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### American-built Russian Steamers.

Two steamers of a partially warlike character have just been built in our country for a Russian company, and are designed for trading between the Amoor river in Russian Asia, China and California. One named the *Manjoor* was built at Boston; the other, named the *Japanese*, at New York. The latter is 1,400 tuns burden, the former 1,000 tuns. Their engines are strong, plain and compact, and designed for effective service, not show. They are both propellers, and have made their trial trips, running at the rate of from eight to ten knots an hour easily. Their model is good, and under sail alone they have the speed of clipper ships. Their draft of water is comparatively light, as there are many shoals in the Amoor river. A great quantity of machinery, such as saw mills, are to be taken out in these vessels for the Russian settlements, as it is believed that a considerable trade in lumber can be carried on between those regions and California. The Russians by this movement have exhibited a great amount of enterprise and sagacity. We have no doubt but their trade on the Pacific coast will soon become very lucrative, if well conducted; and the good sense which induced them to come among us to get these steamers built, affords very good grounds for their future success.

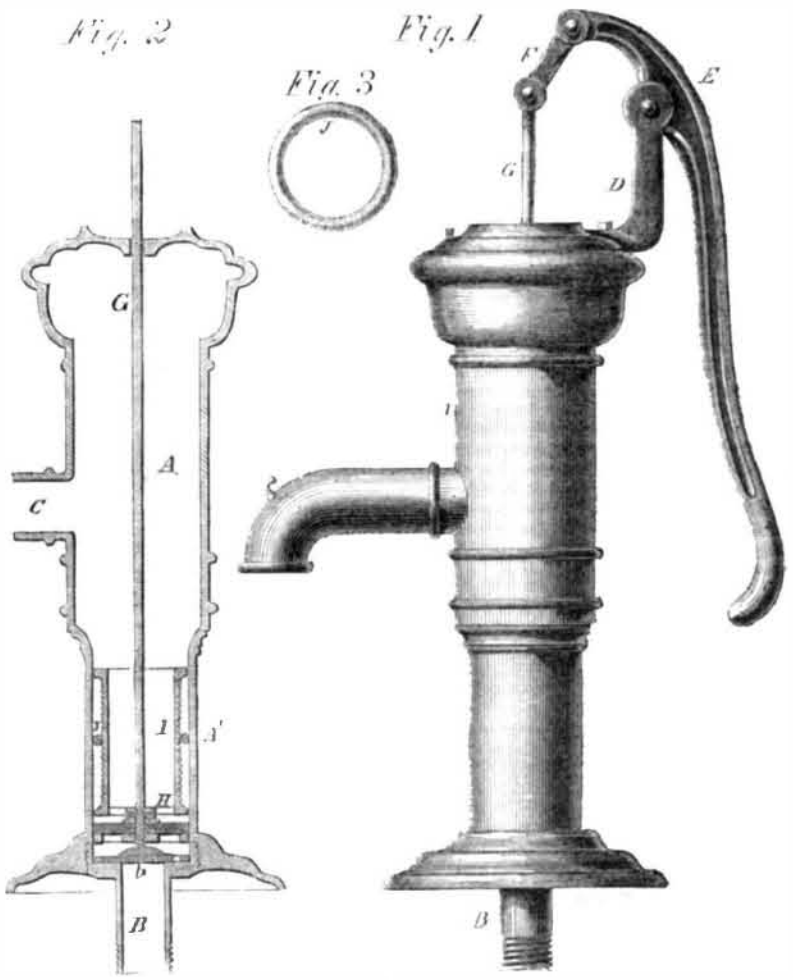
### Stalactites.

At a recent meeting of the Boston Natural History Society, Professor Wm. B. Rogers stated that, a number of years since, he had made some experiments in the stalactite caverns of Virginia, for the purpose of obtaining data in regard to the age of these deposits. He placed vessels in an unfrequented part of the cave, beneath drippings of various dimensions, where they remained for a period of from five to seven years. He arrives at the conclusion, as the result of his observations, that the rate of accretion is one-tenth of an inch in five years, or an inch in fifty years. As there are several feet of accumulated deposit in some places, he thinks that the process must have been going on for at least five thousand years.

### Polytechnic School in New York.

The directors of the Mechanics' Institute, in the Fourth avenue, New York, having met with such success in their endeavors to provide a means of obtaining a good, sound and practical education for the young mechanics of this city, have now determined to extend their usefulness by founding a school under the above title. In this school will be taught *practical* truths and useful facts; the pedantry of science is to be avoided, and simple knowledge placed before the learner in an interesting and attractive way. Professor Mapes, the agriculturalist, seems to be the life and soul of this scheme, and we wish him success.

## UNDERWOOD'S IMPROVED PUMP.



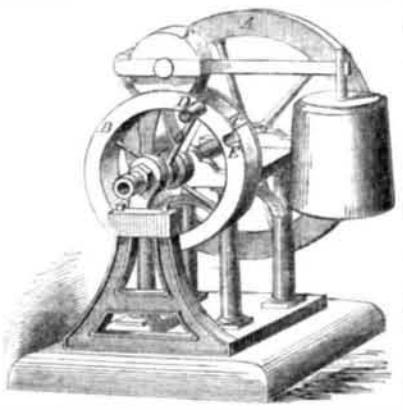

The great and common nuisance of pumps' packings wearing out, and the consequent stoppage of the pump, is by this invention almost entirely avoided, and that by a most simple and cheap contrivance. A ring of india rubber forms the piston packing, and as this as it wears is almost entirely self-repairing, it will last for a great length of time; and when it is actually worn out, another can be cheaply obtained and fitted in a few minutes.

In our engravings, Fig. 1 represents a side elevation of the pump, Fig. 2 is a section of the same, and Fig. 3 is a view of the packing ring detached.

A is the body of the pump, narrowed at A′, to admit of the accurate working of the piston. B is the induction pipe, and C is the spout or eduction pipe. From the top of A there rises a short standard, D, which forms a fulcrum for the handle, E, that is connected by a link, F, with the piston rod, G. This piston rod supports and moves the suction valve, H, at the bottom of the hollow piston, I, between the outer edge of which and the inner side of the case, A′, the ring, J, works up and down as the piston is elevated or depressed. The outer edge of I being serrated, prevents the ring dropping down, and always keeps it in its proper place. There is also, as is usual, a valve, *b*, at the top of the induction pipe, to prevent the water running back. This method of packing can be attached to any and every kind of pump whose piston has an up-and-down or horizontal motion.

This valuable and simple contrivance, which must recommend itself by its cheapness and perfection, is the invention of John Underwood, of Lowell, Mass., and was patented by him December 9, 1856. Any further particulars can be obtained by addressing B. F. Dean & Co., agents and manufacturers, 208 Broadway, New York.

### Novel Rotary Steam Engine.



The accompanying illustration represents an ingenious rotary engine, which we have copied, and translated the description from Dingler's *Polytechnic Journal*, published at Augsburg, Germany.

The cylinder of this engine requires no boring out, there is no piston, no slide or exhaust valve, and, in fact, no sliding friction—the friction of the journals excepted.

On the shaft which carries the fly wheel, A, a pulley, B, with two projecting flanges, is rigidly fastened, and between the two flanges an india rubber tube is placed all round the pulley, B; one end of the tube is closed by a plate, C, while the other end communicates with an opening, E, in the side of the pulley. A roller, F, presses the tube down, so that no steam can escape between the roller and the pulley. If steam is admitted between the roller, F, and the plate, C, the pulley, B, begins to revolve, and the plate, C, recedes from the roller, F, until the whole tube is filled with steam. As soon as the roller comes on the top of the plate, C, the steam from the tube escapes through the exhaust port, E, and so enables the wheel to keep on rotating. Steam is admitted through an arm, D, and it is hardly necessary to state that the shaft is hollow, except that part on which the pulley, B, is fastened; and one end connects with the steam pipe, while the other serves to exhaust. In order to lessen the friction, the roller, F, can be made to press from below.

