

RECENTLY PATENTED INVENTIONS.

Electrical.

ELECTRO-MAGNETIC RECIPROCATING MOTOR.—Richard Threlfall, Bayswater Road, Darlinghurst, Sydney, New South Wales. A bi-polar electromagnet is, according to this improvement, provided with both magnetizing and demagnetizing coils on each polar extremity, and a rotary commutator is provided with four sets of contacts, two for each end of the magnet, for controlling the current passing through the magnetizing and demagnetizing coils, thereby using the current to produce a direct reciprocating motion, instead of first a rotary, to be afterward changed to reciprocating by cranks or other mechanism. The combined mechanical and electrical efficiency is also designed to be greater, the parts fewer, the friction less, and the construction more simple than apparatus at present employed.

Railway Appliances.

FREIGHT CAR FITTING.—Archie J. Sneed, Jr., Canton, Miss. This is an adjustable attachment for supporting boxes, crates, etc., containing fruit and other merchandise, and consists of rails adapted to be fastened on the car floor, standards being held adjustably on the rails, and cross bars sliding in the standards. The device is very simple and readily removable at any time when it is desired to use the car for general purposes.

REFRIGERATION AND STORAGE.—Charles S. Hardy, San Diego, Cal. This invention applies to devices for use in railway cars, steamboats, ships, warehouses, dwellings, etc., and especially for places where it is desired at times to use the room for storage without refrigeration. The ice box, refrigerating chamber, and air flues are so arranged that the air circulation will be uniform, the foul gases being absorbed and carried away by the water flowing from the melting ice. The ice boxes are adapted to be conveniently cleaned, and may be folded at the top of the storage chamber when refrigeration is not desired.

REFRIGERATOR CAR.—Two further patents have been granted the same inventor, embracing additional improvements in line with the above invention, one of them providing better means for hinging and supporting the folding floor or bottom of the ice box, and fastening it to the swinging side sections when in normal or folded position, the bottom and one side of the box being adapted to fold against the end wall and roof of the car. The other invention embodies an improvement consisting in connecting the floor and one of the swinging side sections of the ice box by such means and in such manner that, while permanently attached to each other, they are yet flexibly connected so as to be adapted to fold and unfold, and one to support the other in such operation.

REFRIGERATOR CAR.—Perd A. Barker and Fred A. Reynolds, Los Angeles, Cal. This invention provides a special form of construction adjustable to form an ice box, or adapted to be folded to leave the interior of the car unobstructed. It consists of removable partitions and a removable ice rack hinged to the bottom of one of the partitions and arranged to be folded between the partition and the side of the car. A door is provided in each partition to allow access from the interior of the car to the ice box, when the latter is in use, and the necessary drip pans are built with the car and remain in position when the side walls of the ice box are folded out of the way.

GUARD RAIL.—Lewis J. Baker, Marietta, Minn. This is a device for use on bridges, curves, trestles, etc., to keep the wheels on the rails in case of the spreading of the track or the breaking of a rail. It consists of a rail provided with a guard member inclined inwardly toward the inner face of the head of the rail, and formed with a bearing face at its upper end, adapted to be engaged by the flange of the wheel as it cant inwardly, the peculiar arrangement and connection of the guard rail with the main rail being such that the guard rail will not cant or be bent over by the lateral strain of the inner face or flange of the wheels.

HAND WHEEL FOR CAR BRAKES.—Frank J. Pfenigar, Bay City, Mich. The attachment of a hand lever to the wheel in such a way as to permit the use of the wheel in the ordinary manner at all times, and also allow it to be turned by the lever when desired, is provided for by this improvement. The brake wheel has an annular toothed ring inside the rim on its upper face, there being a finger space between the ring and rim, and a lever journaled on the wheel shaft has a hinged member with a dog or claw to engage the toothed ring, the hinged member being constructed to swing back from engagement with the rim.

Mechanical.

BALL BEARING.—Olaus B. Jacobs, Fremont, Washington. In a fixed box a series of rings oppositely beveled form V-shaped annular recesses holding balls which project beyond the rings and space them from the box, the rings being adjustable and their movement pressing the balls outward into direct contact with the box. This bearing, introduced between the periphery of the shaft or axle and the box, is designed to reduce friction and wear to a minimum, and the wear is readily taken up between the rings, balls, and box.

ROD HEADING MACHINE.—Daniel M. Redmond, Philadelphia, Pa. This is a machine for rapidly and securely fastening heads or tips on the outer ends of rods used to make key rings and other articles. It comprises a reciprocating die with a central recess and branch recesses leading therefrom, a second die sliding toward and from the reciprocating die and having recesses registering with its recesses, a rod carrying the second die, and a cam for moving the rod upward to bring the rod and head held on the second die in contact with the reciprocating die. When the two dies are moved toward each other, the sides of the head or tip are compressed to fasten it onto the rod.

