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A Water Wheel Railroad.

A Piedmontese, inventor, has taken out a patent for carrying railroad trains over Mount Cenis. His plan is described as follows :—

"A railway of the usual description is to be laid down in a direct line from the bottom to the top of the ascent. Between these two rails a canal is to be dug three feet nine inches in width, and about thirty inches in depth, which is to be lined and made completely water-tight with boiler plate. The motive power to be employed is a stream of water rushing down this canal. Mount Cenis, however, affords every facility in this respect. On the outside of the railway a cogged rail is to be laid down on either side. In the middle of a frame, ab ut the size of an ordinary steam-engine without its tender, a water wheel, is to be fixed, having a diameter of twelve feet. On the same axis is to be fixed two cogged wheels to work in the cogged rails, of six feet diameter. With this apparatus it seems clear that the descending stream must force the water wheel to make revolutions towards the top of the hill, and to carry round with it the cogged wheels in the same direction. As the diameter of these is to be half that of the water wheel, the rate of ascent will, of course, be half that at which the diameter of the water wheel moves. It is calculated that the latter speed will be ten miles an hour, and the former, therefore, five. It is further calculated, that a machine of these dimensions will carry up the proposed acclivity a weight of from fifteen to twenty tuns, or say from sixty to eighty passengers. For the descent, the water wheel, moving through and against the stream, will act as a restraining force to moderate and regulate the speed."

[The above is condensed from the London *Atheneum*, which objects to the plan on account of severe frosts during winter. We, however, look upon the plan as stupidly described, for we believe the *Atheneum* does not describe the invention clearly; it confuses the account of the action of the water wheel, and leaves an impression on the mind that *it* is moved up the incline drawing the train after it, which would be a stupid impracticable plan. The invention is, no doubt, the use of a fixed water wheel at the foot of the mountain, to draw the train to the top of the ascent by a carriage and endless rope. The plan is good and economical where it can be carried out, but it is not a new invention.

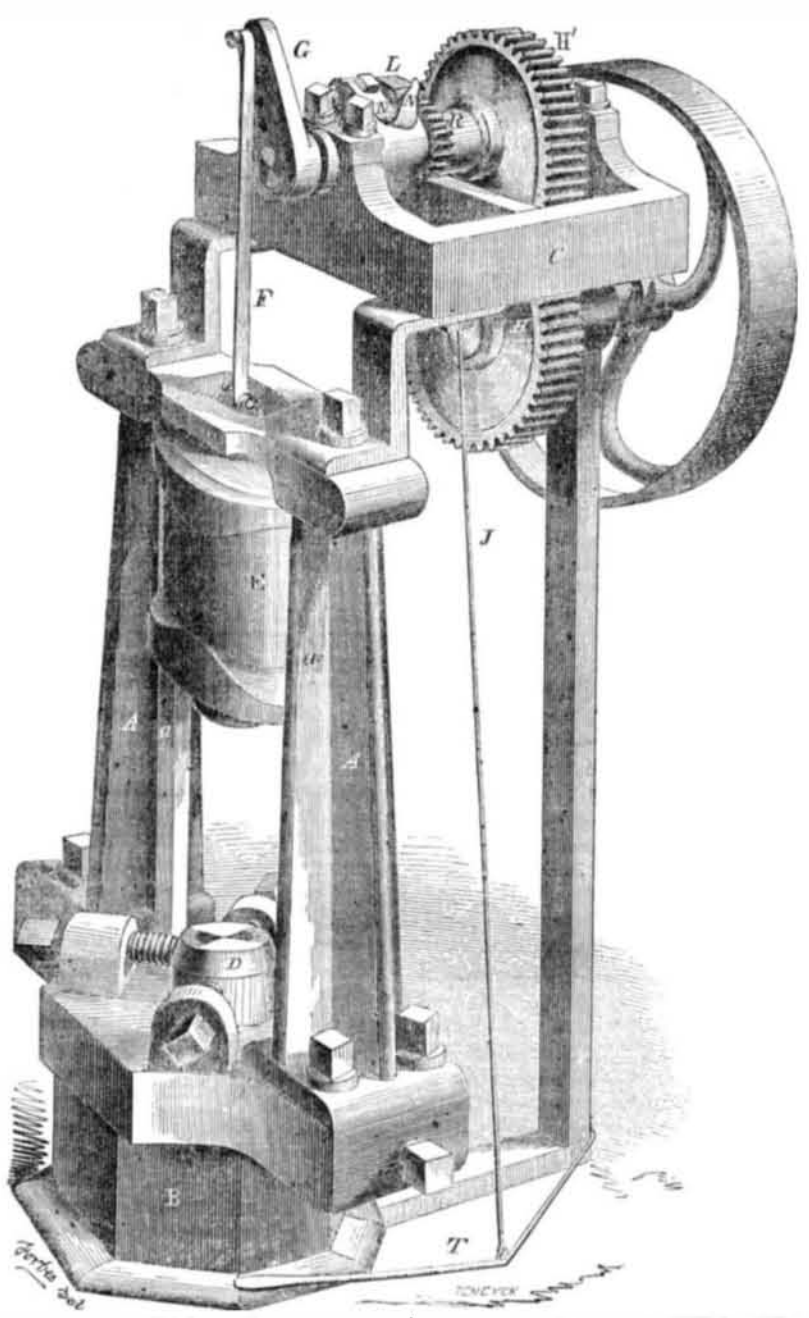
Frozen Flesh.

