

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**JET PROPULSION.**—Erwin J. Meister, New York City. This invention provides an improvement in apparatus for piston propulsion in propelling vessels by forcing a current of water through the hull of the vessel and ejecting it at the ends. The stroke-regulating mechanism comprises a double crank shaft with slotted levers pivoted above the cranks, sliding boxes pivoted to the cranks sliding in the levers, and operative connections between the free ends of the levers and the piston rods of the engines, affording means for giving to the water pistons an irregular stroke, so that they will have a quick outstroke, enabling the water to be ejected with great force, and comparatively slow recovery, preventing excessive suction.

## Railway Appliances.

**TRAMWAY SWITCH.**—George A. McMenimen, East Cambridge, Mass. This is a simple, practical device, affording means to direct a moving car from a main track to a side track, by manipulation from the car, or to enable an operator on the car to throw the switch as desired. The shifting rail is moved by a handle bar or by foot pressure operating standards guided in staple loops on the outer side of the car platform, the standard being held elevated by a spring, and there being a tapered foot block on the lower end of each standard.

## Electrical.

**MINING PICK AND DRILL.**—John Fish, South Bend, Ind. A drive pulley is fixed rigidly on the extended armature shaft of an electric motor, and a supporting arm hung loosely thereon bears at its outer end a drilling device and operating pulley, while an endless belt extends from the driving pulley to the operating pulley at the outer end for working the drill. The electric motor may be of any preferred type, and the machine may be used as a mining drill or pick, as desired, the adjustability of its parts permitting it to be used in any position in which it may be required to drive a cutting.

**LIGHTNING ARRESTER.**—Edward G. Miller, Wilkesburg, Penn. This invention consists in a helix provided with a mercury switch at the bottom, and furnished with a movable core or armature for displacing the mercury, while combined with the helix and the circuits is a series of carbon blocks arranged in a line with narrow air spaces between them. The device is for electric light circuits, to convey the charge to the ground, thus preventing it from reaching the dynamo, while also extinguishing any arc that might be formed by the passage of the lightning.

**ANNUNCIATOR.**—William C. Dillman, Brooklyn, N. Y. Two patents have been granted this inventor for annunciators for use in connection with speaking tubes, and which are operated by a current of air passing through the tubes, to announce when a person is at one end of the tube and wishes to talk with a person at the opposite end. The device is very simple and inexpensive, and may be easily applied to an ordinary speaking tube, when it may be readily operated by the breath to momentarily close a circuit in which an electric bell is included, thus ringing the bell and attracting attention to the tube, and also breaking the circuit quickly, to avoid excessive ringing of the bell and exhaustion of the battery.

**MUSICAL INSTRUMENT.**—Charles E. Guerre and Gaston H. Martin, Rouen, France. The case of this instrument has a sounding board and a keyboard, each having electrical contacts, and a bell or sonorous body mounted to vibrate on the sounding board having electrical contacts, there being an electric battery and vibrating and damping electro-magnets in the circuit of the battery, and electrical connections between the keyboard, the electro-magnets and the sonorous body. As the circuit is successively closed and opened by touching the keys the electro-magnets are alternately energized, one causing the bell to vibrate and the other arresting such vibration, thus giving forth a succession of musical sounds.

## Mechanical Appliances.

**PIPE CUTTER AND THREADER.**—George W. Bowman and John C. Godfrey, Reel Cliff, Col. This machine is adapted to be readily applied to different sizes of pipes, without removing the pipes from the places in which they are secured, the machine to be operated by one or more men, and being capable of quick adjustment to either cut a pipe off or cut a thread upon it. It has a separable hub, the parts having registering dovetail recesses which a locking key fits, while a slide block mounted on the locking key is provided with a cutter, there being a screw for adjusting the slide block and a ratchet mechanism for turning the hub.

**WINDING BOBBINS, ETC.**—Junius A. Murphy, New Orleans, La. This invention relates to means for causing a bobbin to traverse the flier in winding cord or yarn on the bobbin, automatically controlling the traverse movement of the bobbin, so that the cord or yarn will be wound in parallel or close coils throughout. A rotary feed screw has a fixed speed relatively to the flier and a nut thereon has a fixed speed relatively to the bobbin spindle, there being connections between the bobbin spindle and nut, whereby the changing relations between the spindle and flier will result in a difference in speed between the screw and nut.

