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Woods of Australia.

The cedar of Australia is a most valuable wood, and almost the only kind used in joiners' and cabinet work amongst the colonists for the last fifty years; it is said to attain ten feet in diameter. The white beech of the colonists, a species of Vitex, is a noble tree, rising eighty to one hundred and forty feet, whose wood is much prized for the decks of coasting vessels, of fine bright silvery grain, said never to shrink in floors (as do the majority of the colonial woods) after moderate seasoning. A magnificent species of Rhamnus has wood very close and hard, likely to prove ornamental, evidently a serviceable wood. The teak wood of the colony (*Endiandra glauca,*) a noble tree, has wood hard, close, fine, dark color in the duramen, with a powerful aromatic fragrance throughout, is said to be very durable, evidently a valuable timber. The rosewood, a species of *Meliaceæ*, possesses fine timber, durable and ornamental, and possesses an agreeable fragrance, the effect of an essential oil; bedsteads made of it never harbor insects. —[London Building News.

American Nickel and Cobalt.

Near Middletown, Conn., two mines containing the ores of the above-named metals have recently been opened. The metal bearing rock is believed to be of an unlimited depth; the ore is visible in grains throughout the lode, and amounts to about 10 per cent. of each metal. This shows that the lode is exceedingly rich, and when these mines are in full working order their product must have a beneficial effect upon the price of these metals in our markets. Great preparations have been made at the mines for smelting the ore, such as the erection of furnaces, steam engine, stampers, and ore separators.

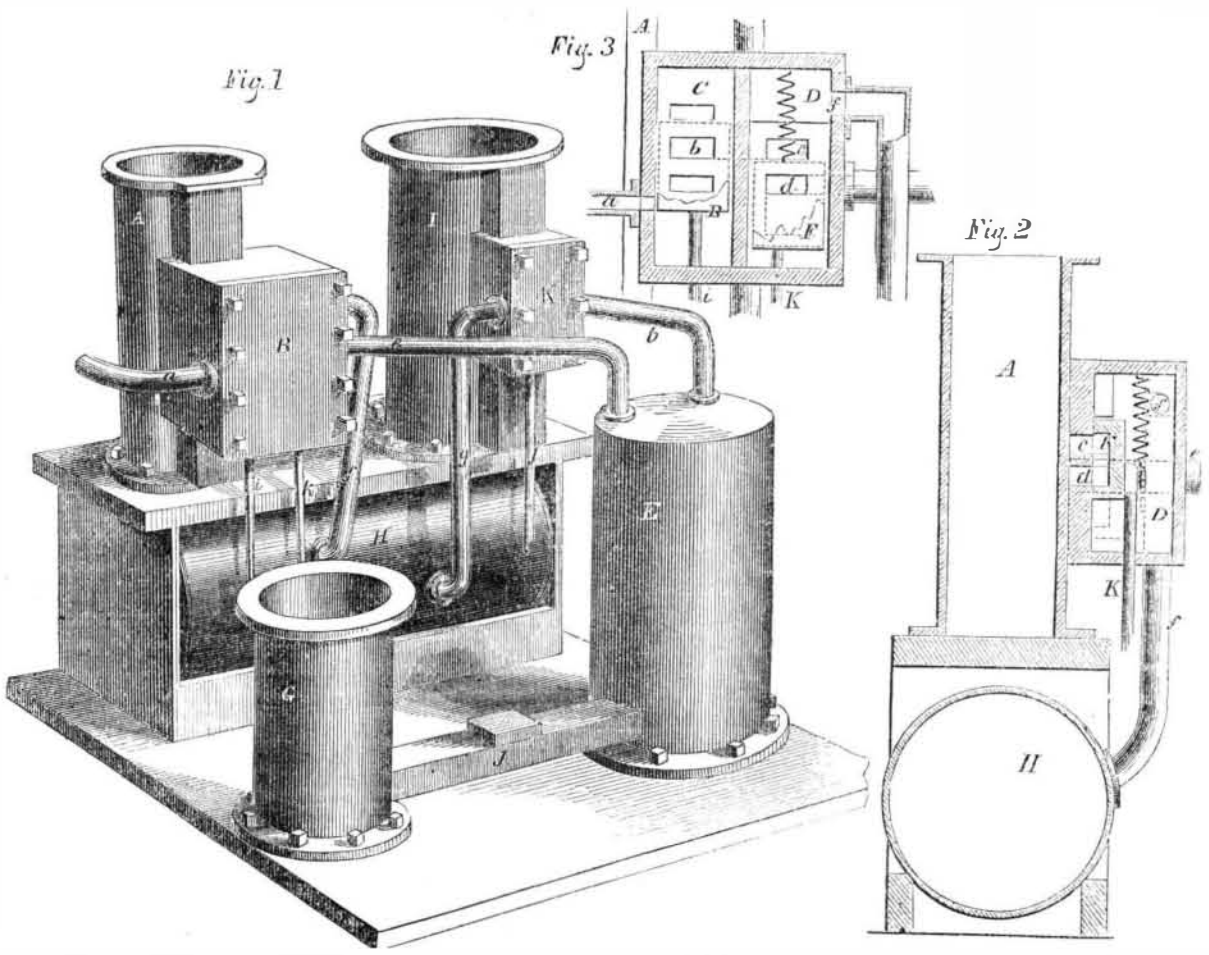
London the Greatest City.

