ENGINEERING INVENTIONS.

A steam trap has been patented by Messrs. William and Willie D. Puffer, of Janesville, Wis. This invention covers certain novel features in constructing a steam trap to operate with either cold or hot water, and allow the cold air to pass out of the pipe, so the water may enter the trap.

An improvement in railroad signals is the subject of a patent issued to Mr. John Mayne, of Atchison, Kansas. With the outer end of an arm carrying the signal board, a connecting rod is fitted, which passes with the arm into the building, the connections being all positive, and such that the signal can be readily operated from inside the building.

A spark arrester, for use in connection with the smoke stack of a locomotive, has been patented by Mr. John C. Albrecht, of Columbus, Ga. It combines volute and horizontal partitions, with branches, scrolls, and special passages, in connection with the smoke pipe and a cone, to arrest cinders and force them back into the fire, and also increase the draught.

A high pressure alarm for steam boilers has been patented by Messrs. Charles W. Johnston and Patrick Brown, of Philadelphia, Pa. The principle of the device is such that the weight lifting part exposed to the action of the steam is kept in continuous or frequent motion by the varying pressure above a given and set limit, so that danger from sticking, as in the ordinary valve, is avoided.

MECHANICAL INVENTIONS.

An improved lever power mechanism has been patented by Mr. Frederick Kubec, of Riverside, Iowa. This invention provides a special means of reversing the pawls for a pair of toothed wheels geared together in a frame, so as to reverse the motion of the object to be driven quickly and easily at the will of the operator.

A tile laying machine has been patented by Messrs. Jesse T. Graves and Benjamin F. Belt, of Colo, Iowa. It is to facilitate the embedding of drain tiles in the surface of lands, and covers a special construction in which the cutters cut the soil loose at the sides of the trench, so that the two slices formed on two inclines shall slide down against each other and form a cover for the tiles and trench.

AGRICULTURAL INVENTIONS.

An improved cultivator has been patented by Mr. Alvah Schoonover, Jr., of Elliott, Iowa. The invention covers a special construction and arrangement of parts for connecting the plow beams with the axle, so the rear ends of the plow beams can have a free, vertical, and lateral movement, and their forward ends be adjusted inward or outward.

A cornstalk rake has been patented by Mr. George A. Runyan, of Augusta, Kansas. This machine, while adapted for marking from the provision of four transporting wheels, arranged in pairs in a particular manner, has a raking attachment that may be locked or held out of action at will, so that it may also be used as a marker alone.

A seed planter has been patented by Mr. Asahel Smith, of Chatham, Ontario, Canada. The object is to promote accuracy in operation and facilitate the adjustment of the seed dropping mechanism, the seed dropping slide being held against a cam wheel which is seated upon a flanged wheel attached to the drive wheel, so that the slide can be operated with certainty and the cam wheel readily adjusted.

A land marker has been patented by Mr. William H. King, of Little Silver, N. J. The object of this invention is to facilitate the marking of land for planting, and it consists in a special construction and combination of parts, so that when the machine is drawn forward, the plows open channels to receive seed, etc., and a shoe marks the ground parallel with the channels opened by the plows, at such distance from the outer channel as to be midway between the plows at the next passage of the machine across the field.

MISCELLANEOUS INVENTIONS.

An insecticide compound has been patented by Mr. Henry Pool, of Westminster, Md. It consists of slaked lime, plaster of Paris, ammonia, sugar, oil of worm seed, and oil of sassafras, in specified proportions.

A sofa bedstead has been patented by Mr. John Baggs, of Baltimore, Md. This invention relates to that class of lounges to which various devices are attached for convenience in surgical operations, and covers a special construction and combination of parts.

An improved harness hook has been patented by Mr. Samuel B. Edson, of Monterey, Ind. It is a rigid hook or buckle adapted to be used in the place of an ordinary snap hook, the hook having a curved body with a concaved outer surface, with a pin near its end, and loops and guard.

