

RECENTLY PATENTED INVENTIONS.

Engineering.

ROTARY ENGINE.—James C. Walker, Waco, Tex. This engine has a steam drum rotated by steam passing out through arms discharging into annular chambers rotating about the drum in a reversed direction, the arms carrying pistons which travel in the annular chambers, valves and steam spaces being arranged to deflect the steam and impart a rotary motion to the annular charges, as the steam is discharged from the drum. Two distinct rotary motions in reverse directions are obtained, and peculiarly arranged cut-off devices are provided, the discharge of the steam being automatically controlled.

Railway Appliances.

SLEEPER BLOCK.—Reuben D. Culver, Veedersburg, Ind. Sleeper blocks, preferably made of terra cotta, and with a broad, flat base and tapering sides, have side shoulders in which extend longitudinal rods connected by securing bolts to the base of the rail. The bases of the rails are shaped to conform to the beveled tops of the sleeper blocks, and the blocks and the rails are connected by cross tie rods. The blocks are arranged in trenches and rest upon a solid foundation, to afford a permanent and level seat.

RAILROAD GATE.—Wm. J. O'Beirne, Brooklyn, N. Y. This invention is especially for elevated railroads, the gate provided being designed to close the platform to the track and train until the latter is at a standstill. One long gate, moving easily on friction rollers, is held on the edge of the station platform, and this gate has openings at distances apart adapted to register with the platforms of the several cars, these openings being closed by auxiliary gates. By turning one hand wheel the operator moves the several gate openings to the proper place when the train stops, and by turning another hand wheel the several gate openings are simultaneously opened and closed.

Electrical.

ALARM CLOCK.—Thomas P. Adams, Rico, Cal. An attachment for an ordinary alarm clock is provided by this invention, by means of which an alarm may be given by an electric battery and bell, the alarm to continue until the circuit is broken. A case containing the battery has on its upper side two contact plates and an insulating piece, upon which rests an ordinary metallic clock, the alarm being connected with the plates. A circuit maker is adapted to be held elevated by the winding arbor of the alarm, and when released it descends upon the other contact plate and electrically connects the two plates through the medium of the clock case.

Mechanical.

MORTISING MACHINE.—Christian Loetscher, Dubuque, Iowa. A tilting frame is mounted to turn on the bed plate frame, a bed plate being held laterally adjustable on the tilting frame, while a clamping plate sliding on the bed plate has a rod, the axis of which forms the center of the tilting frame. The invention is an improvement in chain tool mortising machines. After the machine is once started no further attention is required, the several mechanisms being actuated automatically and the operator only needing to remove the material to be treated or shift it on the bed plate to bring it in proper position for the mortising tool.

FLOOR CLAMP.—Geo. O. Woolcocks, Brooklyn, N. Y. The head of this tool has slotted arms, between which fits a toe piece having parallel arms and spurs, there being a cam lever between the arms of the toe piece, while a pin passing through the arms of the toe piece and cam lever projects into the slots of the arms of the head. This clamp is light, strong, and inexpensive, takes up but little room, and may be quickly applied to the boards of a floor, wall, or ceiling, to force them firmly together and hold them in position until they are thoroughly fastened.

STAIR BEVELING INSTRUMENT.—John A. Caldwell, Vancouver, Canada. This is an improvement on a former patented invention of the same inventor, for an instrument for describing stair curves. The invention consists of blades having slotted transverse guideways, sleeves engaging the compass legs being held transversely adjustable in the guideways, the sleeves being also mounted to turn in the guideways. The improved instrument is simple and durable in construction, and adapted to be readily and conveniently adjusted and manipulated for drawing the desired lines.

Agricultural.

WHEEL PLOW.—Abraham Dalke and Gustav Wiens, Henderson, Neb. This invention provides an improvement in gang plows whose frames are adjustable vertically by means of cranked axles, that the plows may be made to run at different depths in the soil, or readily moved from place to place. Three plows are rigidly secured to the frame, on a line diagonal to the line of draught, and the rear one only has a landside, a forward wheel on a front laterally bent axle rendering landsides unnecessary on the two front plows. The main axle is rocked, and the plows raised or lowered by a hand lever within convenient reach of the driver, and having a spring-pressed dog for locking it to a notched fixed segment.

TRANSPLANTER.—Daniel Clow, Janesville, Wis. This invention relates more particularly to an improved tobacco transplanting device, providing an apparatus adapted to carry a supply of water, and means for intermittently discharging a definite quantity upon each plant as it is placed in the ground. A vertically adjustable frame regulates the depth of the furrow, the discharge of water upon the plant is controlled by a regulating valve, and an adjustable feeder's seat carries the rollers which press the dirt with the desired pressure around the plant.