This is now the greatest city in the world, and far surpasses all the great cities of antiquity. According to Gibbon, the population of ancient Rome in the hight of its magnificence was 1,2000,000; Nineveh is estimated to have had 600,000; and Dr. Medhurst supposes that the population of Pekin is about 2,000,000. The population of London, according to recent statistics, amounts to 2,500,000, 414,722 having been added to it during the last ten years. The census shows that it contains 307,722 inhabited, and 16,889 uninhabited houses.

Composition of Gunpowder.

Gunpowder is composed principally of saltpeter about 75 per cent., combined with charcoal about 15 per cent., and of sulphur about 12 per cent. Each of these ingredients, as articles of merchandise and commerce, have advanced in their respective markets, in some instances upwards of 100 and even 150 per cent. Saltpeter principally comes from Bengal and the peninsula of British India. Thesecircumstances have directed the attention of the scientific world towards the application of some other explosive powder or medium, which would be equally efficacious as gunpowder, and less costly. Gun cotton and fulminating silver have been the subject of experiment.

IMPROVEMENTS IN EXPANSIVE STEAM ENGINES.



The accompanying engravings represent improvements in the double-cylinder expansion steam engine, known by the name of "The Woolfe Engine," invented by John J. Johnston, Lawrence, Mass., who has taken measures to secure a patent.

Fig. 1 is a perspective view of the two cylinders, air pump, condenser, and the exhaust steam receiver. Fig. 1 is a side vertical section of the high pressure cylinder and steam receiver; and fig. 3 is a vertical section of the valve box, A, fig. 1.

The object of the invention is to obviate the back pressure of steam on the piston of the high pressure cylinder, and obtain a vacuum on the exhausting side of the piston of the low pressure cylinder, to increase the power of the engine, and effect a saving of fuel. A is the high pressure cylinder having the induction and eduction of the steam effected by a common slide valve, B fig. 3, working in the steam chest, B fig. 1, which receives steam by a pipe, *a*, from the boiler. The eduction port, *b*, of this steam chest communicates by a side passage with a second steam chest, D, figs. 2 and 3, at one side of C; the passage enters the steam chest, D, by a port, *c*. The steam chest, D, contains another port, *d*, from which a passage communicates with a pipe, *e*, leading to the condenser, E.

The ports, *c* and *d*, terminate in the seat of a slidevalve, F, which is capable of such a movement as indicated by two positions (one in dotted lines) in fig. 2, showing a central section of the steam chest, D. From one side of this steam chest, or from any other convenient part of it, outside of valve F, a steam pipe, *f*, leads to the exhaust steam receiver, H—a vessel of about four times greater capacity that the low pressure cylinder engine, I. From this vessel a pipe, *g*, leads to the steam chest, K, of the low pressure cylinder which contains a slide valve and ports; the eduction port or ports communicate by a pipe, *h*, with the condenser. The arrangement of the cylinders and the other part of this engine, and the connections of the pistons are or may be substantially the same as those of any other double cylinder expanding engine. The arrangement represented is supposed to be for a beam engine; the cylinders being placed side by side, and the receiver, H, below them, the air pump, G, being in the same position relatively to the high pressure cylinder as the air pump of a common beam engine is to its cylinder, the condenser being placed beside the air pump and communicating by a passage, J.

