RECENTLY PATENTED INVENTIONS.

Mechanical Devices.

AUTOMATIC PICTURE-EXHIBITOR. — John Heissenberger, Manhattan, New York city. In this coin-operated picture-exhibitor are included a picture-carrier and two co-operating motors. One of the motors drives the picture-carrier. The other motor is provided with a time-wheel having peripheral slots for the passage of projections on the picture-carrier. The time-wheel controls the length of time a picture is to be exhibited. The pictures are illuminated by an incandescent electric lamp, so that they may be clearly seen through an eye-piece. A coin-receiving lever is arranged to start or stop the motor and to make or break the circuit of the lamp.

MAILER.—James A. Horton and Chauncey Wing, Greenfield, Mass. The present invention provides improvements in mailers of that type which are operated by hand and cut an address from a printed slip and paste that address upon the wrapper or envelop to be mailed. The improvements are concerned chiefly with the cutter-blades and their operating mechanism, and comprise a fixed cutter-blade having a pivot located near one end. An auxiliary pivot at right angles to the main pivot, is supported to swing thereon. A cutter arm or blade is pivoted upon the auxiliary pivot and is adapted to engage the fixed blade.

DRIVING-GEAR.—Thomas R Jarvis, Stockbridge, N. Y. This invention is chiefly concerned with driving-gear operated by a wind-wheel. The gear provided is so constructed that the band-wheel at the lower portion of the shaft may be turned on a horizontal plane to any desired position, and secured so that it may be placed in band connection with any one of a number of machines placed variously around a barn floor or the like. One band, which may always be an open belt, will run the machine in either direction. By this invention, all the benefits of line shafting are obtained.

COMBINED STONE GATHERER AND ROLLER. —Edgar A. Nugent, Unionville, N. Y. The stone-gatherer is provided with a transverse comb which discharges into an endless bucket-elevator. A wheel is mounted in advance of the comb and is formed with rows of yielding fingers to throw the stones or rubbish upon the comb. The fingers are spaced apart to pass through the spaces between adjacent teeth of the comb and to move the stones forward on the comb until they fall into the buckets of the elevator.

BORING OR DRILLING MACHINE.—Lot Person, Cartwright, Penn. It is the object of this invention to provide a drill which can be used in places where the ordinary drill would be ineffective. With this object in view, mechanism has been devised in order to place the drill-holder at one edge of the device, so that it may be used close to the roof of a tunnel, thus enabling one to drill a hole parallel to the roof.

MITER-BOX.—Theodore Bootsman, Arctic, Wash. Connected with a vertically-adjustable cross-bar is a horizontal swinging arm moving with the cross-bar, and fixed in different angular positions by locking devices to suit the angle or miter cut of the saw. The saw is guided by two suspended, flanged, guide-plates. Clamping bolts are also provided, one of the bolt connections being slotted to permit adjustment between the plates. To prevent their turning on their clamping-bolts, the plates have an interlocked or notched joint with the arms.

FIREARM. — Harry E. Brown, Grinnell, Iowa. A casing is located at the breech of the gun, in which casing a spring-pressed firing-pin is mounted to slide. The hammer of the gun operates a stop-lever which is arranged to engage a projection on the firing-pin to prevent a recoil thereof during a discharge. A simple and convenient locking mechanism is provided between the barrel and the stock. The movement of the firing-pin can be limited in its bearings by means of a collar which engages the rear wall of the casing in which the pin slides, when it has been forced from the cap-chamber upon cocking the hammer.

MEASURING-DEVICE FOR CLOTH.—Thomas S. Jones, Prince Albert, Saskatchewan, Northwest Territories, Canada. The cloth-measuring device comprises a base having a cloth-receptacle at one end and an adjustable winding device at the other end. On the base two rollers having bearings in uprights are mounted. The cloth to be measured is placed in the cloth-receptacle. One end of the cloth is then run between the rollers and attached to the board upon which it is to be wound. By turning the winding-device the cloth will be drawn between the rollers; and the rollers in rotating will, by means of intermediate gearing, move a finger or pointer over a yard-scale to indicate the number of yards wound from one board to another. A machine of this character will be of especial service in taking stock.

Miscellaneous Inventions.

PIPE-CLEANING ATTACHMENT. — Heinrich Wenz, Bronx, New York city. This device comprises a centrally perforated frame or plate secured upon the exterior of the pipe, the pipe having a hole corresponding with the central hole. A cover-plate is secured to the frame by screws. The cover-plate may be made flat and thin, so as to be readily bent to conform with any-sized pipe. This bending may be done in the process of manufacture or by the working-men when applying the device to the pipe. By this means it is possible to obtain access to the interior of the pipe by removing the cover-plate and to permit the insertion of wires or other cleaning-tools.