Mr. A. Bronson, of Meadville, Pa., says, from fifteen years' experience, he finds that Indian meal poultice, covered with young hyson tea, softened with hot water, and laid over burns or frozen flesh, as hot as can be borne, will relieve the pain in five minutes.—[Exchange

A Large Ruby.

The King of Burmah wears a ruby in the center of his crown which is larger than a hen's egg, and more valuable than the celebrated Koh-i-noor diamond. It is more than two thousand years since it was found, and is beautifully cut.

PECK'S PATENT DROP PRESS.



The accompanying figure is a perspective view of the patent Drop Press (with its recent improvements,) for which a patent was granted to Milo Peck, of New Haven, Ct., on the 28th Nov., 1851, and which was illustrated on page 140, Vol. 7, SCIENTIFIC AMERICAN.

A A are the standards, or upright ways between which the drop or ram moves. B is the bed or anvil, and D is the lower die on the face of the bed. E is the drop with the upper moving die secured in its under face. C is the frame which supports the gearing and machinery on the top of the press. F is the pitman rod attached to the drop, E. It is connected by a pin to the crank, G, on an upper shaft, which, as it is rotated, moves the drop, E, up and down, as desired. The crank has holes in it to connect with rod F, at different points from the center, to give a long and short stroke to the drop. I is the main driver shaft, having a cog wheel, H, on its inner end, gearing into another, H', on a hub, R, surrounding the crank shaft, to which it gives an intermittent rotary motion, by a rotating dog or catch, L, attached to an arm or sweep on the inner end of the crank shaft. The dog takes into the small cog wheel on the hub, R, as it rotates, and thus acts as a clutch to connect the crank shaft with the rotating hub, R, to raise the drop, E, to the top of the fall. When the drop, E, is raised to the top of the frame, a small eccentric stationary rim (not seen) fitting close to the small ratchet wheel on hub, R, throws the spring ratchet, L, out of gear, and the crank then ceases to rotate. The drop, E, is now at the head of the fall, ready to descend, but a spring catch, not shown on the upper end of the treddle rod, J, catches a sweep in the under side of the crank shaft, and holds the drop stationary at the top, while the main shaft and hub, R, have a constant rotary motion. The crank, G, however, is a little inclined from the center—as now shown in the figure—when the drop, E, is raised and caught, so that the moment the lower sweep of the crank shaft is relieved from the treddle catch, the drop, E, will descend by its own gravity. The workman, by placing his foot on the treddle, T, at once releases the catch described, which holds the sweep of the crank shaft, and then down comes the drop with its die upon the lower die, D, on the anvil, and stamps the article which may be placed upon it. The machine is entirely self-acting, excepting when the drop is made to fall, and then the operator just places his foot on the treddle for every blow he desires to be struck. The rotating ratchet, L, has a spring, N, to hold it in contact with the teeth of the small ratchet wheel, and also to give a little, to allow the ratchet to be raised from the teeth of the wheel by the eccentric rim mentioned, to throw the crank shaft and the hub, R, out of gear as the main shaft rotates. The treddle, T, is for the purpose of tripping the spring catch which holds the crank shaft sweep when the drop, E, is raised to the top of the fall. When the operator is securing a piece of work on the anvil, the main shaft keeps rotating, while the ratchet, L, being thrown out of catch with the small ratchet wheel, the crank shaft is kept stationary, with the drop, E, raised, and ready to descend, when the treddle, T, is trod upon. The mode of tripping the drop is shown and described on page 140, in the volume heretofore referred to: the devices in this figure are nearly the same for this purpose. We have briefly described these operations, however, to convey a clearer idea of the tripping action of this drop press to subscribers who do not possess Vol. 7 SCIENTIFIC AMERICAN. The ways to guide the drop, E, correctly, are differently combined in this press, and are a great improvement on the old presses. In the old drop presses the rods or guide ways, A A, of the drop rest in grooves, and are bolted to the *anvil bed*, and the yoke on top of the ways is generally secured to the frame of the building in which the press is placed. In this press the face of the anvil itself is made broad, and is planed true, whilst the foot of each way is a broad smooth flange, fitted nicely to, and bolted to the anvil instead of its bed. The yoke on the top of the ways, A A, is bolted direct to the top flanges of the ways, and the anvil, ways, and yoke, thus almost form one piece when adjusted and set. *a a* are guide flanges for the drop.