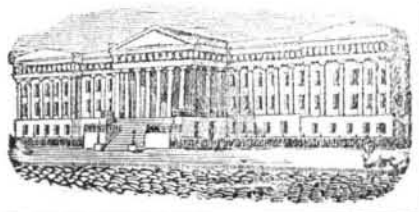
The slide valve, B, of the high pressure cylinder, A, and the slide valve of the low pressure cylinder are intended to be operated by any common valve gear connected to them by rods, *i* and *j*. The slide valve, F, is intended to be operated by a cam or other like device on its rod, *k*, in such a manner as to move it very suddenly from the position shown in full to that shown in dotted lines in figs. 2 and 3, which opens the port, *c*, and then releases it, so that the port may be closed to the steam chest, and brought into communion with the port, *d*, either by a spring, *l*, or by the pressure of steam, or the atmosphere. When the movement of the valve, F, to open the port, *c*, takes place, which is always at the instant the eduction of steam from either end of the high pressure cylinder commences, a rush of steam from the high pressure cylinder takes place, through the port, *c*, steam chest, D, and pipe, *f*, to the exhaust steam receiver, H', but this is only of short duration, being stopped by the valve returning to the position shown in full lines, fig. 2, which directs the exhaust steam from cylinder, A, through the port, *d*, and pipe, *e*, to the condenser. The steam escaping from the high pressure cylinder to the receiver, H, expands to a pressure but a little more than that of the atmosphere, and at that pressure acts upon the piston of the low pressure cylinders, whose induction pipe, *g*, is always in communication with the receiver, H.

By the great degree of expansion which is allowed to the steam escaping from the high pressure cylinder by the large size of the receiver H, put little resistance is offered by the escaping steam to the movement of the piston in that cylinder, even while the cylinder is in communication with the receiver, H, which is but for a moment, as its eduction port, *b*, is very quickly closed to the receiver, and opened to the condenser by the upward movement of the valve, F, and in this condition the cylinder remains till the eduction from the other side of the piston commences. The reason for employing the large receiver, H, instead of exhausting directly from the high into the low pressure cylinder, is to relieve the piston of the high pressure cylinder of the back pressure of the exhausting steam, and to obtain a uniform pressure upon the piston of the low pressure cylinder throughout the entire stroke. In order to get the benefit of the vacuum before the piston of the high pressure cylinder during the whole stroke, the slide valve, B, of that cylinder may have a proper degree of lead, and the movement of the valve, F, may take place before the preceding stroke of the piston has terminated, and before the crank has arrived on its center. It will be readily understood by the foregoing description, that the valve, F, will have to make two movements for every one of the valve, B.

By removing the back pressure of the steam, as has been described, it is believed by the inventor that a great economy of power will be obtained. Other valves than those represented may be employed, while the principle of the improvements are preserved.

The slow exhaust, in other words the back pressure of the escaping steam from the high pressure into the expanding cylinder of a Woolfe engine, has always been a difficulty to its successful operation. This defect, it is presumed, is overcome by the improvement described in this engine. This class of engines has received but a partial trial in our country. The modifications and asrangements here illustrated and described may lead to its more extended use.

More information respecting the invention may he obtained by letter addressed to the inventor, at No. 8 Spring street Lawrence Mass.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING DEC. 25, 1855.

WROUGHT-IRON CANNON—John Griffin, of Safe Harbor, Pa.: Having thus discovered that the mode of preparing the pile or faggot above described, is specially adapted to being welded under the rollers, and that welding such a prepared mass, by means of rolling, is entirely practicable, and will secure a more homogenous and perfect union of the parts, without weakening or rupturing the fiber. I do not desire to claim the described mode of preparing the pile or faggot, when the faggot so prepared is welded by blows or under the hammer.

But I claim the manufacture of wrought-iron cannon by forming the faggot or pile of longitudinal bars surrounded by a series of bands of iron, and then welding together the whole mass, by passing it between rollers.

ROTARY PUMPS—Thos. Crane, of Fort Atkinson, Wis.: I do not claim the eccentric hub, D, and annular piston, E, for they have been previously used.

But I claim the combination of the hinged valve, F, with the eccentrically moving round piston, E, when said valve is of the shape represented in the accompanying drawings, and is so arranged in relation to the pump chamber, A, the off-set chamber, B, the suction pipe, H, and the eduction pipe, G, as to render it impossible for said pipes to be, for an instant, brought into connection with each other during any portion of the revolution of the piston, E, substantially as set forth.

[This invention consists in the combination of an eccentric hub, annular piston, and reciprocating valve or cut-off, working within a cylinder chamber. The principal novelty in the present improvement exists in the peculiar operation of the cut-off valve, which opens and closes the eduction pipe at the proper moment, and prevents any re-action. Rotary pumps are in great demand; they work without noise, and in many situations are preferable to any other.]

COMBINATION OF INJECTING SYRINGES—Joseph Buhler, M. D., of New York City: I do not claim any of the parts of this apparatus.

