination of a sirup pump or charging device with the filling head or corking plunger of a bottling machine, in such manner that said pump or charging device is operated automatically by the filling head or its corking plunger, to admit sirup or other flavoring mixture to the bottle, while the aerated water, or other liquid to be sweetened or flavored is separately supplied to said bottle as it remains under the filling head, substantially as specified.

2d, The arrangement, essentially as described, of the sirup pump or charging device made adjustable, to regulate its charge, as specified, with the filling head or corking plunger, for operation together, substantially as herein set forth.

84,837.—ROTARY HORSE BRUSH.—W. W. McKay, Ossian, Iowa.

I claim, 1st, The combination, in a frame of a rotary brush, and a slide arranged for communicating rotary motion to the brush, alternately in one direction and the other, as and for the purpose described.

2d, The brush, D, arranged in combination with the frame, A, so as to be readily attached to and detached therefrom, substantially as and for the purpose described,

3d, The combination with the brush, D, of the adjustable scraper, F, substantially as and for the purpose described.

4th, The arrangement of the brush, D, frame, A, pulleys, E, cords, D', and slide, C, substantially as and for the purpose described.

84,838.—BRIDLE.—John McKibben, Lima, Ohio. Antedated December 1, 1868.

I claim the reins, E, provided with the stops, h, in combination with the bit, having its side bars, z, provided with guides, f f, for the reins to pass through, and the tubes, e, at the rear edges of the blinders, through which the reins also pass, all arranged substantially as and for the purpose set forth.

84,839.—EXTENSION LADDER.—Warren Morehead, Parkersburg, W. Va.

I claim the arrangement of the sliding ladder, B, constructed as described, triangular ladder, A, with its guides, d d, and the latch, D, and slide, E, all constructed and operating as shown and described.

84,840.—ENVELOPE.—Charles R. M. Pohle, Richmond, Va. Antedated November 30, 1868.

I claim the closing of the envelope by the action of the double seal, substantially as described.

84,841.—WATER ELEVATOR.—L. Raymond, Greene, Ohio.

I claim the combination of the swing or trapeze, F, the inclined guide, G, and the cords and pendants, D E, all substantially as and for the purpose set forth.

84,842.—FLOUR COOLER.—Joseph S. Reynolds, Wauconda, Ill.

I claim the arrangment herein described, of the shaft, B, and agitators, D D, with the cooling pans, A A, provided with spouts, a' a', near their peripheries and screw conveyers, C, as and for the purpose set forth.

84,843.—BRIDLE BIT.—William S. Robbins, New Bedford, Mass.

I claim, 1st, The inner bit, B, attached to the outer concave bit, A, by means of the curved end springs, b, whereby the inner bit is adapted to be drawn out of the bit, A, its entire length, and parallel with said outer bit, as herein described for the purpose specified.

2d, Attaching the bridle to the outer bit, A, and the driving reins to the inner bit, B, as herein described for the purpose specified.

84,844.—HAND SUPPORTER FOR PIANOS, ETC.—Charles Sangalli, New York city.

I claim the apparatus hereinabove described, or its equivalent, suspending the hands or resting the wrists, without hindering the free movements of the fingers, and keeping thereby the hand or wrist, and in consequence thereof, the fingers upon the key board in the position desired, at the same time unhindering all the motions required to be made to use the same, and to play upon an instrument, as above described.

84,845.—DIES FOR MAKING CARRIAGE AXLES.—W. W. Simmons, Birmingham, Conn., assignor to himself, R. M. Bassett and T. S. Bassett.

I claim the dies, E, constructed as shown and described, for the purpose hereinbefore set forth.

84,846.—PUMP.—Oscar Snell, Williamsburg, Ohio.

I claim, in combination with the pump proper, A, the valve chest, F, constituting also an air chamber, the slide valve, G, tube, K, and discharge pipe, L, when constructed and arranged to operate in the manner and for the purposes herein set forth.

84,847.—PLANING MACHINE.—Henry D. Stover, New York city.

I claim the frame of a planing machine, constructed, in the manner described, so that the arm cutters, F F, may operate simultaneously with the cylinder, D substantially as and for the purpose set forth.