One great object to be secured in such presses is a true vertical blow of the drop, with its die, upon the die of the anvil. If the upper die does not fall true on the lower one, good work cannot be accomplished. In all common presses, the upright ways are liable to be thrown, more or less, out of the perpendicular, and require frequent adjustment, thus causing great trouble to the workmen. In the press represented in this figure, the upright ways being bolted fast to the anvil itself, and the yoke of them not being directly connected to the building in which the press is placed, if any part of the building settles, the ways, anvil, and yoke are so connected that they will not be thrown out of line with one another, consequently the press will operate with more precision, and will execute better work, and at the same time it will save much loss of time, caused by the common presses requiring frequent adjustment to make the drop strike true.

More information respecting this improved drop press may be obtained by letter addressed to Mr. Peck, at New Haven, Conn.

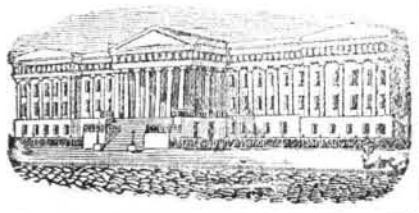
A Tall Chimney.

At Preston, England, a chimney has just been completed at the work of Messrs. John Hawking & Low, which is 258 feet in hight; its width at the foundation, 34 feet; the weight of the stone cap is thirty-one tuns, and 440,000 bricks have been used in building it.—[Exchange.

[This is, indeed, a pretty tall chimney, but not to be compared with one in the city of Glasgow, described in the December number of *Hunt's Merchant's Magazine*, page 677. Its hight is 460 feet, and its circular diameter at the base 50. It is of the form of a cone, and contracts to six feet diameter at the top. Three millions of bricks, and thirty tuns of iron for bands, were used in its construction, and cost about $50,000. It was built by Messrs. Tennant, to carry off the deleterious gases arising from their retorts in manufacturing chemicals. It is situated on elevated ground, and can be seen at a distance of 20 miles on approaching the city, from any direction. It is the tallest chimney in the world.

New Guano Islands.

A new island, containing many million tuns of guano, has been discovered in the Pacific Ocean; and it is believed that our farmers will hereafter obtain this excellent fertilizer at a much lower price.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING JAN. 1, 1856.

FURNACE FOR SOLDERING—Philo Brown, of Waterbury, Conn: I do not claim, broadly, the construction or use of a furnace for brazing or soldering metallic tubes, consisting of a brazing or soldering chamber or passage interposed between the fire chamber and chimney flue.

I claim combining the brazing or soldering chamber with the fire chamber and chimney, and interposed between the two, when the said brazing or soldering chamber commnnicates with the fire chamber by means of one or more apertures, at or near the top, and one or more apertures at or near the bottom, governed by dampers or equivalents therefor, substantially and for the purpose specified.

CHAIN FOR POWER PRESS—Nathan Chapman, of Mystic River, Conn.: I claim so making a chain for power presses as that it shall recede gradually from a straight line, and the links diminish in length as they extend from the wheel on which they are to be wound to the follower, which said chain is designed to work, substantially as described.

[The object of this invention is to render the great strength of chains available in the production of a variable power, adapted to presses and other species of mechanism. This s done by employing cone pulleys and winding the chains upon them, just as ropes are applied; the chains, however, will not wind evenly on round pulleys, and therefore the latter must be made with angular or prismatic sides. The chain must also be so manufactured that each link shall be of the same length as the flat surface of the cone, where the link comes in contact, is wide, thus at the apex of the cone the chain links are quite small, but they are gradually lengthened until the links that wind on the base, or larger part of the cone, are greatly increased in size. Links and pulleys made and combined as described, afford a strong, durable, and compact variable power.]