But I claim the combination of the receiver, A, and pumps C and D, provided with cocks, a and g, in the manner and for the purpose set forth.

CRANES—Benijah J. Burnett, of New York City: I claim, first, the pendant segmental traveler, E, and backstays, A, arranged to spread outwards, from towards the top downwards, as shown and described, and whereby the "tripping out," or lateral displacement of the foot of the crane, or segmental traveler, E, is obviated, all twisting or binding avoided and a perfectly free, but steady action given the same, either as regards pressure in the vertical direction, transferred to the top of the tower or horizontal swing, as set forth.

Second, the combination and arrangement with the segmental traveler, E, or swinging foot of the crane of the circular or revolving frame, H, of anti-friction rollers, freely suspended on the tower, and rotating round the same, together with the swinging foot or segmental traveler, by the horizontal pressure of the latter on the rollers, in contact with their bite, on or against the fixed bolt surrounding the tower, substantially as shown and described, for the purposes set forth.

CANDLE MOLD APPARATUS—Lewis C. Ashley, of Troy, N. Y.: I claim the combination of candle molds which have an opening in the side or tip end of each mold, to admit the melted tallow, with a device for temporarily closing the large open ends of said molds, and simultaneously centering the wicks thereat, substantially as described, to make the butt ends of the candles with a smooth finish; and this I claim, irrespective of the mode in which the parts of the candles at said side openings, are completed. And I claim the combination of said combined molds, and device for closing the large ends thereof with the stoppers or slides, for temporarily closing the side or tip ingate openings in said molds, substantially as described, to complete the formation of the parts of the candles at said ingate openings, by which the operation of scraping to complete the finish of the candles at these places, is avoided.

PIPES OF A VAPOR BATH—Joseph Buhler, M.D., of New York City: I claim the back distributing pipe, G, with its sleeve, H, operated by a cord, with a handle and weight, or by any equivalent means, the said sleeve having perforations, f f, out of line with the perforations of the pipe, to allow the patient to direct the concentrated vapor to any part of his back, substantially as set forth.

[The apparatus constituting a vapor bath consists of a small box-like compartment, in which the patient sits, a small retort connected by a pipe with the box, a spirit lamp, &c., for heating the retort. If sulphur, for example, is placed in the retort, and the lamp applied, sulphuric vapor will be produced and forced into the bath box.

The present improvement consists in applying a sleeve pipe to the end of the retort pipe where it enters the bath. This sleeve pipe is movable in different directions at pleasure, and is perforated with small holes. Its use is to enable the patient to control the direction of the vapor—move it up and down the back, &c.]

DOUBLE-ACTING STEAM BRAKE—R. L. Currey, of Phi adelphia, Pa.: I do not claim to have invented a double-acting steam cylinder with steam and exhaust at its center between the pistons.

But I claim the employment of such a cylinder in combination with the brakes on both sides of the wheels, in the manner and under the arrangement set forth.

WINDOW SHADES—Thos. Danforth, of Roxbury, Mass.: I claim making the frame, A, so as to be capable of longitudinal contraction and expansion, as specified, in combination with applying the gauze shade or curtain thereto, and so as to wind upon a roller, and be wound thereon by devices substantially as stated.

WHIPPING HAIR—Isaac Davis, of Mechanicsburgh, O.: I claim a combination of a series of long, slender, and elastic revolving rods, with a similar series of stationary rods, arranged and operating within a cylinder, as set forth, for the purpose of whipping hair.

I also claim, in combination with the foregoing, a register in the bottom perforated head of the cylinder, for the purpose of regulating the strength of the downward current in the cylinder, and insuring a due admixture of air with the whipped hair, as it leaves the machine.

HANGING SAWS—Soranus Dunham, of North Bridgewater, Mass.: I claim, first, the improved mode described of hanging the saw, when the frame in which it is hung has a reciprocating curvilinear motion, so as to provide for the necessary play of the same at its ends, said improved mode consisting in supporting and confining the saw at one end, or both its ends in wedge-shaped steps, arranged to tilt in proper grooves, in the manner and for the purpose explained.

Second, I claim the vertical stiffening and regulating bar, with its ends arranged in the wedge-shaped steps, and with one end made susceptible of the adjustment as explained.

TIME INDICATORS—Geo. Byington, of Rochester, N. Y.: I claim the wire or ribbon, 3, arranged in the manner and for the purpose substantially as described.

STEAM BOILER FURNACES—Henry F. & Louis A. Gossin, of Thibodeaux, La.: We claim constructing the flues of boiler furnaces with cross walls, or diaphragms perforated with passages, substantially in the manner and for the purpose described.