We illustrated a pump which worked on this same principle on page 324, Volume XI, SCIENTIFIC AMERICAN.

### Yellow Metal Ship Fastenings.

R. Armstrong, directs the attention of the public, through the London *Mechanics' Magazine* of April 10th, to the unreliable character of the above-named fastenings for ships. He mentions the articles which appeared in the SCIENTIFIC AMERICAN (Vol. X) on this subject. In the repairing of vessels bolted with yellow metal, he has observed that in every instance where it has been in a vessel for five years, it had lost its ductility, and was, therefore, totally unfit for ship bolts. At various times he has personally called the attention of Lloyds' surveyors to this, but they have still classed vessels "A 1, 13 years," while he can safely assert, from experience, that four years are amply sufficiently to destroy the ductility of their bolts. He gives the British Admiralty credit for standing above the mercantile marine on this question—nothing but pure copper bolting being employed in the navy. He hopes the public will now demand that something positive be done to prevent the use of such ship fastenings. We hope that neither bolts nor sheathing of yellow metal are now employed by our shipbuilders—this metal being totally unfit for use in shipbuilding.

### A Bridge Broken.

Not very long ago, a bridge crossing the river Severn, in North Wales, fell in, and one man lost his life. At the inquest the jury gave the following excellent and practical verdict:—

"We find that the death of Richard Grist was caused by the falling of the Caerhowell suspension bridge on the river Severn, that bridge not having been constructed or maintained in such a manner as to afford security to life and safety to property passing over in the ordinary way of traffic; that some of the defects consisted in the inferior quality of the iron, and workmanship badly performed—circumstances which might have been avoided had there been proper supervision by a person acquainted with the original plan and mode of construction. We feel it a duty not to separate without expressing our opinion that the present fatal catastrophe shows the necessity of greater vigilance on the part of the county authorities, and that safety and durability, rather than economy, should in future guide them in all public works."

Might not our American jurors and engineers learn from this?

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The twelfth annual meeting of this association met at Baltimore on the 28th ult. We shall be able to give an epitome of their proceedings next week.


**Issued from the United States Patent Office**

FOR THE WEEK ENDING APRIL 27, 1858.

*[Reported officially for the Scientific American.]*

REVOLVING RETORTS FOR DISTILLING COAL, &c.—David Alter and S. A. Hill, of Freeport, Pa.: We do not claim originality or novelty in the use of cylindrical metallic retorts for dry distillation, nor yet do we claim the use of such retorts, so constructed as to be capable of being shifted on their axis from time to time so as to expose a different portion of the retort to the action of the fire at each successive change, for the purpose of preventing the retorts burning out so soon, as seen in Gengembre's patent.

But we claim the use of retorts, so constructed, as before described, as to revolve continuously on their axis during the process of distillation, substantially in the manner and for the purpose set forth.

IMPROVED LOCK—Ludwig Baier, of Cincinnati, Ohio: I claim the combined arrangement of the tumblers, c c c c c, and d, guard plate, J, T-piece, i, with the bolt, B, all for the purposes mentioned and represented in the spec fication.

INKSTANDS—J. M. Batchelder, of Cambridge, Mass. : I olaim an inkstand having a central dipping cup, with an exterior screw, by which it is raised and depressed, causing a corresponding rise and fall of the ink in the stand as the plunger enters and leaves it, the combined screw, dipping cup and plunger being made in one piece.

MILLSTONE DRESS—Franklin Belinger, of Lockport, N. Y. : I claim the furrows, C, cut into the stones tangentially with the eye, D, and gradually diminishing both in depth and width, from the eye to the periphery where they terminate in points, the space between the circle, a, and eye, B, of the runner, A, being inclined or made open, substantially as and for the purpose set forth.

RICE HULLERS—H. N. Black, of Philadelphia, Pa. : I claim, first, The employment of an elastic covering for forming one of the rubbers of a huller composed of alternate layers of cloth and vulcanized rubber, the outer surface of which is formed by incorporating with the vulcanized rubber emery or other hard and gritty material, when the same is combined with an adjacent rubber of metal or other hard unyielding material with a grinding or breaking surface for the purpose set forth.

FURNITURE CASTERS—H. D. Blake, of New Hartford Center, Conn. : I am aware that the spring and groove have been employed before—a groove being made in the plate or socket tube, the spring secured in it, and catching on the groove made in the pin—but this is inconvenient and expensive, hence I do not claim the spring or the groove, my claim being confined to the manner of securing and arranging the groove and spring for the purpose of making a cheaper article to the trade.

But I claim the described arrangement of the several parts of the caster constructed and operated in the manner and for the purpose fully set forth.

APPARATUS FOR BEATING EGGS, CHURNING AND THE LIKE PROCESSES—Wm. Borrman, of Cincinnati, Ohio: I claim, first, The semi-spherical open work dasher, C, in the described combination with a bowl, A, of corresponding form and size, for the purposes set forth.

Second, In connection with the above, I claim the inverted cup, B, adapted to receive the egg or other matter as it becomes sufficiently beaten and retain it beyond the reach of the dasher.

ATTACHING SHAFTS TO VEHICLES—J. A. Boyce, of Monroe, N. Y. : I claim attaching the shafts or poles to the axles of carriages or other vehicles, by means of the combination of fastenings, as described, namely, the bolt connection, and the projections, c c, on the pieces, b b, made to bear against the depressions, d d, in the double concave ring, e, the whole being constructed and arranged in the manner and for the purpose set forth.

APPARATUS FOR EVAPORATING BRINE—Dennis Brigham, of New York City : I disclaim all the separate parts of the described apparatus.

But I claim the arrangement of the stream heaters, N 1, N 2, N 3, N 4, with the boiler, B B', pans, c 1 c 2 c 3, and cistern, D, respectively, in the manner set forth and for the purpose specified, so that the pans and cistern may be heated by one stream pipe, K 1 K 2 K 3, substantially as described.

MOWING MACHINES—T. D. Burrall, of Geneva, N. Y.: I claim the auxiliary frame, r, and caster wheel, w, forming a carriage to which the animals are attached by a loose pole, when combined with the sector, s, lever, t, and standard, v, as specified, whereby the forward part of the main frame, a, and the cutter bar, d, are elevated or depressed on a line between the caster wheel, w, and main wheel, b, substantially as and for the purposes specified.

MACHINE FOR CUTTING SCREWS—P. Chapin, of Baltimore, Md. : I claim, first, The employment of a cutter carriage, D E, constructed substantially as described, with two branches, one of which, z, is movable, and so constructed, mounted and arranged as to embrace the prepared material, and the driving screw, F, at the same time and by the same movement,

Second, The combination of the carriage, D E, the driving screw, F, and the adjustable gear, K I G, for the purpose of cutting threads in wooden screws, as described.

Third, The employment of the hollow binders, d, for the purpose of securing the cutters, S i, in proper positions for the forming of wooden screws.

DEVICE FOR TURNING DOWN THE EDGES OF ELASTIC CLOTH—G. H. Chesbro, of Stafford, Conn.: I claim the plate, B, constructed and operating as described for the purpose of turning the edges of the face side of the cloth over as it passes between the compressing cylinders.

STRAW AND STALK CUTTERS—P. S. Clinger and Cyrus Cremer, of Conestoga Center, Pa. : We do not claim the invention of a revolving cylinder or stationary concaves with knives, teeth or spikes, but we are not aware that they have ever before been combined, for the purpose specified.

What we claim is, the revolving toothed cylinder, H, armed with knives, B, and spikes, C, in combination with the stationary knives, A, and toothed concave, E, constructed to operate conjointly as and for the purpose set forth.