PLANING MACHINES—Hiram C. Wright, of Worcester, Mass.: I claim governing the motion of the movable feed rolls by means of the jointed levers and connecting rod or its equivalent, whereby I am enabled to keep their surfaces parallel with the middle one, and thereby feed the board on a line with the surface of the table, as set forth.

NUT BOX—Richard Cole, of St. Louis, Mo.: I claim the arrangement of the segments, c c, the eccentrics, d d, and the set screws, e f g, with each other, and with the case, A 1, substantially in the manner and for the purpose set forth.

BRICK PRESSES—J. B. Collen, of Reading, Pa.: I make no claim to stationary mold boxes of themselves, nor to the use of cams in producing the intermittent action of the pistons, nor to the peculiar shape of cams.

But I claim the employment of stationary mold boxes in combination with the vertically moving gate actuated substantially as set forth, and the intermittent action of the pistons, whereby the brick is pressed and delivered by a single piston, as specified.

LEATHER SHOE BINDING—Joshua Turner, of Charlestown, Mass., (assignor to W. Covel, of Dedham, Mass.): I claim the improved process set forth in the manufacture of leather bindings, viz.: dividing a sheet of leather into strips of equal widths, joining or connecting them at their ends, so as to connect them into one long strip, coloring the same when so formed, and finally splitting it so as to remove the fleshy surplus portion, and reduce the whole to one equal thickness.

SCREW MACHINES—Cullen Whipple, of Providence, R. I., assignor to the New England Screw Company, of same place: I claim the combination of a series of grooves in a moving surface with a smooth guard and griping plate, operating substantially as described. Also the nicking aw mounted on the oscillating eccentric bearing resting in cylindrical boxes, in combination with mechanism for presenting and holding the blank, as described.

PLOWS—G. W. Cooper, of Ogeechee, Ga.: I claim uniting the handles of the plow to the standard thereof, by means of the self-adjusting elbow joint, e, so that both the handle and the plow shall be susceptible of the same relative adjustment to the team, as described.

SAFETY GUARDS FOR RAILROAD CARS—J. G. Crocker, of Utica, N. Y.: I do not claim the first discovery of the idea of preventing accidents, by covering the wheels of railroad cars, nor do I claim the invention of any part of the car, nor any separate part of the shield or movable platform.

I claim to receive the shield and the movable platform to be attached to railroad cars for preventing accidents, as set forth, and though both are necessary to effect this purpose fully, yet I claim them separately as well as in combination, to be made and used, as fully described and set forth.

WIND MILL—Benjamin Fenn, of Hartford, Ohio: I claim the horizontal movable wing with unequal sides, and hung upon eccentric pivots. in combination with the governor, H, arranged in the manner and for the purpose set forth.

I claim also the method of governing and releasing the wings in high winds by means of the pendulum, J, and rod L, in combination with the wheel, or counter balance, R, as described.

PRINTING PRESS—G. P. Gordon, of New York City: I do not claim, separately, a rotating disk, W, for distributing the ink.

But I claim, first, combining with such rotating disk, W, an annular disk, X, which shall revolve around and in a contrary direction to it for such purpose.

Second, I claim throwing the same rollers, T, one or more, used for inking the form, from the parallel position they necessarily occupy for this purpose, to an oblique position, which shall give to them a lateral motion, when in contact with the distributing disks or equivalent for the purpose specified.

Third, I claim a rotating reciprocating cylinder, R, or segment of a cylinder, in combination with a reciprocating bed, N, when such bed shall have a movement to and from such cylinder or segment of a cylinder in the manner described for the purpose specified.

Fourth, I do not claim placing a reciprocating bed in a vertical position or in any given angle from a horizontal position; but I claim so placing the bed when used with a rotating reciprocating cylinder or segment of a cylinder, which shall drop or pile the printed sheets underneath it, in the manner specified.

[The foregoing invention is perhaps as well described in the claims as it can be without diagrams. Mr. Gordon is a well-known practical printer of this city. He is the originator of several very successful and important improvements in printing machinery.]

REPEATING FIRE ARMS—Benj. Groomes, of Cumberland Township, Green Co., Pa.: I do not claim the method of loading repeating fire-arms, by placing a number of cartridges one upon another in a separate cylindrical chamber, as such has been done before; neither do I claim revolving hammers for exploding in succession the different percussion caps of repeating fire-arms, as such have been used before, though actuated by means other than I employ.