HOISTING BLOCKS—Wm. H. Merrill, of Taunton, Mass.: By the cap protecting the upper journal or pintle, and the roll, the lower pintle, the dirt, or any other obstruction, is prevented from getting into the bearings and clogging the roll.

I do not claim the use of friction rolls upon the cheeks of blocks, for these have long been in use.

But claim the roll, fig. 2, the upper socket or cap, fig. 4, and the lower pintle or step, fig. 3, used together, for the purposes and in the manner substantially as set forth.

SEEDING MACHINES—Reuben Hurd, of Spring Hill, Ill.: I do not claim the employment of an endless belt, or elevator, with its cups, or buckets, for taking the seed from the hopper and depositing it, by the inversion of the buckets, down a converging tube, to the hollow share, as such, under a different construction, arrangement, and operation of parts, has before been done.

But I claim the arrangement substantially as shown and described, of the elevator or belt, with its buckets or seed cups, m, with the conveying spout, M, and seed box, F, the latter being provided with a spring valve, Q, or movable bottom, opening upwards, and the said cups or buckets, passing through said bottom, exclusively in or during the upward travel of the elevator, as specified.

[An endless belt, provided with small cups, somewhat like a flour mill elevator, is employed in the above drill, to convey the grain from the seed box to the top of the pipes or channels down which it falls into the ground. There is a peculiar arrangement of parts for throwing the belt out of gear, regulating the speed, &c. This machine sows in continuous drills or in hills, as desired. It is cheap in construction, simple, and not likely to get out of order.]

DRESSING MILL STONES FOR SCOURING AND HULLING BUCKWHEAT, &C.—B. J. Harris, of Auburn, Pa.: I claim the smooth and beveled dress of mill stones, for scouring and hulling buckwheat, by which method the buckwheat is longer retained within the bosom of the stones, and more effectually scoured, without injury to the kernel, than by any other known mode.

MAKING SALT—J. P. Hale, of Kanawha Court House, Va.: I do not claim the process of manufacture described, irrespective of the means employed for carrying out the process.

I claim the two pans or kettles, A C, placed one over the other, on a fulcrum, B, in combination with the vat, F, the parts being arranged as shown for the purpose specified.

[Where artificial heat is employed to produce salt, the brine is placed in large kettles, and the fire applied beneath. After the brine has become reduced to what is called "strong brine," and begins to crystallize, it is liable to cake up and collect on the bottom of the kettle. It is in part kept clear by attendants, who stir up the mixture, scrape it off, &c. But in nearly all cases there is some caking and a partial discoloration of the salt, which tends to diminish its selling value.

The present improvement consists in the use of two kettles placed one inside of the other, a space being left between. The weak brine is boiled in the lower kettle against which the fire is applied. After the liquid has boiled down into "strong brine" it is drawn off into a vat, where it remains long enough for its impurities to settle. It is then pumped into the upper kettle and crystallized, no stirring being required, as no caking or discoloration occurs. The upper kettle is heated by the hot brine between it and the lower vessel.]

HULLING MACHINES—Charles Miller, of Carroll Township, Pa.: I claim the application of the block, e e, and adjustable slides, c d, by means of which I can regulate the machine so as to retain the seed in the huller until it is perfectly shelled.

COMBINED LOG AND SOUNDING LINE—Adolphe Pecoul, of Marseilles, France: I claim the sounding log, constructed substantially as described, that is to say, being composed of a buoy having applied to it a weight, e, attached to a line passing between a pulley, i, and a spring, m, or its equivalent, at the bottom; and this, I claim, whether used with or without a connection, g h, to connect the line with the top part of it; the whole constituting an instrument by which the speed of a vessel may be measured, or by which soundings may be taken, without stopping or heaving to, as fully set forth.

[This instrument, which the inventor terms a sounding log, serves the purpose of the common log, viz, that of ascertaining the speed of a ship, and also to take soundings without "heaving the vessel to." It consists of a buoy and a lead line, with some other simple appendages. When used as a log, the line is fastened to the bottom of the buoy with the lead hanging some distance below it, the other end of the line being wound on a reel like the common log reel. When the lead and buoy are thrown overboard, the log remains stationary on the surface of the water, where it is held upright by the weight of the lead, which is held suspended from it, and the line is unwound by the motion of the vessel, the same as the common log line. The only difference between this line and that of the common log is that this has colored marks in place of knots, as knots would interfere with the operation of sounding. When the instrument is to be used for taking soundings, the line is allowed to run over a pulley at the bottom of the buoy, the freedom of its movement being only very slightly checked by the friction of a spring. The lead is drawn by the line close up to the buoy, and both are thrown overboard; the vessel still continues on its course, while the reel is held for the line to run out The buoy remains on the surface of the water where it was thrown in, and the weight of the lead keeps the buoy upright, and throws the line over the pulley of the buoy until the lead touches the bottom, which is known by the buoy turning over on one side, in consequence of the weight no longer acting upon it. When the buoy falls over, the friction of the spring on the line is so much increased that the buoy remains fast on the line while line and lead are drawn overboard the vessel. The distance from the buoy to the lead is of course the depth of water.]

