

## Recent American and Foreign Patents.

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## NEW MECHANICAL AND ENGINEERING INVENTIONS.

## IMPROVED PISTON.

Robert M. Beck, Westminster, Md.—This invention is an improvement in steam pistons, and it consists in combining an expansible ring with two disks having beveled edges, which expansible ring is made continuous and entire without split or joint from a composition of metals, and when the beveled disks are adjusted together by means of a screw nut, is by reason of its soft character swayed or expanded so as to increase the diameter of the piston and compensate for wear, and which disks are provided respectively with a bar and a recess to guide the parts, and have between the same washers to limit the adjustment.

## IMPROVED BREACH-LOADING FIREARM.

Victor Bovy, New York city.—This invention is to provide an improved breach-loading shotgun, in which the barrels may be readily removed from the breech piece and the different parts of the mechanism be taken apart and put together with great facility, without the use of screws, and without requiring tools to disconnect or replace the parts, which gun may be readily repaired and any injury ascertained. The invention consists of a breech-loading shotgun, operated by a lever that throws a bolt and locks thereby the hinged barrels to the breech piece, pushing the center firing pins backward on releasing the bolt. A fixed elbow piece of the frame operates the extractor and serves in connection with a recessed lug of the barrels to attach firmly the detachable forestock in position.

## IMPROVED CAR BRAKE.

Edward Spencer Jones, Pulaski, Tenn.—This improved brake, for railroad cars of all kinds, may be operated by hand or steam power, so as to check the speed and stop the train in a quick and reliable manner; and the invention consists of brake shoes which are applied by pivoted lever arms to a crosspiece that is raised or lowered by a screw bolt and nut and suitable gearing, either by an endless chain connection with the locomotive, or by shaft and gear connection with a hand wheel at end of car. A suitable lever arrangement throws the brake mechanism either into gear with the hand wheel or with the gear worked from the locomotive.

## IMPROVED TOBACCO-HOISTING APPARATUS.

Clifton H. Slaton, Slaughtererville, Ky.—The object of this device is to hoist tobacco up in a barn, and also to take it down, with great facility, the apparatus being worked by one man that stands on the floor and hoists, while another brings the tobacco from the wagon and places it on the hoister, they saving thus the work of other hands, and attending to the hoisting or lowering without climbing up and down in the barn. It consists of a top crossbar supported upon the top beams of the barn, and having a jointed upright suspended therefrom, with a crosspiece having hooks for supporting the stick of tobacco. The crosspiece is attached to a sliding box or carriage and hoisted by a rope applied thereto and passing over a top and bottom pulley of the upright.

## IMPROVED BEARING AND BOX FOR VERTICAL SHAFT.

Levi Webber, North Vassalborough, Me.—This is an improved bearing and box for the shafts of waterwheels and other vertical shafts that support great weights, to prevent the steps from wearing or burning out so quickly. It consists in the combination of the box, made in two parts bolted together, provided with the lugs or flanges, the inner rim, the chambers to receive Babbitt metal, the outer rim, the oil chamber, and the oil channels, and the bearing, made in two parts, bolted together, and provided with set screws and a countersink, with each other, to adapt them to be connected with a vertical shaft to support its weight.

## IMPROVED TRIGGER FOR FIREARMS.

Max Heuser, New York city, assignor to himself, Emil Welte, and Carlo Otto, Jr.—This invention consists in the combination, with a trigger, of a wheel, having arranged on its periphery oppositely arranged cam lugs and a tripping arm that is pivoted in the trigger, and carries two spring tappets that are engaged by the cam lugs of the wheel, so as to shift the tripping arm from one dog of the gunlock to the other as the trigger is worked. The trigger is provided with the usual spring for returning it to its normal position after it is pulled, and the device is connected with an ordinary double lock of a double barreled gun. By changing the relation of the cam lugs, the same device may be applied to guns having three or more barrels, or to revolvers or pistols.

## IMPROVED NUT LOCK.

Samuel Caldwell, Greenfield, O.—In this invention, the head of a fastening bolt is recessed at one or more sides, and is provided with a washer having one or more upturned flanges as well as the nut. The washers are turned up at one or more sides, and extended over the top and bottom of the fishplate, so as to be tightly retained between the same and the head and base of the rail. The washers may also be extended back of the fishplate and turned over in front of the same, bearing on opposite sides of the nut, or the washer may be extended downward under the base of the rail, to produce the rigid position of the washer, and impart a double support or rest to the bolt and nut, which enables them to resist more effectually the vibration of the rails without any chance for friction and wear by turning or of getting loose.

