

RECENTLY PATENTED INVENTIONS.

Engineering.

BOILER WATER LEVEL RECORDER.—William M. Lewis, New Castle, Col. This improvement provides a device which automatically records the water levels during the time the boiler is in use. A float rising and falling with the water in the boiler controls, by intermediate mechanism, a pencil marking on a dial moved by clockwork, while a graduated indicator hung loosely on the dial indicates the time for the indicating line marked by the pencil. The owner of the boiler can, by means of this device, ascertain whether there has been at any time a neglect to keep up the proper supply of water in the boiler.

Railway Appliances.

ELECTRIC RAILWAY.—William G. Murphy, Jr., Marysville, Cal. According to this improvement, a conduit arranged below the level of the track is provided with insulated roller supports, the electric cable resting normally upon the rollers, while a connector from the motor carried by the car projects into the conduit, and is furnished with grooved rollers for engaging the cable and means for bringing the connector in engagement with the cable or removing it therefrom. The connector is formed of two sliding bars, each carrying a grooved roller for contacting with the cable, one bar raising it and the other depressing it, while a bow spring in the conduit projects into the path of the connector to prevent the cable from rising through the slot.

CAR BRAKE.—John W. Neumann and John R. Pfanz, Louisville, Ky. This is a brake to be used upon a separate car or upon cars in trains, to be operated by the driver in one case and to work automatically on the stoppage of the motor car in the case of a train of cars. When it is desired to back the cars without applying the brakes, a spacing bar, pivoted to the drawhead and provided with a buffer, is let down to hold the cars the requisite distance apart.

RAIL JOINT AND CHAIR.—Joseph H. Campbell, Chicago, Ill. This invention provides an integral shoe or chair on one end of the track rail, and an integral fish-plate on the other end of the rail, thus making fewer wearing joints than usual, and giving greater strength for the weight of metal employed. The peculiar construction of the shoe or chair is designed to give the greatest strength where the most strain comes, the improvement effectively preventing the vertical or lateral displacement of the rail ends.

CAR VENTILATING DEVICE.—Albert Minnick, Colton, Cal. This invention covers an improvement on a formerly patented invention of the same inventor, in which vertically sliding doors covered openings in the ends of the car, in cars used for shipping fruit, etc., it being possible to close the doors quickly on a change of weather. The improvement provides means for more securely fastening the doors and clamping them tightly over the openings, so that there will be no leakage of air through the cracks.

CAR SPITTOON.—Edward L. Harris, Red Banks, Miss. According to this invention, the spittoon is formed of a funnel-shaped tube inserted in the car floor, its upper end flush with the surface of the floor, and having a swinging cover connected by a spindle with a double valve adapted to close and open the lower end of the tube, so that when the cover is swung to one side the lower end of the tube will be closed, but when the cover is in place over the tube the lower end of the latter will be open, and its cover swung to one side.

Mechanical.

SAW SET.—Hiram B. Smith, Atlanta, Ga. This is a very simple device to facilitate the quick and accurate setting of circular and long saws. It consists of an anvil having beveled or oval edges, in combination with which is a saw guide and support, a hammer guide, and a hammer, the latter being a flat bar of steel, which is used by placing its flat side against the vertical guide rod and striking the tooth of the saw adjoining the rod. In this manner alternate teeth are set, when the saw is reversed and the intermediate teeth are set in the opposite direction.

SAW ATTACHMENT.—Henry C. Webb, Russiaville, Ind. This is a simple and cheap apparatus for use with an ordinary cross cut or drag saw, enabling the latter to be readily operated by one person. A supporting post is driven into the top of the log, and a lever is pivoted to one end of the saw and near its free end to another lever, the latter being pivoted to the post, on one side of which is mounted a pulley, while a spring bearing on the pulley connects the short ends of the two levers.

ROD COUPLING.—Louis Buese and John Cowling, Republic, Mich. That class of couplings designed to connect a swivel block with a drill rod, such as is used for drilling or boring, forms the subject of this invention, which provides a coupling which may be instantly coupled to or uncoupled from the drill rod, forming a strong connection, so that the rod may be easily and safely pulled when necessary, and which may be quickly thrown into or out of gear. A swivel plug with a threaded lower end is held to turn in a supporting yoke, a screw extending lengthwise through the plug and a collar turning with the upper end of the screw, on which a handwheel is loosely journaled, a fastening device connecting the handwheel and collar.

