

RECENTLY PATENTED INVENTIONS.

Engineering.

FED WATER PURIFIER.—Julius Bruun, Copenhagen, Denmark. To automatically remove from the feed water for boilers matters which may produce sediment or incrustation, this inventor has devised an apparatus comprising a container for adding a suitable chemical solution or reagent for any special kind of water, an adjustable valve connection to regulate the amount discharged at each operation, and a movable feed apparatus adapted to discharge water into a tank, automatically bringing a predetermined amount of purifying material together with a certain amount of water in a purifying tank.

PNEUMATIC PROPELLER.—Albert A. Graham, Topeka, Kansas. This invention provides for the employment of an air blast to propel a vessel. Located in the hull of a vessel near the stern is a series of fans, to be rotated at different speeds, compressing the air as it travels outward, the fans discharging into an air duct which communicates with a passageway leading through the stern of the vessel, the air blast striking the water near the vessel's bottom, and by its expansion and pressure against the stern forcing the vessel along. The air duct is divided longitudinally by a pivoted swinging partition, by which a greater amount of air blast may be directed to one side or the other to steer the vessel.

Electrical.

INSULATOR.—William Christie, San Francisco, Cal. An insulated hanger for electric wires, patented by this inventor, effectually guards against leakage through conduction by atmospheric conditions, as rain, fog, dew, etc. The insulator consists of a metal casing having a bottom closure with opening near one side, an insulating material in the upper portion of the casing, from which a zigzag suspending rod extends through the opening in the bottom closure where it is connected with an insulating material to which the conducting wire is attached. Condensing plates are arranged within the casing under horizontal portions of the zigzag suspending rod.

Bicycles, Etc.

BICYCLE SUPPORT.—James W. Jacobs, Jeffersonville, Ind. According to this invention a supporting rod is vertically held at each side of the rear fork, the upper portion of each rod being movable through a guide ring adjustable at any desired angle with relation to the fork, and the guide ring having a set screw by which the rod may be secured as adjusted. The lower portion of the rod extends through a ring on a pivoted arm, which extends outwardly from a lug on a clamping collar attached to the lower portion of the fork member. By releasing the set screws in the guide rings the rods may be drawn up from the ground, or moved down in position to support the wheel, being held in the position desired by tightening the set screws.

Mechanical.

RIVETING MANDREL.—John F. Mantey, Patterson, Texas. To facilitate riveting the overlapping ends of sheet metal, to form pipes, tubes, etc., this inventor employs an anvil bar projecting from one side of a bench or table, and a rivet holder held movably on the bar and adapted to temporarily hold the rivets in position for engagement with the openings in the parts to be riveted together. The rivet holder slides on the upper surface of the anvil bar, and has a slot for receiving the head and part of the shank of the rivet. On the holder are also guides determining the movement of the holder forward and backward on the anvil bar.

PERFORATING MACHINE.—Cortland Carlton, Kansas City, Mo. A machine of inexpensive construction has been designed by this inventor for rapidly and uniformly perforating paper, the machine operating rapidly and being quickly adjustable to perforate the paper along different lines. The perforator is mounted on a suitable frame, and fixed to a shaft is a cylinder having a recessed portion into which passes a gripper frame carried by the shaft, the frame being adjustable around the shaft and throughout the length of the recessed portion of the cylinder. The frame carries a periodically operated gripper, and the arrangement is such that several sheets of paper may be perforated at once or a wide sheet may be perforated along different lines.

Railway Appliances.

NUT LOCK.—Charles T. Redfield, Glen Haven, N. Y. This is a device especially adapted for use on rail joints, although applicable for other purposes. The rail, fish plates, bolt and nut may be of the ordinary pattern, and a base plate with openings for the bolts fits against the fish plate. Placed against the base plate is a lock plate having a bolt opening and flange overlapping the base plate, and at one end the lock plate is folded back, forming a spring tongue to fit alongside the edge of the nut. By the bowing of the main portion of the plate a double spring is secured, and the straightening of the main portion as the nut is turned home tends to increase the tension of the tongue.