## Miscellaneous.

**PUZZLE.**—James A. McDougall, Pittston, Pa. This invention relates to that class of puzzles in which a board or box with movable devices and goals is designed to be held in one's hand and so manipulated as to direct the movable devices to their respective goals. The devices are loaded or have a preponderance of weight at one end, and a ball or marble is used

to propel and direct the loaded devices to their proper places. The board has goals representing points distant from the World's Fair, and in playing the devices represent passengers starting to visit the fair.

**PUZZLE.**—Daniel V. Brown, New York City. This puzzle comprises a two-part separable case, one part of which closes within the other and has a transparent top, while a series of lettered blocks are held within the case, so that when correctly arranged they will spell a name reading spirally from the center to one corner on one side, and another name reading in the opposite direction on the other side.

**TYPEWRITING MACHINE.**—George M. Beerbower, Washington, D. C. This invention relates more particularly to an improved action, whereby the operator may depress a key, make an impression, and allow the weight of the hand to rest upon the key while others are depressed without danger of the type interfering with one another. The typebar is pivotally supported in the bearing yoke and provided with an outwardly projecting finger, a pitman rod having an inwardly extending shoulder to engage the finger, while a pin or stud arranged in the yoke is adapted to engage the upper end of the pitman, to the lower end of which the key lever is rigidly connected.

**GRAIN CONVEYER.**—Henry M. Hastings, Cooksville, Ill. The conveying of grain from the warehouse to the interior of the car by mechanical means is provided for by this invention, it being designed to obviate the necessity of any one entering the car during the operation of loading. In the conveyer trough leading from the warehouse to the car is journaled a spiral conveyer, operated by a sprocket chain from a main drive shaft driven by steam or other power, and connected with the outer end of the conveyer is a reversible elevator chute for discharging the grain to either end of the car, whereby the loading operation will be entirely mechanical.

**WATER-TIGHT SKYLIGHT.**—Albert Danzer, Hagerstown, Md. This invention provides a skylight designed to embody the elements of simplicity, cheapness, and effectiveness, and which can be conveniently handled and easily put in position. The supporting frame consists of wooden end timbers on the inner face of which are held side troughs formed of galvanized iron bent up, the inwardly projecting flanges serving as end supports for the glass sections. Cap plates fit over the upper face of the frame timbers, the inner ends of the plates being turned down and fitting against the glass, holding it in place, the invention also embracing various other novel features.

**BRICK KILN.**—William Sercombe, Hamworthy, Poole, Dorset County, England. Nearly parallel arches are connected at the ends to form a continuous arch, which is also adapted to be divided into chambers, a hot air flue extending centrally between and above the arches, and branch damper-controlled flues extending from the main flue and above the several chambers of the arches, while vertical openings extend through the roof of the arches and intersect the ends of the branch flues, the vertical openings having removable covers to close the entrance to the arches. The heat of the chambers is designed to be so equalized that all will be burned of equal hardness, while perfect combustion will be effected, and the waste heat escaping from chambers which are cooling will be utilized for drying green bricks in other chambers before firing.

**STREET SWEEPER.**—Mary S. Kjellstrom, New York City. Two brushes are mounted below the converging sides of a triangular frame, with pinions on the rear ends of their shafts meshing with bevel gear wheels on an axle provided with track wheels, while a ground wheel is journaled in the forward end of the frame. From the geared connection of the brushes with the wheels the brushes will sweep the dirt from between the tracks of a railroad, or the surface of any other road if used independently of a car, and deposit the refuse in two rows at the sides of the machine, the brushes being adjustable for height, and being adapted to thoroughly clean all the surface passed over.

**BROOM HEAD.**—John O. King, Altamont, Kansas. The main portion of this broom head consists of a sheet metal box flattened on the sides, and of suitable width to receive the broom corn or other splints, the top wall of the broom head being secured upon the handle by means of tacks. The lower end of the handle is secured at its terminal end to a stay loop, formed of a single piece of bent wire rod, whereby the head box is also stiffened. When the splints are fully entered in the head box they are first temporarily secured by clamping, the construction being afterward completed by two or more rows of stitching.

