

RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

PLOW.—EDWARD B. WINTERS, Coffeyville, Kans. This sulky-plow or lister is used without a frame and is so constructed that by means of two devices only, the beam and parts carried thereby can be lifted and held in raised position, or the share can be so adjusted that the point will enter the ground to a greater or lesser extent. The beam is pivotally hung on an unadjustable rear support which is not affected by the adjusting mechanism and is provided with means for sustaining the driver's seat, so that the weight of the driver has no influence upon the beam in its vertical adjustment.

ROTARY WEED-CUTTER AND CULTIVATOR.—THARP BROTHERS, Athena, Oregon. The machine is an improvement in cultivators having a series of rotary cutting-disks so arranged as to work parallel to the surface of the ground. The disk or cutters work slightly beneath the surface to be cultivated and turn independently to the right or left according as the pressure on the individual cutters is greater on one side or the other. They are thus prevented from clogging on the individual edges. Their form and arrangement are also such that the lower side wears away in order to render them self-sharpening. The cutters of one row are opposite the spaces between those of the second row, so that the entire ground is worked and cultivated.

FRUIT-PICKER.—HENRY F. RUGGLES, Vanceburg, Ky. The fruit-picker has a staff along which a collapsible tube extends. Two brass-cords are used to contract and release the tube and are alternately operated. By reason of this arrangement the tube is formed into short lengths through each of which the fruit drops and in each of which the movement of the fruit is temporarily arrested and then permitted to continue on its downward passage.

Electrical Apparatus.

VOLTAGE-REGULATOR.—PHIL S. TIRRELL, Groveton, N. H. This invention is an improvement upon the Tirrill automatic potential regulator for dynamos, the object being automatically to regulate the potential on the supply wires. The present invention is designed automatically to regulate the voltage, to respond to the sudden changes of load or speed, and to cover the range of the rheostat in such a way that its movement can be timed to act just as quickly as the iron of the magnets will respond to the changes made in the exciting current by the regulator, and no faster.

Engineering Improvements.

ENGINE.—ALFRED B. FLOYD, Helena, Ark. This invention relates to steam-engines in general but has specific reference to the mechanism connecting the piston with the drive-shaft, one object of the invention being to provide a simple and efficient construction wherein a piston of long stroke may be utilized to secure a large leverage in the operation of the drive-shaft.

Mechanical Devices.

MEANS FOR CONVERTING RECIPROCATING INTO ROTARY MOTION.—LOUIS KRAMER, Evansville, Ind. To the reciprocating part a body is swiveled and mounted to move in unison therewith. Slides are carried by the body out of alignment with the swivel-axis. The reciprocating movement is converted by a rotary body having spiral threads engaged by the slides and arranged in sets. Theoretically, with absolutely true threads, the swivel-joint would be superfluous, but in practice uneven wear must of necessity result in any mechanical device, and for this reason the swivel-joint is used.

BOAT-PROPELLING GEAR.—JOHN A. FREUND, Brooklyn, New York city. The boat-driving gear is to be driven by the boatman himself, and is composed of a peculiarly arranged propeller-shaft held beneath the bottom of the boat and fitted with a propeller for driving the boat. The interior of the boat is in no way taken up by machinery, so that the capacity is not lessened.

BATTER-MIXER.—STEPHEN H. COOMBS, Helena, Mont. The dough is placed in a pan and kneaded by beaters operated by a suitable form of gearing. As the dough is kneaded, the pan is turned, so that all parts of the dough will be subjected to the action of the beaters.

CABLE-CONVEYER.—DOMINGO ARÁMBURU, Mexico, Mexico. The conveyer consists of a series of sections arranged to receive the material successively, each section comprising two endless cables placed side by side and arranged to move with the load. The distance between companion cables is alternately greater and less in neighboring conveyer sections, so that wide conveyer sections alternate with narrow conveyer sections. Both ends of the cable-runs of a wider section are located side by side with and exteriorly of the ends of the cable-runs of the adjacent narrower sections so as to embrace the ends between them.

AUTOMATIC WEIGHING-MACHINE.—WILLIAM BROUGH, 412 West 28th Street, Baltimore, Md. The inventor employs a tiltable hopper adapted for self-discharge when inclined and provided with weights which can be

shifted to vary the leverage of the hopper and thereby weigh and measure different quantities of a liquid or solid. The hopper discharges into funnels which are suspended from it and provided with removable spouts or nozzles to adapt the machine for weighing different commodities.

