## RECENTLY PATENTED INVENTIONS.

### Railway Appliances.

AIR BRAKE VALVES.—Eugene Bearss, Ellenville, N. Y. This inventor has provided a new and improved device for opening or closing valves for air-brake hose couplings, one which automatically shuts the valve in each section when the sections are uncoupled, or opens the valve when two sections of couplings are united. There is a valve in each of two movable interlocking sections and a spring-pressed pivoted arm held on each section and adapted to engage with its forked end the handle of the valve in the section. By a special construction of the valve seat an air-tight joint is formed.

CAR AXLE DUST GUARD AND OIL SAVER.—William A. Warman, Moncton, Canada. This is a simple and inexpensive device, readily adjustable to various sized axles, and which adjusts itself to take up any wear of its various parts. It consists of a rigid bearing frame, or plates having packing material between them, and a vertically movable plate carrymg a sheet of packing material adapted to act in conjunction with the stationary packing and envelop the axle or shaft, the several parts being securely held, but at the same time properly spaced to permit the motion of the movable section.

CABLE CAR TRANSFER DEVICE.—John T. Schweizer, Wilmington, Del., and Jacob H. Burger, Philadelphia, Pa. The car-transferring mechanism provided for by this improvement is located in an underground chamber at intersecting points in a cable line, and consists of a sprocket chain carried by idlers and adapted to be operated from the power cable, while arms on the car may be set to engage the chain, whereby the car may be driven across other cables or cable conduits.

NEW BAGGAGE RACK.—Mr. R. H. Pannill, of the Chesapeake and Ohio Railway Company, has made an improvement in baggage racks for cars and stations that meets with the general approval of railway people. It facilitates the handling of baggage and economizes space.

### Electrical.

VOTING MACHINE.—John H. Scotford, Portland, Oregon. This machine is designed for use in connection with what is known as the "Australian" system of balloting. It has a cylinder adapted to carry a ballot, a contact wheel and a numbering and registering device operated by an electric magnet, the connections being such that when the cylinder is revolved with a ballot on it, the numbering and registering device will be operated to count and print the vote, so that when the polls are closed the aggregate vote for each candidate will appear registered in a definite manner.

ELECTRIC WASHING MACHINE.—John P. Johanson, New York City. According to this improvement, two electrodes are provided, each having an insulated handle with a catch to support the electrode on the washboiler, while a metallic perforated tube is inserted in the handle and connected with the conducting wire, there being an insulated cap on the end of the tube opposite the handle. By this means the clothes, as they are being boiled, are treated to an electric bath to loosen and dissolve the dirt, the clothes being stirred occasionally and the dirt dropping to the bottom without the least possible injury to the fabric.

ELECTRIC RAILWAY TROLLEY.—Walter Van Benthuysen, New Orleans, La. The trolley pole, according to this invention, is formed of a hollow arm held normally in a vertical position by spiral springs, while a rod inserted in the arm has a projecting jointed end piece carrying a conical trolley wheel. The construction is such that the trolley is not liable to leave the wire, but should it do so, it will arrange itself automatically in a safe position, so that it cannot be injured by striking against the supports of the wire.

### Mining, Etc.

AMALGAMATOR.—Doc. A. Patterson, Summitville, Col., and Emery Anderson, White Oaks, New Mexico. The pan of this amalgamator is of copper or other suitable material, galvanized or amalgamated, and it has the usual two parallel sides. A short distance from the upper gate is a transverse curved riffle, forming a pocket for quicksilver, and below this is a straight vertical riffle to agitate the flow; farther down in the pan is a gate, and beyond this is another riffle, reversely curved, while on the lower end of the pan is still another straight vertical riffle. The construction has been found very effective for catching and retaining all the precious metal contained in the pulp.

MULLER FOR GRINDING OR AMALGAMATING MILLS.—Walter N. Nolan, El Oro, Mexico. On the bottom of the pan of this mill is a die ring, on which travel a series of shoes, each having a beveled rim and conical feed apertures, the shoes each having a central stud revolving in a hub projecting from a circular plate secured to the under side of a ring-shaped carrier. In the carrier are apertures registering with those in the beveled rim and through which the pulp is introduced to pass on to the revolving shoe and between the lower surface of the shoe and the die ring. The shoes are free to slide upward in their hubs to admit more or less pulp between the grinding surfaces, and the muller, on account of its peculiar shape and construction, gives a rapid motion to the pulp, both when grinding and amalgamating.