I claim the mechanism for rotating the hammer during its reciprocating rectilinear movements, or rearward motions, as described, consisting of the spring dog or stud, the series of straight grooves and the series of helical grooves formed in the hammer shank, and arranged with respect to each other, so that the spring dog may operate on them, substantially as specified.

SPOKE SHAVE—Elijah Holmes, of Lynn, Mass.: I do not claim the manner of fastening the knife, viz., by a single screw clamp, chamfers, and sockets.

But I claim supporting the ends of the knife or planes on shoulders inclined or arranged with respect to the bearing of the stock, substantially in manner as specified, and so as to enable the distance of the cutting edge of the knife from the said bearing surface to be changed, in the way and for the purpose as explained.

SHIRT COLLARS—Walter Hunt, of New York City: I claim, in the manufacture of shirt collars or sham shirt collars, uniting only the extremities of the lower edges of the side pieces, b b, to the neck band, d, by means of any suitable fastenings, for the purpose of enabling a flat sided collar to fit easily and gracefully about the face, substantially as set forth.

PEGGING BOOTS AND SHOES—W. B. Johnson, of Sandwich, N. H.: I claim, first, the vibrating jaws, g h, constructed and operating substantially as described, for feeding the shoe, whether actuated in the manner set forth or in any other way which will enable them to perform the aforesaid function.

Second, the combination of lever G, stop, x, and swinging jack, constructed, arranged, and operating substantially as specified, for submitting the surface of the sole to the awl to a given angle, in every position, substantially as set forth.

Third, the adjustment of the drivers on the perimeter of the cam, substantially as and for the purposes set forth.

Fourth, the double binding slide clamps for securing the last in the jack, constructed and operating substantially as and for the purpose specified.

GOLD AMALGAMATOR—Daniel Leibee, of Middletown, Ohio; I claim the use of the reservoir and spout in connection with the revolving pan and scrapers, operating with the stationary trough and agitators, constructed and arranged in the manner and for the purpose as set forth.

PUMP—C. N. Lewis, of Seneca Falls, N. Y.: I claim the basin, C, or its equivalent, for the uses and purposes set forth, and in combination and connection therewith I claim the arrangement and construction of said pump, as specified.

EAVE TROUGHS—O. E. Mallory, of Castile, N. Y.: I claim the use of the semi-cylindrical shaft, b, metallic sliding bar, d, and the end rollers, e, constructed, arranged, and operating as set forth.

STEAM BOILER ALARMS—Thos. Stubblefield, of Columbus, Ga.: I claim the combination of the flexible lever with the float and alarm valve, substantially in the manner and for the purpose set forth.

LATH SAWING MACHINES—T.R. Markillie, of Winchester, Ill.: I disclaim the employment of the two systems of saws perpendicular to each other, such forming no part of my invention.

I claim the combination of the bed, m m, with the longitudinal bearing guides, i i', arranged and operating as and for the purposes set forth. Also the construction of the conformable dogs, E, operating as and for the purposes set forth.

SASH LOCK—Joseph Marsh, of Rochester, N. Y.: I claim the construction and arrangement of the plates, C and D, the lever, A, and bolt, B, said bolt having the secondary locking notch at d, operating in the manner and for the purpose substantially as described.

PUMP—James Neal and C. W. Emery, of Boston, Mass. We are aware that the lever or levers for working the piston rod of a pump have been supported either on the pump barrel or on a rotary cap plate fitted on the top of said barrel: we therefore do not claim such.

But we claim supporting the said brake posts by means of an annular ring made to encircle and rotate on the neck of the base plate, and be screwed or fastened to it as described.

SMOKE HOUSES—M. W. F. Kendall, of Cincinnati, O.: I claim the smoke furnace, or its equivalent, and its application to smoke houses thereof, which will prevent the fire from reaching the meat, or the grease from reaching the fire, thereby preventing damage and destruction to the meat and smoke house.

SEWING MACHINES—P. L. Slayton, of Madison, Ind.: I claim, first, the horizontal motion of the needle and shuttle box combined, at any required distance from the cloth.

Second, the combination of mechanism by which the pattern receives motion and operates to control the movements of the needle and shuttle, consisting of the worm wheel, L, and screw, J', or their equivalents, of which the screw or their first mover is furnished with arms, b' b', operated upon by a lever, o2, on a shaft, S', which receives a continuous rotary motion, substantially as described.