Railway Contrivances.

LOCOMOTIVE-BOILER.—HENRI THUILLE, Alexandria, Egypt. In express locomotives the necessity of having large drivers to reduce the tangential velocity of the parts and the necessity of locating the boiler between these drivers, if it be not desired inordinately to raise the center of gravity, do not permit a diameter of more than 1.25 meters to be given to the boiler. In order to increase the power of the boiler to meet the demands of modern high-speed engines M. Thuille elongates the vertical cross-section and places the boiler between the wheels.

AIR-BRAKE.—JAMES B. O'DONNELL, Freeport, Pa. By means of this new brake an engineer is enabled to recharge the auxiliary reservoir as often as required while the brakes are applied, thus giving the engineer complete control of the train, especially on heavy down-grades, and without danger of the train's gaining any undesirable headway while the auxiliary reservoir is being recharged. The rear cars can be cut out whenever desired.

NUT-LOCK.—WILLIAM A. HANVEY and CHARLES WYST, Big Rapids, Mich. The invention is an improvement in nut locks in which a locking pin is held at one end in the bolt-hole, and is arranged at its other end to be bent alongside the nut. The locking-pin is of special form, being composed of a short length of metal having a body portion adapted to fit in a groove or seat in the outer face of the abutment and provided at one end with a spring point or tongue, bent slightly under the body portion. While the nut is being turned home the locking-pin and cast washer are also secured in place, thus avoiding the necessity of holding the locking device in place until the nut is screwed up.

Miscellaneous.

GUTTER-HANGER AND SCREEN-RETAINER.—MONROE J. DANIEL, Crowley, La. The purpose of the invention is to provide a new and improved hanger and screen-retainer which is arranged to support the gutter or trough securely from a building, to hold the screen in position on the gutter and to permit the convenient adjustment of the gutter to the desired pitch after its attachment to a building.

HAT-FASTENER.—MARTHA B. MOSHER, Manhattan, New York city. The hat-fastener is provided with pins which are mounted in guides on the hat, so that they can be slid in or out of the hair to hold or to release the hat.

GARMENT-HANGER.—FRANK P. JOHNSON, Danville, Pa. This wire garment-hanger consists of two side arms and a supporting-hook. One of the side arms is formed with a trunnion for the other side arm and the supporting hook to turn on. A depending portion from the supporting hook extends between the side arms and forms a stop for them to rest upon when extended, so as to limit the downward swinging motion of the side arms and to hold the hook in a vertical position relatively to the side arms. The entire garment-hanger, by reason of this construction, can be readily folded so as to take up but little room.

SAW ATTACHMENT.—FRANS O. HELSTEN, Laurium, Mich. The labor in sawing through timbers is often considerably facilitated by oiling the saw-blade. Mr. Helsten has fitted a peculiarly-constructed oil-receptacle in the handle of the saw and has invented devices by which the oil may be caused steadily to flow over the saw-blade.

CLOTHES-LINE HOLDER.—HENRY HAFKER, Hoboken, N. J. By means of this simple contrivance the ends of a pulley line can be adjustably connected so that the line can be quickly slackened or its ends disconnected, and as conveniently and quickly stretched and the ends of the line connected and safely held in adjusted position.

CARDBOARD OR PASTEBOARD BOX.—FLEMING T. AUSTIN, 8 Greville Street, Hatton Garden, London, England. The invention relates to cardboard boxes of cylindrical form and provides improved means for fastening the ends or heads of the box within the circumferential portion of the body and cover of the box. Neatness and strength are thereby secured.

CUSPIDOR.—JOHN C. BLAIR, 410 Chestnut Street, Louisville, Ky. A water-pipe is arranged within the cuspidor and is passed centrally through a disk. A flanged spreader is connected with the pipe and has lateral orifices opening below the flange and above the disk. A central screw-valve is arranged in the spreader, its head being accessible at the top of the spreader. The sanitary merits of this arrangement need no comment.

STAPLE.—WILLIAM H. MOREHOUSE, Wasco, Ore. This staple, for use in wire-fencing, has a middle portion forming an eye and split end-ports forming two prongs. The prongs have their inner faces formed with bevels at the points to spread the prongs when the staple is driven into the fence-post. These bevels are of different pitch so as to spread the prongs

diversely. The staple cannot be readily displaced.