JOINT FOR SPECTACLE FRAMES—G. N. Cummings, of Hartford, Conn. : I claim the double conical shaped tube joint to spectacles, in the manner substantially as set forth and described.

APPARATUS FOR MANUFACTURING SULPHURET OF CARBON—Edouard Deiss, of Paris, France. Patented in France, Nov. 13, 1855 : I claim, first, The placing of the retorts over the principal flue in order to obtain an intense heat at the base of the retorts.

Second, The earthen retorts in combination with the crucibles or pot placed either within or outside the retorts for the object and in the manner set forth.

Third, The grate, C, for supporting the charcoal and tube, E, or its equivalent for feeding in the sulphur in combination with the crucible or retort forming a chamber for the purpose described.

CARD PRINTING PRESS—Wm. W. Clarkson, of Baltimore, Md. : I claim, first, The combination by the peculiar arrangement of mechanism specified, of the slide, D, which feeds the cards singly from the card-box, the bed plate, B, which supports and carries the impression form, and the inking roller, C, which inks said form, substantially as and for the purposes set forth.

Second, The combination of the vibrating slide, D, which feeds the cards singly with the groove guide, F F, which receive and retain the cards below the platen, and directly above the impression form while being printed, substantially as and for the purposes set forth.

Third, The peculiar manner of adapting the card-box, F', for cards of different widths, lengths, and thicknesses, to wit, by having its side front and back boards or strips adjustable laterally, perpendicularly and longitudinally by means of slots and set-screws, substantially as and for the purposes set forth.

[A description will be found on another page.]

FROGS FOR RAILROAD CROSSINGS—E. T. Conner, of the Borough of East Mauch Chunk, Pa. : I claim, first, The construction of a frog with a central part, B, raised above and projecting over the bar, C, and also the ledges, D D, in combination with the frog desser bed, for the purpose of securing to the frog and making use of, in combination with the frog any ordinary rail used upon railroads, substantially as described.

Second, The wedge and dove-tail shaped cavity, E, in the central part, B, in combination as aforesaid, for the purpose of securing the point, A, substantially as described.

Third, The cavities or depressions, F G, and F' G', in the base, C, in combination as aforesaid for the purposes substantially as described.

Fourth, The wedge and dove-tail shaped point, A, to fill the cavity, E, in the central part, B, so constructed that the same can be removed for repairs and removal in the manner described.

BREECH-LOADING FIRE-ARM—Calvin Cox, of Coxville, N. C. : I do not claim the magazine, neither do I claim a sliding carrier, nor do I claim the combination of both.

But I claim the arrangement of a blade or cutter, K, in the rear part of the breech of the firearm, for use in combination with a bored sliding cartridge carrier, and cartridge magazine, the whole constructed, arranged and operating in the manner specified.

[This fire-arm is of that character wherein the cartridges are supplied automatically from a magazine arranged below the barrel. The present improvement is designed to render practicable the firing of common paper cartridges. To accomplish this, a thin pointed blade is placed in the rear part of the breech, and as the cartridge is brought up from the magazine by the sliding carrier, said blade splits open the rear end of the cartridge and exposes the powder thereof, so that it shall be readily ignited by the explosion of the cap. This is a simple but ingenious and useful device.]

RAT TRAP—Wm. H. Cox, of Verden, Ill. : I claim the sliding case, B, placed on the bed piece, A, which is rovided with end-pieces, a a, and partitions, b b, the case being operated by means of the spring, G', shaft, E, cross arm, F, arbor, G, connected with proper triggers, p, substantially as and for the purpose set forth.

[This is a sliding box or case operated by a spring and retained by proper catches, a stationary chamber, and a bed piece provided with upright end pieces, the whole being so arranged that, by means of a spring, the trap is rendered self-setting, and the animals as caught are retained in a proper chamber, without interfering with the operation of the trap.]

MACHINE FOR MAKING WASHERS—R H. Cole, of St. Louis, Mo.: I claim the loose bottom, u, and the spring, v, in connection with the die, m. the said bottom and spring to be arranged and constructed substantially in the manner set forth for the purpose specified.

LOOMS—George Crompton, of Worcester, Mass. : I do not wish to be understood as limiting my cla m of invention to the special construction specified, as the same end may be obtained by equivalent means.

I claim the employment of the two bars for holding up and holding down such of the series of jacks as are not required to be elevated or depressed at the forming of any shed, substantially as described, in combination with the jacks, the pattern cylinder or chain. and the lifter and depresser, substantially as and for the purpose specified.

And I also claim the holder bar, which acts on the ends of the heddle levers to hold them in their elevated or depressed position until the beginning of the operation of opening a shed, substantially as described, in combination with the two bars for holding up and holding down such of the jacks as are not required to be shifted during the operation of opening a a new shed, substantially as and for the purpose specified.

BLOWING APPARATUS—David Cumming, of Sorrel Horse, Pa. : I claim, first, The bellows, B, in combination with exhaling bellows or receiver. C, when the former and latter are compressed by springs or weights of different capacities, in proportion to the exits of the said bellows, for the purpose of producing an uniform blast, as described.

Second, The arrangement of the bellows, B and C, on the base, A, with the channel, D, valve, A, orifice, E, and valve, b, and exit, c, essentially as described for the purpose set forth.

PROCESSES FOR EXTRACTING FATTY MATTERS—Edouard Deiss, of Paris, France. Patented in France, Nov. 13, 1855 : I declare that I do not in any way confine myself to the particular construction and arrangement of apparatus in connection therewith.

But I claim the extraction of oils, grease, fats and resins from wool cloth, bones, oleag nous seeds, refuse, and other substances containing the same, whether naturally or artificially impregnated, by passing through them mechanically sulphuret of carbon, in the manner substantially as described.

COTTON SEED PLANTERS—J. T. Donovan and W. J. Fowler. of Seguin, Texas : We claim the combination of notched wheel, W, shaft, C, arms, a, and depending brushes, b, thereof, with the circular hopper, the whole arranged for joint operation as shown and described.

HARVESTERS—R. Dutton, of Dayton, Ohio : I claim the employment of the loose hollow sliding sleeve, G, between the hub of the driving wheel, and the short axle, F, in combination with the slotted segment, C, on the side of the platform, and the adjustable axle, F, when the slotted segment is provided on one of its inner sides with the cogs, c, and the axle with pinion, b, on its inner and screw thread, f, and adjusting jamb nuts, h i, on its outer end, the several parts being arranged to operate substantially as and for the purpose set forth.

[This invention is designed to facilitate and render convenient the raising and lowering of the platform and cutter bar of reapers and mowers. With it, by simply applying a key to the end of the axle of the driving wheel and turning the same, the platform can be raised or lowered to any position with very little labor, and with the same facility that a watch is wound up. We regard this as a most excellent contrivance, it being simple, conveniently located, and not liable to derangement.]

COTTON GINS—John Du Bois, of Greensboro', Ala. : I claim the use of the flange, b, on the face of the rib, constructed, arranged and operating in the manner described, that is to say, the flange situated opposite the lower edge of the hopper, board, c, with the lower end extending below that point to separate the ginned seed from the cotton and facilitate their passage from the roll box.

HATCHET—N. F. English, of Hartland, Vt. : I claim forming the claw, b, at the outer edge of the hatchet and over the eye or end of the handle, C, substantially as and for the purpose set forth.

[See a description in another portion of this paper.]

TWEER—G. W. Finch, of Gibraltar, Wis. : I do not claim separately, or in themselves considered, any of the described parts.

But I claim the use of two hollow cylinders, A and E, in combination with the slotted opening, C, and the outlets, a b c, or more, if necessary, of varying forms and sizes : all arranged to operate substantially as and for the purpose set forth.

CABBAGE CUTTER—Adam Fischer, of Dayton, Ohio : I do not claim a horizontally revolving disk set with knives and gage plates, neither do I claim the partitioned hopper or upper section, C ; nor do I claim, broadly, controlling the fineness or coarseness of the cut of knives.