TREATING PHOSPHATE ROCK.—George Guild, Knoxville, Tenn. This invention provides an apparatus comprising a hopper, a valve-controlled steaming chamber, a disintegrating chamber, and a screen. Means are provided for regulating the supply of material, and steaming and agitating it, and then screening and separating the phosphate from the mud, the work being very thoroughly done and the operation almost entirely automatic.

### Mechanical.

SLIDING PLANER.—Arthur Stables, Mannborough, Va. In this machine is a reciprocating cutter head having inclined lugs which engage slides formed with angular recesses, while the feeding device comprises two sets of rollers journaled in side frames carried by a main frame mounted to turn, a shaft forming the center of the frame, and a pulley on the shaft being connected by belts with the uppermost feed rollers. The machine is strongly made and designed to plane a perfectly smooth and true surface. [For further information relative to this invention, address Eure, Gregory & Co., box 325, Norfolk, Va.]

MECHANICAL MOVEMENT.—José T. Penuela, Ciudad del Tocuyo, Venezuela. This improvement is especially designed for use in connection with sugar cane machinery, but is also applicable to crushing mills and other machines where great power or pressure is required. The invention provides a novel combination of cranks, levers, and falls, to be connected with the drive shaft and the machine to be driven, whereby the main shaft of the machine will be turned with greater power than the driving shaft, to overcome greater resistance.

BAND CUTTER.—Irene Hoyez, Stephen, Minn. Pivoted to a recessed handle is a blade which may be locked in open or closed position, while a second blade is secured to the free end of the first blade and held in fixed relation thereto when in use, the cutting edge of one blade facing that of the other and forming an angle therewith. The combined blades are arranged to close within the handle, forming an especially convenient tool for cutting belts or bands for thrashing and other machines.

### Agricultural.

PLANTER AND DISTRIBUTOR.—Joseph N. Bell, Sharp, Ala. This is a simple, easily adjustable implement, which may be used as a planter or as a distributor for fertilizer. It comprises a beam or stock and a feeding wheel over which fits a removable bottom frame that rests upon the beam, the hopper fitting upon the bottom frame and being connected with the beam by straps. In planting cotton the machine has a different form of coverer and planting wheel from the devices used in planting corn and peas, etc., but the changes may be quickly made.

HAY LOADER.—William H. Scheer, Frankfort, Ill. As this machine is drawn forward the hay is gathered up by rake teeth which hold the hay until it is taken by conveyer teeth, removed from the gatherer and elevated for delivery into a wagon or other receptacle located in front of the machine and traveling with it.

COW MILKING MACHINE.—William B. Bland, Maquon, Ill. This is a machine which may be readily adjusted to the udder of a cow, and applied without causing irritation or discomfort, the milking fingers thereof being adjusted in any required direction, all the parts of the machine and the various adjustments being controlled by the working of a single lever. By the same lever also an operative mechanism is thrown into gear with the driving mechanism for operating the machine, the parts automatically adjusting themselves to compensate for the shrinkage as the milk is withdrawn from the udder.

### Miscellaneous.

APPARATUS FOR DYEING.—Edward Turnbull, Passaic, N. J. This dye vat is mounted on wheels, and has at its rear end a small roller over which the fabric passes, and under a roller submerged in the dye. After which the fabric passes upward over a roller having a regular roughened surface, an endless rubber belt passing over an elastic covering on a cylinder pressing on the fabric as it passes over the roughened roller. The fabric is then passed back again into the dye, between other rollers, and receives a final pressure on a roughened surface as it passes out. No surplus dye or moisture is left in the fabric after it leaves the machine, which is designed to save considerable labor, and obviate the need of the ordinary scouring and finishing process, as well as do away with the necessity of heating the dye in the vats.