## IMPROVED EXPANDING ROCK DRILL.

Wellington R. Burt, East Saginaw, Mich.—This is an improved tool or drill for the purpose of enlarging the lower part of salt, oil, and artesian wells without enlarging the top of the same; and it consists of hinged and wedge-shaped expanding arms that are spread or closed by a wedge-shaped slide piece and operating screw shaft passing through the same, and turning in the head of socket of the expanding arms. By moving the wedge piece down, the arms are spread outwardly, so as to pass against the surrounding walls of the well and expand the same to some extent, obtaining thereby a larger sized hole than at the upper part of the well. By turning the screw shaft in opposite directions, the wedge piece is moved up and the arms are brought closer to each other, to be drawn up again through the bore hole.

## IMPROVED WEIGHT MOTOR.

John M. Cayce, Franklin, Tenn.—The general principle of this invention rests in the transfer of a weight from one side of a pivoted frame to the other, and the utilization of the consequent rocking movement of the frame to communicate a rotary motion to a flywheel through a ratchet and pawl mechanism. The improvement consists mainly in arranging two weighted levers in a frame and gearing their inner ends together by cog-wheels, so that when the two weights are to be transferred from one side of the pivoted frame to the other, they move in opposite directions and describe upper and lower semicircles. The merit of this arrangement is that while the two weights co-operate with each other and impart to the frame their aggregate motive value for the given portion of their effective stroke, they also counterbalance each other while being shifted from one

side to the other of the pivoted frame, so that a much less power is required to effect said transfer than is represented by the actual weight of the levers.

## IMPROVED SAND PUMP.

William H. Birge, Franklin, Pa.—This invention consists in the arrangement of a sliding valve in the lower end of a sand pump, which is opened by the weight of the pump and closed by a spring. It also consists in the arrangement of an air valve in the top of the sand pump, which is closed by the water through which it passes, which acts on the fan-shaped end of the valve lever, and is opened by the weight of the fan-shaped end of the lever, and by the upward pressure of air created by the entrance of water in the sand pump. The object is to provide a valve which will open and close with a positive motion, not depending on the action of the water or sand.

## IMPROVED WIRE SCREW AND NUT.

John T. Bruen, Brooklyn, N. Y.—To make the screw, two, three, or any number of wires desired are taken, and, by means of suitable tools, twisted together, so as to form a screw of even pitch, and the wires are fastened together at their ends by means of solder or otherwise. They may also be soldered together throughout their entire length, if desired. To form a nut for the screw just described, a thimble or section of pipe that will fit loosely over the screw is taken, and in it are formed slots corresponding in number and direction with the grooves between the wires of the screw, and in these slots are placed wires which extend through the sides of the thimble, which may be either straight or slightly curved, and set the metal of the thimble down around the wire to hold it firm in its slot, allowing it to project inwardly sufficiently to engage the threads of the screw.

## NEW TEXTILE INVENTIONS.

## IMPROVED LOOM TEMPLE.

James E. Waterbury, of Rensselaerville, N. Y.—This invention consists of a temple for weaving tubular goods, which is held in its position in the tube by means of rollers that act through the substance of the tube in supporting and moving it. The object of the invention is to prevent the contraction of the tube by drawing the filling, and also to prevent hard longitudinal streaks in the goods.

## NEW WOODWORKING AND HOUSE AND CARRIAGE BUILDING INVENTIONS.

## IMPROVED BENCH PLANE.

Watson Wood, Chelsea, Mass.—This invention has reference to an oiling attachment to iron or iron-faced planes, by which the objectionable sticking or friction of the same on wood is obviated; and it consists of an iron or iron-faced plane, having an oil receptacle and feed device in front of the cutting iron. A small hole is drilled through the face of the plane in front of the cutting iron and in the center of the face. This hole is connected either by a small tube or directly with an oil receptacle that may be either cast on the plane inside of the knob, which is generally used as a handle, or otherwise attached to the same. The oil receptacle is closed by a knob that is secured or otherwise applied in an airtight manner thereto. A wick or piece of soft leather is arranged at the inside of the receptacle and in the feed hole, so as to prevent the oil from being fed too fast on the face of the plane. The wick or other device admits only the escape of a quantity of oil sufficient to allow the iron-faced plane to run smoothly and easily over the wood, giving the iron face sufficient lubrication to destroy the friction or sticking of the same on the wood without greasing the work or the hands of the person using the plane.

