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Natural Ice Houses.

The Dubuque (Iowa) *Express* says there is a cavern near Decorrah, in that State, so situated that the water which falls from its roof in winter is frozen, and such an amount of ice formed as to serve the citizens of that place, in summer, with the luxury of an abundant supply of ice.

Improved Gang Plow.

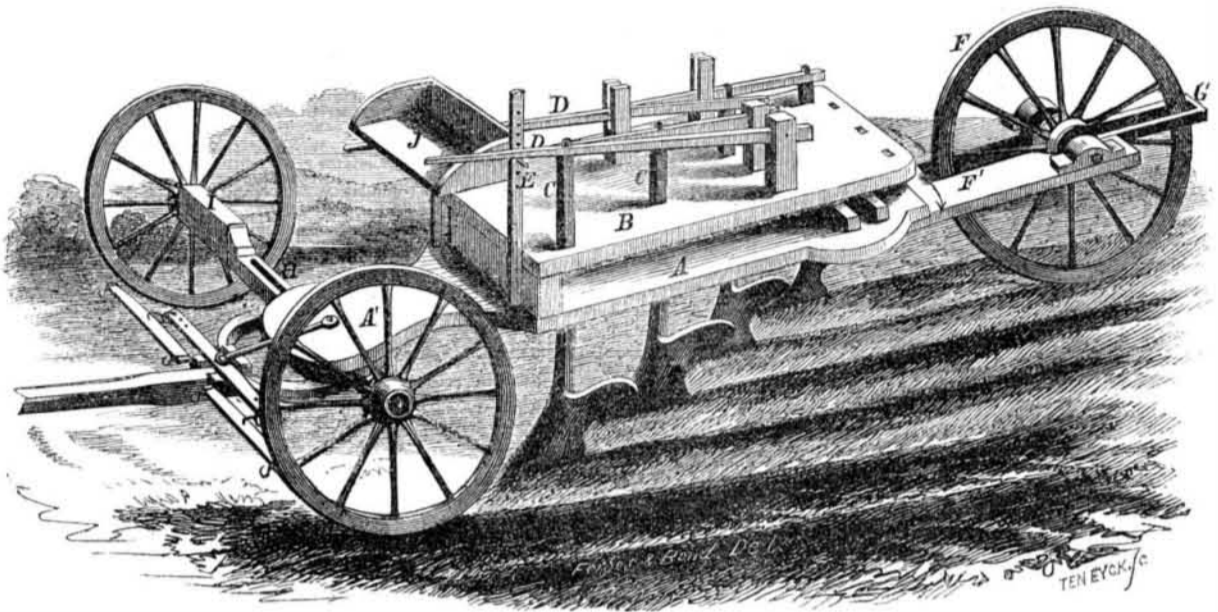
Our engraving illustrates an improvement for which Letters Patent were granted to Messrs. A. and T. S. Smith, of Troy, Ill., on the 4th of March, 1856. The machine is intended to expedite the laborious work of plowing, the arrangement being such as to permit the advantageous use of several plows at once.

A is a strong, flat, bottom board, and B another nearly similar, placed a short distance above A, the two being firmly bolted together at their ends. The shanks of the plows, C, pass through both boards, and connect above with the levers, D, by means of which the plows are raised or depressed at will. The levers are held in any desired position by means of the pins and posts, E. The two boards, A B, being separated, afford a strong and steady support for the shanks of the plows, while, the construction being simple, the plows may be renewed or changed with great facility. Wheel F supports the back end of the machine, and its frame, F, is pivoted to A. It permits the machine to make a very short turn, and adjusts itself. G is a scraper which removes any dirt that adheres to F.

The front axle, H, is slotted longitudinally, so that the front end of the machine, A', draft tongue bands, etc., may be shifted from side to side, according to the number of plows employed on the occasion. Such shifting is necessary in order to bring the draft always in proper line. The front end, A', and attachments, are secured at any position on the axle, H, by means of the screw, which permits a ready re-adjustment whenever necessary. The axle is somewhat enlarged at I, and the wheel on that side placed on a different level from its mate wheel, so that when one of the wheels runs in the furrow, the axles of both will be on the same plane.