EXTENSION-TABLE. — Randolph F. Westerfield, Manhattan, New York city. The two end sections of the table are adapted to move toward and from each other. Levers are fulcrumed upon the table and are adapted to raise and lower the extension-levers. Rods used in connection with the levers slide in guide-ways. As the end sections are moved apart, the rods first slide idly and then upon reaching the limit of their sliding movement serve to throw the levers so as to lift the extension leaves. In this manner the folded leaves can be brought into position upon extending the table, to complete the extension-table top.

TENSION DEVICE FOR FENCE-WIRES.—Joseph C. Barnes, Summit, Miss. The tension device has a frame with clamps adapted to bear downwardly upon the lowermost fence-wire. A windlass is mounted upon the upper portion of the frame. A clamp connected with the windlass is adapted to exert upward tension on the top wire. By means of this device the wires will be firmly supported and held while the stays, which are usually placed between the posts, are twisted together.

KNIFE WITH CONNECTED BLADES.—Gustave Bay, Paris, France. The knife of this inventor has connected blades by means of which meat can be properly cut into small pieces. The blades are of the same length; and their cutting parts, though parallel, are so arranged that the knife edges of the intermediate blades project beyond those of the onter blades when in the position of rest, and that the intermediate blades can give way progressively when the knife is used to the extent of having all the blades in operation. The knife can be easily taken to pieces, so that the blades can be readily cleaned and sharpened.

MEASURING DEVICE.—Morris Ecker, Brooklyn, New York city. The device comprises a train of counting-wheels, one of which rolls upon the object to be measured. Each wheel has a crank and pin; and all of the cranks are in the same direction from their respective centers when the wheels are in zero position. A slide movable in the direction of the cranks when in this position, has a pair of cam projections for each crank extending from opposite sides and adapted, when the slide is reciprocated, to engage the crank-pin and turn the counting-wheels to zero position.

COMBINED SMOKING-TUBE AND CIGAR-HOLDER.—James M. Eder, Manhattan, New York city. It is the object of this invention to provide a combined smoking-tube and cigar-holder, which is fitted with a simple means for charging the tube with tobacco or a cigar and also for discharging the ashes of the tobacco or the stump of a cigar. The body and the mouthpiece of the device are mounted to rotate one relatively to the other. A spiral wire feeder in the body has connection with the mouthpiece. By rotating the feeder in one direction tobacco or a cigar can be drawn into the tube. By rotating the feeder in the opposite direction, the ashes of the tobacco or the stump of a cigar will be discharged.

LEAK-STOPPER. — Carl Eibee, Brooklyn, New York city. The leak-stopper provided by the present invention consists of a body constructed in two sections, the inner surfaces of which are shaped to conform with the exterior surface of a pipe. Each section is provided with side flanges. Lugs projected from the side flanges of one body-section are adapted to enter recesses in the side flanges of the opposing body-section. Keys receive the flanges and lock together the corresponding flanges of the body-sections, so that the device is firmly secured over the leak without danger of slipping.

WALL-PROTECTOR. — Richard L. Hardin, Chicago, Ill. The wall-protector is designed to prevent the soiling of wall-decorations when cleaning windows, door-frames, or base-boards. The wall-protector comprises a flanged blade or plate provided with a handle. The inner edge of the blade is brought against the window-casing and rests upon the wall. The blade is given an inclination to the woodwork to be cleaned, so that the water cannot flow behind the device. It should also be remarked that the protector may be held by one hand against the wall and in engagement with the woodwork to be cleaned, leaving the other hand free for cleaning.

BAG-FRAME.—Louis B. Prahar, Brooklyn, New York city. The present invention relates to an improvement in the frames of chatelaine-bags, the object being so to construct the frame that an ornament of any design can be readily applied thereto. The frame provided for this purpose can be termed a "stock-frame," since front ornaments of various designs can be attached to stock-frames so that all the features of the design can be displayed—a result which could not be obtained in the old construction.

FISHING-NET SINKER. — John C. Robinson, Hampton, Va. This sinker has a body formed with a longitudinal slot. The sinker-body is passed sidewise upon the bottom line of the net and a double wedge is driven into the slot in order securely to clamp the line in position in the bottom or inner wall of the slot.

BELT-BUCKLE. — Louis Sanders, Brooklyn, New York city. The buckle consists of mating members having a stud-and-slot connection, one of the members being provided with a fixed projection and the other with a recess, whereby when the members are brought to a locking position, the projection is automatically sprung into the recess. The buckle is designed particularly for use upon military and cartridge belts.