But I claim the cabbage cutter specified, where all its parts are constructed and arranged for united operation, substantially as and for the purposes set forth.

[This machine consists of an upright stationary cylinder, said cylinder being divided into two compartments by a horizontal disk, which carries two knives or cutters. The cabbage to be cut is placed in the upper section of the cylinder, and held stationary by a stop-board while being cut to any desired degree of fineness by the knives which are caused to revolve rapidly by means of a crank and two bevel wheels, the cut cabbage escaping into the lower section of the cylinder, and discharging automatically into a receiver. This is a simple and good machine, and its advent doubtless will be hailed with pleasure by the lovers of good "sour krout."

RULER—Thomas Fisher, of Camden, N. J. : I claim the application to rulers of india-rubber, which will prevent the ruler from slipping, as described, using for that purpose the aforesaid india-rubber or any other article substantially the same, and which will produce the intended effect.

PENCIL SHARPENER—W. K. Foster, of Bangor, Me. : I claim as an improved article of manufacture a pencil sharpener made substantially as described, that is, of a steel or cutting blade, and a cast-metal body, as specified, cast or founded on the said blade so as not only to confine it in its proper place with respect to the conical cavity of the body or holder, but so that the metal of the body or holder shall embrace opposite sides and the back of the blade, and terminate at or near the cutting edge of the blade, by a surface made to stand at a right angle or thereabouts to the outer surface of the knife, the same, when the instrument is in use, serving not only to support the knife under pressure against its inner surface and cutting edge, but also to turn a chip or shaving so as to enable the sharpener to operate to great advantage on the lead and wood of the pencil, particularly when the wood is cross-grained.

BUFFER HEADS FOR RAILROAD COUPLINGS—M. C. Gardner, of Rochester, N. Y. : I claim the peculiar shape of the wrought iron bar and cast iron blocks described, whereby the whole may be easily and firmly united by means of the band B, Fig. 3.

LIQUIDS FOR GAS METERS—H. P. Gengembre, of Rock Island, Ill. : I do not claim replacing water in in wet gas meters by a liquid not affected by frost, as I am aware that alcohol has been employed for that purpose, nor do I claim keeping a salt solution neutral by the presence of a base or carbonate.

But I claim the use of an aqueous solution of delequescent metallic and earthy salt or salts in gas meters and the suspension in the upper stratas of the liquid of a base, or carbonate of the base, of the salt or salts employed, substantially in the manner and for the purpose as set forth.

ROOFING TILES—J. F. Grassle, of Hamilton, Ohio : I claim the groove, e, in the outer tongue, b, the perforated flange, F, shallow groove, d, and flange, f, of recess, R, in combination with the pin, P, and lap of the adjacent tile, substantially as and for the purpose set forth.

I also claim the combination of the double grooves, a a', in the lap, tongues, b b', flanges, f f', f'', recess, R, and shallow groove, d, operating together as and for the purposes set forth.

PUMP COUPLING—S. H. Gray, of Bridgeport, Conn. : I claim the curved or low-shaped bar, D, fitted underneath the lugs or projections, l l, on the base, A, and bearing on the flanch, b, of the cylinder, B, the bar, D, being adjusted by a thumbscrew. E, or its equivalent. It being understood that I do not claim any of the above named parts separately or in themselves considered, but the whole when arranged and applied to a pump for the specific purpose set forth.

[This invention consists in the employment of a curved or bow-shaped bar fitted underneath lugs attached to one of the parts to be connected, the ends of the bar resting on the other part, or on a flanch connected therewith, and in line with its center. The bar being adjusted or set by means of a screw, so that the parts will be firmly secured together, and allowed while the bar is being set, to adjust themselves so as to fit snugly and water-tight.]

RAKING ATTACHMENT FOR HARVESTERS—George V. Griffith, of Sandusky, Ohio : I do not claim separately any of the parts described, for I am aware that reciprocating and rotating rakes have been previously used, but I am not aware that a reciprocating and rotating rake combined and operated as shown have been used.

I claim the rotating rake, F, and the reciprocating rake, P, combined and arranged to operate conjointly as and for the purpose set forth.

I also claim the particular manner of operating respectively the rakes, F P, as described, to wit, through the medium of the grooves or guides, G G, gearing, I J, which connect the two shafts, C K, and the crank k on shaft, K.

[A revolving and intermittingly reciprocating rake is employed in this invention placed relatively with each other, so that the planes of their movements are at right angles with each other, and they are so operated that the revolving rake is made to carry the cut grain from the front of the platform, when the other rake, in consequence of its intermittent motion, discharges the grain in gavels upon the ground.]

CHURN—T. B. Harper, of Xenia, Ohio : I claim the combination of the pinion, H, disk, L. and pin, b, constructed and arranged as described, and operating in relation to the winch, I, and dashers, B C, in the manner and for the purpose specified.

LOCK FOR DOORS—James J. Hamilton, of New Castle, Ind. : I claim, first, The slides, G G, constructed arranged, and operating substantially as described.

Second, The double lift, E, constructed and operating as described.

COTTON HARVESTERS—Miles Hosford and J. C. Avery, of Macon, Miss. : We do not claim an endless belt of pickers placed within a case or frame, and so arranged that it may detach the cotton from the bolls, for such device has been previously used.

But we claim operating the endless chain of pickers, B, through the medium of the pulley, D, spring, F, wheel, G, ratchets, H I, with pawls, k k, and the gearing, k k' k'' j and L L', or any equivalent device, whereby a reserve power is obtained as the inplement is moved from boll to boll so that the cotton may be picked or gathered therefrom as the implement is adjusted to the bolls.

[An engraving and description of this will be found on another page.]

COMBINATION COOKING RANGE AND GAS GENERATOR—A. Hendrickx, of Morrisania, N. Y. : I claim the arrangement embracing a cooking range, which has two fire chambers, B B', two draft flues, D D', and appropriate dampers, when used in connection with a gas retort opening on the outside of the room, substantially as, and for the purposes set forth.

[This invention is designed to render available the employment of the surplus heat of a cooking range for generating the gas used by families, and thus enable every family to make its own gas without additional expense for fuel and retort stands. With this arrangement of retort it is not necessarily exposed to the destructive action of the fire but once a week or every fortnight, and thus is saved from being soon burned out. The necessity of opening the retort on the inside of the room wherein the range is located is overcome, and thus the cooks or managers are saved from the almost suffocating fumes escaping from the retort door when opened. The whole arrangement is a perfect safety, and admirably adapted for the purpose above stated.]

PEN CLEANER AND HOLDER—Thomas S. Hudson, of Boston, Mass. : I claim forming the inside of the stand with a tapering or beveled-shaped neck, through which a bunch of bristles is drawn, as described, whereby, when the bristles are fastened at their lower ends with cement or glue, they are so rigidly held as to prevent their being drawn out or displaced.

I also claim, in combination with the above, the use of a hollow stand, the lower portion or base of which is fitted with plaster of Paris, or other non-conductor of heat, whereby the cement or pitch in which the bottom of the bristles is embedded, is protected, and prevented from being softened or melted by heat, as set forth.

CORN HARVESTERS—Adam Humberger, of Somerset, Ohio : I claim the described corn carrier and shucker, provided with pulleys, C, interlocking at pleasure with wheels, B, in connection with the rope, S, said pulleys being operated by lever, E, and rods, e, for binding and shucking corn, the whole being constructed, arranged and operated substantially as set forth.

STEAM WARMING APPARATUS—E. E. Ingalls and J. R. Nichols, of Haverhill, Mass. : First, We claim the device as set forth for increasing or diminishing the capacity of the fire chamber, so as to maintain a larger or smaller amount of fuel in a state of combustion.