We are informed that this machine has been put to the severest tests, on all kinds of soils, and is found to operate admirably. When used for breaking up prairie or meadow ground, coulter are attached in front of the plows. In subsoiling, the subsoil plows stand immediately behind the others. The driver has a comfortable seat, J, and the levers, by which he can raise the plows at any instant, are within convenient reach of his hands. Two or four horses may be used, according to the amount of labor required to be done. The inventors inform us that one man, with a pair of horses, using one plow, can break up three acres of corn or oat land per diem, turning the soil ten inches deep. With the same team and three plows, four acres per day. With four horses from four to seven acres. Right or left plows may be used, or both together, for ridging, as desired. One of the most severe labors of the farmer is plowing; but by the use of this machine it becomes a pleas-

IMPROVED GANG PLOW.

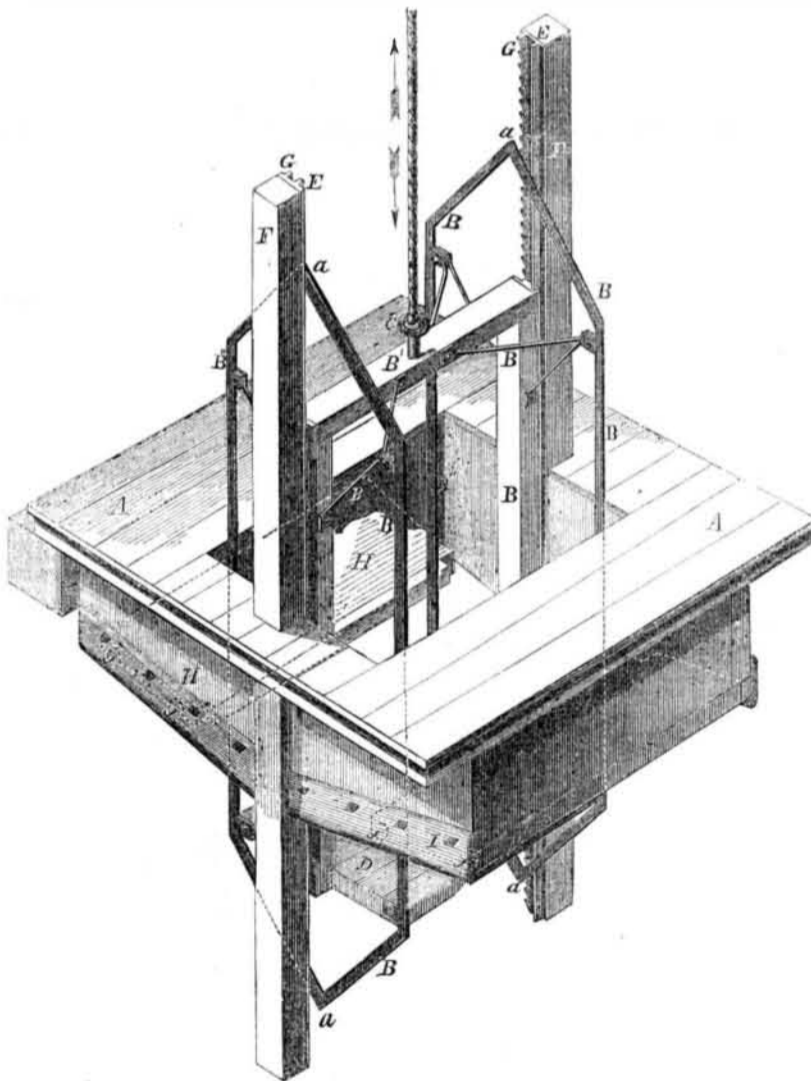


ure, for he takes his ease and rides, there being no plow handles to hold. The apparatus is strong, simple, and durable. Works

equally well on rough or smooth ground. Does not break by contact with stumps and other obstructions. Is manufactured at a com-

paratively light cost. Sells for \$40 retail. Address the inventors as above for further information.

IMPROVED SAFETY HATCH.



The accompanying engraving represents an improved Safety Hatch, adapted to elevators, for the use of mills and warehouses, for which Letters Patent were granted to William H. Thompson and Eustis P. Morgan, of Biddeford, Me., June 24th, 1856.

A is a section of floor containing the hatch opening. B B' is the frame of the transportation car, which is raised or lowered by the rope. The latter passes through an eye bolt in the cross piece, B'. The rope is drawn by means of suitable mechanism. D is the platform of the car. The car is guided in its path

of motion by means of guide strips, E, on the posts, F. G are ratchet toothed racks, so connected by pawls with the rope, that in case the rope should break, the pawls are instantly brought in contact with the racks, and the car thus prevented from falling. H I (shown chiefly by the dotted lines) are two sliding doors placed beneath the floor, which are closed at all times when the car is not passing through the floor. Upon each end of the doors are truck wheels, J, which run upon tracks; the tracks are so inclined towards the center of the opening in the floor as to cause the

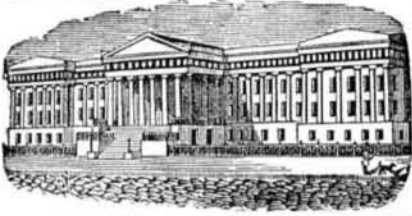
doors to move together, and close by their own gravity.