**LAMP WICK RAISER.**—Harry H. Hipwell, Long Island City, N. Y. This is a novel device for use in connection with tubular lamp wicks, a flat bracket plate being curved slightly edgewise to allow it to lie close to the lamp wick, a sleeve projecting at one side from the plate, and spaced star wheels being rotatably supported on the plate to engage the wick, while a shaft adapted to be revolved in the sleeve of the bracket frame carries a star wheel at its lower end, meshing with the spaced wheels.

**MILK TESTER.**—Ralph Messenger, Unadilla, N. Y. This invention provides a simple construction of frame adapted to hold in perfectly secure and water-tight position a number of milk tubes, the upper ends of which have gauge marks to show the amount of cream rising to the top. The milk of each cow, in testing, is to be placed in a separate tube, the frame and tubes being submerged in cold water if necessary to cause the cream to rise quickly.

**MAGAZINE TACK HAMMER.**—Andrew T. Lewis, East Portland, Oregon. The handle of this hammer has a magazine communicating with a chamber in the head, there being tack-receiving racks, in the magazine, spring cushions at the sides of the racks, and a lever connected with one of the racks to give it a longitudinal movement, the mechanism being designed to feed the tacks one by one to the striking face of the hammer, and release a tack the moment it is introduced into the surface in which it is to be driven.

**PENCIL SHARPENER.**—Mary E. Worn, Philadelphia, Pa. This device consists of a block formed with a longitudinal recess in its upper side, in which are removably fitted two round threaded cutters, in mesh with each other, the threads of the cutters being quite fine and having a keen edge, thus forming a solid abrading surface against which the pencil is rubbed. A removable cap fits the top edges of the block, and a partial rotation of the cutters presents a new cutting surface.

**TOUCH REGULATOR.**—Ferdinand C. Light (Eddins and Light, P. O. box 596), Charlotte, N. C. This is an attachment for musical instruments, such as pianos, organs, etc., to enable the performer to change the feeling of the touch, making it either hard or soft. A shaft is journaled in the frame of the instrument, and springs secured to the shaft have their free ends resting upon the keys in rear of their pivots, an adjusting rod pivotally connected with the shaft projecting through an opening in the front of the key board.

**MAGAZINE CAMERA.**—Arnold L'Eplat-tien, Brooklyn, N. Y. This invention provides a compact, simple and inexpensive camera box, designed to retain in series securely separated a number of sensitized plates or films, expose them one at a time, remove the photographed plate by gravity to a dark chamber, move another plate of the series into focus registered correctly, and simultaneously indicate the serial number of the impressed plate or film, the unfixed negative being perfectly protected from light or contact with other objects.

**ICE FREEZING CAN.**—Albert Smith, New York City. This can is constructed externally with an air chamber or chambers on or throughout its bottom and two of its opposite sides or ends, and with its other two opposing sides left uncovered or exposed. Such cans are to be used for making ice by immersing the can containing the water to be frozen in brine or other freezing agent, the object being to produce clear cakes or blocks of ice free from a white or impure center or core.

**WAVE POWER MOTOR.**—Alfred Rosenholz, Wardner, Idaho. A suitably constructed vessel is anchored at its ends to be free to rock sidewise, and weighted arms are mounted to swing within the vessel, main shafts to be turned by the rocking motion of the weights, the shafts being connected with air compressors in the vessel whereby dynamos are operated, and cables leading from the dynamos through the anchors and then to the shore. This motor is designed to be simple and durable in construction, and to be located at any desired distance from the shore to receive the full force of the waves.

**COACH DOOR LATCH.**—James M. Orr, New York City. This latch is so formed that it may be attached to any vehicle door, the outer end of the latch being flush with the free edge of the door, while the construction is simple and inexpensive, and the latch may be quickly and easily removed for cleaning or oiling when desired. The bolt of the latch and the socket in the door casing are also so shaped that the latch will not have vertical or lateral play, the bolt of the latch being thus prevented from rattling and a tie connection being at all times maintained between the bolt and the socket.

**COMPOUND COOKER.**—Charles McConalogue, Red Jacket, Mich. This invention provides a simple, inexpensive and convenient cooker which combines a fry pan, a broiler, and a steamer for meats and vegetables, so that the parts of the complete device may be interchangeably assembled as required. The fry pan forming the base of the device is of cast metal, and has a central draught tube, while the steamer, fitting in the top of the fry pan, also has a central tube, forming a continuation of the draught tube, but slightly separated therefrom. A broiler is also adapted to be fitted in the fry pan, with a gridiron adapted to be supported a short distance above its bottom.