FILTER.—William D. P. Aims, Jr., Philadelphia, Pa. This is a filter adapted for use in filtering water, oil, or any other liquid, and for general domestic and manufacturing purposes. It is easily constructed and applied, and may be thoroughly cleaned without taking it apart or removing it from its position on the water pipe. In connection with perforated diaphragms near the top and bottom of a cylindrical casing are connecting porous tubes, through which the water or other liquid to be filtered is forced. The inlet pipe is connected with the top and bottom of the filter, so that the water or other liquid may be sent through it in either direction.

ALE-DRAWING DEVICE.—John Farmer, Jersey City, N. J. Either still or lively ale may, by this device, be drawn direct from the cask, means being provided whereby the same pressure of gas which exists in the cask will be present in the device or receptacle from which the ale is to be drawn. Means are also provided for reducing the pressure in the receptacle, and for determining the amount of pressure and the level of the liquid. The receptacle and all of its interior mechanism are made of wood, and placed in a jacket adapted to receive ice.

HORSE COLLAR FASTENER.—Ernest E. Kerl, Mellette, South Dakota. This fastening consists of rigid members adapted to be attached to the sections of the collar, the members having a ball and socket connection whereby the collar will be permitted to work in a free and easy manner upon the horse's shoulders, and move in unison therewith, thus preventing the shoulders and upper portion of the neck from being galled or scarred by the action of the collar. The device is so made as to facilitate putting on and taking off the collar.

THILL COUPLING.—Isaac Clark, Morris Plains, N. J. This is an improvement upon a former patented invention of the same inventor, and provides a simple and conveniently manipulated device for holding the coupling in locked position. The coupling and uncoupling with the thill iron are quickly and easily effected, and the device makes an anti-rattling connection.

PUTTYING TOOL.—Theodore Witte, Chilliwhack, Canada. This tool has a three-cornered nozzle at one end and a handle at the other end, while a piston working in the body is provided with a racked piston rod moved by a gear and ratchet mechanism actuated by a swinging lever fulcrumed in the handle. Mixed putty, either hard or soft, may be carried in the tool, and be forced out and rapidly applied without the use of a knife and without touching the putty with the fingers, the putty being rubbed to place by a flat blade or plate at one side of the nozzle.

WATCHMAKER'S TOOL.—John A. Bricker, Atlanta, Texas. This invention relates particularly to a device for removing the roller from the balance wheel staff or the hands from their shafts, the device being so constructed that the wheel can be held in one hand while the instrument is fastened upon the roller by the other. The improvement provides a pair of spring-actuated pinchers connected with which is an adjustable centering pin, there being also a longitudinal guide rod connected with the handles, causing the latter and the jaws to move evenly.

PRINTER'S "TIE-UP" FOR TYPE PAGES.—Joseph Vierling, Allegheny, Pa. Instead of tying up pages of type with a cord or string, this inventor has provided a binder consisting of straight bars having rabbeted ends and projecting pins and tongues adapted to engage right-angular corner locking pieces in which are inclined slots. With the bars made type high to take the place of a guard rule, this binder may be used in electrotyping.

BOOK AND INDEX.—Thomas K. Brownell, Clifton, N. J. With this improvement an index book may be inclosed within the covers of a book of entry and extended with it for ready reference. The invention consists in the attachment of the index book to the tapes of the main book or book of entry, so that it is not liable to be detached except by the destruction of either or both.

COMBINATION TRUNK.—Abraham Botkin, New York City. This inventor has devised an article of furniture which may be used as a bed, a seat or a chair, as well as a trunk, while its top may also be utilized as a table. It is so constructed as to be convenient of manipulation, and is designed to have especial advantages for traveling salesmen carrying samples and sometimes having to put up where hotel accommodations are limited.

FIRE ESCAPE.—Francis W. Rawle, New York City. This fire escape is made in two sections, a hollow body section adapted to be secured to a fixed support just outside of a window and a folding carriage adapted to fit in the body section when not in use, the carriage having a lowering device connected with the body section and a brake mechanism, whereby persons descending in the carriage may regulate the speed of their descent.

STOVE.—Jorgen J. Eskil, Iron Mountain, Mich. In this stove a flue opening from the outer air beneath the ash box extends around the fire box into a hot-air chamber above, and the air thus heated passes out through openings in the top of the stove, which is thus adapted to afford heat by ejecting into the room a current of hot air as well as by direct radiation, affording a large amount of heat in proportion to the fuel consumed.

