

## ENGINEERING INVENTIONS.

A feed water purifier has been patented by Messrs. George W. Allen, of Manchester, England, and Henry J. A. Bowers, of Acton, London, England. It has a scum plate for collecting impurities thrown to the surface by ebullition, there being a trough between the scum plate and feed pipe to collect the heavier as well as the lighter impurities to an external separator.

A boiler tube cleaner has been patented by Mr. George M. Robinson, of Baltimore, Md. It has a steam inlet pipe carrying a fixed valve, a cylinder being adapted to slide on the steam inlet pipe and having a cone fitting into the tube to be cleaned, the tubes being cleaned by the action of steam passing through the cleaner and directed to the inner surfaces of the tubes.

The utilizing of gas explosions as a motive force forms the subject of a patent issued to Mr. Thomas H. Bolmer, of New York City. The apparatus has an explosion chamber with pipes and valves for introducing an explosive material, igniting connections, and tubes through which the liquid used in transmitting power is admitted and ejected, the apparatus being designed to be applicable to the propelling of vessels, pumping, etc.

A piston has been patented by Mr. Amos M. Morrill, of Ravanna, Mo. The piston head consists essentially of outer expandible rings and an inner expandible ring arranged in connection therewith, spring heads being mounted in connection with the expandible rings, and a bolt arranged for connection with the piston rod, followers and flat or spiral springs being dispensed with, while the piston rod is accurately centered.

## AGRICULTURAL INVENTIONS.

A listing plow or cultivator has been patented by Mr. Joseph S. Crum, of Stockdale, Kan. This invention provides a construction which can be readily connected to an ordinary cultivator frame, and adjusted at the connection to regulate the depth of the plows or shovels, the device being simple and efficient.

A potato digger has been patented by Mr. Peter A. Chippendale, of Lewiston, Me. It has a scoop plow adapted to be raised and lowered to suit the depth of the row, in connection with a novel construction of endless chain upon which the potatoes and earth are delivered, and in the operation of which the potatoes are separated and transferred to a bag.

## MISCELLANEOUS INVENTIONS.

A stirrup attachment has been patented by Mr. Jacob G. Welcome, of Fort Bidwell, Cal. It is especially designed for use by constant riders, such as stockmen, etc., to impart an easy motion, and is so made as to detach itself from the saddle if the rider is thrown.

A measuring reel has been patented by Mr. Enos M. Thomas, of Cherry Grove, Pa. It is mounted on a fixed shaft, with friction washers, a feathered disk and handled nut, the reel having a registering attachment, and being more especially designed for use in lowering torpedoes into oil wells.

A milk gauge has been patented by Mr. John S. Elliott, of Bombay, N. Y. It consists of a rod or bar formed in sections, connected to be folded up and adjusted upon one another, and also extended and clamped, to be inserted in milk cans and adjustably held therein, to indicate the height of the milk.

A fish trap has been patented by Mr. Elijah W. Jenkins, of Milford, Mo. The main frame has a false bottom, and there are supplemental frames with pivoted entrapping wires hung in alignment with the fish entrances, with means for raising and lowering the false bottom, and other novel features.

A paddle wheel has been patented by Mr. Washington Bryant, of Franklin, Ark. This invention provides a construction wherein the paddles enter and leave the water in an almost vertical position, but when in the water present the greatest bearing surface thereon, the invention covering novel details of construction and the combination of parts.

A seal lock has been patented by Messrs. Warren B. Waldron and George C. Boller, of Folsom City, Cal. It is more especially designed for use on freight cars when they are in transit, the parts being so arranged that the lock cannot be opened or tampered with without first breaking or injuring the seal, the lock being used as an ordinary padlock.

A combination padlock has been patented by Mr. Edwin L. Drake, of Winchester, Tenn. The invention covers a novel construction and combination of parts whereby a simply made lock can be used with a great number of combinations, and one tumbler will not be likely to be turned by the frictional contact of the next tumbler.

An electric surface railway has been patented by Mr. John A. Enos, of Boston, Mass. It is of that class in which storage batteries are used, and the invention relates more particularly to the connections for taking the current from the conductors along the line for charging the storage batteries, and also to the driving mechanism for propelling the car.

A chicken brooder has been patented by Mr. Charles Houser, of East St. Louis, Ill. It consists of a rectangular box or case provided with a water heating apparatus, and within which is arranged a coil of steam pipes and a brooding and a hiding board, all so arranged that the overcrowding of the chickens in any particular spot will be prevented.

A match safe has been patented by Mr. Alanson Cary, of New York City. It is a holder for match boxes having an automatic clamp or claw, with internal penetrating teeth to engage the match box and positively prevent its withdrawal, the box being broken out of the holder when the matches are used up.

A blind stop or slat fastener has been patented by Mr. George W. Williams, of Brooklyn, N.

Y. It consists of an apertured or notched segmental plate, adapted for attachment to either the slats or the frame of the blind, with a catch or locking device to engage with the plate, for holding the slats more or less open or wholly closed.

A conveyor has been patented by Messrs. Henry C. Krause and Benjamin Harris, of Lake Linden, Mich. It is a simple device for conveying grain, chips, minerals, etc., employing a reciprocating pipe or launder, having a feed pan secured to it, with a relatively stationary hopper leading into the reciprocating pan.

A supply tank for water closets has been patented by Mr. John Holden, of Taunton, Mass. The tank has an air reservoir with an apertured flexible bottom to which a tube is attached having an air inlet at the top, in connection with a lever and discharge valve, whereby the flow of water is prolonged or shortened according to the amount of air admitted.

An adjustable support for laundry tubs has been patented by Mr. Albert G. Robinson, of Brooklyn, N. Y. The invention consists of arms fastened to the frame and adjustably secured at their lower ends to the base supports of the tub, whereby the top frame can be easily adjusted to tubs of varying depth, and at the same time are held securely in place.