The upper and lower ends of frame, B, are fashioned into wedge shape. This is for the purpose of opening the doors, the apex of the wedges, a, entering between the doors, and spreading them apart. In the engraving the car is represented as having passed partly through the floor. The doors having been opened by the action of the wedges, a, are retained in that position by the upright sides of the frame, B'. When the car is in motion, either upward or downward, then the side pieces, B'', against which the doors rest, terminating as they do in wedges, will allow the doors to close gradually. If the motion of the car be reversed, the wedges will again enter between the doors and force them gradually open. Thus we see that the doors close the opening in the floor, that they are always closed except at the time when the car is passing through the opening, and that the doors are opened by the action of the car, whether it be passing upward or downward.

It will be observed in the construction here shown, that the doors are placed several inches below the floor, the space being boxed down from the underside of the floor to the top of the doors. The object of this is to allow of the doors closing when the platform of the car is on line with the top of the floor, this being the proper position for receiving and discharging the load.

The safety hatch which is here illustrated is strictly self-operating, and of such construction as to prevent the possibility of accident to person or property by falling through the floor. We regard it as a duty incumbent upon the owners of buildings in which hatches are necessary, to adopt some such humane contrivance as this. Its general introduction would be the means of saving many lives. In case of fire, this invention is invaluable, since it entirely cuts off the communication between the different stories of the building, and thus prevents, in a measure, the draught of air and the spread of the flames. This improvement possesses many other advantages over the common open hatchway, which will be obvious to the reader.

The expense of its introduction is from \$35 to \$40 per floor. Its parts are simple, and there is nothing about it likely to get out of order. It is in use in a number of factories, and gives, we understand, the greatest satisfaction. Address the inventor as above for further information.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office
FOR THE WEEK ENDING AUGUST 12, 1856.

CORN SHELLER—Calvin Adams, of Oak Hill, N. Y. : I claim alternating the annular rows of rotating teeth of the shelling cylinder with stationary toothed rings, when the said shelling cylinder is combined with a rack composed of a series of self-adjusting toothed segments, substantially in the manner set forth.

WASHING MACHINE—D. L. Allard, of Rokeby, Ohio : I claim, in combination with an endless apron, D, for conveying the clothes to be washed, the series of rotating pounding balls, b, b, the whole being operated substantially in the manner, and for the purpose set forth.

INVALID SUPPORTERS—J. T. Alston, of Raleigh, N. C. I claim hinging the cushioned back thereof to the central connecting cross piece, k, of its base frame, when the sides pieces of said frame, in front of said cross piece, are left open for the reception between them of an invalid to receive the benefit of the back and arms of said supporter, substantially as set forth.

I also claim connecting the arms, a, a, to the base frame of the supporter in such a manner that either of said arms can be readily detached from said frame, and be again attached therewith again, when the said base frame is left open in front, and is combined with the back of the supporter, substantially as set forth.

I also claim combining the recessed flaps, o, o, with the arms, a, a, of my improved invalid's supporter, when the said arms are arranged in conjunction with the base frame, and the back of the supporter substantially as set forth.

OIL FROM CANNEL COAL—Luther and William Atwood, of Waltham, Mass. : We are aware that oils for lubrication have before been obtained from coals, bitumens and schists, which afford paraffine in distillation, and they have been purified by acids and alkalis. These oils are solutions of paraffine in light oils or euphonia, obtained in the first distillations; deriving their density and essential qualities from the paraffine. They do not resemble the heavier, uniform oils, which result from the decompositions and recompositions taking place in the same distillates at high temperatures aided by chemical agents applied in large quantities, at different steps in the manufacture, and we disclaim such oils.

We also disclaim mixed crude products heretofore obtained by distillation from schists, &c., and confine ourselves to a transparent nearly colorless oil, having its boiling point above 600 degs. F. ah., remaining fluid at 32 degs. and of a density above 0.864 at 60 degs. which is formed from coals, bitumens, and other bodies affording paraffine, in their treatment above.

