

## ENGINEERING INVENTIONS.

A rail clearer for snow plows has been patented by Mr. Augustus F. Priest, of Fort William, Ont., Canada. The invention covers a special construction for track clearers and their attachment to the plow, whereby they may conform to the curves and irregularities of the track, and be lifted and let down at will by connections extending to the engine cab.

## AGRICULTURAL INVENTIONS.

A harvester has been patented by Mr. William F. Weirick, of Charlestown, West Va. It has automatic rakes and binders, and is designed to be carried bodily upon and propelled by an engine, being arranged so that the engine driver may drop the bundles which have been cut and bound by the harvester.

A grain cleaner for thrashing machines has been patented by Mr. David L. Stroud, of Richford, Minn. To the sides of the sieve shoe are added extensions, with a series of rocker bars arranged between them on pivots, with fingers ranging from one to the other and overlapping them to form a riddle, the grain escaping from the straw and chaff as it passes over.

## MISCELLANEOUS INVENTIONS.

A jar fastener has been patented by Mr. Charles Watts, of Crooksville, Ohio. Combined with a jar having apertures in its neck above the cover seat is a peculiarly bent wire locking device, intended to make a cheap and effective sealing attachment for earthenware jars.

A speculum has been patented by Mr. Joseph G. Ellis, of Oak Ridge, La. It is for the use of physicians and surgeons in making internal examinations, and the speculum is adapted to be withdrawn through the chamber of the instrument in connection with which it is used.

A gate has been patented by Mr. Samuel C. Gridley, of Northhoff, Cal. This invention covers a special construction and arrangement of parts for a gate to move back and forth between two posts set at one side of the roadway, which will be strong and durable, and can be operated without stopping the team.

A breast pad has been patented by Mr. Charles L. Morehouse, of Brooklyn, N. Y. It is made of hollow rubber, to be suitably supported by straps and a belt, and, while being well calculated to fit the form, is susceptible of ready ornamentation with lace, ruffles, etc., while it may be covered with silk or other suitable material.

A treadle has been patented by Mr. Thomas P. Gooch, of Oakland, Miss. The treadle lever has its lower end formed with two arms, one having a hook and the other a foot piece, with other novel features, whereby the foot rest is intended to apply equally on both sides of the shaft, and so that friction will be in great part avoided.

A weighing scale has been patented by Mr. William Watkins, of Moss Point, Miss. It has two beams, one graduated to indicate values and the other prices at which articles are sold, the beams having weights which can be so adjusted as to enable the desired quantity of an article to be ascertained in pounds for a given price.

A brace wire fastening for wire fences has been patented by Mr. Arthur Lott, of Riddleville, Tex. Combined with the panel wires are braces and triaxial clasps embracing the wires and braces at their points of intersection, the clasps each being made in one piece, with its arms bent around a longitudinal or panel wire and a brace wire.

A hinge has been patented by Mr. John A. Resch, of Jersey City, N. J. The invention consists in hinges made with their plates of unequal width and bent outward or from each other at right angles, so that, when used for inside blinds, the latter, when folded together, can be turned back against the wall of the room at the sides of the window.

A ticket chart has been patented by Mr. Henry E. Lomas, of Cresco, Iowa. It consists in a printed plan, adaptable for any place of entertainment, with removable portions, so that these portions can be removed and attached to the tickets, and the remaining plan will represent the solid and unsold portions of the house.

A nut lock has been patented by Mr. Samuel J. Wisdom, of Montgomery, Ala. This invention consists in a washer having an inclined slot, and made with its top edge slightly bent, being especially designed for use with flanged fish plates, furnishing a cheap and reliable lock, with a washer that can be applied to the bolt without taking off the nut.

A screen attachment for bottling machines has been patented by Mr. Frank Seely, of New York City. It is made of sheet or cast metal, to be so attached to a bottling machine that the attendant will be fully protected against flying fragments of glass in case the bottle bursts when being corked, the screen being automatic in its action.

A safety check for music boxes has been patented by Mr. C. Henry Jacot, of Hoboken, N. J. Combined with the cylinder shaft is a ratchet wheel and a double pawl having a weighted arm, whereby the shaft will be stopped and held should its speed be unduly increased, thus preventing the pins and teeth of the comb from danger of being broken or injured.

A side bar vehicle has been patented by Mr. Luther Stouffer, of St. Joseph, Mo. Combined with a vehicle box and side bars is a spring rod or bar bent to form a square or oblong figure, with its outer ends crossed and extended laterally to the side bars, to which they are secured, giving a more gradual and easy movement than is usual in side bar vehicles.

A washing machine has been patented by Mr. Frank Belliel, of Hastings, Neb. It consists of a semicircular tub and cover hinged together, so made that the clothes are placed in a space between a board and cylindrical rubber, the revolving of the latter carrying the clothes around against the ribs of the board, springs pressing the board and rubber together.

A shears has been patented by Mr. Benjamin F. McCarty, of Rolling Prairie, Ind. The invention consists of a disk turned by a lever, a pivoted arm carrying dies and connected by arms to the disk, with an adjustable arm to prevent the metal from rising when being cut, the shears being especially devised for cutting metal bars and sheet metal by hand power.