MAKING EYES ON UMBRELLA RIBS.—This is another invention of the same inventor, providing

a machine for conveniently and rapidly forming the eyes for umbrella ribs and securing the eyes in place on the ribs. It comprises a revoluble die for bending the wire to form the eye, a stationary female die and a reciprocating male die or punch for pressing the rib end onto the eye shank to fasten the eye in place.

Agricultural.

POTATO DIGGER.—Daniel J. McDougall, Dewdney, Canada. In this machine the potatoes are gathered by a shovel, and a dirt separator delivers the potatoes to a carrying drum, by which they are delivered upon a sorting screen or sieve, the shovel, separator and drum being adjustable, and the mechanism being driven from the supporting wheels as the machine is drawn along. Beneath the sorting screen or sieve is a box to receive the potatoes and a platform for a receptacle for potatoes too large to pass through the screen.

RAKE AND LOADER.—Jesse S. Byers, Knoxville, Ill. This is a hay loading apparatus which gathers the hay in being moved over a field, raises it by means of elevator arms operated through gearing connections with one of the drive wheels, to be delivered in proper position on the wagon, where an operator stands to guide the arms in placing the hay as the load increases in height. The hay is prevented from being blown off the machine while it is being passed up to the wagon.

WIRE BAND CUTTER.—Joseph Sindelar, Ipswich, South Dakota. This is a simple device to be worn on the hand for cutting the wire bands of grain bundles before the grain is fed to a thrashing machine. It comprises a strap, with hole to receive the thumb, to be buckled around the hand and carrying across the palm a knife or blade, which enables the operator to feed the machine and at the same time sever the band without danger of cutting himself.

Miscellaneous.

SEWING MACHINE FEED.—Victor Leconte, père, Paris, France. To facilitate the commencement of work in the manufacture of heavy goods is the especial design of this improvement, which comprises the employment of a novel form of feed claw, operated by cams in unison with the feed wheel. The invention also comprises an improvement in the feed pressure, which, in combination with the feed claw, prevents slack sewing, a brake arrangement being also employed to prevent the too free movement of the feed wheel and enable the machine to be readily driven by hand.

FIREARM.—George H. Garrison, Sumas City, Washington. In combination with an ejector and a spring-controlled hammer, on which operates a cocking slide, is an ejector lever whose upper end bears against the ejector, a link or hook being pivotally connected with the lever, while a cocking tumbler fulcrumed upon a fixed support is pivotally connected with the cocking slide and the cocking link. The improvement is especially designed for double-barreled breech-loading guns, and provides for the automatic ejection of the shells and the simultaneous and automatic cocking of the hammers when the barrels are brought in position for the shells to be ejected.

CLOCK WINDING MECHANISM.—Andrew J. Hopewell, Edinburg, Va. This mechanism comprises a wind wheel operating an air-forcing device, a pneumatic wheel having buckets or blades and a pipe leading from the air-forcing device and discharging into or against the buckets or blades, while connected therewith is a mechanism for operating the winding shaft of the clock from the pneumatic wheel. The apparatus may be arranged for conveniently and automatically winding spring or weight actuated clocks.

WINDOW.—Gustav Thiel, Medford, Wis. This improvement consists of a sash frame carrying the window sashes and mounted to turn in the window frame, whereby the window can be readily reversed to facilitate cleaning the panes and sashes on the inside and outside. The window frame has central pivots on which the sash frame is hung, there being boards hinged to the top, bottom and sides of the window frame on the inside to engage the sash frame and lock the latter in place.

PREVENTING MOISTURE ON WINDOWS.—Benjamin D. Ayars, Jr., Chester, Pa. This inventor has provided an improvement designed to cause a current of cold air to move down the inner surface of the window glass, preventing the contact therewith of the moist warm air of the room. A narrow opening of the width of the window admits the outside air at the top, the air being directed downward by an adjustable deflector, while a similar opening at the bottom creates a vertical draught, the bottom opening being preferably connected with a pipe leading to the draught flue of a furnace.

SHIP'S HULL.—Patrick O'Brien, St. John's, Newfoundland. The bottom of this vessel is convex from the stem to the stern and concave from the keel to a sharp-edged bilge, while from the bilge to the top of the hull the sides prevent an outer convex surface at the stern, the remaining portions being outwardly flared. The hull is designed to minimize drifting to leeward, and to facilitate the attainment of the highest speed, while affording a stable construction.