We claim an improved oil obtained by the processes substantially as set forth, from natural bodies, which alone or when mixed, afford paraffine in destructive distillation, and which oil possesses the properties described.

OIL FROM BITUMENS—Luther and William Atwood, of Waltham, Mass. : We are aware that solid bitumens have been used to produce light naphthas by distillation and the residuums for cements. Heavy acid oils have also been known as products of their decomposition.

We disclaim the production of such bodies, and confine ourselves to the use, as the basis of our manufacture, of such bitumens as do not produce paraffine, which we decompose by the aid of high temperatures conjoined with chemical agents, so as to obtain a nearly colorless and odorless oil, boiling above 600 degs. F. ah., remaining fluid at 32 degs., and having a density as high as 0.900 which the above described processes will produce.

We do not claim these processes, although they are the result of a long experience.

We claim the manufacture and use of the oil having the characters described, from bitumens which do not yield paraffine by distillation.

MOWING MACHINE—Ephraim Ball, of Canton, Ohio : I claim the lock fastener for such cutter bar, made by the removed and upset portions of the brace and the extremity of the cutter bar, as set forth.

ODOMETERS—Smith Beers, of Naugatuck, Conn. : I do not claim the use of a sim. le spiral spring, for communicating motion from one shaft to another, forming an angle with it.

But I claim the flexible connecting shaft, T, composed essentially of a chain, U, and spiral spring, V, or their equivalents, arranged and operating substantially in the manner and for the purpose set forth.

STEERING APPARATUS—J. W. Drummond, of Norwalk, Conn. : I do not claim a sector attached to the rudder head, acted on by a pinion, as this has before been done.

But I am not aware that a two-wristed or leaved pinion, actuated by the steering wheel, has ever before been so applied in connection with the rudder sector, that the two wrists or leaves of the pinion can be placed on the plane of motion of the sector, and thereby avoid all tendency to turn the steering wheel by any surge or wave against the rudder, and also in connection with said two leaved or wristed pinion, I make use of a spring or its equivalent to hold the wristed said pinion on the desired plane.

I claim arranging a pinion having two leaves or wrists in such a manner relatively with the sector or wheel acting on the rudder, that the said wrists or leaves can be turned into the plane of motion of said sector or wheel, to prevent motion to the steering wheel by any surge or wave against the rudder, as specified.

And in combination with the aforesaid two-wristed or leaved pinion, I claim the T-headed rod and spring, K, or their equivalents, to tend always to bring the said two-wristed leaves into the plane of motion of the sector or wheel, substantially as specified.

ACCORDEONS—Anthony Faas, of Philadelphia, Pa. : I claim the sliding and perforated board, e, when the said board is combined with the perforated board, d, in such a manner as to produce the effects substantially as set forth.

I also claim the double keys, b, c, constructed and operating in the manner and for the purpose specified.

FILTERING SAND FOR CIDER—Ira Holmes, of Leicester, N. Y. : I do not claim making cider from apples. Nor do I claim simply evaporating cider by boiling.

But I claim the described discovery and process for making a beverage and syrup from the juice of apples, as set forth.

OPERATING FARM GATES—Chester Hunter and N. Isham, of Norwalk, Ohio : We claim the bars J, J, spring K, groove I, and clasp C, D, when arranged as described and for the purpose set forth.

COAL HODS—C. F. Kneeland, of Buffalo, N. Y. : I do not claim the combination of wood and iron or other metal in any construction whatever.

But I claim a coal hod with a wood and metal bottom made and secured in its place, substantially in the manner set forth.

PAINT COMPOUNDS—Frederick Kuhlmann, of Lille, France : I claim the admixture of silicate of alkali, in substance with a paint, varnish, ink, or dye, instead of using it in layers or coatings, as heretofore done, using for the protection of the several individual coloring matters, such agents as are known to scientific or practical chemists, and which I have described.

ATTACHING INKSTANDS TO DESKS—L. R. Satterlee, of Rochester, N. Y. : I claim attaching inkstands to desks or tables, by means of the base plate, B, cup, C, and screws, S, substantially as described.

FILES—G. W. Ramsay, of New York City : I claim constructing flat files in pairs, or with right and left cutting edges or corners, as described. Also in making the grooves to run in the manner described, in combination with said files, all substantially as set forth.

DIES FOR SCREW BLANKS—C. R. Gardner, of Detroit, Mich. : I claim the elevation, a, and the slope, b, each, substantially as described, and for the purposes specified.

