RECENTLY PATENTED INVENTIONS.

Agricultural Implements.

POTATO-PLANTER.—Leonard Heapity, Watertown, S. D. This invention provides a potato-planter which can be attached to any gang, sulky, or other wheeled plow, and which will drop either whole or cut potatoes at regular intervals into a furrow which has been made before planting, the potatoes falling to the right-hand side of the furrow directly in front of the soil, being turned so that they will be covered as soon as they are dropped.

CULTIVATOR.—Louis P. Rife, Defiance, Ohio. The invention provides means for shifting the axle by the same movement by which the cultivator-shovels are raised or lowered, thus changing the fulcrum so that the weight and downward pull on the necks of the horses is uniformly maintained, whether the shovels be raised or lowered. The axle may be shifted and the shovel-beams simultaneously raised or lowered either by hand or horse power. The shovel-beams may be raised independently of the axle. A tension-device is provided, so applied to the levers controlling the movement of the shovel-beams that neither the team nor the driver need raise the dead-weight of the shovel-beams.

Electrical Apparatus.

STATIC ELECTRIC MACHINE.—José Gallegos, San José de Guatemala, Guatemala. A wheel is provided carrying a series of movable coils arranged to pass adjacent to statically-excited stationary coils, the coils at their opposing ends carrying metal plates separated by an insulating-cylinder. The electricity is received by collectors, the number of which is double that of the stationary coils. One-half of the collectors are constructed to connect the movable coils with the ground when they register with the stationary coils; and the other collecting devices are arranged to connect the movable coils with a consumption apparatus when they are in an intermediate position. The machine is double and receives and yields both positive and negative electricity.

Engineering-Improvements.

BOILER.—George Kingsley, Montreal, Canada. Improvements in boiler-construction have been made by this inventor, whereby the boiler-parts are made readily accessible and the heat of the fuel utilized to the utmost profit. The boiler consists of an inner and an outer shell forming a water and steam compartment between the shells. A horizontal partition in the inner shells forms upper and lower flame-compartments connected with each other at their rear ends. The fire-box is situated in the front end of the lower compartment. Horizontal water-tubes project from the sides of the inner shell into the lower compartments; and water-tubes depend from the crown-sheet in the upper-flame compartment and terminate above the partition. A transverse deflector is located between the top of the partition and the lower ends of the depending tubes.

COMBUSTION-MOTOR.—Rudolf Mewes, Berlin, Germany. In this motor the gaseous or sprayed fuel, or a mixture of gaseous, liquefied, sprayed, or pulverized fuel, or the air employed for feeding in pulverized solid fuel, is compressed to such an extent as to heat it to a temperature above the ignition temperature and is, thereupon, forced under pressure either into the cylinder, which is supplied with compressed air at a lower temperature, or into a vessel in communication therewith serving as a combustion-chamber. By this means the air conducted to the working-cylinder to support combustion may be cold and the temperature during the process may be kept as low as permissible, according to the constructional parts, packing, etc., employed.

ROTARY ENGINE.—Thomas Croston, Hoquiam, Wash. The engine is provided with a cylinder in which a piston is mounted and with a cut-off valve for the steam. The main driving-shaft controls the valve. Between the shaft and piston is a yielding connection comprising disks spring-pressed apart and engaged by and carried around by the piston. One of the disks is fitted to slide in spiral grooves on the shaft. The disks are shifted simultaneously and automatically on reversing the engine. It is probably a new departure in rotary-engine-construction to control the engine automatically according to the load and to indicate the horse-power, both of which features constitute noteworthy points in this invention.

Mechanical Devices.

PENDULUM-ESCAPEMENT.—Carl T. E. Zimmerman, Cumberland, Wis. The ordinary clock does not keep correct time owing to the varying tension of the spring. The present invention is designed to overcome this objection by a peculiar construction and arrangement of the parts of an escapement, so combined with the pendulum and an escapement-wheel that the pendulum is not actuated by the escapement-wheel and the variable power of the mainspring, but by an intermediate weight set into action by the escapement-wheel and falling with a constant force to actuate the pendulum uniformly.