Miscellaneous.

WATER PURIFYING PROCESS.—Alfred Dervaux, Brussels, Belgium. This invention provides a

method of charging water with lime, the latter being delivered to an upwardly flowing column of water below its outlet, the charged liquid being decanted at a point above while the undissolved lime gravitates toward the inflowing water, and is prevented from flowing out with the charged liquid, affording a continuous production of milk of lime. A saturating apparatus based on the same principle is employed for preparing solutions of soda, barium, or other readily soluble reagents.

TREATING GOLD AND SILVER ORES.—George W. McGee, 531 Sacramento Avenue, Chicago, Ill. According to the process provided by this invention, the crushed ore is submerged in a solution of caustic soda or potash, the mixture is heated and to it are added salts of oxalic acid and sulphate of copper or bluestone, the liquid being then evaporated from the mixture. The process is simple and comparatively inexpensive, and is designed to render refractory and other ores free milling, preventing the gold or silver from volatilizing during the process of reduction.

PARACHUTE PROPELLER.—Elijah Nyswanger, Hanford, Cal. Two scoop-shaped paddles are pivoted oppositely on a reciprocating frame or carrier, and arranged with their concave sides inward, with means for throwing the paddles alternately into operative position inclined to each other to form a conical pocket, and into inoperative position or parallel to each other, there being a crank connection between the hinged paddles and crosshead rods. The hinged paddles or wings open to offer resistance to the air or water when pulled in one direction, and when pulled in the opposite direction, they tilt into position to move with little resistance. The propeller is adapted for use on vessels in the water or on air ships.

SPRING HINGE.—Herman Reichwein, Villa Park, N. J. An improvement simplifying the construction of double-acting hinges has been made by this inventor, the new hinge having but few parts, and designed to be perfect in action, durable, and quickly applied. It has a stationary and a swinging section, the latter having a rocking movement upon the other at their inner faces, while a pintle with two transversely connected vertical members is mounted in the sections, and a spring between one hinge section and its vertical member, the spring being in a suitable barrel or casing.

UMBRELLA NOTCH AND RIB.—Harry L. Heck and William S. Kellogg, Little Rock, Ark. The body of the notch has a flange with rib sockets, and a recess above the flange adjacent to which is a spring, a cap having an aperture to receive the spring when the cap is forced upon the body, the two sections being readily disconnected by forcing the springs inward. A device is also provided for attaching the cover to the ribs at a point intermediate of their lengths, and it consists of a wire bent upon itself to form an eye or loop at the top of the rib, to which the cover is stitched. The wire is carried down on opposite sides of the rib, and bent upward into its hollow U-shaped portion, where it is extended longitudinally.

MATCH BOX.—Housatonic Brass Company, Wallingford, Conn. The hinged cover of this box is adapted to receive and hold by frictional engagement a removable cap or casing constituting a separate chamber for the reception of dice, etc., the cap or casing being adapted for use as a dice box when taken out of the cover.

HORSE DETACHING DEVICE.—Charles E. Harris, Brandon, Cal. A lever pivoted on the breast collar is connected with the traces, a casing supported from the harness saddle being also connected with the traces, the casings being fastened to the shafts or poles by a locking device in which the locking latches are engaged by tripping levers upon the pulling of a wire by the occupants of the vehicle, the casings then sliding over the thills on the further forward motion of the animal. The animal is very quickly attached to the vehicle where this improvement is employed, and may be instantly released from the vehicle in case of accident or a runaway.

BIT BRACE.—John E. Hitch, Wilmington, Ohio. This brace has an adjustable sweep, that the brace may be readily adapted to a large or small boring bit, or for boring in contracted spaces. The horizontal portions of the sweep are in two sections, the outer section, on which is the handle, being so jointed to the inner arms that it may be extended out at full length from the bit, or adjusted so that the handle will be nearly up to the vertical line of the bit.

GATE POST.—Joseph W. Barnes, Maunzy, Ind. This gate has a base consisting of two parallel beams and connecting braces, the metal post passing through one of the beams, and having at its lower end a foot packed by the ground. Brace rods connect the upper end of the post with the outer beam, and collars vertically adjustable on the post form seats for the eyes of the gate. The post is strong and readily set up, permits the full opening of the gate, and allows for its adjustment at any desired height from the ground.

FLAN ATTACHMENT FOR CHAIRS.—Anton Flierboom, Elizabeth, N. J. A foot rest adapted to serve as a treadle is held in arms pivoted near the bottom of the front legs of the chair, and there is a crank and pitman connection between the treadle foot rest and a shaft journaled under the seat, this shaft being connected by a belt with a vertical shaft at the chair back, on the upper end of which is held a fan wheel. A pitman from the crank is also connected with a bellows, so arranged that when the fan wheel is rotated the bellows will direct a current of air upon the feet and legs of one rocking in the chair.