A feeder for roller mills has been patented by Messrs. Louis Nolden and Alfred E. May, of Beardstown, Ill. It is made with a case having an inclined rear side, a skeleton, a rotary cylinder revolving within the case, and an adjustable feed plate to adapt it to feed middlings and other soft materials to the rollers regularly and uniformly.

An axle for vehicles has been patented by Mr. Gouverneur M. Forbes, of Salt Lake City, Utah Ter. It has crank arms at its ends, with cams for retaining the body level or nearly so as the crank turns over, the design being to make the vehicle travel more easily and smoothly than one with a straight axle over ordinary roads.

A grate for furnaces has been patented by Mr. Silas H. Huntington, of West Pittston, Pa. This invention covers a special construction of roller grate bars to provide a free air circulation through them to the fire, with hollow teeth alternating with the teeth of the grate bars, to prevent burning out, the formation of clinker, and secure a level setting of the fire as the bars are rotated.

A latch has been patented by Messrs. Rudolf E. Woodrich, of New York City, and Charles Langbien, of Brooklyn, N. Y. Combined with a lock casing is a sliding bolt through, a knob shaft connected with the bolt, and a sliding latch in a sleeve surrounding the knob shaft, the bolt being acted upon by the knob shaft and also adapted to be locked in place by means of a latch.

An improved roofing has been patented by Mr. Benjamin E. Adams, of Roswell, New Mexico Ter. It consists of rectangular plates applied diagonally upon the roof by fitting the angle of each between the diagonal sides of adjacent plates of the course above, nailing the corner and folding the plate over to cover the nail, so the roofing will be unaffected by changes of temperature.

A composition of matter for lining or coating boxes has been patented by Mr. Adolf Hollner, of Dennison, Ohio. It is more particularly designed for boxes for holding coffee or other articles from which it is desirable to exclude moisture and preserve the aroma therein, and consists of glue, skimmed milk, and calcareous material, such as chalk, prepared and applied in a specified manner.

A mechanism for controlling steam driven sewing machines has been patented by Mr. James H. Rohme, of Newburg, N. Y. In combination with the drive pulley and a rock shaft a treadle is so arranged and connected that the pulley will be instantly stopped when thrown out of gear with its friction wheel, so that the machines can be instantly started or stopped, and their speed readily controlled.

A saw set has been patented by Mr. John S. Long, of Murphysborough, Ill. This is an improvement on a former patented invention of the same inventor, whereby the hammer is caused automatically to descend upon the anvil or saw teeth held thereon prior to delivering its blow, so as to indicate to the operator the exact position on the anvil that the saw tooth should be held to be effectively struck.

A job printer's case has been patented by Mr. George W. Butler, of Chicago, Ill. It consists of an upper and lower case made regulation size, the lower case having a large compartment in which to rest a "job galley," while on both sides thereof, and in the whole space of the upper case, are divisions for holding leads, rules, slugs, spaces, quads, and other conveniences for the work of a job printer.

A pendulum escapement for clocks has been patented by Mr. William Hart, of Kirksville, Mo. It is applied to the lower end of the pendulum, but detached from the latter, although the escapement wheel and lever may be fitted to operate at any point in the length of the pendulum, and the device is intended to facilitate the use of the pendulum by hanging shelves thereon for displaying goods.

An automatic cut-off for gas burners has been patented by Mr. John E. Birch, of Winnipeg, Manitoba, Canada. By this invention the expansibility of a confined body of air is utilized to hold open a valve that permits the flow of gas to continue, the air being heated by the normal heat of the burner, and so that when it cools by the extinguishment of the flame the valve will close.

A cartridge loader has been patented by Mr. Charles A. Thompson, of Hopkinsville, Ky. Combined with suitably held powder and shot holders is a shell carrying arm adapted to act on the stems of the holders, a rammer, a wad holder, and an ejector for forcing the wads out of the holder, with other novel features, adapted for a machine to be worked effectively by unskilled labor.

A fireproof floor has been patented by Mr. William W. Hazlett, of Toronto, Ohio. This invention relates especially to a protection for the lower portions of the flanged iron beams of the floors, and has for its object to improve the construction of the floors by providing a better protection to the beams, and also to facilitate the setting of the tile arches between the beams.

A stock car has been patented by Messrs. Daniel Lines and Charles T. Long, of Milano, Tex. It is so constructed that the hay racks swing up automatically and the troughs can be lowered to be out of the way when not in use, or easily swung up when the animals are to be watered, the design being such that ordinary cars can easily be converted in this way into stock cars.

A nut machine has been patented by Mr. Alfred Marland, of Pittsburg, Pa. Combined with forming and compressing dies are a cutting die at one side of the forming die, a blank cutting and carrying knife, and means for operating it for cutting the blanks and feeding them to the dies, with other novel features,

the invention covering improvements on former patented inventions of the same inventor in nut machines.