SAFETY-LOCK FOR BREECH-LOADING GUNS.—Jasper L. Ackerman. Monon, Ind. Sometimes a breech-loading gun is opened and cocked and the hammer snapped down by curious meddlers when the gun is not loaded, to the great damage of the firing-pins; and the safety-slide is innocently changed without the knowledge of the user of the gun, thus locking the safety, so as to cause the gunner to miss his shot. The present invention provides a device for locking the break-lever of the gun, so that it cannot be opened or broken down, and for locking the safety-slide of a hammerless gun so that the slide cannot be meddled with.

REVERSING MECHANISM.—George V. Blackstone, Jamestown, N. Y. The object of the invention is to provide a gearing for washing and other machines which, in operation, requires but little power. The gearing comprises a driving-pinion with which a cam moves. Gear-wheels mesh with the pinion at opposite sides. On the shaft to be driven is a locking device having a fixed member, and a locking member fitted to slide in the fixed member and adapted to be engaged by the cam to throw the locking member alternately into engagement with the gear-wheels.

PRINTING-MACHINE.—Edward G. Smith, Manhattan, New York city. The invention relates to high speed, multicolor-printing machines for printing wall-paper, textile fabrics and other endless webs. The machine has a row of impression-cylinders, a printing-roller for each cylinder, and driven endless feed-bands passing between the cylinders and the printing-rollers to carry the web at its margin between the sets of printing-rollers. The bands pass through annular grooves formed on the printing-rollers to hold the web in proper position between the opposite contacting portions of the cylinders and rollers. By running the web in a straight line through the sets of cylinders and rollers, it is evident that no undue strain is given to the web, and the latter readily takes up the ink or color delivered by the printing-rollers.

MACHINE FOR CUTTING SUGAR.—Francis Simonet, Manhattan, New York city. This machine is designed to cut sugar when in the nature of a paste, the object being to provide improvements for the purpose of obtaining clearly-cut pieces and of more readily cleaning the machine of waste. The novel features of the machine are found in the use of a supporting plate located in the meeting plane of two dies and of a conveyer which carries the candy or sugar over the plate. One of the dies rotates, and the other both reciprocates and rotates in order that it may be readily cleaned. Indeed, the ease with which the dies can be cleaned constitutes one of the merits of the invention.

BASCULE LIFT-BRIDGE.—John P. Cowing, Cleveland, Ohio. This revolving bascule bridge has a span with a segmental bearing-surface engaging a rolling-surface, and supports for the end of the span when the latter is closed. The supports are independent of the rolling-surface, so that this surface is relieved of the strain of the live or moving load. The strain in question is transmitted by the supports to the abutments or piers. This in brief is the broad idea of this new construction. It is expressly understood that it is the rolling-surface which carries the dead weight of the span when the span is open, but when the bridge is closed, the principal strain, as we have already remarked, is borne by the abutments. The bridge possesses the additional advantage of being self-contained, since the motive power for opening and closing the span is located on the supporting-piers, without therefore requiring any approach spans.

APPARATUS FOR WEIGHING, MEASURING, AND DELIVERING PROVISIONS.—William D. Wanzer, Clintondale, N. Y. The apparatus is designed particularly for storing and measuring out coffee in variable quantities and for grinding and delivering it to the customer. The apparatus has receptacles for various brands of coffee. Valves control these receptacles; and a scale is arranged below to receive the coffee. When the desired weight of coffee is discharged into the scale-pan, the scale-beam is tilted, thus throwing into action mechanism which automatically closes the valves and discharges the coffee into a mill, by which it may be ground and from which it is delivered to the customer.

LOCK.—Detalmo di Brazza Savorgnan, Rome, Italy. This invention provides improvements in locks more particularly designed for use in connection with mail-collecting bags and mail-boxes, the object being to provide a comparatively simple lock in which a multiplicity of cylinders is employed. The cylinders are provided with variously-pitched channels, so that there will be a variation of speed of movement between coacting cylinders, thus making it practically impossible to operate the lock with any other than the proper key.