A clamp for ruling pens has been patented by Mr. John W. Dirhold, of St. Louis, Mo. This invention consists in a combination and arrangement of parts to improve ruling machines, in which the pen holders are moved laterally in parallel position by levers connected by pivots to form a lazy tongs.

A convertible bridle and halter has been patented by Mr. John A. Nesbit, of Charlottesville, Ind. With a ring of the bridle is combined a halter attachment with rings and strap, the whole specially designed so that the bridle may be readily converted into a halter, or the halter into a bridle.

A ditching machine has been patented by Mr. Alonzo Purcell, of Monticello, Ill. A special construction of wheel, plow, shovel, shifting board, and mould board chutes—so framed and combined as to make an easily guided machine to cut a furrow or ditch of required depth by successive cuttings.

A ball trap, being an improved device for throwing targets, such as clay pigeons, etc., has been patented by Mr. Charles F. Stock, of Peoria, Ill. There is a novel device at the outer end of the throwing arm for holding the target, it being adapted to retain the target during the swing of the arm, and release it at the proper time.

A fire escape has been patented by Mr. Charles Von der Linden, of Rhinebeck, N. Y. This invention consists principally of a holder containing two pulleys, and a brake plate adapted to act upon the pulleys, so that a person descending from a burning building by means of a rope may readily regulate the speed of his descent.

A broom holder has been patented by Messrs. Alexander Frazier and Daniel J. Coburn, of Maywood, Ill. This is a rubber jaw-like clamp, with box for holding it, for holding brooms by their handles when not in use, without regard to length of the handle or portion inserted in the holder, and which will be automatic and self-adjusting.

A mail bag fastening has been patented by Mr. Roy B. Scott, of Denton, Texas. A chain is fixed to one side of the bag, so as to swing on the lower edge, and having hooks or studs to pass through the eyes of the two sides of the bag and around or through another chain on the other side of the bag, making a simple, firm, and easily manufactured fastening.

A hame fastener has been patented by Mr. Benjamin F. Jones, of Beauregard, Miss. The end parts at the top and bottom are connected with hooks and toggle, so that the hames may be drawn more or less closely together according to the size of the horse's neck, the parts therefor showing special construction and combination.

A fire escape has been patented by Mr. Henry Poole, of New York city. This invention covers a special construction of easily portable fire ladder, which, as it is elevated, also raises a continuous canvas chute, down which persons from the burning building may safely slide, it being designed to have a mattress at the bottom.

A cartridge reloading tool has been patented by Mr. James H. McCabe, of Jacksonville, Fla. The die groove has hardened steel pins to crimp the open ends of the cartridge tubes over the wads; a creasing lever and bit is also provided for this purpose, the tool being readily opened and the tube inserted as far as required.

An automatic rain water regulator for cisterns has been patented by Mr. Frederick E. Lord, of St. Louis, Mo. This invention covers a special construction of valves and pipes to so regulate the flow of water into a cistern or tank that the dirty water coming first in a rain will be carried off, and when the tank is sufficiently full the overplus will be carried away.

An improved cistern has been patented by Mr. James W. Barnum, of New Orleans, La. In house cisterns, such as receive water from the roof, the construction is such as to obviate all danger from the tank overflowing during hard or continuous rains, and during such times accumulated dirt is allowed to pass off from the bottom, the tank being thus self-cleaning.

A liquid cooler has been patented by Mr. Herman Lindenberg, of Jersey City, N. J. The invention consists in a flat sheet-metal vessel adapted to be connected with the spigot of a barrel, and having in its lower part a cock or spigot, such vessel having transverse partitions, which cause the liquid to circulate therein and be cooled by coming in contact with the side of the vessel placed in a box filled with ice.

An improved metallic pen has been patented by Mr. Hezekiah Hewitt, of Birmingham, Eng. The extreme points of the nibs are bent backward to provide a flexible curved writing surface on the under side, and a minute reservoir on the opposite side, there being also connected a main ink reservoir in the concave body, to hold a greater quantity of ink than ordinary pens.

