

RECENTLY PATENTED INVENTIONS.

Mechanical Devices.

PHOTOGRAPHIC SHUTTER.—GASSNER F. FRALEY, St. Louis, Mo. In this improved device a finder is employed which shows the image as it is produced by the same lens which effects the exposure. A portion of the finder is utilized for the operation of the shutter. Simple mechanism has been devised for obtaining at will either snap-shots or time exposures.

CRUSHER.—EDWARD D. CHESTER, 120 Bishopsgate Street, London, England. In this ore-crusher a crushing-cone is carried by an upright spindle and is caused to gyrate within a conical crushing-hopper or "concave." Motion is communicated to the spindle by means of a driving-wheel mounted to rotate with the crushing-hopper and provided with an eccentric aperture through which the spindle passes freely. The spindle is held at the top in alignment with the crushing-hopper and with the driving-wheel, and is supported at the bottom upon a footstep bearing, affording freedom for the gyratory movement of the spindle. The dove features of the invention are the means for adjusting the position of the crushing-cone vertically within the crushing-hopper, so that the size to which the material is crushed can be regulated, and the means for enabling the whole mechanism whereby this adjustment is effected to be readily removed for cleaning or repair.

WRENCH.—THOMAS F. MOONEY, 1305 Valley Street, Baltimore, Md. The wrench can be applied to the nut with its jaws open and can be caused to close automatically upon the nut, thus furnishing a quick-acting wrench which can be conveniently manipulated with one hand. To this end the jaws are supported so that they can move toward and from each other. Cams or inclines are used for engagement by the jaws and means for moving the jaws and cams or inclines relatively, so that the cams or inclines will cause the adjustment of the jaws toward or from each other.

WRENCH.—DANTON O. BRUNNER, Somerset, Ohio. The wrench is to be used either as a pipe or nut wrench. The principal novel feature of the invention is the employment of corrugated or toothed roller bearings in the jaws, so placed that when the wrench is in action the bearings will have a gripping engagement with opposite sides of the nut or pipe.

WRENCH.—REGINALD MEEKS, Manhattan, New York city. The shank of the wrench carries a pinion for engagement with a rack attached to the handle and with a rack carried by the movable jaw. By simply moving the handle longitudinally with relation to the fixed jaw, the wrench is quickly adjusted to suit the size of the nut. No screw-threads, adjusting-nuts, or swinging levers are employed.

Engineering Improvements.

ELECTRIC IGNITER FOR EXPLOSION-MOTORS.—CHARLES E. LUBBERY, Chauny (Aisne), France. This electric igniting device for explosion-engines includes an interrupter, having two wires, one of great resistance and the other of low resistance. The wire with great resistance is always connected with the source of electricity. A circuit-breaker controlled by the engine is connected with the low-resistance wire. An induction-coil and its primary coils connect it with the circuit-breaker and the wire of high resistance; the secondary coils are connected with the igniter. The source of electricity is a dynamo which is employed in connection with an accumulator. By means of a switch either the dynamo or the accumulator can be shunted in or out or the accumulated charge from the dynamo to furnish the current for ignition. The igniter, it is claimed, is almost infallible in its operation.

VALVE MECHANISM.—ISAAC L. FITZ HUGH, Picolata, Fla. This rotary main valve has annularly arranged inlet-ports and an exhaust-recess. An eccentric moves the main valve on its seat. A cut-off valve over the main valve regulates the admission of steam from the steam-chest to the inlet-ports. The cut-off valve is mounted on an eccentric, which cut-off valve eccentric is under the control of the operator to shift the cut-off valve over the face of the main valve to the desired point of the cut-off.

Railway Appliances.

MAIL CATCHING AND DELIVERING FRAME.—FRANCIS C. KILBY, Richmond, Mo. This invention is a device for catching mail-bags at a station from a passing train and for delivering mail-bags to a passing train. At a station a crane is mounted, the arm of which is provided with divergent bars. Carried by the mail-car is an angle-arm designed to pass between these divergent bars. A ring is attached to the mail-bag, which ring, and consequently the bag is caught by the crane-arm as the car rushes by.