DRAWING-BOARD.—RUDOLPH ENGELMANN, Manhattan, New York city. The drawing-board is made of metal and is provided with means whereby one or more sheets of paper may be held at the corners on the board and so stretched that the portion of material drawn upon will be without wrinkles and will lie close to the working face of the board. The fastening devices can be quickly adjusted.

LIQUID-MEASURING DEVICE.—HORACE W. WILCOX, Hamilton, Ont., Canada. The novel feature of the invention is a graduated tube, the outlet of which is controlled by a valve. A float in the tube operates to indicate the quantity of liquid discharged by moving downward with the discharging liquid, while the tube is filled with liquid above the float.

BEEHIVE.—BENJAMIN C. SMITH, Coldwater, Ga. The beehive embodies a honey-storing chamber or compartment above a brooding-compartment. Means are provided for protecting the bees from cold and dampness during the winter. The bees are prevented from attaching honeycomb to the rear wall of the honey-holding compartment, this wall being readily moved at any time without fracturing the comb. The honey is removed without jarring the hive or disturbing the brood chamber.

ANIMAL-POKE.—WILLIAM A. HINES, Stafford, Kan. This poke is designed to prevent hogs from passing through a wire fence. Should the hog attempt to pass through the fence, the wires will engage an actuating-lever, forcing it backward and turning a prod-arm to force the point into the animal's nose. When the hog draws back and disengages the actuating-lever from the fence, a spring will return the parts to their normal positions.

DEVICE FOR CONTROLLING FLOW OF WATER IN PIPES.—PAUL P. I. FIFE, Concord, N. C. The inventor has provided such a connection between the water supply and the water-service pipes that the water may quickly flow from one to the other. The connection between the pipes can be cut off any length of time, during which time all the house-pipes will be empty. The water thus freed is conducted to the sewer or other drain. A single slide-valve, operated within the building, accomplishes these results.

SIDING-CLAMP.—OSCAR B. FIKE, Joplin, Mo. This invention relates to improvements in clamps for siding boards of buildings. The clamp provided can be easily manipulated to hold a warped or buckled board in place while it is being nailed. Without interference of the studding the clamp can be slid from one end of a board to another. The device can be operated either by the right or left hand.

ADJUSTABLE SAW-CLAMP.—GRANVILLE BARLETT, 57 Leverette Street, Detroit, Mich. The object of the present improvement is to render the upper portion of a clamp adjustable to either a curved or straight line, so as to permit the filing and jointing of saws to a straight or curved line of teeth as may be desired.

INVALID OR SURGICAL BED.—DR. ADOLFO LURIA, 291 W. Division Street, Chicago, Ill. The improved apparatus for medical and surgical use devised by Dr. Luria, consists of a surgical table and a pivoted swinging rod bent twice at right angles. Anesthetic holders are supported on the vertical free-arm of the rod whereby they may be swung and placed in different positions relatively to the table. The table has every possible movement which can be required and is provided with all necessary appliances.

CHILD'S KNIFE BLADE.—MARY A. HEHR, Girardeau, Mo. The end of this child's knife-blade is rounded or carried in a curved line from the back beneath the cutting edge. By reason of this construction the child cannot readily cut itself or pierce cushions, sofas, or chairs.

JAR-WRENCH.—ROBERT R. WATSON, Detroit, Mich. A strap is slipped around the jar-cover and engaged by the wrench. A twist of the hand with the leverage thus provided will readily loosen the cover.

RAIL-BENDER YOKE.—GARLAND T. THAYER, South Side Foundry and Machine Works, Charleston, W. Va. The rail-bender yoke is in the form of an arch curving from end to end on a gradual curve approaching the arc of a circle. Hooked feet on the ends engage the rail and a central cylindrical portion receives the screw to grip the rail. Ribs and flanges extend between the central cylindrical portion and the hooked feet, and a head is extended around the outer side of the hooked feet. The device is designed for use in bending and straightening rails.

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

NEW BOOKS, ETC.

THIRTY-SECOND REGISTRATION REPORT, MICHIGAN. Vital Statistics. 1898. Pp. i to clxxii, 38.