## IMPROVED CAR STARTER.

John Marsden, Chester, Pa.—This invention is designed chiefly for horse-cars. Doubletrees are hitched to the drawbar in the usual way, and when the car stops the drawbar is drawn in by the action of a spring-link, pawl, and levers moving back with it. A shoulder on the pawl strikes a knee and throws it up out of the notches of the ratchet wheels, so that the pawl offers no impediment to the motion of the car in either direction. When the horses start, the first outward motion of the drawbar releases the pawl from the knee, when it drops into a notch in the ratchet wheel, and the further drawing of the horses results in starting the car by turning the axle and wheels. This action continues until the head on the drawbar formed by the joint strikes the guide, when the further pulling of the horses draws the car ahead in the usual way.

## IMPROVED WAGON BRAKE.

James M. O'Neill, Fort Worth, Texas.—This brake is designed to be attached to the under side of a buggy or wagon body, in such manner that it may be operated by the foot of the driver applied to the bent arm of a lever projecting up through a slot in the bed or floor. The said lever has a sector-shaped toothed portion which meshes with a toothed sliding rack bar that is immediately connected with and operates the brake levers proper.

## IMPROVED WHIP SOCKET.

James Lowth, Chicago, Ill.—This invention relates to an improvement in that class of whip sockets which are provided with a hinged jaw for clamping a whip. The novelty consists in making the hinged front jaw with a rigid extension, and providing the latter with a perforated lug, through which the bow of a padlock is passed to lock the jaw and secure the whip in the socket. The invention further consists in slotting the back of socket to provide for the operation of the hinged jaw and its rigid extension.

## NEW AGRICULTURAL INVENTIONS.

## IMPROVED SORGHUM MILL.

Edward A. Withers, Marietta, Ga.—This improvement pertains to the construction of the frame of the mill, and the manner of connecting the crushing rolls therewith, the object being to effect the utmost economy in dimensions, weight, and cost of the frame, and to enable the rollers to be adjusted, applied, and removed with the greatest facility.

## IMPROVED HARROW.

Samuel J. Franklin, Fair Mount, Ga.—This invention consists in the peculiar construction and arrangement of teeth in a frame to form a harrow, the said teeth being made in the form of blades with a hooked upper end, which blades fit into slits in the frame, and when deflected to an angle of about 45° are securely held in said frame by means of their hooks, without the use of pin, screws, bolts, keys, or other devices for securing them.

## IMPROVED CORN PLANTER.

John O. Bennett, Urbana, O.—In this machine the seed cut-off brush is held and adjusted vertically by a peculiar device; the discharge of seed from the spouts is controlled by centrally pivoted vibrating plates operating as valves, and connected in pairs by means of a rod; the foot of the seed spouts is so shaped and so connected with a curved runner, or sod cutter, which goes in advance, that it will lift and pulverize the soil better than the ordinary form of furrow opener.

## IMPROVED PLOW COLTER.

Charles R. Thompson, Lebanon, Ky.—The object of this invention is to furnish colters which shall be so constructed as to cut the sod into narrow strips, separate it from the soil beneath it, and leave it in its place, so that it will be turned under with the furrow slice. It consists in the combination of two or more colters, provided with horizontal triangular cutters at their lower ends with the same beam.

## IMPROVED FENCE.

Robert F. Ward, Senatobia, Miss.—The object of this invention is to improve the construction of the fence for which letters patent No. 143,473 were granted to the same inventor October 7, 1873, so as to secure the rails in place more firmly, keep them from being moved upward, and give additional support and strength to the fence. It consists in the notches or shoulders formed in the lower edges of the inclined strips to receive the upper edges of the filling rails, to keep the said rails in place, and in the upright strips attached to the inclined strips at the outside of the filling rails.

## IMPROVED FENCE.

Robert F. Ward, Senatobia, Miss.—This is a straight braced fence, so constructed that it can be laid rapidly and with a great saving of lumber over the old crooked fence, and so that it will stand erect and steady against strong currents of wind and water, and against unruly stock, and which is not liable to be disarranged. It consists in the combination of the filling-in rails having their ends laid upon the opposite sides of the adjacent posts, and overlapping each other, and the stakes driven into the ground at the opposite sides of the ends of the filling-in rails from the posts, and having their upper ends nailed to the inclined braces with the posts, the lower riders, the inclined braces, and the upper riders.

## IMPROVED MACHINE FOR PRESSING CORNSTALKS, ETC., FOR FUEL.

Edgar P. Davis, James E. Davis, and John J. Fisk, Crete, Neb.—This is an improved machine for pressing cornstalks, hay, weeds, and other light material into bundles for fuel, which enables the material to be easily and quickly pressed into compact bundles. When the material has been compressed, bands are fastened around it in such positions as to be in the centers of the lengths or sections when sawed apart. The bands are each formed of two pieces of wire jointed to each other at one end, and having hooks and eyes formed upon them at the other ends—several eyes being formed in the said wires so that the same band may be used for binding different sized bundles. The eyes are formed in the band by forming small coils in the wire.