WATER-GLASS SHIELD.—EDWARD T. REED, Port Jervis, N. Y. The shield is designed to be used in connection with the gage-glasses of locomotive-engines for the purpose of preventing the engineer from coming in contact with the glass and to protect him from flying pieces of glass and from steam or hot water, should the gage break. The water-glass is partially surrounded by a water-glass shield engaging the gasket-nuts. Clamping-yokes also engage the shield. A mirror is

mounted to swing on the yokes, which mirror is designed to reflect the water-glass, so that the level of the water may be observed by the engineer at any desired point.

Miscellaneous Inventions.

DOOR-STOP.—DURWARD B. HAMPTON, Napa, Cal. The improved door-stop consists essentially of a baseboard member and a door member. The baseboard member is hollow and is provided with a rubber socket having a conical head through which the button-head on the door must pass. When the door is open and the button has engaged the socket, the stopper acts as a cushion for the door, so that the engagement of the two members is rendered noiseless and the two securely locked together.

MAIL-POUCH.—JASPER N. TABLER, Roysce City, Texas. The inventor has devised an extension-top for mail-pouches, and a simple, quickly-operated, and secure fastening device for the mouth of the extension-top. He has, furthermore, so applied the extension-top to the body of the pouch, that when the mouth is locked, the extension-top and its fastening device will drop within the body of the bag, the top portion of which body may be held closed by auxiliary devices. The locking device is protected; the bag is easily handled; and the fastening device enables the bag to be quickly locked or unlocked. An ample opening is provided by the extension-top for the reception of mail matter.

ALARM FOR REFRIGERATING-PANS.—GEORGE N. ENNERS, Brooklyn, New York city. The purpose of this invention is to provide a simple alarm for the drip-pans of refrigerators, which alarm is so constructed that when the water in the pan reaches a certain level, an alarm will be actuated. The device by which this purpose is attained consists essentially of a float having guided movement in the pan, which float is made to engage the push-button of an electrical alarm when the water reaches a predetermined height.

BOX-FASTENER.—SOFUS RAAEN, Aalborg, Denmark. This fastening device for two parts of cases and other articles, comprises a link pivoted to one of the parts, and a locking-bolt mounted to slide on the other part transversely of the link and adapted to engage the latter. A stop-lug prevents the sliding movement of the lug. By means of this device a cover or lid can be firmly secured without the use of nails, screws, or any special lock.

BUCKLE.—GEORGE W. POTTER, Jr., Fayette, Mo. This buckle for use on harness is in the nature of a tug-buckle and trace-carrier combined. The buckle is suitably secured to the strap leading back from the hames, is supported by the back strap of the hames, and is composed of top and base plates. The tug is inserted between the top and base plates; and the tongue of the top plate is inserted in the proper hole of the tug. The buckle cannot jar loose or the tongue become otherwise accidentally released from the buckle.

FLOAT-VALVE FOR WATER-TANKS.—JOHN MORRISON, Dubuque, Iowa. The improved valve is designed for automatically controlling the flow of water in reservoirs, tanks, cisterns, and the like. The valve is operated by a lever or two levers, as the case may be, and is connected with a rocking or rotatable disk, having a stop to limit its movement. The valve engages a hooked post fixed on the valve-seat and is guided in its movement without appreciable friction.

ADJUSTABLE SCHOOL-CHAIR.—EXPERIENCE L. SAUNDER, Philadelphia, Pa. The object of the invention is to provide an improved adjustable chair for use in connection with school-desks. The chair is distinguished by its simplicity, cheapness, and strength. A hollow pedestal has interior ribs or projections, one of which is located near the top and the other diagonally opposite. A clamp screw is arranged directly below the upper rib and at a lower point on the second rib, whereby the post is held by friction and pressure at three points.