Agricultural.

CATTLE FOOD COMPOUND.—Fritz V. Friderichsen, Copenhagen, Denmark. As a new article of manufacture, this inventor has patented in the United States, and in nearly all the countries of the world, a method for using blood in food for cattle in such manner that the blood will be preserved and the product will not deteriorate when kept for years. It consists in adding to the blood about twenty-four per cent of treacle or molasses, and then allowing this mixture to be absorbed by one or more of the ordinary kinds of forage commonly used in the trade, the forage forming the body of the product, which is made into cakes or into a coarse powder. The quantity of forage added is to be so regulated that the final product will contain nitrogen, fat and carbohydrates in suitable proportions.

PLOW DRAUGHT ATTACHMENT.—Walter H. Nelson, Northport, Mich. This patent is for im-

proved clevises and swivels, enabling the connection to be bent in any desired direction. The clevis has a hole through its body at the central bend, and an intermediate clevis has double jaws at each end, each pair of jaws being at right angles to the other, while a swivel clevis has an eye at the outer end of the swivel bolt. The jaws of the intermediate clevis are perforated, and adapted at each end to embrace the central bend of the first clevis and the eye of the swivel bolt, and pivot pins join the parts together. This connecting device permits of any amount of twisting or bending without becoming tangled.

HARVESTER BINDER.—Frank G. Grove, Luray, Va. This is a self-binder which is applicable to and may be used upon any side delivery harvester, and in which the driving power may be derived from the rake shaft or other moving part of the harvester. A packer head reciprocates toward and from a binder shaft, there being a projecting looped arm on the head which engages an arm on the binder shaft. The binder shaft supports a needle arm and two crank arms, one of the crank arms having for its function to cooperate in positively pressing the needle to binding position and return. Racks operate a pinion to cause a discharging arm to first aid in compressing the sheaf, and then, by a continued movement, to forcibly discharge the sheaf from its holder.

Miscellaneous.

FIREARMS LOADING MECHANISM.—Alpheus B. Harmon, Havelock, Iowa. To automatically load small arms, such as repeating rifles and shot guns, this inventor provides a simple and positive mechanism designed for ready application to any of the firearms now constructed. A pitman pivoted to the breech block extends rearward through the hollow stock to a wrist pin on a crank wheel, on whose shaft is a pinion meshing with a gear wheel on a shaft extending out of the stock, and on which is a boxing carrying a spring, one end of which is secured to the boxing and the other to the shaft. Attached to the boxing or spring barrel is a folding crank, and the boxing has ratchet teeth engaged by a spring pawl. After the magazine is charged the spring is wound by turning the boxing. Immediately after firing the crank wheel is rotated, drawing the breech block back, ejecting the exploded shell and placing a cartridge in position, and the backward movement of the breech block moves the hammer to a cocked position.

SOLAR ATTACHMENT FOR TELESCOPES.—Peter Stoller, Pitkin, Col. This attachment is more especially designed for telescopes used by engineers for making observations for taking time or for determining latitude, the time being known. The telescope is mounted equatorially on a frame constructed for attachment to the standard of an engineer's transit, or to any other suitable telescopic stand, the telescope being provided with adjustments for latitude and for hour angle and declination, with verniers connected with each adjustment.

PERMUTATION LOCK.—John A. Henry, New York City. This is a lock which may be readily thrown into locked or unlocked position, or it may be employed as a latch. Combined with actuating spindles is a series of independent tumbler plates, each having diagonal guide recesses on its opposite faces, and each having its obliquely opposite edges beveled, the tumbler plates being on a rotary plate with which the latch bolt engages, and the spindles being detachably connected together, one of them being passed through an elongated opening in the rotary plate. The several tumbler plates are held in place by an actuating ring, and the tumblers are arranged to a certain scheme of numbers determined by the diagonal channels.