PHOTOGRAPHIC RETOUCHER.—James R. Dake, Medford, Wis. This device has a tubular body, with vibratory pencil holder, and a circular case within which is a pneumatic wheel with its axle bearing a cam and crossing the upper end of the holder, the shaft and the spring keeping the holder in constant vibration, whereby the pencil will produce such a stroke as is made by hand, but doing the work much more expeditiously. The device is very simple and inexpensive, and is capable of softening a line, stopping a pinhole, raising a shadow, sharpening an eye, or raising a light in the eye or in the drapery, and similar work such as ordinarily done by hand.

COLORING METAL LEAVES.—Josef Rosenthal, Furth, Germany. The producing of a uniform, homogeneous color on these leaves, instead of va-

riated colors, as hitherto, is provided for by this invention. The process consists in subjecting the leaves to a uniformly distributed heat to form an even layer of oxide, the leaves being piled with interposed plates of paper, glass, mica, etc., with appropriate coloring or other substances applied, and the packs being placed in a closed space through which a current of hot air is circulated to create an even temperature, the air being heated to any required degree.

GRADING POWDERED MATERIALS.—William W. Gillespie, Stamford, Conn. This apparatus comprises a tank with a rotary agitator, into the lower portion of which a supply pipe discharges, a valved outlet pipe leading from the bottom of the tank and discharging into a wet mill or grinder, while there is a flushing mechanism for the lower end of the tank. The apparatus is to facilitate the obtaining of fine powders, in the separation of which it has been hitherto customary to float the powdered material in a series of tanks in a nearly horizontal direction.

TRAP GUN.—Milan S. Barker, Eugene, Oregon. A device to automatically shoot and kill animals trapped by it has been contrived by this inventor. It is of simple and durable construction, and has a barrel open at both ends, but with a cap-like breech block inclosing the breech, while being removable therefrom and carrying the firing mechanism. A bait holder is connected to the trigger, and a shell-extracting mechanism carried by the block locks the latter against accidental displacement, the shell being extracted by the act of removing the block.

CONVERTIBLE CHAIR.—Joel H. Woodman, Hoboken, N. J. This is a combination article of furniture to serve as a settee, screen and table, the construction being durable and ornamental. The portion of the article which serves as a screen when used as a settee, is folded to be utilized as a table top when it is to be used as a table. The table portion may also be fitted for use as a billiard table. Shelves are also designed to be hinged at the back of the settee, chains or cords connecting the shelves with each other and with the screen.

GATE.—Levi W. Youngs, Sackett's Harbor, N. Y. A gate which may be set up conveniently in a short time upon any kind of land, and which may be readily carried from place to place as desired, has been provided by this inventor. It is neat in appearance, suitable for farmyard or residence, and may be slid open to permit the passage of stock or swung entirely open to give room for the passage of vehicles, etc.

BRAKE FOR CHILDREN'S CARRIAGES.—Frederick O. Boes, New York City. The brake bar, adapted for engagement with the wheels, has a pivotal connection, according to this improvement, with the handle bars of the carriage, and a spring is connected with the brake bar and a fixed support on the carriage, the arrangement being such that when the brake is in engagement with the wheels the carriage cannot be moved, and may be safely left upon an incline. The improvement is readily applicable to any style of child's carriage.

MERRY-GO-ROUND.—John S. Sprague, Tottenville, N. Y. This is an improvement in that class of constructions in which radial inclined planes are hinged to a central portion of a revolving frame and supported at their outer free ends by wheels that travel on a serpentine or wave track, so as to rise and fall regularly as they sweep around the circle.

SURGICAL INSTRUMENT.—Alonzo C. Kellogg, Portage, Wis. This instrument has pivoted prongs adapted to close at their free ends to receive an elastic band, a button being connected with the prongs to open and close them simultaneously.

FRAME FOR POCKET BOOKS, ETC.—Samuel Rosenzweig, New York City. This invention consists of hinged frame members held closed by a lock, there being a fixed pin on the frame and a spring-pressed sleeve over the pin normally inclosing its point. It is also designed for use on satchels, bags, and similar articles, the locking device of the frame being disguised.

ALARM BELL.—William H. Polleys, Metrose, Wis. This improvement provides a novel means of attaching the bell and connecting it to a door knob so that an alarm will be sounded when the knob is turned or an attempt made to open the door. The connection may also be locked in such position that the knob cannot be turned, thereby providing a lock for the door, or an alarm may be rung either from the outer or inner side of the door when the connection is in locked condition.

WHIP RACK.—Alfred H. Phinney, Williams, Iowa. A large number of whips may be held in a comparatively small rack made according to this improvement, the whips being displayed to advantage and easily placed in the rack or removed from it. The device is adapted to stand upon the floor or be suspended from the ceiling, and is of simple and inexpensive construction.