A pocket book clasp has been patented by Mr. Daniel M. Read, of New York City. A fastening plate is made to go on the body of the pocket book, formed with an open slot and provided with a retaining device for holding the locking stud in the recess, whereby the clasp may conveniently be opened with one hand by a downward and forward movement of the stud plate.

A cutting apparatus for mowers and reapers has been patented by Mr. John C. Voss, of Bedford, Ind. Combined with a finger bar having a way for the cutter bar is a grooved overlapping portion projected above the way, the cutter bar having a beveled rib on its upper side, with roller bearings between the rib and the overlapping portion of the finger bar, and other novel features.

A two wheeled vehicle has been patented by Mr. Frank W. Bowne, of Lincoln, Neb. The body has spring-suspended side bars carrying spherical-headed studs, sectional links being held upon the stud heads and other spherical-headed links connected to the side bars and engaged by the lower ends of the links, the mounting being designed to relieve the vehicle of "horse motion."

A machine for forming horseshoes has been patented by Mr. Charles L. Haight, of Poughkeepsie, N. Y. It has a plate supporting and carrying a forming die, in combination with stationary abutments and levers, with means for reciprocating the plate and die and the levers, the bar of iron from which the shoe is made being bent or folded around the reciprocating die.

A well drilling machine has been patented by Mr. William Manson, of Colton, Cal. It is designed to bore the well by a gravitating sand pump or tool, and has mechanism for raising and dropping a crown pulley with cable carrying a gravitating drilling tool, a spring in the bar on which the pulley is journaled lessening the jar and promoting the durability of the entire rig.

A combined reel handle and fishing reel has been patented by Mr. Abraham Coates, of Watertown, N. Y. The reel frame is adapted to screw into sockets upon the ends of the parts of the reel handle, the reel having a multiplying gearing to turn it, and a crank which may be transferred from the gearing to the reel itself, to secure both slow and fast winding, with other novel features.

A combination tool for loading cartridges forms the subject of two patents issued to Mr. Francis P. Devens, of Kansas City, Mo. It is adapted for loading the ordinary form of paper shell cartridge, and the device is designed to remove the exploded primers from the shell and apply new ones, and load and crimp the shell, in connection with an automatic shot and powder delivery apparatus.

An oil can has been patented by Mr. John H. Sutphen, of Huron, Dakota Ter. It has a false spring bottom and a valve in the spout with a spring-actuated rod attached thereto bearing upon the spring bottom, with other novel features, whereby the oil delivered from the can is under the complete control of the operator, and will be cleansed of grit and other impurities by a filter.

A clothes line holder has been patented by Mr. Andrew E. Norman, of Ishpeming, Mich. It consists of a board with a central face groove, having a dovetail metal strip along its center, with a cross bar and line-holding blocks, and other novel features, the line holders to be attached to opposite walls or supports to allow one or more lines to be stretched to form a clothes rack of any required capacity.

A buggy top has been patented by Mr. John D. Reed, of Julesburg, Col. The invention consists in a calash top vehicle having the combination of a transverse brace-connecting shaft journaled to the rear part of the seat and having braces fixed rigid at each end, with an actuating lever arm attached to have an oscillating movement in a vertical direction, with other novel features.

A system of irrigation has been patented by Mr. Augustin S. Haines, of Nashville, Iowa. It is designed more particularly for orchards or other tree-planted areas, and consists of a novel arrangement of pipes to be laid along the surface of the ground and connected to each other by couplings having water outlet passages, with other pipes driven or set into the ground receiving water from the distributing pipes.

A fountain brush for mucilage and other liquids has been patented by Mr. Allan C. Harrington, of Richmond, Va. It has a reservoir flattened at the bottom, so it will stand upright, and a tube on the opposite side holding a brush, there being a spring valve in the tube which opens when pressure is applied to the reservoir, the valve being adjustable to control the supply and for liquids of different density.

The producing of lithographic surfaces, or zincographic plates, forms the subject of a patent issued to Mr. Hermann Schoembe, of Offenbach-on-the-Main, Germany. It consists in subjecting the zinc plates to the action of a mixture of nitric and sulphuric acids, and then to the action of an ammonia salt, in a manner described, after which the plates may be used in the same way as the ordinary lithographic stones.

A power hammer has been patented by Mr. Henry St. Lawrence, of Northampton, Mass. The connection of the hammer stock is such that the hammer will deliver a swinging yielding blow, the shock of which is taken up by an independent base, the base of the main frame being relieved of all undue shock and jar, while a forward or backward adjustment of either the anvil or the hammer may be obtained.

A sharpener for reaper and mower blades has been patented by Mr. Louis P. Sefton, of Toronto, Ontario, Canada. Its body is approximately diamond shaped in cross section, and both body and handle are formed integrally from a composition chiefly of emery, by subjecting it to heavy pressure in a mould, a steel wire link being embedded longitudinally in the body and handle at the time of moulding to give greater strength.

A brake for windmills has been patented by Mr. John Thompson, of Holland, Mich. A wheel is carried upon the inner end of the shaft of the wind wheel, and a band is arranged in connection with it, in combination with a curved and outwardly projecting arm adjustably secured to the vane and adapted to engage the band, so that when the vane is thrown out of the wind, the brake will be automatically applied to the wheel.

A machine for automatically putting hinges upon boxes has been patented by Mr. Andrew C. Bolton, of Brooklyn, N. Y. Combined with two sets of nail holders, and hammers or drivers therefor, is a receptacle for hinges and a chute leading therefrom to a point adjacent to the hammers or drivers, a feeding finger forcing the hinges into position for action by the drivers, with other novel features, making a simple and durable machine.

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