2d, The oscillating clamp, R, when constructed in the manner and for the purpose described.

3d, The adjustable brackets, N, in combination with the frame, E, for supporting the driving shaft, O, and tighteners, when constructed and arranged as described.

4th, The clamp, R, when provided with a single hook at each end, to take hold of pins inserted in the sides of the carriage, as described.

5th, The iron uprights, E, in combination with a bed, A, when such bed is used for the support of the vertical and horizontal cutters, D and F F, in the manner described and for the purpose set forth.

84,848.—HYDRANT.—Solomon Tice, Cincinnati, Ohio.

I claim the combination, substantially as described, of the open-ended and perforated cylinder, A a, chamber, B b, inlet pipe, C, discharge pipe, D, collar, E, valve seat, F, packing G, stem, K, plunger, M m, valve, F, and contracted passage, P, all substantially as described, and for the object explained.

84,849.—CLOTHES DRYER.—Jarvis B. White, Detroit, Mich.

I claim the clothes dryer, consisting of the standard, A, part, C, hinged near the foot of standard, A, and carrying the clothes rack, D E F, straps, G, and windlass, H, all arranged and operating substantially as and for the purposes set forth.

84,850.—APPARATUS FOR CLEANING RAGS.—George L. Witsil, St. Louis, Mo., assignor to himself and T. L. Bates, Philadelphia, Pa.

I claim an apparatus for the uses specified, consisting of the cisterns, pipes, stopcocks, and air pumps arranged for operation substantially as set forth.

REISSUES.

77,476.—MACHINE FOR MAKING NUTS.—Dated May 5, 1868; reissue 3,223.—Matthew H. Foster and Hubert C. Hart, Unionville, Conn.

We claim, 1st, The combination of the sliding bed, B, with the mechanism for cutting, the mechanism for forming, and the mechanism for punching and swaging, substantially as described.

2d, The arrangement of the formers, f f', the blocks, k' k3, the set, t, the die, x, and the punch, p, constructed and operated as herein described.

3d, The peculiar arrangement of the cams, a b c d e s s' s'' F, by which the several parts of the machine are made to operate at the proper time, substantially as herein set forth.

4th, The improved nut machine, consisting of mechanism constructed, combined, and arranged substantially as herein set forth.

82,683.—CHILDREN'S CARRIAGE.—Dated Oct. 6, 1868; reissue 3,224.—Francis Boylston, New York city.

I claim, 1st, The combination and arrangement of the fixed axle, A, having two revolving wheels thereon, and sills or supports, B B, when the same are attached to the front part of a children's carriage or perambulator, substantially in the manner herein shown and set forth.

2d, Attaching the fixed axle, A, to the supports, B B, by means of the brackets, C C, and secured by the screws, a a, or their equivalents, the whole of the parts being made and combined with a children's carriage or perambulator substantially in the manner herein shown and described.

3d, The combination and arrangement of the fixed axle, A, having thereon two loose wheels, D D, brackets, C C, and sills or supports, B B, the whole being made and combined, with respect to each other and to a children's carriage or perambulator, substantially as and in the manner herein shown and set forth.

45,302.—APPARATUS FOR CARBURETING AIR.—Dated Feb. 7, 1865; reissue 3,225.—Edmon L. Mix, Rochester, N. Y., and the Monumental Automatic Gas Machine Company, Baltimore, Md., assignees by mesne assignments of Hugh L. McAvoy.

We claim, 1st, An apparatus for manufacturing air gas and enriching other gas, in which the carbonaceous matter is inclosed within an air forcing apparatus, consisting of a gravitating air holder and water receptacle, substantially as described.

2d, Manufacturing air gas by the described mode of using a holder, C, to contain air, receive the carbonaceous matter as it rises from the oil in the form of vapor, and force the gas into a pipe, wherein it is conducted off, as explained.

3d, The plate, E2, employed in connection with the pan, E, to cause the air to pass to the pipe, B, in contact with the oil, and in a state of compressure, substantially as described.

4th, The sealing device consisting of the cup, F, cylinders, G G', and a body of liquid between the latter, substantially as described.