A cotton press has been patented by Mr. Samuel I. Wilkinson, of Yazoo City, Miss. Combined with a box pivoted to swing in a horizontal plane are plungers connected with a fixed object, so the latter will be reciprocated in the box when the latter is swung or rocked, the press being one which can be operated by hand or power, and can be cheaply made of wood or metal.

A band pulley has been patented by Mr. Reuben Jones, of Atlanta, Ga. It is designed to carry a rope belt, and is a sectional pulley having teeth at its edges inclined in opposite directions, enabling both sections of the pulley to be cast in the same mould, forming a diagonal crimp in the rope between the teeth, and giving one sharp angle for the rope to catch against whether moving forward or backward.

A gate hanger has been patented by Mr. Issachar Crowfoot, of Hartford, Wis. Combined with the gate post is a screw held therein supporting a block or head in which the top supporting bar of the gate is held, so that by turning the screw the gate can be raised or lowered at will, the post passing through a spider frame, and its lower end resting in a flanged cup embedded in the ground.

An adding machine has been patented by Mr. John L. McCaleb, of Benton, Tex. It consists of a box with a spindle surrounded by a sleeve, there being a handle on the spindle and on the sleeve, with devices for turning the spindle from the sleeve, a cog wheel revolved from the spindle, and an extra hand in connection with the cog wheel, making a simple device for adding and multiplying numbers.

A ratchet drill has been patented by Mr. John J. Banta, of Pacific, Mo. There is a novel arrangement of pawls in a block fixed to the tool holding spindle, which is journaled in a frame or stock, the pawls being adapted to engage and slip over ratchet teeth fixed to bevel pinions loose on the spindle and driven by a gear wheel and crank, to insure the easier adjustment and more efficient operation of ratchet boring or drilling machines.

A method of making plush articles of clothing has been patented by Messrs. Charles Theinert and Simon Christiansen, of New York City. It consists of cutting the plush on the back by means of a knife diagonally to the warps and wefts, abutting the edges of the pieces, and uniting them by the glove or cross stitch, so that a garment thus made will have invisible seams, not indicated by any depression in the surface of the plush.

An odometer has been patented by Mr. Henry O. Brooks, of Lowell, Mass. The case has rings or hangers placed loosely on an elongated collar which is made in halves, and bound upon the axle so the collar revolves with the axle and the odometer hangs loosely from the collar, the split construction of the collar allowing it to be readily affixed to any axle, and the device being an inexpensive one for measuring the distance traveled by bicycles and other vehicles.

## Business and Personal.

The charge for insertion under this head is One Dollar a line for each insertion; about eight words to a line. Advertisements must be received at publication office as early as Thursday morning to appear in next issue.

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## Notes &amp; Queries

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Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information, and not for publication.

References to former articles or answers should give date of paper and page or number of question. Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and though we endeavor to reply to all, either by letter or in this department, each must take his turn.

Special Information requests on matters of personal rather than general interest, and requests for Prompt Answers by Letter, should be accompanied with remittance of \$1 to \$5, according to the subject, as we cannot be expected to perform such service without remuneration. Scientific American Supplements referred to may be had at the office. Price 10 cents each. Minerals sent for examination should be distinctly marked or labeled.

(1) R. H. K. asks (1) a recipe or method for whitening ivory, viz., handles on surgical instruments, etc. A. Treat with hydrogen peroxide. See SCIENTIFIC AMERICAN SUPPLEMENT, No. 339. 2. How may I toughen feet so as to take long tramps comfortably? A. Treating them with some astringent solution is said to be slightly beneficial. 3. Best black ink for pen sketches and other drawing purposes? A. You will find several formulas for inks given in SCIENTIFIC AMERICAN SUPPLEMENT, No. 157. 4. Which pencils do artists consider the best? A. Dixon's or Faber's; either are good. 5. Where can I get the best book or account of taking long tramps on foot? Practical papers. Also best one for sketching from nature? A. "A Pilgrimage to Canterbury," by the artist Joseph Pennell, may interest you. The files of "Outing" are more likely to give you information of the character desired rather than any single book or books.

(2) M. D. asks: Would not the combustion of an old time blast furnace preclude there being a paying amount of iron remaining in the slag? Could graded iron be produced from this slag, using with it a fair percentage of scrap? Would charcoal fuel be of any advantage in such reduction? Please decide a discussion among your readers, in a general answer, including the chemical operations of such reduction and composition of product. A. The iron in the slag of old style furnaces is not worth the cost of redemption. It will not pay for the fuel for remelting.

(3) R. M. asks the most practical way to get rid of sewage, by absorption of the soil where the ground is level, and the frost line eight feet deep, the soil being compact clay. A. We know of no means of absorbing sewage in compact clay. You may so arrange a drainage system as to discharge on a lower level, and utilize the sewage as a fertilizer. Or, if a town house, gather in a cesspool and discharge by pumping into a wagon tank and hauling. This is much practiced in the Eastern States. In many places sanitary laws forbid absorption on account of well contamination.

(4) R. M. writes: Having dropped some indelible ink upon the oil cloth of the table of my