SHEET METAL WARE—Theo. Gomme, of Chas. E. A. Beaumont, of Paris, France. We claim the use of the rod, f, sliding within the stamping puncheon, f, for giving motion to the plate, f, on the upper part of said puncheon, so as to hold the work in place, and subsequently to disengage it; the whole operating for preserving the thickness of the metal uniform when acted upon by the puncheon between the grooved and bevelled rings, as described.

FRUIT BOX—J. W. Hayes, of Newark, N. J. : I claim the combination of the two pieces of veneering, A and B, with the notches or slots, a, a, and the longitudinal openings, c, c, interwoven at the center, bent at right angles and secured together by the cord, e, in the slots, a, a, as described and for the purpose mentioned.

FIRE ARMS—F. W. Hoffman, of New York City : I claim so combining the cap, b, with the cock, that the opening and closing of the end of the barrel shall be effected by the act of cocking the piece, substantially as set forth.

ARTIFICIAL STONE—St. J. Ravenel, of Charleston, S. C. : I claim the described substitute for stone, marble, or brick, produced substantially in the manner set forth.

FELTING HAT BODIES—E. R. Barnes, of Brookfield, Conn., and J. B. Blakeslee, of Newton, Conn. : We claim the peculiar arrangement of suspending and rendering elastic and adjustable the endless r tating bed of felting machines substantially in the manner described, so that it may be elevated or depressed, while in operation, and at the same time possesses an oscillating motion in order to adapt itself to the varying stages of the process of felting.

NAIL PLATE FEEDING APPARATUS—Adolphus Heddaens, of Pittsburg, Pa. : I claim, first, connecting the feeding apparatus with the nail machine, by ball wrists or universal joints, in some point of points situated in a vertical line through the center of the nail, when cut and of locating all the points of such connection in this vertical line, for the purpose of giving the feed apparatus a lateral motion in the arc of a circle, whose cutter is in that vertical line, whereby the feed apparatus may be accurately adjusted, without stopping the operation either of the feeder or the nail machine.

Second, the use of an elliptical spring or steel hoop, as the bearing for the other front end of the screw, in combination with the sleeve, s, ball, a', cam, f, and spring, g', for the purpose of allowing the turning of the nail plate, and drawing it back while turning.

Third, the use of the large wheel, G, constructed as described, in combination with the pawl, t, and pinion, p, for the purpose of communicating the requisite motion to the feed screw and nail plate, together with the cam wrench, l' to lower the spring, b', of the pawl, t, whereby the feed apparatus may be instantaneously stopped, without interfering with the action of the nail machine or detaching the one from the other.

FIRE ARM—F. D. Newbury, assignor to R. V. Dewitt, of Albany, N. Y. : I claim the releasing spring, T, to throw the arm, D, promptly down, to permit a re-charge of the piece.

I claim the concave breech seat, M, or its substitute. I claim the method of arranging the tape priming, by inserting the same through the stock, in the manner described, either with or without metal priming, J, K.

I claim the spring, when applied to the lock, to prevent the retraction of the tape, and to cover the priming from the weather, arranged substantially as shown and described.

I claim the feeding spring piece, p, in combination with the lever, D, as its moving power.

FIRE ARMS—A. N. Newton, of Richmond, Ind. : I do not claim the self-adjusting thimble, constructed and operating in the manner set forth in J. D. Green's patent June 27, 1854.

Neither do I claim a sliding collar on the breech, forced against the end of the barrel, spring acting on the trigger, as in J. C. Day's patent, Dec. 18, 1855.

Nor do I claim a cone-headed pin, and five or more expanding rings in combination with a radial breech, as in B. F. Joslyn's patent, Aug. 28, 1855.

Nor do I claim inserting a metal ring into the slide, with a chamber in the rear of said ring, as in H. Conant's patent, April 1st, 1856.

But I claim two or more expanding bands, as shown and represented, in combination with the chamber and sliding breech pin, completely overlapping the joint between said breech pin and chamber, substantially in the manner and for the purpose described.

SASH FASTENER—Wm. Patton, of Towanda, Pa. : I claim the described supporting and self-locking sash fastener, composed essentially of the plate, B, bolt A, and catch, n, when said bolt is arranged in an upright position, and hung forward of its fulcrum, so that its whole weight shall tend to throw it into the catches, the whole being constructed and operating together in the manner and for the purpose set forth.

