

RECENTLY PATENTED INVENTIONS.

Electrical Appliances.

ELECTRIC RAILROAD.—CLARENCE A. MYERS, Atlantic City, N. J. In this railroad the electrical conductor is safely carried under ground, overhead wires being completely dispensed with.

ELECTRIC STOP-MOTION FOR LOOMS.—ALEJANDRO STEPHENS, Guadalajara, Mex. This invention seeks to provide a means whereby a loom may be automatically stopped as soon as the filling in the shuttle is exhausted or the shuttle-thread breaks.

Engineering Improvements.

ROTARY ENGINE.—FRED. E. BRAINERD, Carbon-dale, Ill. This engine consists principally of a cylinder connected with a motive-agent supply and provided with an exhaust. In the cylinder a piston is mounted to turn and has a number of heads and a series of abutments arranged in pairs.

ROTARY ENGINE.—SUTTON H. DRAPER, Missoula, Mont. In this engine a piston is provided consisting of a sliding head having a cavity in its outer edge containing a friction-roller. This roller consists of two sections having their ends joined by spiral cam-surfaces, the sections being hollowed and having a spring acting to rotate one section upon the other.

Mechanical Devices.

BASKET-MACHINE.—WILLIAM JACKSON, Traverse City, Mich. In general, this machine is characterized by having means for forming staples from continuous lengths of wire and for driving these staples. The means by which this is done consist with a work-holder on which the basket is formed and by which the materials of the basket are held during the operation of bending and driving the staples.

COMBINED MOWING AND RAKING MACHINE.—JOHN MCCALLUM, Chippewa Falls, Wis. To provide a machine which shall simultaneously mow and rake grass, this inventor has devised novel means to attain the desired end. On a tricycle-frame he mounts a rear main transverse axle on which two traction-wheels are fitted.

TRUING DEVICE.—GEORGE WAGNER, St. Paul, Minn. To provide an improved truing device which shall be simple and durable in construction, and which shall be of especial service in the truing of bicycle wheels, this inventor employs two threaded spindles longitudinally aligned with each other, and adapted to engage the respective ends of the wheel-hub.

Miscellaneous Inventions.

DUST-PAN.—HAMILTON WEIR, La Porte, Ind. The dust-pan provided by this invention can be made from a single plate of metal struck up and secured in shape without soldering. The blank from which the pan is

formed consists of a base-plate having lateral wings to form the sides of the pan. These wings are extended rearwardly to form the sections of the back of the pan, and the rear extension running from the base-plate between the back extensions to form the foot-piece.

NEWSPAPER OR BOOK PROTECTOR.—WILLIAM H. BURLAND, Punta Gorda, Fla. This invention seeks to provide a device which, when applied to a book or a magazine, will protect those portions of the leaves which are ordinarily exposed, and which, when applied to a newspaper, may be made to protect either an end or a side edge, or all the open edges.

WAGON STEERING AND DRIVING MECHANISM.—LEIGH WATKINS, Denver, Col. In this invention various improvements are to be found, which enable the axles of one or more wagons to be connected so that the wheels may be used as traction wheels. Various devices have also been provided by which the steering of the wagons may be accomplished in such a manner that the wheels of successive wagons connected together will all follow the same track.

SEAL-LOCK.—ELVIN H. MORSE, Colorado Springs, Col. The purpose of this invention is to provide a simple, inexpensive self sealing bolt for use on ballot-boxes, hinged doors and the like, which cannot be opened without first breaking the seal and which cannot be picked. The lock and seal comprise a spring-pressed bolt, a keeper-plate adapted to be loosely connected to a hinged lid or the like, and a seal-plate extended at right angles from the keeper-plate and adapted to engage against the outer surface of the lid or like.

GATE.—WILLIAM A. WHITCOMB, Downs, Ill. The gate patented by this inventor is so constructed that it may be opened by persons seated in a vehicle or upon a horse, thus avoiding the necessity of dismounting. To the gate a rod is connected, and to the gate-post a cross-bar is rigidly secured. On the cross-bar a rod is pivoted. On the gate-post a lever swings to which a rod is likewise pivoted.