Third, though I do not claim a circular shuttle box or raceway and revolving shuttle, I claim furnishing the revolving shuttle with a revolving bobbin or ball, F, containing the thread and spool, N, by which the twist of the thread remains unchanged, or their equivalents.

Fourth, I claim the manner of connecting the fly, f, with the feeding hook, h, as it is so operated upon by the thread, as the shuttle passes through the loop to prevent missing stitches.

Fifth, the feeding apparatus attached to the revolving turn-table, I', and otherwise arranged and combined, substantially as described.

[This sewing machine is adapted to the execution of embroidery work of all kinds, and the sewing of button holes,—two very important branches of needle industry. Without engravings it would be useless to attempt any further description of the invention than is embodied in the claims. The combination of parts and the mechanical movements are ingenious and peculiar.]

HAY AND COTTON PRESSES—Joseph Peevy, of Passadumkeag, Me.: I make no claim to the mode of operating the pressing arrangement, nor, broadly, the result due to my construction as other devices have been employed to effect the purpose.

But I claim the combination of the laterally moving beam, B, with the swinging follower, I, arranged and operating, as and for the purposes specified.

AUTOMATIC ELECTORAL CIRCUIT BREAKERS—Chas. Robinson and C. T. Chester, of New York City: We do not claim the circuit wheel, as a method of breaking and closing electric circuits mechanically, nor do we claim any peculiar use of these interruptions of circuits for ringing or recording signals; nor do we claim the use of clock work for operating a break circuit signal wheel and regulating its motion, as that is not new; nor do we claim the matter of making the break circuit signal wheel stop at a point where it shall leave the circuit closed or at a point where it shall leave it open, since, in the apparatus described in Silliman's Journal, second series, Vol. 13, the break circuit signal wheel is made to rest at the desired point for leaving the circuit closed, by the weight of its crank.

But we claim the manner in which the detent of the clock-work is let down to take effect, viz., by means of the lever, G, pushing back a spring, e, which previously held the detent in its elevated position.

VELOCIMETERS FOR VESSELS—Ira F. Thompson, of New York City: I do not claim the water leaking pistons in themselves, as they have before been used for checking and stopping vibration in other indicating instruments.

But I claim, first, the combination of a water leaking piston or pistons with the drag, b, in the manner substantially as specified, whereby the drag being hinged at or near the bottom of the vessel indicates by its inclination the speed of the vessel, and said water-leaking piston or pistons act to prevent a sudden motion to said drag as the vessel pitches, as specified.

Second, I claim the method described of communicating motion from the drag or paddle, b, to an indicator, by means of the link, d, guided and retained vertically by the arm, e, substantially as specified.

GRAIN BINDERS FOR HARVESTERS—G. W. N. Yost, of Fort Gibson, Miss.: I claim the double reciprocating compresser, a', for gathering and compressing the grain against the stationary compressers, a a, ready for binding, operating and operated substantially as described.

TREATING WOOL—Andrew H. Ward, Jr., of Boston, Mass.: I do not claim the employment of ordinary oils, or the mixture of crude oily acids, called red oil, for oiling and cleansing wool and goods.

Nor do I claim the use of a nearly pure oleic acid in the treatment of wool, nor its subsequent removal by alkaline carbonates only.

But I claim the employment of neutral salts, as specified, with the alkaline carbonates and the oleic acid, for the purpose and to produce results as stated.

HARVESTERS—J. H. Manny, of Rockford, Ill.: I claim the tongue with an adjustable joint, constructed and operating substantially as set forth.

PADLOCK—I. J. Oldis, of Wheeler, N. Y.: I claim the use of spring catch, H, and lever, D, arranged and operating in connection with the lips, d d, and springs, c c, as et forth.

[The above lock is intended to combine the advantages of safety and cheapness. It is supposed to be "pick proof." The shackle is held by a spring bolt, and also by a spring catch, both of which enter the eye of the shackle together, but must be removed separately before the lock opens. You turn the key in one direction to push back the bolt, and reverse it in order to remove the catch; the shackle is now unfastened and may be opened; shut the shackle and the lock fastens of itself. There are two key holes—a real and a false; it would take a stranger a long time to find out which was the right one. The foregoing appears to be an excellent improvement.]

REPEATING MAGAZINE FIRE ARMS—J. C. Smith, of Camden, N. J.: I do not desire to lay claim, or confine myself to the exact process described of inserting the cartridges into the magazine, or to the exact shape shown of the casing, G, or to the number of cartridges or caps contained in their respective reservoirs, as these features may be altered to suit the size and nature of the fire arms.