A folding basket has been patented by Mr. Anthony Daul, of Jamaica, N. Y. The opposite edges of the front and back are hinged to the bottom, the ends being hinged to the ends of the front, and the cover is made of two halves hinged to the upper edge of the back; the basket, also, has handles with hooks, which can be fastened to the basket when erected or folded.

A folding egg case has been patented by Messrs. Samuel M. Toay and Edward Harris, of Cambria, Wis. It has hinged end, front, and rear boards, a hinged transverse partition, and a cover formed of two sections hinged to each other, of which one is hinged to the rear board of the case, thus permitting the end boards to be folded inward and the front and rear boards to be folded over them.

A tile ditching machine has been patented by Mr. John Arthur, of Streator, Ill. In combination with a wheeled truck and an elevator thereon is a spade, vertical ways for the spade, means to reciprocate the spade therein, longitudinal ways for the spade-ways, etc., the power which runs the spade also running the elevator, and the speed being regulated by the hardness of the earth.

Cards for playing loto and other games form the subject of a patent which has been issued to Mr. Henry H. Harrison, of New York city. The invention consists in a card with a base plate having the numbers printed thereon, an intermediate plate with slots over the rows of numbers, a top plate with openings over the numbers, and slides for covering the numbers.

An improved churn has been patented by Mr. William H. Tawney, of Louisburg, Kansas. The dasher consists of a plate or blade apertured centrally, and preferably square at the bottom, to work small quantities of cream to better advantage, and a simple and effective lever power apparatus is provided for working the dasher, which is also applicable for other light running machinery.

A bale-tie splice has been patented by Mr. Frederick Bommarius, of New Orleans, La. This invention is for utilizing the scraps or short lengths of bands, by making a simple and firm band-splicing tie, having reference to metallic bands such as are used in baling cotton, whereby waste is avoided, and the bands are not likely to loosen by jarring, as occurs when rivets are used.

An improved lumber drying kiln has been patented by Mr. Lafayette Rollins, of Mountain Creek, Ala. The drying kiln or house is preferably of brick, with an extension at one end with furnace and boiler, and pipes extending along the floor beneath the tracks over which the lumber is moved, with certain novel features of construction for the convenient handling of lumber and entire removal of the sap therefrom.

A bottle filling device has been patented by Mr. Philip J. Hogan, of Negaunee, Mich. This invention provides for the accurate measuring of the fluid with which bottles are filled, has a vent with a long flexible pipe, a discharge valve with a tubular side perforated stem, with special means for adjusting the vent pipe and outlet, making a rapidly acting measure as well as a bottle filler.

A fire escape has been patented by Mr. Aaron Walker, of Kokomo, Ind. It relates especially to an improvement connected with a former patent granted to the same patentee, and combines with a windlass one or more ropes, pulleys, and weights, whereby the swinging balcony suspended from a windlass is balanced and remains stationary at any desired point.

A ruffling and shirring attachment for sewing machines has been patented by Mr. William Dudley, of Newark, N. J. It provides a novel and improved device, of simple construction, for overlapping or folding a cloth or fabric, the fabric on the bed plate being carried forward by a straight and reciprocating motion, making a neater fold or plait than when the spring finger rocks or swings.

An improved wagon brake has been patented by Mr. James Hocking, of Denton, Neb. It is of the form in which brake shoes are automatically applied to the wheels by the back thrust of the team, is intended to act while the wagon is turning as well as when straight, is easily applied, and permits the wagon to be lengthened or shortened, while it is light and strong of construction.

A beer cooler has been patented by Mr. Charles L. Krum, of Minneapolis, Minn. A false rail or front is attached to and forms part of the slide, and contains the tap hole for the faucet, with a plate and closer therefor, permitting the door to be opened on its hinges, and to the plate is a narrow sheet of rubber or other flexible material, with a hole to close around the faucet when the keg has been shoved back into the cooler.