**BELT.**—Charles Scherer, Brooklyn, N. Y. This is a ladies' waist belt, designed to be very ornamental in appearance, and to combine strength and durability with economy of material and labor in manufacture. The band has longitudinal cuts extending nearly throughout its length, forming narrow strips, which are spread apart at their central portion and secured to a transverse shield, the ends of the band being provided with fastenings.

**DISPENSING DEVICE.**—Martin Itjen, Jacksonville, Fla. This is an improvement in apparatus for dispensing beer or other beverages by weight instead of measure, the apparatus being made to weigh from half a pint to a gallon, according to requirement. A graduated scale beam, provided with a weight adjustable along its scale, is arranged in front of the ice box in which is kept the beer or other article to be drawn, the bucket or receptacle to be hung on the front end of the beam, beneath the faucet. The device is designed to save the time of the vender and better satisfy the customer with his measure.

**FIGURE TOY.**—Robert A. Chapman, Glymont, Md. This is a toy of the class in which movable figures representing human beings are employed. It is preferably made in the form of a wagon, so that the apparatus will properly work as it is drawn over the floor or a table, black and white figures then moving alternately toward and away from a box at one end of the wagon, while figures within the box rise and present arms, there being also other performing figures, besides onlooking figures.

**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.

**SHEPARD'S OFFICE AND POCKET TRIAL DOCKET.** Nebraska edition. Prepared and arranged by Warren Pratt, Esq., of the Kearney Bar. George J. Shepard, Kearney, Nebraska.

**A PRELIMINARY REPORT ON THE COAL DEPOSITS OF MISSOURI.** From field work prosecuted during the years 1890 and 1891. With 131 illustrations. By Arthur Winslow, State Geologist. Published by the Geological Survey of Missouri. Jefferson City. 1891. Pp. 226.

This work, although only of a preliminary character, speaks well for the manner in which the Missouri State survey is conducted. Its elegant form and numerous sectional views of coal deposits alike testify to the work put upon it from a publisher's and editor's standpoint as well as from that of a geologist.

**THE IRON FOUNDER.** A comprehensive treatise on the art of moulding. By Samuel Balland. Illustrated with over three hundred engravings. New York: John Wiley & Sons. 1892. Pp. viii, 382. Price \$2.50.

The best praise we can give this timely book is that it is too exhaustive to lend itself to a review within our limits. The entire subject of making moulds for all kinds of castings is fully treated, the personal aspects of the subject, such as the apprentice system, are not neglected, and a chapter near the end treats of pattern making. Yet the book is mainly a founder's manual, not a pattern maker's, and will we believe prove of great use to many workmen and others who are interested in the technique of this art.

**MANULITO, OR A STRANGE FRIENDSHIP.** By William Bruce Leffingwell. Philadelphia: J. B. Lippincott Co. 1892. Pp. 320.

**WHY BAND SAWS BREAK.** Sixteen reasons, and how to avoid them. By Joshua Oldham. New York: M. T. Richardson. 1892. Pp. 90. (No index.) Price \$1.

This book in its first 46 pages treats of the titular subject in very graphic style; the rest of the work is devoted to topic of saws, their history, manufacture and use. The manual we believe will meet with acceptance from the large clientele of users of saws, as many useful hints are embodied in it.

The Sawyer's Own Book, of Emerson, Smith & Co., Beaver Falls, Pa., has considerable useful information for all who use saws, compressed in a very small space. Although the primary object of the publication is to advertise the saws made by the firm, it has been considered that this object would best be obtained by printing in connection therewith valuable facts touching the use of saws, and this little book has consequently passed through many editions.

## SCIENTIFIC AMERICAN

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10. Design for a family burial vault.
11. Design for organ, All Saints, Compton, Leek.
12. Miscellaneous contents: The speed of elevators.—The secret of a good memory.—Plastering composition.—A vertical double spindle shaping machine, illustrated.—Shadow an element of design.—Artificial building stone, illustrated.—Wet screens for ventilating ducts.—Irrigation in Nevada.—The Andrews metal chair, illustrated.—A plumber's blast furnace, illustrated.—An improved woodworking machine, illustrated.—The Stearns hinge, illustrated.

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