PRINTING APPARATUS.—Julius G. Hocke, Bayonne, N. J. This is an apparatus for printing a set of characters on a shipping receipt or similar paper, and at the same time printing a separate check or ticket with duplicate characters. A swinging frame carries two printing devices, one for printing a blank ticket and the other for printing duplicate characters on a receipt, each printing device comprising a set of type wheels and means for setting both sets of type wheels simultaneously, to bring the same type characters into printing position, there being also a set of consecutive numbering wheels for each printing device, the wheels being automatically actuated by the swinging of the frame.

TYPEWRITER DESK ATTACHMENT.—Fred L. Boynton, Kingfisher, Oklahoma Ter. This attachment comprises a corner post adapted to be hinged to the corner of a desk, so that it may be turned to the front of the desk or to one side, the post carrying a hinged section or drop leaf, with props movably engaging the post at their lower ends and bearing at their upper ends beneath the drop leaf. The props permit the compact and easy collapsing and unfolding of the hinged section, which may then be swung around against one side of the desk.

FOUNTAIN PEN.—Carl J. Renz, New York City. This is a pen in which the supply of ink may be shut off by manipulating the nib tube, when the pen may be carried point downward in the pocket without leakage, and when the supply is cut off from the barrel to the nib or pen proper the surplus is automatically drawn within the casing and held in storage. The feeder is also designed not to clog, while serving both to deliver and to store the ink, as well as supplying ink to the pen and regulating the supply from the barrel or reservoir to its conducting channels.

DEODORIZING OILS.—James R. Whiting, Stamford, Conn., and William A. Lawrence, Waterville, N. Y. To refine and deodorize the lighter products of petroleum, this inventor has devised a process and apparatus according to which the oil is first reduced to a vapor, then passed through charcoal and then through lime water, the vapor being then condensed. The apparatus comprises a heating cylinder in which the vaporization is effected, and a container for charcoal having communication therewith, while a lime water cylinder communicates with the container and a condenser is in communication with the lime water cylinder. It is found that the refined solvent is greatly enhanced in value and usefulness.

FUNNEL.—Thomas Borchert, Jersey City, N. J. This is a plug or measuring funnel, whose bowl may be filled as desired without the liquid entering the nozzle, the latter being closed by a tightly fitting plug valve on the lower end of an angle lever, whose outer end rests and is held on a bearing on the edge of the bowl. When this end is pressed downward the valve is raised to allow the liquid to flow out of the bowl, the valve being held open when desired by a pivoted link to be passed over the handle end of the lever.

PUMP.—Ralph W. Elliott, Brentwood, Cal. This invention provides a substantially automatic mechanism designed to force water from deep wells to a high level by the explosion of a gas. Operating in a large cylinder is a piston through whose tubular stem extends a valve-controlled pipe connected with a gas or gasoline tank, and adapted to admit explosive material above the piston. The piston is drawn upward by a spring which surrounds its stem and abuts against the upper end of the cylinder, the water being at the same time drawn in through the inlet valve, and near the upper end of the cylinder is a contact point adapted to make contact with another contact point on the piston stem, when it reaches its upper limit, both contact points being provided with suitable electrical connections to afford an electric spark by which the explosive material is ignited, the explosion driving the piston downward.

HOOK HANGER.—Charles T. Redfield, Glen Haven, N. Y. This is a hook for hats or coats, etc., formed of a single piece of bent wire to make upper and lower upwardly curved hooks of double sections of wire, each end of the wire being bent at right angles and having a spur or prong adapted to enter the rear face of a strip of wood. The device forms a firm support and may be cheaply made.