PROPORTIONAL DIVIDERS—H. M. Parkhurst, of Perth Amboy, N. J.: I claim providing an ordinary pair of dividers, with the secondary legs, which have their joints, equi-distant from the primary joint, and at right angles thereto, substantially as and for the purpose set forth.

[The nature of this invention consists in providing each of the legs of common dividers with a short adjustable secondary leg, jointed at right angles to the middle of the primary legs, and so arranged as to open and close parallel with the latter. When the dividers are opened or closed, the secondary legs will move, more or less, proportionate to the distance of their points from the joint of the original legs. If the points of the secondary legs are set at precise right angles to the other legs, the secondary pointers will move just one half the distance of the other points. The secondary legs can be set so as to exhibit any desired proportion with the utmost exactness. There is a scale, set screw, &c., for adjusting the angle of the secondary legs, which facilitate accuracy. The improvement is a simple one, not expensive in manufacture, and no doubt highly useful for draughtsmen.]

CORN SHELLERS—James Robb, of Lewistown, Pa.: I claim the hood or casing, G, in combination with the concave, F, fender board, or cob arrester, h, and cylinder, B, for the purpose of directing a blast, and separating or cleaning the corn and cob, substantially as described.

EXTENSION BIT—J. P. Rollins, of Boston, Mass.: I do not claim the invention of movable cutters.

But I claim the manner in which the lip and cutter are set, or secured, for operation, when being adjusted, without the use of separate screws for that purpose, and in the manner described.

HAND SEED PLANTERS—Ancil Stickney, of Concord, N. H.: I claim in a seed planter having a wedge-shaped planting receptacle, whose hinged side is closed by the action of a spring, combining the plunger of said planter to any suitable portion of the seed box by means of a spring of sufficient thickness to prevent said plunger in operating the planter from sliding downwards on the seed box, and opening the planting receptacle before said receptacle has penetrated to the desired depth into the ground, to deposit the seed contained in it, substantially as set forth.

BREECH-LOADING FIRE ARMS—Gilbert Smith, of Buttermilk Falls, N. Y.: I claim the eccentric and traverse motions combined, for opening and closing apertures, by means of a cap perforated eccentric, to itself, as described.

Second, I claim closing the aperture, by means of an inserted screw J in being screwed forward, direct from the cap, when the eccentric throws it direct over the axis of aperture, as described.

REVOLVING FIRE ARMS—E. K. Root, of Hartford, Ct.: I claim combining the driving pin that works in the grooves, to rotate and hold the breech in line with a slide below, adapted to the reception of and to be operated by the trigger finger, and acting on the lock at the end of the back motion, to liberate the cock or hammer, to discharge the load, substantially as described.

LOOMS FOR WEAVING WIRE—G. W. Smith, of Mauch Chunk, Pa.: I claim, first, giving the reed two movements, substantially as described; the first, for squaring the filling with the warp, and bringing it to a suitable position to be operated upon by the crimpers, and the second to beat it up to its place.

Second, giving the crimpers a movement, laterally to the warp, in opposite directions, alternately, after the crimping operations, for the purpose of making them adapt themselves to the varying intersections of the successive wires of the filling and the warp.

[The object of this invention is to crimp the wires while in the loom and during the operation of weaving. To effect this, a pair of crimping jaws, having their faces of a proper form to crimp the filling wires, are arranged in the loom transversely to the warp. After a filling wire has been passed into the open shed, and brought square with the warp by a half-way movement of the reed, these jaws close upon it and crimp it to the proper form, and then the lay makes a second movement to beat it up. The crimping of the warp is performed by the filling wires. The crimpers have a reciprocating movement laterally to the warp after every crimping operation, for the purpose of making the depressions in each wire opposite the elevations, in its predecessor and successor, as is requisite, to enable the warp wires to pass severally over one filling wire and under the next.]