5th, An apparatus for carbureting air in which the vessel holding the hydrocarbon liquid is contained within the gasometer, in contact with the water in the cistern thereof, substantially as and for the purposes set forth.

23,978.—TACKLE BLOCK.—Dated Nov. 1, 1859; reissue 1 534, dated Sept. 8, 1863; reissue 1 932, dated April 11, 1865; reissue 3,226.—Isaac E. Palmer, Hackensack, N. J.

I claim the construction of a tackle block and pulley, whereby the rope or fall, when desired, may be clamped between a portion of the pulley and a portion of or surface connected with the block, substantially as herein described, by simply leading it in a direction oblique or lateral to the plane of revolution of the pulley, without tying, or the use of dogs or movable stops, or any other means of fastening.

30,446.—MAGAZINE FIRE-ARM.—Dated Oct. 16, 1860; reissue 3,227.—Winchester Arms Company (assignees by mesne assignments of B. Tyler Henry), New Haven, Conn.

We claim, 1st, In combination with the hollow breech pin, the spring catch, m, on the breech pin, and the piston, arranged for central or rim fire, or both, substantially as and for the purpose set forth.

2d, In combination with the carrier block, E, and the spring catch, m, placed on top of the breech pin, L, the so forming of the top of the said carrier block, near the rear end, as shown at d 5, fig 4, as to strike the cartridge forward of the center, and thus raising the forward end of the cartridge, while the rear end is held down by the spring catch, tripping it over and freeing it from the spring, and ejecting it from the gun, substantially as described.

DESIGNS.

3,277.—SNUFF BOX.—F. C. Heiser, Brooklyn, E. D., N. Y.

3,278 to 3,290.—CARPET PATTERN.—Elemir J. Ney (assignor to the Lowell Manufacturing Company), Lowell, Mass. Thirteen Patents.

EXTENSIONS.

MANUFACTURING LEATHER BANDING FOR MACHINERY.—George Miller, Providence, R. I. Letters Patent No. 11,902, dated Nov. 7, 1854.

I claim my improved manufacture of round banding, as made substantially as described, that is to say, by reducing a strip of leather or other suitable material, to the shape denoted in fig. 1, and subsequently rolling and cementing it together into that essentially as exhibited in fig. 2, of the drawings hereinbefore mentioned.

BUCKLE.—Stephen E. Booth, Orange, Conn., administrator of S. S. Hartshorn, deceased.—Letters Patent No. 11,892, dated Nov. 7, 1854; reissue No. 2,955, dated May 26, 1868.

I claim, 1st, A buckle in which the tongues are formed from a single piece of metal, and constructed so as to clasp the divided side and turn freely thereon substantially in the manner herein set forth.

2d, The combination of the two parts or loops, one side of one of which is divided, and the two parts or loops hinged together as described, and the tongue clasped and hinged upon the divided side, as set forth.

SHINGLE MACHINE.—Harry H. Evarts, Chicago, Ill.—Letters Patent No. 11,858, dated Oct. 31, 1854.

I claim placing the blocks to be sawed into shingles in a rotating carriage, which is combined with inclined tables, p p (or a single table), and with saws o o (or a single saw), in such a manner that the blocks will be carried continuously forward and be automatically operated upon to convert them into shingles, substantially as herein set forth.

I also claim the arrangement of the weighted levers, H H, the fastening teeth, i i, and the inclined planes, l l, with each other and with the inclined tables, p p, and the other series of teeth in the ledge, r, substantially as herein set forth.

I also claim presenting the sides of the fibers of the wood to the action of the saws in the sawing of shingles, or equivalent articles, for the purpose of giving them smoother surfaces than can be produced by the usual mode of sawing, substantially as herein set forth.

DAGUERREOTYPE CASE.—Eliza Mascher, Philadelphia, Pa., administratrix of John F. Mascher, deceased.—Letters Patent No. 9,611, dated March 8, 1853; additional improvement No. 134, dated Feb. 19, 1856.

I claim constructing a daguerreotype case with an adjustable flap or supplementary lid, C, said flap or lid, C, being within the case, and having two ordinary lenses, D D, placed in it, by which, upon adjusting the flap or lid as shown, a stereoscope is formed of the case, and the two daguerreotypes, E E, by binocular vision, are apparently formed into a like figure.