GATE.—PROSPER COUPAL, Bourbonnais, Ill. The purpose of this invention is to provide a gate of the sliding type which may be opened or closed from either side by persons on horseback or in vehicles. An arm is pivotally connected with the rear end post of the gate and with the upper portion of a frame. To the arm a latch-bar is pivoted and upon the latch-bar a latch-head is pivoted. A keeper for the latch-bar is carried by the frame.

SUPPORT FOR FEED-BAGS.—TIMOTHY MULCABY, New York City. To provide a device adapted for attachment to the forward ends of vehicle shafts or hills, and so arranged that a feed-bag or pail of water may be held within convenient reach of the animal in the shafts, is the purpose of this invention. The support for the feed-bag consists of an arm formed at one end with a socket, the opposite end being flattened in a horizontal plane and formed with a vertical longitudinal slot.

PROCESS OF PYRITIC SMELTING AND APPARATUS THEREFOR.—GUSTAF M. WESTMAN, New York City. The purpose of this invention is to provide a new and improved process for treating sulphureted ores containing precious metals so that the metal is taken up by the iron or copper matte, while the zinc and lead sulphurets are converted into oxides at such a temperature as to become volatilized and discharged from the furnace as a gas, together with sulphurous acid. Finally the zinc and lead oxides are precipitated in a condenser, the remaining gases being treated in a lead chamber to form sulphuric acid.

SKIRT-PROTECTOR.—AUGUST ALLGOEVER, New York City. To provide a skirt-protector so constructed that its lower portion shall be prevented from straightening out of the desired position, this inventor uses a flat flexible core and a body having an upright portion and a portion folded about the core whereby lateral shoulders are formed at substantially right angles to and

upon opposite sides of the body portion. One shoulder is wider than the other, the core being extended into each shoulder. The second shoulder it is, which offsets the flattening out of the protector or binding when rolled up for transportation or storing.

PUZZLE.—NED B. CRARY, Canisteo, N. Y. This puzzle comprises a base having vertical spaced projections and a series of balls connected by ligaments and adapted to pass between certain of the projections. The flexible ligament adds to the difficulty of causing the balls to traverse the desired path.

SKEIN-HOLDER.—MARY A. ARROWSMITH, Freehold, N. J. This skein-holder comprises radiating figures provided with a clamping or securing mechanism, and having a flexible connecting-web stopping short of the outer ends of the fingers. By means of this device skeins may be readily wound into balls or may be conveniently held while the yarn is being consumed.

ARM-REST.—LEWIS BARR, Dayton, O. This device comprises essentially a frame having feet or arms extending across at each end and a longitudinal guide-way within which slides one of two blocks pivoted to each other. Upon the other block slides a plate, which is preferably concaved upwardly and adapted to act as a support for the fore-arm, this plate being provided upon its under surface with a longitudinal guide-way engaging the upper of the blocks or slides.

SLING-TRIP.—EMA CANCIENNE, Albemarle, La. This sling-trip comprises a handled bar, pairs of loops mounted to turn at the ends of the bar, hooks fixed on the bar between the members of the loops to hold them against lateral movement on the bar, and chains, of which one is permanently connected at one end to the loops and the other adapted to be hooked at one end to the hooks so that upon turning the bar the hooks release their chain.

SASH-FASTENER.—GEORGE FELTHAM, Waycross, Ga. The object of this invention is to provide a sash and fastener arranged to exclude dust and the like from a room, and to lock both sashes securely in any desired position without danger of the fastener being unlocked or opened from the outside. The fastener comprises a casing adapted to be secured to the lower sash, a laterally-movable bar in the casing, a pivoted head on the outer end of the bar and adapted to engage the upper sash, and a spring for holding the head in position when not in use.

WINDOW-GUARD.—JOHN L. SCHARFF, Reading, Pa. In this invention a device is provided which may be secured between the vertical portions of window-frames and at the outer side of a window, so that persons cleaning the window may be supported and prevented from falling. To a post a bridle is attached. A hook member has connection with the bridle by means of a loop therein. A lock slides on the hook member and has an elongated eye through which the loop of the bridle is passed.

CURTAIN-HOLDER.—ULYSSES S. PARISH and FRAVEL A. RUDOLPH, Carmi, Ill. According to this invention, a support is slidably mounted on a vertically extending supported rod. A spring-pressed locking-catch is pivotally mounted on the support and engages with the rod to lock the support at various positions on the rod. A cord is attached to the catch and serves to move it against its spring and to permit the vertical movement of the support.