FOLDING TABLE.—SIMON M. SNOOK, Scranton, Pa. The folding table comprises a pair of crossed legs connected by a reach. This reach consists of parts pivotally joined and adapted to fold one into the other. The upper ends of the reach parts are pivoted to the upper cross bars of the legs. Braces are pivoted to the reach parts and are adapted to lock on the lower cross bars of the legs. A catch on one of the reach-parts locks the other reach-part in position when folded. The table-top is supported on the legs by means of hooks engaging staples on the cross-bars.

PROCESS OF PAINTING DESIGNS ON SURFACES.—EDWARD S. MARTIN, Media, Pa. This process of producing ornamented surfaces on glass, wood, and other materials, consists in spraying, by means of heated compressed air, varnish, alcohol, and ether upon the surface to be ornamented, and at the same time subjecting the article and the varnish to heat so as to produce a uniform deposit of the matter on the surface to be ornamented.

CARBURETER.—EDWARD J. KERN, Jackson, Mo.—This invention provides a carbureter for generating gas from hydrocarbon oils. On an oil-tank a dome is mounted; and in the tank a bell is movable, having perforations near its lower end, held below the level of the oil in the tank. A cork bottom is pro-

vided for the bell. An air-pipe leads into the bell; and a gas-distributing pipe leads from the tank. In this carbureter the bell is practically at all times kept at the same level in the oil as the oil sinks in the tank. Therefore, the point of saturation remains the same until all the oil has been used. A pure clear gas is generated, which is ignited without heating the burners by means of alcohol.

TEMPORARY BINDER.—CHARLES V. HENKEL, Manhattan, New York city. The purpose of this invention is to provide a temporary binder which may be readily adjusted to suit the thickness of the papers, thus rendering the capacity of the binder variable according to the number of papers it is desired to file. The binder has a filing-post made up of stationary end sections, and removable intermediate sections. The intermediate sections comprise each a tubular part and a reduced part at the other end. These tubular parts have projections formed on their inner faces; and the reduced parts have grooves, which coact with the projections to lock the sections together.

HOLDER FOR WAX, PARAFFIN, STEARIN, ETC.—GUIDO HECKER, Manhattan, New York city. This novel holder is designed for use in laundries, and in bicycle or machine shops for the application of polishing material to flat irons or of lubricants to leather and woods. The holder employed comprises a hollow body portion, having a closure at one end, provided with a central opening. A plunger moves in the body portion. A stem extends from the plunger through the opening. For one end of the body an open mesh cover is employed, the cover having its edge fixed to the outer surface of the body and covered with a label.

EARTH-AUGER.—NILS H. HANSEN, Westport, Wash. The earth-auger has a hollow body forming a bucket, which body has an exterior spiral thread, at the upper extremity of which is a recess. A shoulder is located at one side of the recess to deflect the earth sidewise through the recess into the body. The auger is adapted for use as a prospecting instrument as well as for piercing soft earth and quicksand.

SHUTTER ATTACHMENT.—GEORGE J. EPPRIGHT, Manor, Tex. To provide means for holding the slats of a window-shutter open, a spacer is employed which is so mounted as engage the side faces of two or more slats. The invention is applicable to the ordinary shutters which have horizontal slats pivoted and connected with a bar by which the slats are opened and closed.

PAPER BOX.—CARL ENGBERG, St. Joseph, Mich. The inventor has provided a new and improved paper box made from a single blank. The blank is so cut that the sides of the finished box are but slightly inclined upwardly and outwardly, while the ends are inclined upwardly and outwardly to a greater extent than the sides, thereby giving the box a very neat appearance. The ends and edges are reinforced so that great strength is imparted to the box.

DOOR-HANGER.—RICHARD B. BROWNE, Brooklyn, New York city. The door is suspended by a number of pulley-brackets upon a track-rail, so that it may be moved with ease along the track-rail. The invention is an improvement on a door-hanger for which Mr. Browne has already received a patent. By reason of these improvements the door-hanging device operates more efficiently without materially increasing the cost of production.