GOLD WASHER AND AMALGAMATOR—W. S. Pierce, of North Attleborough, Mass. : I claim constructing the washer, or separator, substantially as described, viz, having the furnace, B, placed with the case, A, which has oblique or tapered sides, the plates, c, placed on the top plate of the furnace, and the screen, C, and the sponge E, which is fitted between the screens, D, placed in the case, A, the whole being arranged as shown for the purpose specified.

SPRING PULLEYS FOR WINDOW SHUTTERS—John Shopland, of Honesdale, Pa. : I claim, in combination with the pulley and spring, the self-acting compensating brake for holding the pulley at any fixed point, regardless of the increased power of the coiled spring as it is wound up in drawing down or raising up a sash, door, or other thing to which it may be attached, substantially as described.

THROWING PROJECTILES—A. B. Smith and William Weaver, of Clinton, Pa. : We claim the conformation of the ring which encloses the revolving disk with a movable muzzle, in the manner and for the purpose specified.

We also claim the spiral tube, E, for gradually communicating the motion of the disk to the balls when its outer end is connected with the muzzle, and the valve, or plug, provided with a valve in said radial portion, substantially in the manner and for the purposes set forth.

We also claim the mode of opening the valve, o, substantially as described, whereby the balls are invariably brought to the ring, A, at a given point, and that point changeable at pleasure, irrespective of the position of the ring relative to its disk, or of the point to which it may change to be directed.

We also claim the employment of the cam, j, in the manner and for the purpose described.

MANUFACTURING CHAIRS—Edward Q. Smith, of Cincinnati, O. : I claim the arrangement of the sliding table, 5, in combination with the cutter head, 3, and cutters, 3 and 5, furnished with the adjusting piece, 6, for holding the pillar to its proper relative position to the cutter head or equivalent means for making the top of the pillar the desired form and size to fit the dovetail in the chair back.

TREATING INDIA RUBBER—Wm. F. Shaw, of Boston, Mass. : I claim the treatment of vulcanized rubber or gutta percha with unsulphured drying oils or unsulphured rubber or percha with sulphured drying oils, in the manner set forth.

LETTERING AND ORNAMENTS GLASS—Jerome B. Shaw, of Pittsburg, Pa. : I have been informed that in the invention of each of the parts of the foregoing process I have been anticipated by others, except in the use of metallic foil patterns of the shape of the design, cemented to the glass while the ground is being painted; and that paper patterns have been used to paste upon cloth while painting the ground of transparent designs thereon. I therefore make no claim to any of these things in the invention of which I may have been anticipated.

But I claim in the described process of ornamenting glass the employment of patterns of metallic foil, and cementing the same to and removing them from the glass, as set forth, whereby I am enabled to produce ornamental designs on glass at a greatly reduced cost.

PLANING METAL—Chester Van Horn, of Springfield, Mass. : I claim supporting the cross slide, B, by means of the uprights, B, B, with the beam, D, fitted between them at one side of the bed plate, A, and framing, C, and having either one upright, E, or two at the opposite side of the bed plate and framing, substantially as described for the purpose set forth.

CORN HARVESTERS—Andrew Sprague, of Coldwater, Mich. : I do not claim the tongue, steering wheel, and the drive wheels and elevators.

But I claim the guard, K, in combination with the knives, A, operated in the manner and for the purposes set forth.

HAT BODIES—Alvah B. Taylor, of Newark, N. J. : I claim regulating the distribution of the fur or other stock upon the perforated cone, by varying the feed of the picking cylinder at different parts of its length.

EXTRACTING STUMPS—Wm. O. Thompson, of Orange, Mass., and Leonard Harrington, of Worcester, Mass. : We do not claim the use of a lever and pulleys, or their application to our machine.

But we claim the combination and arrangement of lever, A, and gallow frame, I, in connection with the pulleys or power applied, when constructed and operating in the manner and for the purposes set forth and described.

SPINNING FRAMES—Thomas W. Taylor, of Cannelton, Ind. : I claim the construction, arrangement, and driving of the flyers of fly frames, in combination with either a live or dead bobbin spindle, as the case may be, substantially as set forth.

VALVE GEAR FOR STEAM HAMMERS—Charles W. & John P. Willard, of Dorchester, Mass. : We claim the combination of the bent rocker lever, I, the actuator, L, and the two adjustable cams, O, P, the whole being applied together, and to the valve rod and trip hammers, substantially as described.

ROCK DRILL—George H. Wood, of Green Bay, Wis. : I claim the combination of the hooked pitman, crank, and strap, when arranged as described, as a mechanism for lifting the drill, substantially as set forth.