Second, We claim vessel I, in connection with flexible pipe, J, and spring, L, operating together as described, for controlling a valve or valves affixed to boilers for regulating steam pressure.

We disclaim so connecting this arrangement as to control dampers in the smoke flue and draft in the manner embraced in C. Devenport's patent, of March 11th, 1856.

Third, We claim the device, constructed essentially as described, for supplying water to the boiler.

Fourth, We claim, in the construction of fluted or corrugated radiators, of thin plates of iron facing across the corrugations, strips of metal securely fastened, and for the purpose as set forth.

HOSE SUPPORTERS—Asa Johnson, of Cairo, N. Y. : I claim the hose supporter, or its equivalent, for the purpose of supporting the hose and giving form to the limb, in the manner specified and set forth.

ELLIPTIC CUSHION FOR RAILROAD CARS—Samuel R. Jones, of York, Pa. : I claim, first, The local relation, and mode of application of the semi-elliptic buffer.

Second, The combination and arrangement of the elliptic cushion, as described, arranged and operating substantially as described and set forth.

FIELD FENCE—Ebenezer E. Lewis, of Geneva, N. Y.: I claim the combination of the panels and posts of a fence, when arranged independent of each other, substantially in the manner and for the purposes set forth.

LIFE AND TREASURE BUOY—Francis D. Lee, of Charleston, S. C. : I claim the arrangement of the escape valves, M M, rods, V V, chain, U, windlass, G, and the air valve, H, and screw, F, on the windlass shaft, to operate in the mannor set forth.

[This invention has been patented in England and France through the Scientific American Agency. An engraving and full description of it will appear in our columns in a few weeks.]

BREECH-LOADING FIREARM—Thomas Lee, of New York City : I claim, first, The breech piece, d, on its center pin, l, in combination with the lever, e, blocking piece, f, and cam-chaped end, 4, the whole constructed and acting substantially as specified.

Second, I claim the manner described of delivering the detonating pillets, and shutting off fire from the same by the use of the inclined ended rods, 8 and 10, and shield, n, constructed and operating substantially as specified.

CORN PLANTERS—Oliver Lippincott, of Camden, N. J. : I claim the arrangement of the plow, Z', and its beam, B, with frame, A, and its hopper, C, weight, L, slide, N, wheel, E, and covering share, I I', the whole arranged for joint operation, as shown and described.

TOY—Conrad Liebrich, of Philadelphia, Pa. : I claim arranging certain numbers, letters, words, or other signs upon two, three, or more disks, and combining them with certain devices for setting the disks in motion, and stopping them in such a way that after each stoppage the relative position of the disks shall be changed, so as to show a different relative position of those numbers, letters, words, or other signs, upon the circumferences of the disks, and arranging the whole in such a manner that the nature of the change in the relative position of the disks after each stoppage will be a matter of accident, as set forth.

SPIKE MACHINE—Michael Longham, of Pittsburgh, Pa. : I claim the employment of dies, i k and l, constructed, arranged and operated as specified, working on separate shafts, and forming spikes at a single revolution.

MACHINE FOR WETTING PAPER—John A. Lynch, of Boston, Mass. : I do not claim a hollow perforated cylinder through which water oozes, as a similar device has been used for coating the inking roller of a printing press.

But I claim the combination of the wetting cylinder, E, handle, I, and roller, H, as described, the whole constituting a new implement or machine by which the sheet on which the impression is to be taken can be dampened, and its superfluous moisture absorbed by passing the apparatus once over the sheet.

MODE OF PROTECTING GILDING ON GLASS—Peter V. Mathews, of Philadelphia, Pa. : I do not claim anything described in such devices : nor confine my claim to the use of any particular kind of adheeive substance or sizing for causing either the gilding or the metallic backing to adhere to the glass or to each other, as described.

But I claim the use of the tinfoil, or other thinly laminated or rolled metal, as a backing for the gilded letters, figures, &c., which are generally required on the inner surfaces of the panes of glass of windows, transoms and doors of stores, &c., for the purpose of securing and protecting the said letters, figures, &c., from being damaged and described, and without obstructing the free passage of the rays of light through the immediately surrounding parts of the glass from either side of the same, as described.

MACHINES FOR MAKING HORSE SHOES—John McCarty, of Philadelphia, Pa. : Without claiming separately the various parts described, I claim, first, The combination of the mandrel with the rollers, 8 8, when the said mandrel is of the same form as that presented by the inner edge of the shoe to be manufactured, when it is so operated as to convey the bent bar to the dies, there retain it while it is submitted to the action of said dies, and subsequently withdraw the formed

shoe from the same, and when the rollers are caused to approach each other as the mandrel advances.

Second, I do not claim exclusively the employment of opening, closing and reciprocating dies.

But I claim the jaws, Z and Z', the reciprocating mandrel, X, with its projection underneath, the lower die, P, with its recess for receiving the projection of the mandrel, and with its projecting lip, p, and the upper die, k, when the said dies, mandrel and jaws are arranged to close and lap over each other, in the manner set forth, and when they are otherwise, arranged and actuated substantially as and for the purpose specified.

Third, Piercing the requisite nail holes in the shoes by means of the punches, q, when the same are attached to the plates, R and R', when the latter are hinged to the guide blocks, T and T', when the upward movement of the latter is regulated by the adjustable wedges, V, and when the whole is arranged and operated substantially in the manner set forth, and for the purpose specified.

HARVESTERS—J. B. McCormick, of Versailles, Ky.: I do not claim a rod, K, placed on bars and so manipulated by the attendant as to form an adjustable or movable rest or platform for the ready discharge of the cut grain or hemp in gavels, for such device has been used in connection with certain concomitant parts, and was formerly patented by me.

But I claim the separator, H', formed of the bar, H, and rods, d d, in combination the adjustable rod, K, bars, I I', one or more seat, D, and reel provided with concave beaters, when the several parts are constructed, relatively arranged and operated as and for the purpose set forth.

[This is an improvement on the mode of discharging the cut grain or hemp from a machine patented by this inventor June 2, 1857. Its object is to facilitate the manual part of the work or process, so that the material is discharged upon the ground in compact gavels two at a time.]

METHOD OF PREPARING STEREOTYPE PLATES—John McElheran, of Brooklyn, N. Y.: I claim the method described of producing a plate of fixed metallic types for printing from, by stamping letter dies in succession to each other into a plate made of or coated with such a substance as will readily take and preserve their impressions, and allow a stereotype or electrotype to be made thereof either directly or by means of an intermediate plaster cast, whereby the ordinary process of setting and distributing the type is dispensed with, and but one set of types is used, substantially as set forth.

METALLIC SHOE FOR TRUSS BRIDGES—David H. Morrison, of Dayton, Ohio: I do not confine myself to three bearing surfaces, as a very slight modification of the shoe admits of two bearing surfaces for the chord and two for the post.

But I claim the combination of metallic shoes or angle pieces with the several parts of wooden trusses, in such manner that the cuts or gains made in the timbers of the trusses against which the bearing surfaces on the shoe rest are at right angles, or nearly so, to the fibers of the timbers as at a b c, for the purpose of preventing the injurious effects of shrinkage, there being on every shoe at least three such bearing surfaces, one each for the chord, post and brace.

MILLSTONE DRESS—Gabriel Natcher, of Indianapolis, Ind.: I claim, first, The lines, a, upon the upper portion of the inclined plane of the furrow.

Second, The curved or retarding lines, C, upon the breast circle.

Third, The parallel or uniform lines upon the whole surface, running straight or at any desired curve.

Fourth, The combination and arrangement of the various parts above described, making up the complete dress of the millstone, when arranged and operated substantially as set forth.

MILLSTONE DRESS—Gabriel Natcher, of Indianapolis, Ind.: I claim the application of the diamond in the production of the small lines in any required form upon the face of millstones for dressing the same.