BEAM.—HERBERT J. ARMSTRONG, Markdale, Ont., Canada. The patent describes a beam for use as a joist, girder, or the like. The beam has a web provided with a truss which may be either formed integrally therewith or fastened thereto, and which lies wholly within the area of the web so as to form a component part thereof. By reason of this construction lateral strength is imparted to the beam and buckling is prevented.

PAD-CLIP.—PAUL W. BEECH, Memphis, Tenn. Attached to a base are a gripping member having teeth, and a rail extending at right angles to the fixed gripping member. On this rail a second gripping member is mounted to slide, which is held in proper position by a clamping device. The pad-clip can be so adjusted as to hold various sizes of pads firmly, and yet so that several leaves may be torn off or removed without interfering with the adjustment.

COMPOSITE BOTTLE.—ALPHONS DRYFOOS, Manhattan, New York city. The bottle is composed of three sections forming together a single body. A cover incloses the sections, which cover is provided at its upper end with a neck serving as a handle for the body and as a means of preventing an upward movement of the section. The cap is provided with passages for the escape of the contents of each of the sections.

Designs.

ELECTRIC-LIGHT FIXTURE.—WILLIAM MCCONNELL, Brooklyn, New York city. The electric-light bulb is inclosed in a flower carried on the end of a stalk apparently growing from a jardinière.

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(8033) J. E. P. asks: What is the length of life of a storage battery for lighting, if charged each day? A. There is no such thing as "length of life" of a storage battery. Theoretically, it should last forever; practically, it may break down to-morrow. Much depends on the rate of discharge. Too rapid a discharge injures the plates. See Tredwell's "Storage Battery," price \$1.75, by mail, or Salomon's "Accumulators," price \$1.50 by mail.

(8034) J. G. asks: What is the electrochemical equivalent of zinc? A. The electrochemical equivalent of zinc is 0.00033698 in grammes per coulomb. See Thompson's "Elementary Lessons," price \$1.40 by mail. 2. Can commercial zinc be deposited chemically pure by the electric current? A. Yes. A plate of commercial zinc is made the anode, and the zinc is deposited pure upon the cathode. 3. What is the best depositing solution; how concentrated should it be; how many amperes should flow per unit area? A. A good plating solution is sulphate of zinc, 2.8 ounces; water, 1 quart; ammonium sulphate, 1½ ounces; cal ammoniac, 1% ounces. The salts are dissolved in the water heated. The bath is used at 68 deg. F. The current from two or three Daniells' cells will be sufficient.

(8035) H. L. C. writes: 1. Please tell me how to proceed with experiments in electroplating with battery. I have some of the two-cell kind. A. If you wish to electroplate as an experiment in electricity, almost any textbook in physics will show you how to proceed. If, however, you wish to plate for use, you would better buy Watts' "Electro-Plating," price \$1 by mail, a book which describes the work and processes with various metals. 2. How many I find the strength of such batteries? A. The voltage of batteries is measured by a voltmeter, and the amperes by an ammeter. Simple forms of these instruments are described in the SUPPLEMENT No. 1215, price 10 cents. 3. Would an induction coil add more current? A. No. An induction coil does not generate or produce any electricity. It only transforms in its character the current which passes into it. It may be so arranged as to raise its voltage, or else to lower the voltage. If the voltage is raised, the amperes are correspondingly reduced, and vice versa. 4. How could I construct an induction coil? A. An induction coil giving a short spark is described in SUPPLEMENT No. 160, price 10 cents.

(8036) H. D. W. asks: I have a small telephone magneto which I have wound with wire, about No. 20, and put on a commutator. The magneto gives fair power when running at about 500 revolutions, but when running faster the power diminishes. Why? What should I do in order to make the power increase as the speed? Having a water motor and a water pressure at about 90 pounds, I think the motor would make something over 2,000 turns when running full speed. Should I put on heavier or finer wire, and how much? A. We know no electrical or magnetic reason why the current should decrease after a speed of 500 turns per minute is reached. Perhaps the contact of the brushes is not so firm at higher speeds, due to unevenness of the commutator. The size of wire you should use depends on the voltage for which you are planning. You can