WASHING MACHINE.—Ernest W. Gerbrach, Brooklyn, N. Y. This is a machine for scouring or cleaning filter press cloth, blankets, bags, etc., and the cleansing material is held in a sluiceway over which passes a carrier with the fabrics, the scouring devices acting in the presence of the cleaning compound, and the material during the process being made to travel in a direction to carry the cleansed portion away from the cleansing material. The operation of the brushes is automatic, and the adjustable and traveling carriers have automatic clamps to hold blankets or cloths of different thicknesses.

WASHING MACHINE.—Frank J. and Mead C. Coon, Walla Walla, Washington. Mounted centrally on spiral springs, so as to be easily rocked, is a suds box having a flat bottom and straight sides and ends, and inclined end shelves extend toward the center and bottom of the box to form pockets with contracted mouths. As the box is rocked, and the water and clothes thrown alternately from one side to the other, the air in the pockets is compressed and released, and the air and water are forced through the clothes in alternately opposite directions.

CLOTHES DRIER.—Thomas Fry, Calgary, Canada. This is an improvement in clothes horses or racks, and consists of a suspensory device which may be readily attached to or detached from a socket secured to the ceiling or other overhead support. It is of simple construction, the rack being readily lengthened or shortened and revolved in its socket as desired, while the arms which receive the clothes may be easily disconnected from the body of the rack, enabling the device when not in use to be placed in a small compass.

FLAT-IRON HOLDER.—Carl C. Moritz and Stephen D. Greenwood, Salt Lake City, Utah Ter. This holder is made in two hinged sections, adapted to be quickly closed upon the handle of a flat iron, no matter what the diameter of the handle may be. The fingers of the hand are also protected from the heat of the iron by a fender or guard held beneath the handle, both the holder and the guard having an asbestos-coated surface where they come in contact with the heated iron.

JAR CLOSURE.—Frank H. Palmer, Brooklyn, N. Y. This improvement provides for securely fastening a jar cover in place to prevent leakage, and also to prevent fruit or other solid contents from being exposed to the air above the liquid in the jar. The solid contents are held down by a cover plate having projections extending into the upper end of the jar, and the latter is formed with an exterior flange having a double bevel, while the cover has a bail with downwardly extending arms having inwardly bent lugs abutting on the lower bevel, and adapted to engage the bottom of the flange when the bail is pressed.

Designs.

BRUSH OR MIRROR BACK.—Austin F. Jackson, Taunton, Mass. This design embodies floral sprays introduced inside of beads around the edges, in combination with convoluted scrolls and ribbon-like representations.

MEDAL.—Cesar Orsini, Rome, Italy. The obverse side of this medal has medallions representing Columbus and Washington, with an eagle spreading its wings above and holding an olive branch in its talons beneath. The reverse has a heroic figure of Liberty gazing at a cross apparently displayed in the sky over the grounds of the Columbian Exposition.

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.

A MANUAL OF MACHINE DRAWING AND DESIGN. By David Allan Low and Alfred William Bevis. London: Longmans, Green & Co. 1893. All rights reserved. Pp. vii, 375. Price \$2.50.

The title of this work explains very fully its scope. It covers the mechanical drawing of all kinds of machinery, including boilers. A large number of illustrations, all in line work, are given to elucidate more thoroughly the subject. Some general principles of mechanics and notes on mechanical drawing precede the main volume of the work. It will be found a thoroughly meritorious contribution to the literature of the draughtsman's art.

THE MANUFACTURERS OF THE UNITED STATES. A classified and complete reference book for buyers and sellers for domestic and foreign trade. 1892. New York: The Manufacturers' Publishing Co. Pp. 1,500. Price \$10.

This work may be divided into three parts. The first is an index of articles. This is most exhaustive, covering about eighty three-column pages of fine print. These pages are numbered. After them comes the second and principal part of the work. This is the list of manufacturers of and dealers in the articles named. It is arranged in alphabetical order, referred to the articles. Under each one are given the names of the firms or houses handling the article. To this part pages 1 to 991 are devoted. The third part is devoted to the larger industries, some eighty-three heads being given and pages 1500 to 1817 being given to them. From page 991 to 1500 there is a break in the numbering, the design being to allow for the insertion of extra pages. The exceedingly systematic arrangement of parts and the exhaustive indexing make this a very valuable and acceptable book.

TELEPHONE LINES AND THEIR PROPERTIES. By William J. Hopkins. New York: Longmans, Green & Co. 1893. Pp. xvi, 258. Price \$1.50. No index.