Besides the usual vital statistics, this book contains tables of comparison with those of various European countries, Japan, New South

Wales, and New Zealand. These tables are of especial interest in comparing the movement of population of an Oriental country with the European, American, and Australasian data presented. Some of Michigan's most typical vital statistics are graphically represented in a diagram, and the Bertillon classification of causes of death forms an appendix to the rest of the data.

ELEVATION AND STADIA TABLES. By Arthur P. Davis, Hydrographer, United States Geological Survey. New York: John Wiley & Sons. 43 Pp.

This book is an elaboration of one published in 1893, which contained a table of elevations for field use. An additional table carries up to 26 degrees, the difference in level in feet for one mile. A third table gives the curvature and refraction, $h_2 = 0.574 D^2$, up to 40 miles for use in refined computations. Two more tables for use on work of larger scale where the distance and elevation are both in the same unit, as feet or meters, carry up to 40 degrees the difference of level for a slant distance of 100. These are especially useful for stadia work, and are supplemented by a sixth table giving some usually negligible corrections that may be introduced when very refined work is desired. The book also has a table that will be found useful for the calculation of slopes not given in canal and river work, and which gives the velocities direct for most practical problems in canal construction.

RESERVOIRS FOR IRRIGATION, WATER POWER, AND DOMESTIC WATER SUPPLY. By James Dix Schuyler. New York: John Wiley & Sons. 432 Pp. 183 illustrations, and 20 plates. Price \$5.

The author of this work states that it is the outcome of a hastily written paper by him in the Eighteenth Annual Report of the Geological Survey on the principal dams and reservoirs of the arid region of the United States. Although he does not claim that the book is an exhaustive treatise of the subject, he seems to have treated it quite fully, and the volume will without doubt be found of great assistance by civil engineers and all others interested in the matter of water supply. Besides illustrated descriptions of the different kinds of dams that have been built the book contains a chapter on projected reservoirs, and discusses in full the available water supply for irrigation in the various sections of arid America. The distribution, application and use of water; the rainfall and run-off; the evaporation from and effect of silt upon reservoirs are all fully discussed. Photographs of the Austin Dam in Texas just before and after it broke are among the most interesting in the book.

ANNALS OF THE ASTRONOMICAL OBSERVATORY OF HARVARD COLLEGE. Vol. XXXVII, part 1. Observations of Circumpolar Variable Stars During the Years 1889-1899. Prepared for publication by Oliver C. Wendell, under the direction of Edward C. Pickering, Director of the Observatory. Cambridge: Published by the Observatory. 1900. Pp. 144.

The observations described in this pamphlet differ in two respects from those previously made elsewhere. First, the stars have been observed throughout their variations of light, observations at minimum being considered as important as those at maximum; and, second, all the observations were reduced to a uniform photometric scale which was that of the meridian photometer. The observations thus make it possible to compare not only the light of a given star at different times, but also to compare one star with another, even if the two be in widely different parts of the sky.

TRANSACTIONS OF THE WAGNER FREE INSTITUTE OF SCIENCE OF PHILADELPHIA. Vol. III., part 5. Philadelphia, Pa.: Wagner Free Institute of Science. December, 1900. Pp. 949-1188. 12 plates.

This part of Volume III. on the contributions to the tertiary fauna of Florida describes especially the siliceous beds of Tampa and the Pliocene beds of the Caloosahatchee River. It includes a large part of the Teleostomacea, and gives a revision of several groups in which heretofore great confusion has reigned. A very large number of unrecognized species will be here found, described and illustrated for the first time.

INVENTOR'S MANUAL. How to Work a Patent to Make it Pay. By an Experienced and Successful Inventor. New revised and enlarged edition. New York: Norman W. Henley & Company. 1901. 16mo. Pp. 115. Price \$1.

The little volume before us is a guide to inventors in perfecting their inventions, taking out their patents and disposing of them. The advice in regard to selection of patent attorneys is good, and can be summed up in saying, "Go to a reliable patent attorney." Besides instructions of various kinds, it contains forms for applications, assignments, etc.; tells how to form a company; gives the laws regulating sales, about selling agents, whom to avoid, etc. Many inventors fail to realize upon their inventions just from the lack of a little manual like the present. It contains the twelfth census of the United States by counties of over 10,000 population, compiled from the official census of 1900.