BLAST FURNACE—Wm. Wright and Geo. Brown, of New Castle, Eng. : We claim the general arrangement and construction of cupolas and smelting furnaces for the self-heating of the air blast by the arrangement of the chambers and air passages, as described.

SEPARATING SILVER FROM TIN ORE—Wilhelm Ziervogel, of Freskow, Pa. : I claim the application of water or a solution of sulphate of copper slightly impregnated with sulphuric acid instead of lead, quicksilver, or salt, hicherto used for this purpose to the process of separating silver from copper and other ores, rendering thereby this separation easier, shorter, less expensive, and not noxious to the health of the operator.

WRINGING CLOTHES—Robert P. Bradley, of Cuyahoga Falls, O., assignor to Joel Wisner, of East Aurora, N. Y. : I claim the construction and arrangement of the springs, c, c, so as to compensate for shortening in the act of wringing, and at the same time form posts at the sides for bearings.

CHIMNEY COWL—Geo. W. Thatcher, of Philadelphia, Pa. : I claim the introduction of one or more central tubes, with their caps or frustums enclosed within an outer tube with its cap or frustum, and extending downwards within the outer tube, so as to increase the upward draft, and afford protection from winds and storms.

ORE WASHER—Hezekiah Bradford, (assignor to Horatio Bogert, of New York City) : I claim the employment of a rotating perforated cylinder rotating on horizontal or nearly horizontal axis, provided with numerous pins or teeth on the inner periphery pointing towards the axis combined with a feeding aperture and hopper at one end, and lifting scoops and delivery aperture at the other end, and with a water trough or vessel, within which the lower part of the said cylinder revolves, the said trough or vessel being provided with a delivery aperture controlled by a valve, all substantially as and for the purpose specified.

REFRIGERATORS—Thaddeus Fairbanks, (assignor to John C. Schooley, of St. Johnsbury, Vt. : I claim so combining an ice receptacle with the interior of a refrigerator as to cause a continuous circulation of air shall be kept up through the ice in said receptacle, and through the interior of the refrigerator, and so that the circulating air shall deposit its moisture on the ice every time it passes through it, and be dried and cooled, and passed through the interior of the refrigerator, substantially as set forth.

BRICK MACHINES—Isaac Harman, (assignor to himself and Wm. Beckett, of Tamague, Pa. : I claim the molds composed of two halves, N and N, having any convenient number of angular projections and recesses the points of the angular projections of one half coinciding with those of the other half, the said molds being caused to expand and contract, and being constructed and operated substantially in the manner and for the purpose set forth.

VAPOR BURNING LAMPS—Samuel Whitmarsh, of Northampton, Mass., and Wm. J. Demorest, of Orange, N. J. : I do not claim the principle of increasing the intensity of combustion or flame by an admixture of atmospheric air, as that has long been known and used.

But I claim the method of heating the air supplied through the air holes in the outer cylinder, R, in the space between the cylinders, H and I.

RE-ISSUES.
PHOTOGRAPHIC PICTURES ON GLASS—James A. Cutting, of Boston, Mass. Patent dated July 11th, 1854 : I am aware of the previous use of balsam for the cementing of lenses and the securing of microscopic objects, and other like purposes, and do not therefore extend my claim to any of these uses.

But I claim the combination of balsam or its equivalent with positive photographic pictures on glass, and with the additional glass, by which they, with the balsam, are hermetically sealed, as described, and for the purposes set forth.

APPLE PARERS—Charles P. Carter, of Ware, Mass. Patent dated Oct. 16th, 1849 : I lay no claim to the invention of the combination of a rotating holder or shaft, and a knife fixed to a bar, whose movements in order to keep the knife applied to the surface of the apple during the operation of removing the peel are directed by the hand of a person applied to it.

But I claim, first, the combination of the spiral groove, i, the rack bar, P, and sector, O, or their equivalents, for the purpose of moving the knife automatically, in the manner and for the purpose set forth.

Second, I claim the combination of the spiral groove, i, the lever, R, and the sliding bar, W, or their equivalents, constructed and operating in the manner substantially as described, for the purpose of throwing the apple from the prongs after the paring is completed, as set forth.

Third, I claim giving to the knife a slight play around its axis, independent of the mechanism which actuates it for the purpose set forth.

WROUGHT IRON R. R. CHAIRS—Wm. Van Anden, of Poughkeepsie, N. Y., assignor (through others) to Alex. Frear and Jacob Rowe, of New York City. Patented April 13th, 1850 : I claim, first, the combination of two or more properly shaped dies, between which a chair blank is clamped, prior to the cutting of that portion of it which constitutes the lips thereof, substantially in the manner and for the purposes described.