Neither do I desire to claim the use of a laterally radiating breech, as such is claimed in the patent of W. W. Hubbel, July 1st, 1844. Neither do I wish to claim exclusively the combining of the hammer with the laterally swinging chamber, for the purpose of effecting the simultaneous opening of the chamber and cocking of the hammer.

But I claim, first, the trigger, N, with its spring, l, link, P, lever, w, with its dog, Q, and projection, V, the hammer, S, with its notch for receiving the dog, its projection, u, and spring, T, the lever, 4, link, l, with its spring, m, lever, M, link, K, and lever, I, or the equivalents to the above, in combination with the vibrating breech, C, the whole being constructed and arranged substantially in the manner set forth, for the purpose of imparting to the said breech the required lateral vibrating movement, retaining the same when required, and operating the hammer so as to discharge the load by simply operating the trigger only.

Second, the magazine, B, containing the cylinder, W, with its hollowed flanges and spring catches, 5, in combination with the ratchet teeth on the cross piece, 6, and the ratchet wheel, e, on the end of a vibrating breech, so that the movements of the latter may cause the said cylinder to carry round in succession the cartridge ready for insertion in the chamber of the breech.

Third, the sliding rod, V, with its rod, Z, and projection, 8, for the purpose of allowing the operator a ready means of inserting the cartridge into the chamber.

Fourth, The cap reservoir, 2, with the cylinder, 11, and its orifice, for receiving the caps in combination with the rod, 10, arranged substantially as herein shown for the purpose of readily placing the cap on the nipple of the breech.

HYDRO-PNEUMATIC PUMP FOR DIVING BELLS—Geo. Williamson, of Brooklyn, N. Y.: I claim, first, the arrangement and combination of the pump cylinder chamber, b, and their valve arrangement, by which a proper supply of water is kept up and the air pumped, as specified.

I also claim refrigerating the air by extracting the caloric therefrom after it has passed the pump, by means of the water bath surrounding the valve chamber and eduction tubes, substantially as set forth.

I also claim the float reservoir connected with the eduction pipe for separating the water from the air, as specified.

TREATING OILS—Philo Marsh, of South Adams, Mass., (assignor to Marsh & Howland, of South Acton, Mass.: I am aware that acids have heretofore been used for clarifying oils, but my process does not rest on the use of acids alone, nor do I claim such.

I claim, for the purpose of defecating oil, the employment, in manner substantially as described, of the pyroligenic constituents of crude pyroligneous acid except the acetic acid.

HARVESTER RAKING APPARATUS—Geo. A. Clarke, of Philadelphia, Pa., (assignor to William Clarke, of same place): I claim operating the rake, M, by means of the endless belt, Q, in combination with the levers, R W, connected with the rods, y, as shown, for the purpose of raking the cut grain from the platform, X.

[The cutters are operated by means of a wheel placed in an angular position upon the driving shaft, so that when the wheel revolves it has a wabbling motion and vibrates the cutter bar back and forth. There is a clutch arrangement so connected with the cutter bar and the wabbling wheel that when the cutters become clogged up from any cause, the wabbler and cutter bar are at once disconnected, and the machine ceases to work, thus preventing breakage. These parts are self-acting in their operation. Altogether this improvement is an ingenious one.]

OPERATING AND LUBRICATING SLIDE VALVES—Jas. Cochrane, of New York City: I claim, first, moving a vibrating flap or curved slide valve within its chest, without the necessity of a stuffing box, by the means or similar ones to those described.

Second, I claim, substantially, the method of lubricating slide valves, as described, by and through an aperture of the valve or its seat.

RE-ISSUE.

PLOWS—Samuel Hurlbut, of Ogdensburgh, N. Y. Original letters patent, No. 10,031, dated Sept. 20, 1853. Patented in Canada, Sept. 20, 1852; I claim constructing a mold board and molding part of the share of a plow so that a horizontal line drawn at any hight across their working side shall describe a convex of a circle, and any line drawn across its working side at right angles to the base shall also describe the convex arc of a circle separately or connectedly, the whole or either part, substantially as set forth.

DESIGNS.

HALL PENDANTS—Samuel B. H. Vance, of New York City, (assignor to Mitchell, Baily & Co., of Conn.)

HALL PENDANTS—Samuel B. H. Vance, of New York City.

Deep Artesian Well.—Heat of the Earth.