WINDOW LOCK AND REGULATING DEVICE.—Lawrence F. Ryan, Manhattan, New York city. The inventor employs plates for attachment to window-sashes, which plates are provided with L-shaped openings. A locking-bracket is provided, having a triangular body and an arm pendent therefrom. The body and the arm of the bracket are provided with T-shaped lugs adapted to enter the openings in the plates. This simple device is designed to lock a window in an open, partially open, or closed position, so that the locking parts cannot be tampered with from the outside.

SCREW-DRIVER. — Burnside E. Sawyer, Fitchburg, and William D. Arnott, Athol, Mass. The beveled sides of the ordinary screw-driver blade often slip out of the nick of a screw and thus deface and injure the screw-head. The inventors of this improved screw-driver have devised a series of insertible and removable, parallel-sided or flat blades of high grade or tool-steel for a common holder or stock. The new form of screw-driver, it is said, overcomes the disadvantages of the old form.

SURFACE-GAGE.—Burnside E. Sawyer, Fitchburg, Mass. This invention seeks to provide an improved surface-gage of that class in which a quick primary adjustment and a second finer adjustment of the scriber may be effected. To this end the inventor employs a base having a slot which permits the gage-bar, with its attached scriber, to swing through a wide arc, a rotatable eccentric being provided for effecting the fine adjustment of the gage-bar and scriber.

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(7666) F. W. asks: 1. What amount of water at a temperature of 40 degrees is required to condense 10 gallons of brandy per hour from a still of that capacity? A. If the still tank is fed from the bottom and overflows from the top at 80 degrees F., 76 gallons of water will be required to condense 10 gallons of brandy spirits per hour. 2. What means are taken to condense the lighter hydrocarbon oils, such as gasoline, naphtha, etc., from the heavier oils? A. The lighter hydrocarbon oils are the first distillate from crude petroleum. The vapors pass through the same still as the heavier oil, but are switched off into separate tanks as the gravity of the distillate increases. The gravity is tested as the liquid flows by a hydrometer. 3. In making ice by aid of expanded compressed air (or ice machines), what amount of compression must the air reach in order to get best effects as found in practice? A. The most economical air pressure for refrigerating or ice making is 60 lb. per square inch. 4. What power would be required to make 10 pounds of ice from 10 pounds of water at a temperature of 70 degrees in say 30 minutes? I figure for above, taking the sulph. ether kind of machine, that it would require one horse power exerted for a space of 41½ minutes (nearly) to convert 10 pounds water at a temperature of 70 degrees into ice at 32 degrees. Am I right? A. One horse power should produce 17 pounds of ice in 30 minutes in a small ice making machine. You are nearly right in your figures. 5. What is the practical limit that air compression could be used for freezing or refrigeration purposes without the aid of ammonia, ether, or bisulphate of carbon? A. We do not know that there is a practical limit for compressed air refrigeration. It is largely used for cold storage in ships, and can only be limited by the additional cost over ammonia and bisulphide plants. 6. What are the best works upon the above subjects and are they treated in the Scientific American Supplement? A. We recommend Siebel's "Compend of Mechanical Refrigeration," $2.50 by mail; "Theoretical and Practical Ammonia Refrigeration," by Redwood, $1 by mail.

(7667) H. G., Jr., asks: What book will give me the most detailed description of multiphase alternating motors, especially the three-phase type in the smaller sizes? I want a book treating in detail the winding of armature, field, etc.; which would you suggest, and name price. A. The standard work on polyphase motors is Thompson's, a revision of which is expected soon. Watch our book list in Scientific American Supplement. A new book on the same subject has been published this year, Oudin's "Polyphase Apparatus," price $3 by mail. This is an American work. The exhaustive work on "Armature Winding" is Parshall & Hobart's, price $7.50 by mail.

(7668) J. E. K. asks: 1. What length crank is best with a 91 gear? The back sprocket has 8 teeth. Why is a short crank used in some cases and a long one in others? A. The length of crank on a bicycle is, within certain limits, a matter of personal preference. With a long crank the pressure on the pedal is less, but the feet must move faster and through a longer distance for each revolution. With a short crank the pressure is greater, but the distance traversed by the feet is less. Each one must settle for himself which length suits him best. 2. Is it the light itself or the heat in the light which propels the disks of a radiometer such as are seen in opticians' stores? A. It is the radiant energy absorbed as heat by the carbon on the vanes of the radiometer which causes its motion. The black sides of the vanes become hotter than the bright sides, and the molecules of the residual gas gain from the hot side a greater velocity, which produces a greater pressure on that side of the vane. Hence a motion is produced by reaction.

(7669) R. L. C. asks: In cigar lighter spark coils, has the spark coil a primary and secondary coil, and how are they attached to battery so that the circuit can be closed from the lighter? A. The spark coil has only a primary winding. The coil battery and lighter are connected in series. The spark is given when the circuit is broken by the lighter.

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