Second, I claim automatic shears, in combination with properly shaped dies, for clamping a chair blank and cutting the lips thereof, substantially as set forth.

Third, I claim such shears when they also act as benders to complete the formation of a chair lip, by reason of their having a motion in two directions, substantially in the manner specified.

Fourth, I claim the double or parting clamp and die, substantially such as is described, so that a chair may be removed from the die upon which it is formed, as set forth.

Fifth, I claim discharging a chair from a double or parting die, or its equivalent, by hooks or their equivalents, acting to shove the chair off of a die, substantially as described.

Sixth, I claim in combination two clamping dies, one of which acts as a former and divides at proper intervals, shears which also act as benders, or their equivalents, and a discharging apparatus, acting in respect to each other, substantially in the manner and for the purposes set forth.

Great Feat of Swimming.
A man named Jackson recently swam across the Niagara river a short distance below the Falls. Such a feat never was performed before. It was one of great daring, as the water

rushes down with tremendous velocity, and agitates the ferry boats which cross at that spot with great violence. He must be a man of great strength, endurance, and boldness, as well as an expert swimmer.

New Coal-Burning Locomotive.

The New Jersey R. R. and Transportation Co., has recently placed a locomotive, using Cumberland coal for fuel, upon their road, and on the 14th inst. we made a trip to Newark and back, for the purpose of witnessing its operations.

It was built at the well-known establishment of Wm. Mason & Co., Taunton, Mass., and is a fine specimen of engineering skill and mechanical workmanship. In appearance it is nearly similar to the Taunton eight-wheeled wood burners. Its drivers are 5 1-2 feet; cylinders 15 by 22 inches, placed horizontal, with ports 14 by 1 1-8 inches. The valve gear has the link-motion, and the working devices are somewhat peculiarly arranged; the exhaust is 4 inches in diameter. The engineer and fireman stand as in wood-burners.

The new and important feature of this locomotive is the boiler, which is the invention of H. Boardman, No. 11 Wall st., this city, the object of which is to burn bituminous coal as fuel, and produce perfect combustion—no smoke nor sparks—and effecting a great saving in the expense for fuel. The boiler is placed in a frame in the usual manner; the furnace has a grate 5 feet 6 inches by 3 feet, and is enlarged at the top, and extends over the whole length of a series of vertical tubes (horizontal tubing is employed on all common locomotives) which occupy a space between the forward drivers and the truck. This tubing forms the bottom portion of a descending flue of a large area, which is continued from the bottom of this part of the boiler to the smoke arch in front. It also forms a low box entirely underneath the common boiler proper, and serves as a counterbalance to the boiler and machinery above, and gives great stability to the engine while running. The ends of the tubes are also placed where they do not come into contact with the intense heat of the fire-box. By this arrangement of furnace and tubing a large combustion chamber is provided at the top of the fire-box, which is supplied with a jet of warm atmospheric air by a pipe running from the outside of the smoke arch backwards, and distributing the air among the hot gases from the furnace. This jet of warm fresh air checks the too rapid escape of unconsumed gases (smoke) and supplies them with oxygen, and they ignite, producing perfect combustion. This arrangement embraces the true philosophic principle of consuming smoke.

Excepting for a second or two, when a fresh coal was fed to the furnace, we witnessed no smoke escaping from the stack. It carries no spark-arrester, for none is required; sparks—that abominable nuisance to passengers on wood-burning locomotive trains, are annihilated in this engine. The supply of steam at 100 lbs. pressure was easily maintained, and with a large train we timed it for a short distance, and the speed was at the rate of 60 miles per hour.

An engine of the same kind has been running regularly on the Providence and Worcester Railroad since October last, and has, we understand, given great satisfaction for economy of fuel and durability of all its parts.

A coal-burning locomotive for running all kinds of trains—passenger and freight—is no longer an experiment, it is a successful achievement. Patents have been secured for it in England and other countries through the Scientific American Agency, and it will, no doubt, yet be adopted on the railways of the Old World.

Railroads in Texas.

A Bill authorizing a loan by the State, to construct railroads, has passed the Texas House of Representatives.

The amount of loan is fixed at \$6000 for every mile of railroad constructed. The object of this policy is to encourage the people to invest their money in, and to construct railroads, which appear to be so necessary for the growth and development of this immense State.