CHIMNEY CAP.—Martin Ludwig, Albany, Oregon. This top is formed of a single piece and provides in itself the vane for controlling the position of the cap; also providing for accelerating the draught by means of its air openings, and affording a secure support for the top. The flaps made by the incisions in the blank forming the top are bent to produce sheds over the air openings.

WASHING MACHINE.—Charles M. Coats, Aurora, Ill., and James L. Sprague, Minneapolis, Minn. This is an improvement in that class of washing machines in which a swinging rubber is suspended and reciprocated within a suds box, the operator vibrating handle levers by which the rubber and the clothes-holding cage are simultaneously oscillated. The clothes are thus subjected to three operations at once—rubbing or friction, squeezing or pressing, and the passage through them of mingled currents of air and water, which is designed to effect their cleansing in the shortest time, with little labor and the least wear.

BEDCLOTHES FASTENER.—Zebulon H. Jacobs, Salt Lake City, Utah Territory. A fixed cross bar is arranged between the rails near the foot of the bedstead, and between this bar and the footboard is a spring-pressed sliding fastening bar, between which and the footboard the lower ends of the bed clothes are clamped to prevent their being thrown off by a restless sleeper. A locking device is provided to hold the fastening bar out of engagement with the clothes while the bed is being made.

UTERINE RECTIFIER.—Frank W. Haviland, New York City. This is a device designed to be worn with safety and with but slight inconvenience for restoring a deflected uterus to its normal or proper position.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

## NEW BOOKS AND PUBLICATIONS.

THE IRON FOUNDER SUPPLEMENT. A complete illustrated exposition of the art of casting in iron. By Simpson Bolland. New York: John Wiley & Sons. 1893. Pp. ix, 392. Price $2.50.

Foundry work is now being studied in our colleges; it is no longer relegated to workmen, but is taught by practical demonstration to students in the higher institutions of learning. At last we have a full and adequate manual on the subject. While students have been alluded to, it must not be supposed that the work is written for them alone. Indeed, its aspect is a practical one, and the intelligent foreman and progressive workman will alike find matter to interest them in it, and it will appear as something designed to raise their trade above the rule of thumb system too apt to prevail. The numerous illustrations are especially to be commended.

OBJECT LESSONS AND HOW TO GIVE THEM. First series. For primary schools. By George Ricks. Boston: D. C. Heath & Co. 1893. Pp. vi, 202. Price 90 cents.

Students of pedagogy have found children educated in schools astonishingly ignorant of the concrete. This little text book is designed to bring it before them. It is the first series for the use of primary schools, and addresses the brain through the senses. It is very interestingly written, and while it indicates an advance in educational methods, it incidentally, and very curiously, shows therewith a startling defect, perhaps as much in the home life as school life of many children; namely, their ignorance of measurements and similar things.

OBJECT LESSONS AND HOW TO GIVE THEM. Second series. For intermediate and grammar schools. By George Ricks. Boston: D. C. Heath & Co. 1893. Pp. viii, 214. Price 90 cents.

The second series, designed for elementary and grammar schools, treats of elementary physics and chemistry and gives excellent hints for the simple demonstration of the laws of science. In some ways it is to be regretted that the apparatus shown is not simpler and that the use of an air pump is prescribed.

NATURAL THEOLOGY. The Gifford lectures delivered before the University of Edinburgh in 1893. By Prof. Sir G. G. Stokes, Bart. London: Adam and Charles Black. 1893. Pp. viii, 272. Price $1.50.

The relation of science and religion and the concordance between science and revealed religion are the topics of this work. If we undertook to review it, it would possibly bring us into too lengthy a discussion. It will, it is believed, be found acceptable for many readers.

THE RELIGION OF SCIENCE. By Dr. Paul Carus. Chicago: The Open Court Publishing Company. 1893. Pp. vi, 103. Price 50 cents.

☞ Any of the above books may be purchased through this office. Send for new book catalogue just published. MUNN & Co., 361 Broadway, New York.