A velocipede has been patented by Mr. George L. O. Davidson, of Manchester, Eng. There are such improvements in the mounting of the frame and wheels, and with relation to the rear driver's seat and front passenger's seat, as to cause the weight of the mounted driver to overbalance the weight of the passenger, and to hold the steering wheel to the ground, except when the driver dismounts to push the machine by hand.

A harmonic coupler for piano actions has been patented by Mr. William S. Wright, of Dover, N. J. In combination with key levers are coupling levers, with their front ends over other levers, with slitted, beveled sliding blocks for coupling the front ends of the coupling levers to the key levers above which they rest, with device for adjusting all the coupling blocks to couple simultaneously, so harmonic sounds can be produced by depressing one key.

A fire escape has been patented by Mr. William Wise, of Medway, Ohio. A tubular mast with telescoping sections has a rope attached to the inner section, pulleys on the other sections over which the rope runs, means for raising the mast and a sheet metal fire escape car closed at the top and bottom, so that several windows may be supplied with means of escape for the occupants by swaying the mast from side to side.

A lightning arrester, for electric lines, has been patented by Mr. Charles W. McDaniel, of Carthage, Mo. Its object is to prevent the coils of telephone instruments from being burned and destroyed by strokes of lightning, and it provides for an insulating strip on an insulating base, with as many metal plates as there are clamps on the base, the strip passing into the clamps, and the intermediate plate or plates connected with the ground wire.

An improved air pump has been patented by Mr. Miguel Boom, of Port-au-Prince, Hayti. It is intended for compressing air as well as making a vacuum, by turning a cock plug in a tube uniting the inlet and outlet tubes at the end of the cylinder, the plug having channels for establishing communication between the outer air and the inlet or outlet pipes of the cylinder, and between the pipes, and a tube united with the vessel for receiving compressed air, or in which a vacuum is to be produced.

An improved filter has been patented by Mr. Edwin L. Barber, of Chicago, Ill. The invention covers a cylindrical water vessel with slanting partition from the bottom to one side below the top, a vent tube in the partition extending to the top of the vessel, holes in the bottom of each compartment, one or more chambers to hold filtering material connecting said holes, and a faucet entering the inclosed compartment near its bottom, all to make a filter to purify water for drinking.

NEW BOOKS AND PUBLICATIONS.

DIE MOTOREN DER ELEKTRISCHEN MACHINEN MIT BEZUG AUF THEORIE, CONSTRUCTION UND BETRIEB. By Th. Schwartze. A. Hartleben, Vienna.

This book constitutes vol. xxi. of the Elektro-technische Bibliothek, and might primarily be called a treatise on prime movers, their theory, construction, and working. These include windmills and the various hydraulic, steam, hot air, and gas engines. In connection with the chapters on the steam engine are several on steam boilers and illustrating several smoke preventing devices. In addition there are chapters on the theory of governors and dynamometers. Altogether, the volume is interesting, and will, no doubt, prove valuable, especially to students, giving as it does a concise review of nearly all prime movers, and their application to the driving of electric machinery.

SILVER-LEAD DEPOSITS OF THE EUREKA DISTRICT, NEVADA. Abstract of Report of the United States Geological Survey. By Joseph Story Curtis.

The ore deposits of this region have been of great interest, not only for their exceeding productiveness, but from the obscure character of their structural relations, and they have been the cause of a good deal of litigation, in the course of which geologists and mining engineers have presented very different views. It was partly on these grounds that Mr. Curtis was deputed by the Director of the United States Geological Survey to undertake a special study of the Eureka mines, and this monograph is the result. The information given is important locally, as justifying mining to still greater depth in the sections examined, but is of much wider interest among geologists and miners from the peculiarities of the occurrence of irregular bodies or argentiferous lead ores in limestone. The report is accompanied by an elaborate and beautifully executed geological map of the district, with sectional views through different mines.

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Mineral Lands Prospected, Artesian Wells Bored, by Pa. Diamond Drill Co. Box 423, Pottsville, Pa. See p. 174.

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