METAL AWNING—William O. Parisen, of New York City. I claim the metal plates or strips, B, so arranged that one may overlap the other, and be kept in proper position by guides, b, when said plates are used in connection with toggles, C C, and arms, E E G, and a windlass, I, arranged so as to raise and lower, or fold or unfold the plates, substantially as and for the purpose set forth.

[This invention consists in the employment of a series of metal plates or strips so arranged as to lap one over the other, each plate being fitted between guides which are attached to the lower ends of the plate immediately above it, and the plates connected by toggles while in connection with arms and a windlass, allow the plates to be raised and folded together, when an awning is not necessary, or to fall and be distended when an awning is required.]

COTTON GINS—S. R. Parkhurst, of New York City: I do not claim the ginning cylinder or stripper, nor the combination of the same with the brush blower, each revolving in the directions specified.

Neither do I claim internal gears in themselves.

But I claim the manner described of connecting a ginning or card cylinder with a stripper, by combining with said cylinder and stripper the internal gear, h, and pinion, i, substantially as and for the purposes specified.

ENVELOPS FOR LETTERS, &c.—Charles Phelps, of Salem, Mass.: I claim the application to a letter envelop of an opener, therefore said opener to be attached to, and part of, said envelop, and to be attached and operated substantially in the manner set forth and described.

CONVERTIBLE EXTENSION TABLE—Michael Quigley, of Watertown, Wis.: I claim securing the leaf, A, to the legs, a' a', and leaf, E, as described, for the purpose of forming an extension table, the leaves of which are folded in a perpendicular position, as fully set forth.

Second, The arrangement of the case, C, as constructed with the inclined brackets, c c, for the purpose of forming a convenient receptacle for stationery, and for the purpose of completing the bed of the table when required, substantially as set forth.

CHURN—G. S. Rarey, of Columbus, Ohio: I claim operating or giving the dasher, K, a reciprocating rectilinear motion from the driving rotary wheel, E, through the medium of the pinion, F, crank pulley, F, connecting rod, G, segment, H, and rack bar, I, arranged to operate as shown and described.

[This invention consists in a novel means employed for giving a reciprocating motion to a vertical dasher from a rotating driving shaft, whereby the necessary length of stroke may be given the dasher, and also the requisite speed, with but a little expenditure of power.]

PRINTING PRESS—Thomas S. Reynolds, of Athens, Ga.: I claim, first, The rotating segment, D, in combination with the intermittingly rocking bed, Y, when constructed and arranged to operate as described, to wit, the segment having a continuous rotary movement while the bed rocks to and from the segment, and remaining, while in a vertical, or nearly vertical position, stationary a sufficient length of time to have the form properly inked.

Second, The inking device formed of the fountain, J, and the roller, K L N O t t, operated by the cams, S T, levers, U V, bar, W, and the frame, M, with the weight h, and cam, e, arranged to operate conjointly with the segment, D, and bed, Y, so that the form will be properly inked during the "dwell," or the cessation of the movement of the bed, as described.

Third, The counterpoises, Z Z, when used in connection with the springs, o', as shown, whereby the counterpoises may be graduated as circumstances may require.

Fourth, The frame, F', attached to the shaft, D', which is fitted in the bars, E', and having the spring, u' and rod, w', attached substantially as described, and for the purpose set forth.

[A notice of this invention will be found on another page.]

FLY TRAP—William Riley, of Madison co., Miss.: I claim the shape of the trap, the sliding drawer, as described, the manner in which the triggers are made, as described, the tube which prevents the flies from returning from the bag to the box, the bag and circle by which the flies are destroyed, by detaching the bag and circle from the box, and the glass on the back part of the box, introduced to give light, and lead the flies away from the place of entrance to the bag.

BEDSTEAD RAIL—Charles Robinson, of Cambridgeport, Mass.: I do not claim the employment of a stretched elastic band, supported at intervals by projecting pins, or their equivalents, on which to place the bed or slats, such being liable to objections which my improved arrangement obviates.

But I limit my invention to an elastic support rail, composed essentially of the constituents described, united as a complete, inseparable whole, and unit of construction.

I claim an elastic support bedstead rail, composed of the notched rail piece; A, stretched elastic band, B, and confining or cap strip, C, arranged, combined and operating in the manner and for the purpose specified.

APPARATUS FOR RAISING LEATHER FROM VATS—C. E. Robinson and L. D. Sanborn, of Concord, N. H.: We do not claim the crab machine wholly as our invention.

We claim the manner of taking leather out of tan vats by using hooks, as aforesaid, on a movable frame with copper rods, to be placed in the bottom of each vat before the leather is placed therein, or any way similar to the same, by which all of the leather and bark can be taken out at one time.

STEAM VALVE—Thomas Scott, of San Francisco, Cal.: I claim the reciprocating or revolving valve, substantially as described, whereby the steam enters at or near the axial center of the valve, and is thence conveyed obliquely through the valve to the cylinder, the valve and hollow stem united, and acting as a rock-shaft or center.

CONSTRUCTING COFFINS—Isaac C. Shuler, of Amsterdam, N. Y.: I claim, first, The combination of the self-securing frame, H, with the catch on the false head-piece, B, operated by the spring, C, as a cover over the joints after soldering in the top of a metal coffin.

I claim, second, The arrangement of placing inside of a metal coffin, near the upper edge of the walls, the iron frame, E, or its equivalent fastening it securely, for the purpose of shaping permanently the upper part of the body of the coffin, exactly like the beaded frame, D, at the bottom, and as a means of securing a close joint on the top for soldering the same to the walls of the coffin. Also for the purpose of supporting the top on a line sunk somewhat below the upper edge, sufficient to leave an extension or projection of the metal all around the upper edge of the walls above the coffin-top, when fixed in its proper place. This extension of the metal which shows itself above the frame, E, is made expressly for the purpose of soldering on the coffin top without using the lap or lock joint.

I claim, third, The false head-piece, B, and the spring C, or its equivalent.

PADDLE WHEEL—Nathan Smith, of Berwick, La.: I claim, first, The fitting of the two paddle hubs with their arms, D D D' D', to the shaft, and the attachments of the buckets to the arms in such a manner that either hub may be permitted at pleasure to be turned upon the shaft by the pressure of the buckets upon the water, for the purpose of adjusting the buckets obliquely in either direction to the shaft, and of returning them to a position parallel with the shaft, substantially as described.

Second, The employment of the bolts, j j, and a system of levers and sliding collars, G G', applied substantially as described, in combination with the loose paddle hubs, C C', and fast hubs, E E', with their corresponding holes, for the purpose of liberating the hubs from, and securing them to, the shaft, to permit and secure the adjustment of the buckets.

[See another page for a description of this improvement.]

BEDSTEAD—Noah W. Spears, of Cincinnati, Ohio: The connection of the posts at top gives additional strenth, but I do not intend to confine myself thereto in all cases, as the other features of my invention may be successfully used in the construction of bedsteads with short posts.

I claim, first, The bent posts, A, in combination with the clamp, B C, or substantially equivalent device, by which they are connected at top.

Second, The outside encircling rail, D, for supporting the posts and fastening the various parts together.

Third, The construction and arrangement of the corner fastening, F, in the described connection with the rails and posts, for the purpose explained.

LEATHER SLICKER—H. Lee Sultzbach, of Marietta, Pa.: I claim the arrangement of the bolt, B, with the blade, D, operated by the knob, A, and spring, or its equivalent, in the manner and for the purpose specified.

WASHING MACHINE—Charles M. Swany, of Richmond, Ind.: I do not broadly claim either set of rubbing surfaces shown: when separately considered, as analogous devices are separately in use.

But I claim, first, Such a construction and arrangement of the disk, B, and rubber case with the tyb, that the disk and rubber case are free to move in opposite directions simultaneously, the above being made and fashioned substantially as shown and described.