SLEIGH RUNNER.—William DuBois, Stevensville, N. Y. This runner is made in two parts, one part forming the shoe and the other part forming a frame or keeper for the shoe, the latter having a dovetail head fitting in a dovetail recess in the keeper, so that no bolts or rivets project downward in the shoe, which is solidly fastened to the frame of a sleigh of any construction.

STILT.—Edward C. Emde, Tacoma, Washington. The stirrup of this device is of simple and inexpensive construction, readily adjustable by a boy at any desired point in the length of the stilt. Its construction is such that it will not move laterally when the foot is in the stirrup and the stilt is in use, but should the stilt walker fall, the stirrup will be free to move so that the foot will readily slip from it.

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.

EVERY'S PHONETIC ALPHABET. By Robert Stanton Avery. 12mo. Pp. 48. 20 cents.
Phonetic First Book. 12mo. Pp. 32. 15 cents.
Anti-Phonetic First Book. 12mo. Pp. 32. 15 cents.
Phonetic Primer. 12mo. Pp. 80. 35 cents. All published by the author, 320 A Street Southeast, Washington, D. C.

These four little books are intended to aid in the introduction of fonetic spelling, as the author terms it, as a branch of study in schools for the purpose of extending systematic spelling as we pronounce. The author recommends the books for use by those studying phonography in connection with Pitman's Phonography. The type of the new system is very homely, somewhat resembling Russian.

INORGANIC CHEMISTRY FOR BEGINNERS. By Sir Henry Roscoe, assisted by Joseph Lunt. With one hundred and eight illustrations in the text. New York and London: Macmillan & Co. 1893. All rights reserved. Pp. ix, 245. Price 75 cents.

We are glad to see, on general principles, a chemistry devoted to inorganic work. This is a book for those beginning the study of the science, and is devoted to the elementary principles of chemistry. It makes no pretense to be a complete work, but is an introduction to that part of chemistry usually first studied by students. Thus, we find that metals are entirely omitted from it, the laws of the science being elucidated by the gaseous elements and by carbon and sulphur, the elements usually first treated of in the regular works on chemistry in general.

UTILITY OF QUATERNIONS IN PHYSICS. By A. McAulay. London and New York: Macmillan & Co. 1893. All rights reserved. Pp. xiv, 107. Price \$1.60.

This publication is an essay sent in to compete for the Smith prize at Cambridge. The author, who is evidently an enthusiast on the subject, considers it an eminently useful branch of mathematics and devotes his preface largely to the lamentable fact that Cambridge University does not devote proper attention to applied quaternions.

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- Plate in colors showing the residence of Thomas C. Wordin, Esq., at Bridgeport, Conn. Two perspective views and floor plans. Cost \$5,000 complete. A very attractive Queen Anne design. Mr. Henry A. Lambert, architect, Bridgeport, Conn.
- A dwelling erected for Edward W. Ailing, Esq., at New Haven, Conn. Perspective and interior view and floor plans. An excellent design. Cost \$4,500 complete. Messrs. Stilson & Brown, architects, New Haven, Conn.
- A very attractive residence recently erected for R. Burton, Esq., at Hartford, Conn., at a cost of \$7,500 complete. Floor plans, perspective view, etc. Mr. Henry D. Hooker, architect, New York. An excellent design.
- Engravings and floor plans of a suburban residence erected for H. McKay, Esq., at Boston, Mass., at a cost of \$2,400 complete. Mr. Austin W. Pease, architect, Boston, Mass. A very attractive design.
- A dwelling recently erected for P. H. Lucas, Esq., at Chester Hill, Mt. Vernon, N. Y., at a cost of \$7,000. Floor plans and perspective elevation, also an interior view. Mr. Louis H. Lucas, architect, Mt. Vernon, N. Y.
- A cottage at Mystic, Conn., erected at a cost of \$3,000 complete. Elevation and floor plans and an interior view. Mr. John S. Rathbone, architect, New London, Conn.
- A dwelling recently completed at Stamford, Conn., at a cost of \$3,500 complete. A picturesque design. Two perspective views and floor plans. Messrs. Munn & Co., architects, New York.
- Miscellaneous Contents: The education of customers.—How to catch contracts.—Hints to readers.—The latest and best designs for houses.—Labor Day.—Tests of paving materials.—The World's Columbian Exposition, a general view.—The builders' friend.—A durable and ornamental roof, illustrated.—An improved woodworking machine, illustrated.—The Pasteur filter, illustrated.—The Rochester parlor heater and improved oil stove, illustrated.—A stovepipe radiator, illustrated.—An electric passenger elevator at the Exposition, illustrated.—Woodworking machinery at the Fair.—A new building material.—Forsion braided wire mattresses, pillows, cushions, etc.—shown at the Exposition, illustrated.

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