SAD IRON HEATERS—Jesse D. Wheelock, of Mayville, Wis.: I claim the use or application of the spiral springs within the tubes, d, in combination with the tube b, and lids, c c, in the manner substantially and for the purposes specified.

HYDRAULIC OIL PRESSES—Wm. Wilber, of New Orleans, La.: I am aware that in tobacco and other presses of a similar character, staves of wood have been used, hooped simply on the outside with iron. This I do not claim.

But I claim the manner of constructing the cylinder of a hydraulic press, viz., of staves of wood when lined with copper, or other suitable metal, as well as double banded, in the manner and for the purpose set forth.

I also claim the making of the bed plates, M, of sections of wood, having the end of the grain of the wood in a line with the thrust, with the piston or platen, for the purpose of using the elasticity of the wood, and thus relieving the press from the rigidity of metal, and for lightness and cheapness of construction, and also for enabling me to arrange the through bolts so as to divide the strain upon them and prevent their crushing the wood, as described.

I also claim the manner of uniting the through bolts or rods with the bed plates, viz., by means of the collars let into the separate sections of wood for relieving the heads of the bolts of the strain, and distributing the strain throughout the bed plates, substantially as described.

I also claim, in combination with the seed boxes, the introducing of steam directly into the seeds in said boxes, in contradistinction from heating them by conduction or radiation, so as to have both heat and moisture in the boxes, as described.

I also claim the hinging of the door and one of the sides of the box to the other sides, so that drawing out the rod, R, the door of the box will spring away from the plates, and one side will, at the same time, give slightly, but sufficiently to release the cakes from the said pressure, thus allowing them to be easily lifted out or removed, as set forth.

CORN AND COB MILLS—Thos. B. Stout, of Keyport, N. J.: I claim the adjustable "regulator," D, regulated and operating in connection with the bur, G, and shell, F, substantially in the manner and for the purposes set forth.

I also claim coupling the spindle to the bur, and adjusting it therein by means of the recess and pin, d, and the radial regulating rods, S S, substantially as described, and in combination therewith the adjustment of the upper end of the spindle in the frame by the rods P P, or their equivalents, so that the two adjustments may harmonize with each other, and no disarrangement of the bur in its shell may arise in the application of the power to the upper end of the spindle.

I also claim the auxiliary loose bur, I, dressed in the direction opposite to that of the main bur, G, and so arranged that it may revolve nearly or quite in contact with, and adapt its position to that of its shell, H, unrestrained by the parts by which it is attached and driven, substantially in the manner and for the purposes set forth.

[One of the greatest difficulties experienced in the construction of cast-iron grinding mills, is to get the grinding plates true. In the operation of casting they warp more or less out of the proper level, owing to the shrinkage of the metal in cooling. The slightest irregularity of the plates prevents them from doing good work: this is one of the chief objections to their use. Mr. Stout's method of connecting the plates is as follows: after casting, they are placed in an oven and again heated; they are then placed between heavy metallic disks and firmly clamped, the whole being then immersed in water. The disks are perforated with holes, through which the water has access to the plates. The clamping renders them perfectly true, while the water imparts the necessary hardness.

This process appears to be easy, as well as effectual, for the purposes intended.]

GUARDS FOR LANTERNS—Charles H. Butterfield, of Nashua, N. H., (assignor to Amory Houghton, of Boston, Mass.): I do not claim making the guard movable, by means of hinges and catches or other contrivances equivalent thereto.

But I claim my improved mode of making the guard elastic, as set forth, or with springs at top and bottom to embrace the neck and lower part of the lantern, the same not only dispensing with hinges, but serving to maintain the guard in place even when its clasp may be unhooked.

REVOLVING GRATES—Chas. Evans, of Charlestown, Mass., (assignor to himself and Geo. K. Goodwin, of Roxbury, Mass.): I claim the method described of hanging the cylinder within the recesses in the sides of the stove, and of raising the grate to its upright position, as set forth.

MILLS FOR GRINDING GRAIN, &C.—Ezra Ripley, of Troy, N. Y.: I do not claim the combination of two or more cylinders for grinding, when such cylinders have each of them a continuous rotary motion.

But I claim combining with a continuous rotating grinding cylinder, or plates, one or more grinding cylinders, which have a partially rotating reciprocating motion, in opposite directions, given to it or them, by the cams, lever and spring, as described, or by other analogous devices, for the same purpose, the combination being substantially in the manner and for the purposes as set forth.

MINCING MEAT—Alex. Lightheiser, of Reading, Pa.: I do not claim any particular shape for the cutting edge of the knives or blades, K K K.