BRICK MARKING MACHINE.—John E. Ennis, Duluth, Minn. This invention provides a marking device especially adapted for use by brick masons, by which bricks can be quickly marked and gauged to facilitate their laying, the marking being quick and regular, and indicating the thickness as well as the length, a special mark being made when desired for the cutting of a number of short bricks. In combination with fixed end and side guides, the marking device has a number of marking rollers, having each a yielding bearing, so arranged that they may be set in marking position to engage bricks of different thicknesses.

Agricultural.

COTTON SEED PLANTER.—Alois Lang, Macon, Ga. This is an improvement in machines in which revolving wheels or disks are employed to discharge the seed or fertilizer from the hopper. The interdental portions of the disks are curved to form transverse semicircular grooves that serve as pockets to receive the seed and carry it down through the slots of the hopper bottom, in such way that the seed is discharged in a broad and practically continuous stream, instead of intermittently. The machine has a furrow opener, a seed coverer, and a wheel behind the furrow opener, which operates the seed agitating and discharging mechanism by means of a chain and sprocket wheels.

PRUNING IMPLEMENT.—Frank P. Kern, Missoula, Mont. Inexpensive pruning shears for trimming trees, vines, etc., are hereby provided. A handle slides on the shank of an upward-curved hook, at the base of which is pivoted a shear adapted to close against the hook, and having a depending shank extending down at the side of the handle, with means for holding the shear away from the hook to permit the entrance of the limb from above, while there is a connection between the shear shank and the handle.

DRAUGHT EQUALIZER.—Theodor J. Miland, White, South Dakota. This is an improvement more especially adapted for use on harvesting machines, being attachable to the pole so as not to weaken the latter, and enabling one horse to work on one side and several on the other without there being any side draught. A lever carrying pulleys is pivoted to the pole, chains passing over the pulleys carrying whiffletrees, while a bar secured to the lever is connected by a brace with the pole, an evener bar being pivoted to the pole in the rear and a drawbar pivoted to the evener bar and to the lever, the invention also covering other novel features.

LAWN MOWER.—Horace L. Freeman, Lexington, N. C. This implement has a semicircular finger bar with a revolving cutter arranged upon a vertical axis, and connected and driven by bevel gears from the running wheels behind, a horizontal cutter wheel having around its periphery projecting knife seats with inclined forward edges, to which slatted knife plates are secured by adjusting screws. The machine is designed to cut its full width, cutting high as well as low grass, and cutting close to fences, curbstones, etc., while its knives are easily sharpened and adjusted.

KNOT TYING MECHANISM FOR HARVESTERS.—William H. Gaskill, Wilson, N. Y. This mechanism is especially designed for connection with grain harvesters, but may be used on baling or bundling machines to tie the twine binding the bundle or bale. The improvement makes a movable holder unnecessary, and allows the fingers to tie a knot without any hard strain on the twine. The mechanism may be applied to any harvester having a needle for carrying the twine around a bundle, or to any machine to which such a needle can be applied.

Miscellaneous.

ELEVATOR.—James W. Brook, Lynchburg, Va. This invention provides a novel construction of elevating and lowering device in the nature of an amusement apparatus, the cage or car being caused to revolve as it descends. The apparatus comprises a tower or frame, with a car, and a spiral or screw shaft arranged concentric with the car, the latter being adapted to carry passengers and to be revolved as it descends by the action of the shaft. Counterbalance weights, in the form of elevator cages, may be used to lift passengers to the top of the tower, to descend in the revolving car, the counterbalanced cages and their passengers being designed to weigh less than the car, so that the latter as it descends will lift the elevators.

COAL LIFTER.—Albert Roll, South Amboy, N. J. A simple apparatus is afforded by this invention, by means of which coal or other material may be rapidly lifted from a pile and delivered into a conveyer, the coal being raised without materially breaking it. The frame is preferably mounted on a revolvable platform or turn table, for conveniently bringing the apparatus in position for use, the frame supporting a shaft on which is a revolvable wheel having arms to which are pivoted buckets, a roller in the path of the buckets tipping them to the right position to scoop up the coal, while another roller tips the buckets to empty them.