COMBINED MATCH-BOX AND LIGHTER.—CHARLES WILSON, Newport, Ky. In this invention, an outer casing is provided with an apron at its lower end and with a slot in one side for the introduction of a match. The casing has an opening at or near the center of the front wall for the material to be lighted. An inner casing of asbestos is provided, which at the back and sides, forms a series of pockets with the back and sides of the outer casing.

HEATING-DRUM.—CLAYTON M. RICHARDSON, Toronto, Canada. To provide a device capable of being used in the same compartment with a stove, this inventor has patented a drum which is so constructed that it may be large or small as desired. The device comprises a series of compartments, one above the other, and connected together. The compartments are subdivided by vertical partitions, with the exception of the lower compartment. Air-pipes extend through the lower compartment and through the next compartment above, and have their outlets between compartments so as to discharge heated air under the bottom of the compartments.

ELASTIC TIRE AND RIM FOR WHEELS.—ARTHUR C. MOORE and GEORGE RODWELL, London, Eng. This elastic rim for wheels, it is claimed, possesses the qualities of lightness, elasticity and strength, and consists essentially in the combination with a jointless inner rim of approximately U section with outwardly directed flanges, of an outer rim constructed of two annular members, together forming an outer annular member of approximately U section, with inwardly directed flanges adapted to embrace the sides or flanges of the inner rim, and of an intermediate pneumatic chamber whereby the required resiliency is obtained without liability of puncturing, the air-chamber being wholly inclosed and protected by the outer member of the metallic rim.

Designs.

TIP FOR HAY-FORKS.—GEORGE F. CAREY, New York City. The tip designed by this inventor has an

upper cylindrical portion which extends with its side on parallel lines for a considerable distance compared with the length of the tip and unites with the converging lines, which extend on straight lines, forming a tapering portion brought to a sharp point, the entire surface of the tip being smooth and presenting a cavity at the free end of its cylindrical portion.

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References to former articles or answers should give date of paper and page or number of question.
Inquiries not answered in reasonable time should be repeated: correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.
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(7470) H. C. asks how many cubic feet of air a person breathes per minute and in how small a space that amount of air can be confined, or in how small a space can enough air be confined to last a man ten or twelve hours, and how much would that amount of air weigh? A. An average man or woman requires not less than 3,600 cubic feet of fresh air per hour, continuously supplied during that period, when asleep or in repose; about 4,950 cubic feet per hour when engaged in light work; 10,000 cubic feet per hour if engaged in heavy work—this exclusive of the air consumed by lights and heating appliances. Neither is this applicable to all individuals, since some require more than others, depending upon lung area and expansion. In close rooms, 6,000 cubic feet of air per hour (100 feet per minute) is generally required, allowing for lights and heat, stoves, etc. A single candle, to give its full light, requires 100 cubic feet of air per hour. In sickness these figures should be increased at least one-third. Air cannot be confined for purposes of respiration, for it is contaminated with carbonic oxide with every expiration. Certain air storage tanks, which may be utilized for a brief period by divers, provide for air expansion, but the expiration is not into the tank, but outside thereof; consequently, if the air were not compressed, it would not serve the purpose of respiration, as there would be no expansion. Your final query is answered by the foregoing. To place any individual in a perfectly airtight room would be to insure his or her death by asphyxiation, if therein long enough; in time all the vital constituents of the air would be consumed and replaced by deadly carbonic oxide. Proper ventilation is the first essential of proper respiration. Air presents different weights at different temperatures and elevations.

(7471) C. S. B. says: Can you furnish, through your Notes and Queries in the SCIENTIFIC AMERICAN, a receipt for making a salad dressing of the mayonnaise variety, but having keeping qualities that will render it suitable to be put up in bottles, and kept as a stock article?

- A. Powdered turmeric... 1 oz.
Powdered tragacanth... 1 "
Olive oil... 8 "
Eggs... 8 "
Water... 5 3/4 pts.
Ground mustard... 1 1/2 oz.
Salt... 8 "
Acetic acid (glacial)... 2 "
Tincture of capsicum... 1/4 "
(Sugar added to taste.)
Sugar... 1 lb.

Mix the first three ingredients in a mortar capable of holding one gallon, then add the eggs, which have been whipped previously, and incorporate thoroughly until an