Second, I claim the manner shown of arranging the rubbers or ribs upon the horizontal rubbiug surfaces of the disk and rubber case, for the purpose of keeping the clothes in place during the process of washing.

DRAWER FOR CLOSETS, BUREAUS, &c.—H. R. Taylor, of Roxbury, Mass.: I claim the sliding pieces, C, or their equivalents, connected with the drawer and operating in the manner substantially as set forth.

WASHING MACHINE—Edmund Tharp, of Cincinnati, Ohio: I claim the arrangement and combination substantially as set forth, of the vertical rotating disk, D, and quarter spherical trough, C, for the purpose explained.

MILL FOR GRINDING PAINT—Chauncy Thomas, of West Newbury, Mass.: I claim the combination of the forcing pump (or its equivalent) with the grinder or mill for grinding paint, and so as to operate therewith, substantially as described.

I also claim the mode of combining the piston with the mechanism or means of elevating and depressing it, that is to say, by such a mechanical device or devices as will not only allow the piston to be elevated out of the pump, but swung laterally out of the way or beyond the mouth of the pump, when receiving the material to be ground.

STRAW CUTTERS—John Tittle, of Johnstown, Pa.: I claim the arrangement, substantially as shown, of the knife, G, with its arms or levers, F F', when connected for operation conjointly with the feed rollers, I J, pressure bar, K, and feed box, A, in the manner and for the purpose set forth.

I also claim in combination with the lever, n, pawl, m, bar, o, and curved portion, r, the sliding bar, M, arranged as shown for the purpose specified.

SMUT AND GRAIN CLEANING MACHINE—Jeremiah Tobin, of Newark, N. J.: I do not claim the scourer, O, for that has been previously used.

Nor do I claim the screws, C C, separately considered.

But I claim, first, the blast passage formed by the cylinder, J, and case, K, arranged as shown in connection with the rotating basin, L, or an equivalent device for the purpose of properly presenting the grain to the action of the blast in said passage, substantially as and for the purpose shown and described.

Second, The screws, C C, fan, L, scourer, O, blast passage, P, cylinder, J, and case, K, when combined and arranged to operate as and for the purpose set forth.

[A notice of this invention will be found in another column.]

FRAMES OR CAISSONS OF BREAKWATERS, &c.—Edward H. Tracy, of New York City: I claim constructing the frames, A, of breakwaters with longitudinal compartments, C D, two or more, the inner compartment or compartments being provided with a flooring or bottom, E, and the outer compartment being open at its lower end, substantially as and for the purpose set forth.

[A notice of this improvement will be found in another column.]

WARM AIR REGISTERS AND VENTILATORS—Edward A. Tuttle, of Brooklyn, N. Y.: I do not claim any feature seen in the device of W. G. Cook, 1848, S. P. Munson, 1853, or the patent of George Pollock, 1847.

But I claim an improved article of manufacture—a warm air register made as herein set forth, viz., the frame, B B, having lugs, l l, and recesses, f f, and the end pieces, C, provided with lugs, e', for the reception of screws, k, the ledge or step and openings, p' p' p', for the leaves, all substantially as shown, when combined with a mechanism for operating the leaves.

BRICK MACHINES—Stephen Ustick, Philadelphia, Pa.: I claim, first, the combination and arrangement of the filling box, E'', scraper, E''', and guides, b' b', or their equivalent, as an improvement on the filling box, E', in the machine, for which Letters Patent were granted to me on September 8th, 1857, when said parts are constructed and arranged to operate substantially as described.

Second, The piston, K, and plunger, K''', combined and arranged to operate in the manner and for the purposes set forth, the plunger, K''', being operated by the spring, K, or its equivalent.

Third, The grooves, l', in the facing, l, of the piston, K', and the grooves, m', in the facing, m, of the plunger, K''', constructed substantially as described, for the purposes above stated.

Fourth, The curved piece, U, in combination with the segmental piece, v, and pin, n, arranged as described.

SUPPLYING TENDERS WITH WATER AT RAILROAD STATIONS—B. M. Van Derveer, of Clyde, N. Y.: I claim the application of the described pipes to the water houses of railroad stations, or to any other place for the same purpose.

I also claim the combination of these pipe heads and pipes, acting upon one bore or nipple, in the manner shown and described.

I disclaim the hinged joint.

BRICK MACHINE—I. Z. A. Wagner, of Philadelphia, Pa.: I claim, first, molding and pressing bricks by means of the two rotating wheels, C C, and hopper, H, or its equivalent, the wheels having their peripheries notched or recessed as shown, so as to operate substantially as and for the purpose set forth.

Second, Having the hopper, H, formed of two parts and arranged substantially as shown in connection with the plates, I I', so that the sides of the hopper and the plates may be adjusted to the wheels to prevent the escape of clay between their ends and the sides of the hopper and plates.

Third, Pin, L, operated from the wheel, J, by the rod, K, with its wedge, a, and spring, l, substantially as shown, where said pin is used in connection with the molding and pressing wheels, C C', and hopper, H, or its equivalent substantially as and for the purpose set forth.

[An engraving and description of this invention will be found on another page.]

GENERATING CARBONIC ACID GAS—Thomas Warker, of New York City: I claim the bottle, E, and chamber, D, connected together provided with the ball valve, g, so that communication is obtained between the chamber, D, and bottle, E, by the tilting or inclining of the same, when these parts are combined with and applied to the receiver, A, in the manner and for the purpose substantially as specified.

[See description in another column.]

APPARATUS FOR DAMPING PAPER—C. A. Waterbury, of New York City: I am aware that tablets are in use made of wood and metal for copying letters which are dampened by means of a brush or substitute, and also by dampening the leaves of the book with a brush or substitute before the letters are put therein, I disclaim the use of any such process.

But I claim, first, the application of one or more tablets when kept in a wet state for the purpose of taking copies of written letters and other documents substantially as described in the specification.

Second, I claim the use of wood or other substances, when used as copying tablets, for the purposes in manner and form substantially as aforesaid.

Third, I claim the use of the case or substitute, which contains the water and tablets, when used in connection, for the purposes substantially as aforesaid.

FOLDING MATTRESS—Wm. Wells, of Harrisburgh, Pa.: I claim the inclined seats of the hinge, B, on which seats the hinge is fastened for the purpose of folding the mattrass in the manner set forth, and the purposes specified.

MACHINE FOR WASHING BOTTLES—W. B. White and John Whitford, of Saratoga Springs, N. Y.: We do not claim generally the washing of bottles by causing them to rotate against stationary inside or outside brushes as that device has been used before, and is well known.

Nor do we claim any particular form or arrangement of brushes.

But we claim, first, the series of devices described including the pulleys, D and D', the clutches, E E', the collar, F, the radial arms, G G, the springs, H H, and the gripers, I I, with the parts connected, constructed and operating substantially as set forth, whereby the bottle is rotated in one direction, while the chain or brush or other device for cleansing the inside of the bottle is rotated in the other for the purposes set forth.

Second, We also claim the use of a cam (like that of a pocket-knife blade) on the hinged end of the rod, I, whereby the same tends to remain in a line continuous with the main spindle, or at right angles, or any other given angle thereto.

Third, We also claim the use of the spring, N, on the bar, m, so as to adapt the same to different depths of bottles.

FIRE-BOX OF LOCOMOTIVE BOILERS—Ross Winans, of Baltimore, Md.: I claim the construction of the fire box in such manner that its entire rear side can be opened and closed substantially as set forth.

BOILERS FOR LOCOMOTIVE ENGINES—Ross Winans, of Baltimore, Md.: I claim the method of constructing the fire boxes of locomotive engines of diminished weight, but of undiminished strength, by staying the crown sheet directly to the exterior shell by means of through bolts, and contracting the space between the two as described, so as to get rid of the disadvantages that would result from the excessive weight of a fire-box of the ordinary construction, of sufficient capacity to burn coal as fuel with economy.