COAL POCKET SCREEN.—George A. Thompson, Brooklyn, N. Y. This invention provides for agitating the screen of a pocket, thereby doing more thorough work than can be accomplished by a fixed screen, and controlling the delivery of the coal at the same time. A vertically swinging inclined frame is hinged at its rear end below the gate of the pocket, and having adjusting mechanism for its forward end, there being a vibrating screen within the frame from which a lever extends to within reach of the operator, there being also an operating device extending to within easy reach to permit of simultaneous operation, while there is a dust conveyer below inclined reversely to the screen and its frame.

SUNSHADE FOR VEHICLES.—Letitia V. Luce, New Orleans, La. Brackets are attached to the vehicle, one of them being provided with a spring, and a frame is held to slide in the brackets against the tension of the spring, while a rack attached to the vehicle has a series of notches or recesses to receive one edge of the frame, guides supporting side extensions of the frame cover. The device is light and simple, and capable of quick and convenient adjustment, and the mechanism is such that when the sunshade is not necessary it may be folded up parallel with the under side of the canopy or top and be practically concealed from view.

WINDOW SHADE SUPPORTER.—Stephen T. Stuver, Puyallup, Washington. This device is mainly made of stout wire, and is more especially designed for carrying spring roller window

shades, being readily adjustable to windows and shades of different sizes and widths, causing the shade to hang straight with the window casing. The supporter is composed of a truss frame made in sections sliding one upon the other, there being an upper and lower series of wires, with locking devices to secure the wires in adjusted position, while knobs or sockets at the ends of the wires carry the shade roller and suspension eyes insure the straight hanging of the shade.

CRATE.—David J. Rex, Pittsburg, Pa. This is an improvement for use in crating paper boxes or similar goods, a simple and novel form of corner piece being provided. It is a triple right angular corner piece formed to receive the side and end slats and the post slats, and is made by casting or by stamping or forging from sheet metal, screw or nail holes being provided if desired, so that the corner piece may be fastened to the slats.

DESIGN FOR A SPOON.—Adolph Ludwig, Brooklyn, N. Y. The handle of this spoon has a crowning figure simulating a four-leaf clover, followed by a representation of a bow knot, and a group of lower figures in imitation of the forget-me-not, the stems of the flowers and the streamers of the bow knot forming the body of the handle, while in the bowl of the spoon are represented a heart, a horseshoe, and a wish bone.

PUMP.—William Peterson, Atwater, Minn. This is an improvement especially adapted for use in tubular wells, having two pistons actuated from a single lever reciprocated simultaneously in opposite directions, the lever being actuated by hand or by a windwheel or other applied power, and affording a continuous stream.

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.

SMITHSONIAN CONTRIBUTIONS TO KNOWLEDGE. Vol. XXVIII. City of Washington: Published by the Smithsonian Institution. 1892. Pp. x, 446. Twelve colored plates.

This elegant quarto is devoted to the life history of American birds, some 145 in number. The text touches upon the habitat, habits, nidification and oology of the different species. A very graphic air characterizes the matter. The story of the egg collector watched by Apache Indians while climbing a tree and yet saving the egg in his mouth illustrates true devotion to a scientific end. The very full space accorded to the subjects and the departure from mere dry details give the book especial interest, while the fullness of the treatment and the embodiment of details give it additional scientific value. Two much cannot be said in commendation of the publisher's part, particularly with respect to the plates. The elegance of these, which are devoted entirely to eggs, places them beyond criticism.

THE PRACTICAL MANAGEMENT OF DYNAMOS AND MOTORS. By Francis B. Crocker and Schuyler S. Wheeler, D. Sc. New York: D. Van Nostrand Company. 1892. Pp. vii, 67, 32. Price \$1.

This little work is the outcome of a series of articles which were published in the *Electrical Engineer* recently. Both authors are representative men in the field of electrical engineering, and the titles of different chapters disclose the eminently practical nature of their instructions. The arrangement of the text in some places is very characteristic and excellent; where different troubles are stated, each trouble is followed by its cause, symptom and remedy.

THE SPEECH OF MONKEYS. By R. L. Garner. In two parts. New York: Charles L. Webster & Company. 1892. Pp. xiv, 217. Price \$1.