But I claim the placing of the knives or blades, K K K, in an inclined position on the surface of the cylinder, for the purpose of propelling the meat through the machine.

FOUNTAIN PENS—N. A. Prince, of Brooklyn, N. Y.: The claims I now make are for improvements, in addition to those already made and patented Jan. 23rd, 1855.

I claim, first, the elevation or bead, on the back part of the pen, near its heel, being designed to keep the pen, by coming in contact with the inside of the main reservoir tube from lifting too much, substantially the same as set forth, as described and shown.

Second, I claim the pen notched near its heel, and the combination of the same with the feeding tube, correspondingly notched, so that the two placed together and infixed in the main reservoir tube, the pen cannot get out of its position, substantially the same as shown and described.

PADDLE WHEELS—Benj. Hill, of Rochester, N. Y., I claim the radially hinged valves, used as substitutes for paddles, said valves being attached to disks or rings, and supported thereby, substantially as described.

HANGING CIRCULAR SAWS—W. W. Hurlbut, of Booneville, N. Y.: I claim the arms, H I, as connected with the saw guides, L L', the bearing, F, and the opening wedge, K, in such manner as to adjust with the movement of the saw, D.

RE-ISSUES.

SPARK ARRESTERS—Wm. C. Grimes, of Philadelphia, Pa. Patented originally Feb. 12, 1842: I claim the combination of the central chamber, C, the series of tangential openings, E E, the larger circular chamber, A, furnished with a series of vertical openings, f f, leading into exterior chambers or channels for separating sparks and other particles of matter from the gaseous current discharged from locomotive or other chimneys, substantially in the manner set forth.

SOFA BEDSTEADS—Charles F. Martin of Boston, Mass. Patented originally June 6, 1854: I claim drawing down or depressing the cushion at the joint between the back and seat by means of the cords, b, or their equivalents, constructed automatically with the seat, A, and back, B, for the purpose set forth.

DESIGN.

TABLE KNIVES AND FORKS—Joseph W. Gardner, of Shelburne Falls, Mass., (assignor to Lamson, Goodnow & Co., of same place.)

American Fire Arm Machinery for Great Britain.

Heretofore, the manufacture of army small fire-arms in England has been carried on without any government system, but learning of the superior modes of constructing army muskets and rifles, Uncle John has shown good sense in adopting our system. About two years ago a commission of British officers and mechanics were sent out to inspect our armories, and make the necessary arrangements and contracts for American machinery. They had free access to our establishments, and, as we learn by the Springfield *Republican*, they engaged James M. Burton, chief engineer and mechanic at the Harper's Ferry, (Va.) Armory, to take a like position in the new English armory, and he is now in that country. They also ordered complete sets of the machinery in use at our armories. Robbins & Lawrence, of Windsor, Vt., were employed to build some 100 "milling machines," used to cut the gun locks and execute the other iron parts of the gun.

The intricate machinery for the manufacture of the gun stock, was entrusted to the Ames Manufacturing Company, of Chicopee. This has just been completed and dispatched to England. It consists of 25 different machines, 3 of which are duplicates. Oramel Clarke, one of the best workmen in the stock department of the armory, has been employed to go to Europe, and take charge of the machinery and its operation.

The new government armory of England is located at Enfield Lock, nine miles north of London. It is intended to employ 800 operatives, and turn out 500 muskets daily. A contract for 25,000 rifles is now being filled at Windsor, Vt., and Hartford, Conn., for the British Government.

Great Engineering Works in India.

The Government have recently constructed an immense weir across the Godavrey river in Madras, for collecting and distributing water for the purposes of irrigation. Canals or conduits are built, to distribute the water for irrigating the immense area of 1,200,000 acres. The water will be supplied at the rate of 200,000 cubic yards for about four dollars, or about one-thirtieth the price which it costs the natives to draw it by bullocks—according to the old plan. Severe drouths take place in sections of the Madras territory every few years, and famines are sure to follow. This great work will be the means of benefiting the people on the delta of that river beyond all calculation, as it is believed that their crops will hereafter be multiplied seventy-fold by such an abundant water supply.

Discovery of Nitrate of Lime.

There has been discovered on the farm of Mr. James Peage, near Staunton, Va., an apparently inexhaustible supply of nitrate of lime. Some specimens, on examination, proved to contain large portions of pure saltpeter, and in all the nitrate is strongly evident.—[Ex.

[The nitrate of lime occurs native in calcareous soils, and in old mortar. It is a white soluble salt, and may be decomposed by the carbonate of potassa. It is sometimes used as a source for obtaining niter.