A brief discussion has been maintained on the above subject in the Newark, N. J., papers, by Seth Boyden and another correspondent signing himself J. P. The former takes the ground that the center of the earth is not a molten mass, according to the theory maintained by Prof. Silliman and the great majority of geologists; while the latter endeavors to sustain the Plutonic theory. In Mr. Boyden's communication to the *Newark Mercury* of the 31st ult., he states that he had received a communication from Messrs. Belcher, of St. Louis, Mo., respecting their artesian well, which is the deepest in the world, being about 2,200 feet deep, and still progressing, while the celebrated artesian well at Grenelle, France, which was believed to be the deepest, is but 1797 feet deep. The water of this well at St. Louis contains minerals in solution, and is unfit for sugar refining, but by boring still deeper, hopes are entertained that pure water will be found. The temperature of the water at its bottom cannot be obtained on account of a great vein which flows rapidly in at 1480 feet of its depth—down to this point its temperature gradually increased to 63 degs., but below this, Mr. Boyden is positive it will not increase in the same ratio.

Mr. Boyden has forwarded us the above-mentioned letter, accompanied with a diagram of the well, from L. Holm, the foreman of Messrs. B., showing the strata which has been penetrated in reaching its present depth. The first stratum was twenty-eight feet of limestone; the second two feet of shale; the third, two hundred and twenty feet limestone; the fourth, fifteen feet of cherty rock; the fifth, eighty-five feet of soft limestone; the sixth, thirty feet of shale; the seventh, seventy-five feet of limestone; the eighth, two feet of shale, the ninth, thirty-eight feet of limestone; the tenth, five and a half feet of blue sandstone; the eleventh, one hundred and twenty-eight and a half feet of limestone mixed with sand; the twelfth, fifteen feet of red marl; the thirteenth, 30 feet of shale; the fourteenth, fifty feet of red marl; the fifteenth, thirty feet of shale; the sixteenth, one hundred and nineteen feet magnesia limestone; seventeenth, sixty-six feet of shale; the eighteenth, fifteen feet of bituminous marl; the nineteenth, eighty feet shale; the twentieth, one hundred and thirty-four feet of limestone; the twenty-first, sixty-two feet cherty rock; the twenty-second, one hundred and thirty-eight feet of limestone; the twenty-third, seventeen feet of shale; the twenty-fourth, twenty feet limestone; the twenty-fifth, fifty-six feet shale; the twenty-sixth, thirty-four feet limestone; the twenty-seventh, one hundred and forty feet white soft sandstone; the twenty-eighth, one hundred and ninety-three feet hard red sandstone; the twenty-ninth, one hundred and seventy-one feet of sandstone with thin layers of clay; the thirtieth, two hundred feet of limestone and sandstone. The size of the bore is nine inches to about half the depth of the well, then three and a half inches to the bottom. The boring was commenced in 1848, by hand; in 1851, at a depth of 456 feet, a steam engine was employed. The work has not been steadily conducted, but was stopped for some months every year, and altogether since 1854; but it is to be proceeded with again. The temperature of the water which flows out is 72 degs., and the great vein at the depth of 1480 feet is strongly impregnated with sulphuretted hydrogen. The cost for boring this well has been about $10 per foot, or $22,000 altogether. We can congratulate "young America" in having the deepest artesian well in the world, and as he has an unlimited amount of enterprise and stamina, we trust he will bore down to such a depth as will practically settle the central heat hypothesis forever.

The following are Mr. Boyden's views in opposition to the central heat theory: "The rapid increase of temperature as we descend into the earth in its polar parts has been offered as evidence of a high temperature at the center.—But knowing that the heat can only leave the earth at the surface, and that the motion of heat by conduction is extremely slow, we readily see that the general temperature of the mass is at no great distance from the surface in this latitude, and when careful examination is made, I believe it will be seen that the temperature increases faster at one thousand feet deep than at two thousand feet deep, and that the temperature decreases as we descend into the earth in its equatorial part."

Steel Manufacture at Pittsburg.

There is in Pittsburg an establishment called "Eagle Steel Works," manufacturing cast steel of all varieties, bar, shear, and sheet. They have three converting furnaces, five heating furnaces, and eighteen melting furnaces. They employ about sixty hands, many of them imported from England, and consume annually seven hundred and fifty tuns of iron, one-third of which is Swedish. The steel produced by these works has been repeatedly tested, and is found fully equal to the best English imported.

Dr. Luther, astronomer at the observator of Bilk, near Dusseldorf, Germany, has discovered a hitherto unknown star in the constellation of Pisces. It is to bear the name of "T Piscium."