ANTI RATTLER THILL COUPLING.—Charles T. Redfield, Glen Haven, N. Y. An anti-rattler device of simple and inexpensive construction is provided by this invention, one which may be applied to the ordinary coupling without change, and is applicable alike to round or square coupling bolts, serving the purpose of a bolt lock, a nut lock and an anti-rattler. It consists of a plate having its intermediate or main portion bowed slightly upward, and at one end an upturned flange to rest alongside of the nut, while at the opposite end is a bolt wing at an acute angle to the main portion and having a flange to overlap the bolt head.

SPIRAL SPRING ATTACHMENT.—James Brown, Carlton, Victoria. To connect spiral springs more readily to the articles to which they are attached, according to this invention, the legs of a U-shaped attachment, with enlarged bowed portion, are entered within the coils, the ends of the legs being bent to form each a hook, engaging the opposite end of the coil. A similar attachment is entered from each end of the coil, and the legs are preferably made in two portions connected by turnbuckles for adjustment to the desired length.

TRAVELING BASKET.—Wilhelm Sievert, New York City. A basket adapted to take the place of a trunk, according to this invention, has a broad top rim, a cover with downwardly extending edges formed of bars interwoven with material, and a cleat around the lower edge of the cover having openings in which the bars are fitted. The construction is designed to maintain at all times the shape of the basket and prevent the cover from spreading when pressed on or being crushed in.

WATER ELEVATOR.—Herbert L. Poe and William C. Sparkman, Southmayd, Texas. This invention is for a novel arrangement by which a bucket may be continuously raised and lowered in a well to lift and discharge water therefrom, the operation continuing automatically. The power is supplied from an operating shaft, and a support or plate is movable across the path of travel of the bucket when it is raised to open the bucket valve, there being also an operative connection from the hoisting device with the plate or support to move it out of the path of the bucket when the latter has been emptied.

BOTTLE CLOSURE.—Peder K. Mannes, West Duluth, Minn. To prevent the use of a bottle a second time, without showing that it is so reused, this inventor has devised a bottle with an opening in one wall of its mouth, interior grooves communicating with the opening, and a closure plate extending through the opening and fitted in a groove. The plate has recesses communicating with each other by a groove, in which is a spring whose free ends engage with the walls of the mouth of bottle. The plate cannot be removed without fracturing the neck of the bottle at the points where the recesses are located.

CHRISTMAS TREE HOLDER.—Peter J. Kelly, New York City. This holder has three legs, pivoted near their upper ends to a retaining ring, their upper ends being adapted to engage and clamp trees or stiffs varying considerably in size. The smaller staff spreads the feet of the legs a little more than the larger one, but the heavier the object, the firmer it will be held, all sizes being held securely.

MAIL BOX.—William D. Jones, Homestead, Pa. This is a box for the reception of mail matter and is made in hinged sections, spring controlled, to fold flat against the back of the box when the latter is empty. The box is designed to be used mostly for newspapers and as an advertising medium, there being ample space for an advertisement. It is open at the bottom and has a cover to protect its contents, and when papers are placed in it the box may be brought to the shape of an ordinary mail box, the parts returning to folding position and clamping the inserted mail matter between its front, sides and back.

ANIMAL TRAP.—Job T. Wells, Cando, North Dakota. This is a simple and inexpensive self-setting animal or bird trap, comprising a cage having at one end a gangway connected by a side passage, rockable gates closing the ends of the gangway, while a rockable platform has a device extending from its pivot support to a tilting table, the gates and platform being connected, and the movement of the platform controlling

the gates and tilting table. The animal must tread upon the platform to reach the bait.

Designs.

BUCKLE.—Henry E. Smith, Newark, N. J. The principle novelty of this buckle consists in a panel having the appearance of being inserted in and extended lengthwise of the front bar of the buckle loop, the junction being on diagonal lines and the panel contrasting with the side portions of the loop.

HAT SUPPORT.—Harriette G. Cozzino, New York City. This is a support to be applied more especially to theater chairs, and has a portion curved to correspond to the back of the chair, a back member adapted to serve as mirror, and two oppositely curved portions adapted to serve as hat supports.