The extension of telephony is well shown in the publishing of this work, devoted entirely to what may be termed telephone engineering. Underground and overground work, long-distance lines, properties of wire, insulators, exchanges, switchboards, interferences from outside sources and similar topics form the body of the work. It will be found an excellent contribution to the literature of electricity. It is very greatly to be regretted that no index is contained, an omission which is very severely felt, especially in scientific books.

SWITCH LAYOUTS. By Augustus Torrey. New York: Published by the *Railroad Gazette*. 1893. Pp. 191. Price \$1.

This pocket book contains over a hundred representations of methods of laying frogs and switches on railroad tracks. The numerous plates are all put together and followed by the subject of curve easements, with nu-

merous tables relating to the determination of curves for railroad lines. The work is bound in a cover adapted to the pocket and its whole aspect is one of a field book which will be in constant use by the practical engineer.

CONTRIBUTIONS FROM THE LICK OBSERVATORY. No. 3. Terrestrial atmospheric absorption of the photographic rays of light. By J. M. Schaeberle. Sacramento: State Office, A. J. Johnstone, Superintendent State Printing. 1893. Pp. 89.

From the Lick Observatory this monograph is sent us. It will be found of special value in these days of photographic astronomy, and its technical value will be certainly very widely recognized by astronomers.

INDIANA. DEPARTMENT OF GEOLOGY AND NATURAL RESOURCES. Seventeenth annual report. S. S. Corby, State Geologist. 1891. Indianapolis: W. B. Burford, contractor for State printing and binding. 1892. Pp. 705. 22 plates.

THE COSMIC ETHER AND ITS PROBLEMS. A scientific sketch. By B. B. Lewis. Bridgeport, Conn.: The *Evening Post* Print. 1893. Pp. vii, 159. Price \$1.

ANNALS OF BRITISH GEOLOGY. 1891. By J. F. Blake. With six plates. London: Dulau & Co. 1892. Pp. x, 404.

This excellent work will be seen from its title to be a *sine qua non* for working geologists. It contains an abstract of a very large number of papers on geology, mineralogy, lithology, and allied topics.

FIRST REPORT OF THE STATE ZOOLOGIST, ACCOMPANIED WITH NOTES ON THE BIRDS OF MINNESOTA. By Dr. P. L. Hatch. Henry F. Nachtrieb, State Geologist. Minneapolis: Harrison & Smith, printers. 1892. Pp. 487.

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SCIENTIFIC AMERICAN BUILDING EDITION.

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2. Plate in colors showing the handsome Queen Anne residence of the Hon. Craig A. March, at Plainfield, N. J. Two perspective views and floor plans. Mr. Chas. H. Smith, architect, New York. An excellent design.
3. A dwelling near Longwood, Mass., erected at a cost of \$5,200 complete. Perspective views and floor plans. A model design.
4. A dwelling at Chester Hill, Mt. Vernon, N. Y., erected at a cost of \$4,750 complete. Floor plans, perspective view, etc. Mr. W. H. Symonds, architect, New York.
5. Engraving and floor plans of a residence at Oakwood, Staten Island, N. Y., erected at a cost of \$3,540 complete. Mr. W. H. Mersereau, architect, New York.
6. A stable erected at Bridgeport, Conn. A unique design.
7. A residence at Wayne, Pa. A very picturesque design, treated in the Queen Anne and Colonial styles. perspective elevation and floor plans. Cost, \$6,250 complete. Messrs. F. L. & W. L. Price, architects, Philadelphia.
8. Engraving and floor plans of a Queen Anne residence at Newton Highlands, Mass. Cost, \$6,000. Messrs. Rand & Taylor, architects, Boston.
9. A square-rigged house, recently erected at Allston, Mass. Cost, \$2,600. Plans and perspective elevation. Mr. A. W. Pease, architect, Boston, Mass.
10. The Fifth Avenue Theater, New York. View of the main front, showing the terra cotta decorations; also view showing the iron framework, erected by the Riverside Bridge and Iron Co., and a view showing the fireproof arching, erected by the Guastavino Fireproof Construction Co.
11. Sketch of a dining-room fireplace.
12. Miscellaneous contents: An improved woodworking machine, illustrated.—A new edge moulding or shaping machine, illustrated.—The box industry.—Natural gas at Geneva, N. Y.—Plaster of Paris floors.—Inside sliding window blinds and screens, illustrated.—City pavements.—The Alberene laundry tub, illustrated.—The "Murray" phaeton, illustrated.—An elegant bath tub, illustrated.—To thaw out frozen pipes.—Improved plane irons, illustrated.

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