## NEW HOUSEHOLD INVENTIONS.

## IMPROVED DESK.

James R. Richardson, Majority Point, Ill.—This invention consists in the arrangement of movable sections in the top of the desk, which are raised or lowered by means of racks and toothed sectors, to accommodate the desk to books of different thickness, and to adjust it to different heights to suit different persons. Movable portions of the top of the desk are guided in slots at the sides of the opening in which they are placed. Racks are attached centrally to the movable portions of the desk top, and are guided by crossbars that extend across the under portion of the desk top. Toothed sectors mesh into the racks, and are secured to the inner ends of shafts which are journaled in the end rails of the desk, and in hangers that are attached to the crossbars. To the ends of the shafts cranks are attached carrying lock levers that engage the notched plates at the ends of the desk. By disengaging the lock levers and moving the cranks, parts of the desk top may be adjusted so as to accommodate the covers of a book that is opened at one side of its center. The two sides of the book thus supported present a level surface, which may be upon the same plane as the top of the desk, or above it, as circumstances may require.

## IMPROVED VEGETABLE SLICER AND GRATER.

John P. Dunwald, New York city.—By this invention potatoes, beets, radishes, and other vegetables may be sliced in rapid manner, and horse-radish, nutmegs, and other articles may be grated with facility. It consists of a feed hopper and follower arranged in connection with a horizontally revolving tubular slicer or grater, composed of a detachable head, body, and interior clamping ring plate.

## NEW MISCELLANEOUS INVENTIONS.

## IMPROVED GAME AND CARTRIDGE BELT.

Andrew A. Case and Elwin W. Bedell, Chetopah, Kan.—This consists of a belt hung from the shoulders by suitable straps and encircling the waist, and provided with hooks for carrying game, and with a flap having pockets for carrying cartridges.

## IMPROVED FOLDING CRATE.

Gilbert Robinson, Jr., New York city.—The object of this invention is to furnish packing boxes so constructed as to be conveniently taken apart and packed together in small compass for reshipment, so as to save to the shipper the cost of making new boxes every time he has to ship goods. It consists in an improved packing box formed by the combination of top and bottom boards, side boards, end boards, angular strips, spring catches, strap hooks, and lugs.

## IMPROVED METALLIC SEAL.

Frank A. Ferris, New York city.—This invention consists of two semi-sections or shells of corresponding shape, having recesses for the strings on the inner sides, facing each other, and being attached by studs of one section passing through perforations of the other section, which studs are then spread or flattened to connect the sections. The semi-sections or shells, of round, oval, or any other suitable shape, are cast, pressed, or stamped of lead or any other metal. They are provided with recesses for the strings at their inner sides, the exterior sides being, one or both, cast or stamped with the name of the firm, corporation, or person employing the seal. The shells may be made with extension lugs or ears, of which those of one shell carry studs or pins that pass through corresponding holes of the ears of the other shell. The studs and perforations may, however, be arranged in the body of the sections near the circumference, but at diametrically opposite points, and at right angles, or nearly so, to the direction of the strings to which the seals are applied. When the seals are to be fastened to the strings, the sections are to be placed at both sides of the same, so that the strings are seated in the recesses of the shells, the studs of one section being passed through the perforations of the other sections, and then compressed, by pinchers or other suitable implements, so that the ends of the studs spread and bind tightly on the perforated section. The seal sections are thus united in an instant in a very convenient manner, and are attached tightly to each other, and either tightly or loosely to the strings, as required.

## IMPROVED STOPPER ATTACHMENT.

Barnard Arnold, Foster Centre, R. I.—This invention consists in making from wire a screw or spiral terminating at one end in a point and at the other end in a ring, and is screwed into the stopper and attached to an elastic band which surrounds the neck, the object being to provide a device by means of which the stopper may readily be extracted, and by which it is supported when out of the bottle, so that it does not come into contact with the bottle, and is not liable to become lost.

## IMPROVED LETTER FILES.

Paren England, Lincoln, Neb.—This invention consists, first, in the particular arrangement of a clasp with respect to the backs of the file, which clasp is made in the form of the lazy-tongs, and is adjusted by means of a thumb screw that causes the bars of the lazy-tongs to be held rigidly together and at the same time forms a pivot for said bars. The second feature of the invention consists in giving to the hinged or back portion of the file an expansibility to correspond to the adjustment of the clasp, which is effected by means of metal tubes and an elastic spring arranged in the said tubes and passing through the indexed pages of the file.