ADDITIONAL CLAIM.—The combination and arrangement of a series of leaves, of any suitable material, containing photographic or other pictorial representations (interspersed or not with blank or printed leaves), with the supplementary lid or adjustable flap containing a lens or lenses as described, the same being united or bound together so as to form a book, substantially in the manner and for the purposes described.

LOOM FOR WEAVING FIGURED FABRICS.—George Crompton, of Worcester, Mass.—Letters Patent No. 11,933, dated November 14, 1854; reissue No. 639, dated December 28, 1858.

I claim combining with hook jacks which are connected with the harness, and with the mechanism for operating them to open the shed, substantially as described, a pattern chain, or cylinder, constructed with two or more patterns, and operated so that either of the patterns can be made to act on the hook jacks to place the same in the required position to be operated upon by the mechanism for opening the shed, substantially as described.

I also claim, in combination with a pattern chain, arranged with two or more patterns in the direction of its length the mechanism, substantially such as herein described, for changing the movements of the chain to effect the changing of the pattern, as described.

I also claim placing two or more patterns upon the rods of a pattern chain, side by side, and operating them in succession by vibrating the chain laterally, in the manner substantially as described.

I also claim pivoting the lifting and depressing rods, G P at one end, the other being made adjustable, in the manner and for the purpose set forth.

And I also claim moving the rods or jacks out of contact with the rollers on the pattern chain before the chain is moved, by means of what are termed the vibrating fingers, or the equivalents thereof, substantially as described.

SEWING MACHINE.—Charles Parham, of Philadelphia, Pa. Letters Patent No. 11,971, dated November 21, 1854; reissue No. 1,562, dated November 3, 1863.

I claim 1st, So forming and constructing the shuttle driver of a sewing machine that, while it performs the required duty of driving the shuttle, it serves to maintain the latter in the desired proximity to the plate, C, as set forth.

2d, The combination of the driver, A, shuttle, B, and stationary plate, C, the whole being formed and arranged substantially as described, so as to retain the shuttle during its flight in its proper position for the purpose specified.

PRESSER BAR FOR PLANING MACHINE.—Clara M. B. Snow, of Independence, Iowa, executrix of Harvey Snow, deceased.—Letters Patent No. 11 984, dated November 21, 1854.

I claim combining the pressure bar, H, with the rotary cutters, so as to secure the same relative position of the inner edge of the bar, and the path of the cutting edge in holding and cutting the surface of a board throughout its varying thickness, substantially as described.

ANCHOR.—Samuel H. Miller, Dedham, Mass.—Letters Patent No. 9,076, dated June 29, 1852.

The nature of my invention consists in having two separate shanks (marked, A and B, in fig. 1 of the enclosed drawings) and flukes to them, C and D, the shanks being confined together near the rings by the bolt, E, secured at one end by a large head, and at the other by a strong nut or key, F, and separated at their elbows or crowns the length of one of the flukes by a snur or brace projecting from the shank, A. In the other shank, B, there is a hole through which the end of the spur, G, passes, and is secured by a nut or key at H. The flukes are pointed in opposite directions, and so disposed that it is impossible for the anchor to lie otherwise than with one of the flukes in the ground.

Specification 2.—There being no stock to this anchor, it is not liable to become "stock foul" in "letting it go," nor can a vessel be "stock rode," as it is termed, by the stock entering the ground and being dragged along it until it meets a hard vein of earth or a stone, when the stock is bent or broken, and the anchor is useless. But in this form, the instant a strain comes on the cable, the anchor enters, and is drawn down into the mud until the broad surface of the fluke presents its full power of resistance. The fluke sinks readily in the ground from the effect of its plowshare-like point, which passes the earth on one side, instead of lifting up and breaking it.