Mr. Garner's researches into the speech of monkeys, in which he utilizes the phonograph, have given him a very wide reputation. The present work embodies the results of his laborious researches. It contains also considerable matter referring to his views concerning the theory of speech.

FLORIDA, SOUTH CAROLINA, AND CANADIAN PHOSPHATES. By C. C. Hoyer Millar. New York: The Scientific Publishing Company. Pp. ix, 223. Price \$2.50.

In the subjects of mineral resources, few things have occupied greater attention during the last few years than the natural phosphates of this country. Here, where we have but little basic slag, the natural sources for fertilizing material are of double importance. The title of the work indicates the ground it covers, and the figures as to price and general statistics and practical details of extraction give the work a peculiarly everyday value.

ELEMENTS OF QUALITATIVE AND QUANTITATIVE CHEMICAL ANALYSIS. By G. C. Caldwell, B.S., Ph.D. Second edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co. 1892. Pp. viii, 175.

In this somewhat small volume, Professor Caldwell gives, as far as possible, the general principles of both qualitative and quantitative analysis. It seems almost impossible in so short a space to treat adequately so long a subject, but the work at least will give a student, who merely wants to know how chemical work is executed without descending to the niceties of manipulation, a reasonable idea of what life in the laboratory is. Several peculiarities in the spelling of chemical words are to be noted.

THE COMPASS. Volume I. 1891-1892. Edited by William Cox. New York: Keuffel & Esser Company. Pp. 192.

THE MEDICAL AND DENTAL REGISTER DIRECTORY AND INTELLIGENCER OF PENNSYLVANIA, NEW JERSEY, DELAWARE. George Keil, editor. Philadelphia: George Keil. 1892. Pp. xvi, 422.

This work purports to be a directory of physicians throughout the States named, and gives also a list of medical and allied societies. It is readily conceivable that such a work would be of extreme use in many cases. The office hours of physicians are appended to their names in many cases, as well as their addresses, and it really seems to be a remarkably complete production.

TRANSFORMERS. Their theory, construction and application simplified. By Caryl D. Haskins. Illustrated. 1892. Lynn, Mass.: Bubier Publishing Company. Pp. 150. Price \$1.25.

This work, dedicated by the author to his father, the well known John F. Haskins, appears to be reasonably complete, and to give excellent practical details as to the management of alternating current transformers. It is illustrated with different views, gives the underwriters' rules as applied in New England, and ends with what is rather curiously called a glossary, containing what are supposed to be explanations of but ten terms, with rather crude definitions appended thereto.

AN INTRODUCTION TO GEODETIC SURVEYING. In three parts. I. The Figure of the Earth. II. The Principles of Least Squares. III. The Field Work of Triangulation. By Mansfield Merriman, Ph.D. New York: John Wiley & Sons. 1892. Pp. 170. Price \$2.

Professor Merriman's reputation is enough to insure the value of the present work. It treats the earth as a sphere, spheroid, ellipsoid, ovaloid, and geoid, presenting a very interesting synopsis of the possible forms of the earth or possible formations of parts of the earth. Treatises on the use of the principles of least squares and the field work proper are appended and enhance the value of the book.

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SCIENTIFIC AMERICAN BUILDING EDITION.

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2. Plate in colors showing an elegant residence at Montclair, N. J. Perspective view and floor plans. Cost \$7,000 complete. Mr. E. T. Hapgood, architect, New York. An excellent design.
3. A house at Montclair, N. J. Two perspective views and floor plans. Cost \$4,750 complete. E. T. Hapgood, architect, New York.
4. A Queen Anne cottage recently erected on Chester Hill, Mount Vernon, N. Y., at a cost of \$5,000. Floor plans, perspective elevation, etc.
5. A house for two families erected on Armory Hill at Springfield, Mass., at a cost of \$7,000 complete. Mr. F. R. Richmond, architect, Springfield, Mass. An excellent design. Floor plans and perspective.
6. A model dwelling at Holyoke, Mass. A unique design. Perspective elevation and floor plans.
7. A small cottage and separate summer kitchen. Perspective views and floor plan. Cost for both buildings, about \$1,600.
8. The parsonage at Montclair, N. J., built for the Congregational Church. Cost complete \$15,000. J. C. Cady & Co., architects, New York. Perspective view and floor plans.
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