SASH BELT.—Mark Aronson, New York City. The leading feature of this design comprises panels inserted transversely of the longitudinal plaits of the body of the belt, there being also a bow ornament on one end.

SEAT TOP.—Frank B. Burns, New York City. This seat top is round and is made of a series of small cushions, in lines at right angles to each other, the plan being square in outline and the corners being recessed by the circular heads of the securing nails. Each cushion is defined from the other by creases.

DR M.—Orville R. Noble, Granville, Mass. According to this patent, the drum body band comprises flags of stars and stripes in relief, with pronounced relief border and staffs for the flags, and also with cords and tassels in relief.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co. for 10 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS, ETC.

WARNER'S POCKET MEDICAL DICTIONARY. Philadelphia: William R. Warner & Company. Pp. 304. Price 75 cents.

This is a concise little handbook giving the pronunciation and brief definitions of 10,000 words and terms used in medicine and associated sciences.

THE BOOK OF THE DAIRY. A Manual of the Science and Practice of Dairy Work. Translated from the German of W. Fleischmann, by C. M. Aikman and R. Patrick Wright. London, Glasgow and Dublin: Blackie & Son. New York: D. Van Nostrand Company. 1896. Pp. xxiv, 344. Price \$4.

Dairy practice is no longer a matter of the farm yard; it has rather become a question of science applied to the development of the greatest possible amount of cleanliness. The title of the book, which we quote in full, gives its scope, and an examination goes to show how very complete it is, and how adequately the modern dairy or milk factory is treated. The allied subjects are also included, for the book, in addition to telling of the titular subjects, also speaks of cheese and margarine, of the condensation of milk, of the use of antiseptics, and of the chemistry of the subject. It should be a sine qua non of the dairy farmer, amateur or professional.

GEOLOGICAL SURVEY OF ALABAMA. Eugene Smith, State Geologist. Report on the Valley Regions of Alabama (Paleozoic Strata). By Henry McCallet, Assistant State Geologist. With illustrations. In two parts. Part I. On the Tennessee Valley Region. Montgomery, Ala. 1896. Pp. 436.

AN INTRODUCTION TO GEOLOGY. By William B. Scott. New York: The Macmillan Company. London: Macmillan & Company, Limited. 1897. Pp. xxvii, 573. Price \$1.90.

This contribution to geology from Prof. Scott of Princeton College, is an excellent example of the modern treatment of science, making the subject one of general interest and getting rid of much of the dryness ordinarily supposed to be a necessary accompaniment of geology. It is most interestingly illustrated, partly with half tones, nature being called upon directly to furnish the illustrations, while woodcuts are also used as required for special cases. It is certainly a most attractive feature to employ the absolute reproduction of natural scenery to cover the ground of rock phenomena. The latter portion of the work is devoted to paleontology and is largely illustrated by special woodcuts. An excellent index closes the work, nearly 23 pages being devoted thereto.

DES INGENIEURS TASCHENBUCH. Herausgegeben vom Akademischen Verein. Hütte. Sechzehnte, Neu Bearbeitete Auflage. Mit über 1,100 in den Satz Eingedruckten Abbildungen und Zwei Tafeln. Berlin: Verlag von Wilhelm Ernst & Sohn. 1896. Pp. vi, 984. Price \$6.40.

The size of these two volumes, including over 1,500 pages, with independent indices, would remove them altogether from the American idea of a pocket book, although the liberal ideas of the Teutons on the subject allow them to be so named. They are far too exhaustive to be reviewed within the limits of our space. They really represent a treatise on civil and mechanical engineering, with very numerous illustrations and limitless formulae. Electricity and technology are also treated to a considerable extent. The work is in many aspects naturally of the German class distinctively. As an instance we may cite the table of money values, referring to the German mark and its subdivisions. The tables of weights and measures are really very exhaustive and worthy of every commendation, and may be used as an illustration of the