Specification 3.—By unscrewing the nut, F, and withdrawing the bolt, E, which connects the two shanks at the rings, and also detaching the shank, B, from the end of the spur, G, both flukes can be turned downward, and geared as in fig. 2 of the drawings, becoming in effect a double "mooring anchor," which sinks with certainty both flukes in the ground by attaching to the middle of the spar chain, I, which connects the two elbows, and is twice the length of one of the flukes, an empty beef barrel, small water cask, or anything of sufficient buoyancy to insure the turning of the flukes down by its resistance to the sinking of the anchor. To this chain the buoy rope is also made fast. In many ports ships are obliged to lie moored, and much inconvenience is experienced with the old form of anchor, by the fluke which stands up from the ground catching the cables of the ships as they sheer about with the wind or tide. In my anchor this difficulty is entirely obviated, for, when the flukes are sunk in the mud, there is nothing above the ground which can catch a chain or hawser. In anchoring upon a lee shore, the anchor, being disposed as above, will take a double hold of the ground, thus rendering the anchorage more secure.

Specification 4.—If one of the flukes or shanks should be broken near the elbow or crown, (the place where they usually break), this anchor can yet be made available by lashing a spar of the length of the shank and one fluke, across the remaining shank, to the spur or brace, G, as in fig. 3. It then becomes the same as the common one fluked mooring-anchor, and can be used in the same manner, or as the double anchor described in the third specification, by securing to the ends of the spar a temporary stock, a rope of twice its length, and from the middle or bight of that extend another to the ring at the elbow, then at the bight, or where the ropes are united, secure a buoy or small cask, and let go the anchor, the fluke will strike the point into the ground. Or it can be lowered down by a rope made fast to the elbow or crown, as is the mode with the mooring anchor now in use. In the old form of anchor, if the shank is broken, both flukes are lost, and the anchor is useless.

Specification 5.—It is frequently necessary to carry out anchors in boats; which service, if in the night time, or in a heavy sea, is always attended with great peril, because of the anchor stock lying athwart the boat's gunwales, embarrassing the men in rowing, and its liability to turn, and the stock catching in the boat's quarter, when about to be let go. In carrying out this anchor of my invention, there is no such danger. There being no stock, it lies along the middle of the boat, with flukes over the stern; and when the hawser is run out, the anchor follows, without the possibility of fouling or catching in the boat.

Specification 6.—By the mode in which this anchor is made, greater strength is insured than can be obtained in the old one with the same weight, each shank and fluke being in shaft forged into shape, and then heated at the proper place, and bent into the form requisite, without the necessity of welding any part but the spur or brace of the stock. In the old anchor there must be a weld (and commonly there are two) at the crown; and there they most frequently break.

Specification 7.—While making a passage, this anchor can be readily stowed by withdrawing the key, H, and lifting the shank, B, from the spur, G, and laying it upon the shank, A. The anchor, thus closed, occupies but little space. This can be done while the anchor hangs at the cat-head, and with greater ease than when on the deck, by taking out the key, drawing of the shank, B, and allowing it to drop to its fellow. Then, by the tackle hooked to the spur eyes, it is taken over the ship's side.

Specification 8.—In case of extremity this anchor can be separated and used as two, by lashing across the shank, A, at G, a spar for a temporary stock, and driving through the hole in the shank, B, at H, a handspike, and lashing thereto a spar, as on the shank, A; then rig them with buoys, as described in specification 4, and illustrated in fig 3. Thus arranged, the anchor being provided with two rings, can be shackled to two chains or cables, thereby securing greater safety to the ship than if moored with but one.

What I claim as my invention, and desire to secure by Letters Patent, is the above described anchor for holding ships.

Mrs. A. St. John, of Rochester, says that, during the past ten years, she has made more than three thousand five hundred vests with her Wheeler & Wilson machine, besides doing her family sewing, and that she has made over twelve hundred vests with the needle now in use.

MANUFACTURING, MINING, AND RAILROAD ITEMS.

The Bennington and Rutland Railroad Company are to extend their road to the marble quarries at West Rutland.

A single rubber manufactory in Providence, R. I., employs five hundred hands.

The lumbermen at Burlington, Vt., have adopted the ten hour system.

Mile posts are now being erected on the line of the Concord Railroad.

The earnings of the Central Pacific Railroad for October exceeded $300,000.

Business and Personal.

The charge for insertion under this head is one dollar a line. If the Notices exceed four lines, an extra charge will be made.