FURNACES OF LOCOMOTIVE BOILERS—Ross Winans, of Baltimore, Md.: I claim the construction and arrangement of the locomotive engine, substantially as set forth, so as to obtain a fire box of greater width than the space within the main frame.

MAKING METALLIC NUTS—S. W. Wood, of Washington, D. C.: I claim a solid female die with a sliding hook for discharging the finished nuts, substantially as set forth.

RAKING AND DELIVERING ATTACHMENT TO HARVESTERS—W. A. Wood, of Hoosick Falls, N. Y.: I claim, first, giving the rake its reciprocating, and rising and falling motions by means of a single traveling belt or chain without any other appliances, and substantially in the manner described.

I also claim in combination with a uniformly moving automatic rake, a delivering apparatus, which is set in motion by the conductor, and puts off the gavel and returns for the next succeeding similar operation substantially as described.

FIRE-BOX OF LOCOMOTIVE ENGINE BOILERS—Ross Winans, of Baltimore, Md.: I claim the combination of a fire-box having one grate and an upper and lower feeding door so arranged as to adapt it to burning either wood or coal, or a mixture of both, as fuel with a locomotive tubular boiler having a steam blast draught substantially as set forth.

COTTON GINS—J. N. Wilson and G. W. Payne, of Memphis, Tenn.: We claim the adjustable hinged hopper and rib frame in combination with the belt arrangement described, by which the side frame can be adjusted, raised, or lowered without stopping the motion of the machine, substantially in the manner set forth.

We also claim the projections, g, on the ribs, substantially in the manner and for the purpose described.

We also claim the toothed feeding cylinder, G, in combination with the inclined grate, H, partition, p, and hinged cover, n, substantially in the manner and for the purpose set forth.

CORN AND COB MILL—Benjamin Winter, of Buckingham C. H., Va.: I claim the combination of the adjustable bridge tree, C, rollers, a, inclined planes, b, on the base of the revolving cone, A, and horizontal stopped discs, c d, for action together, substantially as and for the purposes set forth.

GANG PLOWS—G. W. N. Yost, of Cincinnati, Ohio: I claim, first, the torsion spring above described in combination with the plowshare for the purpose of allowing a single share to swing backward in passing stones and then automatically to replace itself in working position, thus avoiding the breaking of the plow or stopping of the team, substantially as set forth.

Second, The use of the team guide for managing the team, so as to obviate the necessity of employing many drivers, substantially as described.

Third, I claim the use of the team shade in combination with the team guide for sheltering the team from the heat of the sun or from rain, substantially as set forth.

WASHING MACHINE—Henry Yost, of St. Louis, Mo.: I claim the traversing rubber in connection with the yielding rack, j, over the surface of the water in the manner described.

SUGAR MILLS—Frederick E. Dake, (assignor to himself and Thomas E. Hunt,) of Indianapolis, Ind.: I claim the combination and arrangement of the lever frame, D, sliding weight, G, and rollers, C C, with the bed plate, A, when constructed substantially in the manner and operated for the purpose set forth.

FISHING NETS—Thomas Hall, (assignor to Thos. Hall & Co.,) of Gloucester, Mass.: I claim in the art of taking fish by means of a seine, the employment of a bag, B, in combination with the seine, A, substantially in the manner as specified.

NAIL MACHINE—Henry Greene and Wm. J. Gordon, (assignors to Henry Greene.) of Philadelphia, Pa.: We claim, first, the combination of the carrying chains, H H, and the rack chain, J, with the nail rod holder in the manner substantially as described, to move the rods laterally along the anvil and turn them simultaneously.

Second, The arrangement of the front edge, r r, of the anvil obliquely to the direction of the movement of the carrying chains substantially as described, for the purpose of causing the nails to be drawn from head to point in the foregoing process.

[See notice of this improvement on another page.]

ADJUSTABLE SEATS FOR VEHICLES—Geo. J. Lucas, (assignor to himself and John G. Lucas,) of Poughkeepsie, N. Y.: I do not claim broadly and irrespective of the arrangement shown, so connecting wagon seats that one may be folded or closed over the other, for this has been previously done.

But I claim the connection of the two seats, B C, by means of levers, D D, and links, l l, substantially as and for the purposes set forth.

[See description of this invention on another page.]

BENDING MOLD BOARDS FOR PLOWS—Benj. Pitcher, (assignor to himself, Wm. Tobey, and John Anderson,) of Peoria, Ill.: I claim the combination of the stationary die, B, with the movable die, C, hinged to the stationary, and constructed and arranged as described, so that the heated metallic plate subjected to their action is, during the process of being bent into shape, gradually compressed and drawn from its inner to its outer edge, and retained under compression until the entire bending is completed, for the purpose described.

CONTINUOUS PRIMING FOR FIRE ARMS—D. G. Rollin, of New York, (assignor to Geo. G. Martin, of Brooklyn,) N. Y.: I claim the continuous priming formed as set forth, to be combined with and operating in fire arms by means of an independent cut-off as specified.

GAS METERS—Thomas Shaw, (assignor to himself and C. S. Patterson,) of Philadelphia, Pa.: I claim the construction of the oscillating drum, B, in such a manner as to contain the sealing fluid or seal, W, with lever, L, attached to said drum, the whole for operating the valve, G, by the oscillation of the drum as set forth, in combination with the inlet and outlet passages, y and z, as described.

SHIP'S CAPSTAN—J. R. Taylor, (assignor to William Skiddy,) of New York City: I claim the freely revolving plate, e, for carrying the intermediate gear wheels, in combination with the capstan head, and with the shifting stop, p, substantially as described.

OVENS FOR COOKING STOVES—Jas. Easterly, of Albany, N. Y.: I am aware that stove ovens have been in whole or part lined with brick gypsum and other non-conducting substances, the object being in those cases to prevent the radiation of the heat from the interior of the ovens, either to make a cool summer arrangement or to retain the heat internally; this I disclaim as not being the intention of my arrangement and invention which requires not non-conducting, but slow-conducting solid material, not to keep heat within the oven, but to transmit heat applied externally slowly and steadily to the interior of the oven.

But what I claim is the construction of stove ovens or analogous structures by surrounding them with double outside walls containing in the chamber formed within them some slowly conducting and radiating solid material to absorb heat, communicated on the outside of the chambers and radiate the same internally substantially as described in the specification.

SYPHONIC RADIATOR—Chas. Williams, (assignor to himself and C. J. Shepard,) of Brooklyn, N. Y.: I do not claim a hot air chamber or retort placed in a furnace over the fire and supplied with air by a pipe or pipes placed nearly horizontal, as such have before been used.

Neither do I claim inducing a downward circulation of the products of combustion, as this has heretofore been used, both in the flues of chimneys, furnaces, &c.

But I claim the syphonic circulating and radiating pipes formed of two or more vertical or nearly vertical limbs attached at their upper ends to the shell or casing of the furnace, and connected at their lower ends to each other and operating substantially as and for the purposes specified.

## EXTENSIONS.

HAY PRESSES—C. F. Paine (Jos. Eaton, Adm.,) of Winslow, Me. Patented April 25, 1844. Extended April 25, 1858: I claim connecting the feet of the platen rods, E E, with the platen or follower by means of links or other contrivances of a similar character, the object of the said links being to permit the lower ends of the rods to be moved laterally from the ends of the bale as set forth.

METALLIC LATHS FOR FIRE-PROOF CEILINGS OF HOUSES—Palmer Sumner, of New York City. Patented April 25th, 1844. Extended April 25th, 1858: I claim the method of constructing metal laths either of iron or any other similar material.

Also the constructing of ceilings by running the laths diagonally across the room so as to be least effected by the expansion, all of which is fully set forth in the specification and drawings.