CORDAGE-MACHINE.—Franz J. F. Graf, Passaic, N. J. It is the purpose of this invention to provide an improved cordage-machine for manufacturing ropes, cords, and cables, without requiring long rope-walks and skilled mechanics, the machine being capable of turning out a large quantity of rope of a high quality in a comparatively short time. The machine comprises a revoluble frame arranged for carrying a number of bobbins. A drawing device is used for each bobbin to draw the strands therefrom; and a flier carries the drawing device to rotate it around the bobbin. Mechanism is provided for rotating the flier; and a twisting device receives the strands from the several drawing devices.

Railway-Contrivances.

LOCOMOTIVE.—Alfred Given, Ellensburg, Wash. The locomotive is driven, not by a reciprocating engine, but by a rotary engine mounted in the front portion of the locomotive and connected by connecting-rods with the driving-wheels. The construction of the locomotive has been slightly modified to meet the demands of the new form of driving mechanism. The locomotive is considerably simplified by the new arrangement, since the usual cylinders and parts thereon depending are dispensed with.

PARTITIONING DEVICE FOR RAILROAD-CARS.—William H. Gummere, South Bethlehem, Pa. The partitioning device is designed to form a space in a car for the use of the government in safely carrying packages in bond. When not in use, the device permits the car to be used in the customary manner. The car is provided in its interior with an overhead, longitudinally-extending track on which carriages are mounted to travel. A transverse partition is carried by the carriages and is adapted to be locked to the car.

Miscellaneous Inventions.

LIQUID-MEASURE.—Henry J. Brantley, Valdosta, Ga. In connection with a barrel or tank, a dispensing vessel is used, through which the liquid is discharged. This vessel is provided with means whereby the discharge of liquid is closed when the liquid is entering from the cask; and the supply of liquid from the cask is shut off when the outlet port of the vessel is opened. Registering devices indicate automatically and accurately the precise quantity of liquid drawn. By this means the purchaser of a barrel of liquid is able, when the barrel is empty, to determine exactly how much liquid was in the barrel.

AUTOMATIC CHEMICAL FIRE-EXTINGUISHING SYSTEM.—Henry Bush, Dayton, Ohio. The inventor has devised a fire-extinguishing system, whereby in the absence of watchmen, the heat of a fire would automatically release one or more discharge-valves in the line of distributing-pipes and by such release and consequent reduction of pressure in the pipes permit the automatic action of mechanism for causing the generation of gas in a vessel or tank. This vessel first discharges its gaseous and liquid contents through the distributing-pipes upon the fire. At the same time an alarm is sent to a fire-department. When the discharging-vessel is exhausted, a second source of constant water supply is automatically turned on, so that, should the alarm be unheeded, there would be no cessation of discharge of water upon the fire.

LETTER-CARRIER'S BAG.—Michael McCarthy, Boston, Mass. It is object of the invention to provide a means whereby letter-carriers may stow in their boxes or satchels the letters gathered so that the letters may be taken out in the order of the route, thereby avoiding the use of twine in tying up the bundles of letters and saving time. To this end the usual bag is furnished with a box or holder fitted in one end and having flaps at its front side, which may be connected or disconnected to permit the placing and displacing of the letters to be stacked in the box or holder.

PICK OR PLECTRUM.—Frederick Menzenhauer, Jersey City, N. J. The pick is designed to be used in connection with mechanically-actuated stringed musical instruments and is arranged to combine the desired flexibility with the necessary strength. The pick comprises a body having a recess in which a coiled spring is held projecting beyond the body. The spring at its outer end is provided with a point, and at its inner end with a stiffening-rod.

STRINGED MUSICAL INSTRUMENT.—Frederick Menzenhauer, Jersey City, N. J. The strings of this musical instrument can be readily picked either singly or in groups to sound chords. The instrument can be played with but little knowledge of music. The instrument is provided with a pick-board having a limited movement across the strings. A number of picks—of the kind described in the foregoing notice—one for each string, are mounted in the pick-board to move therewith. These picks stand normally above the strings; and each pick moves at an angle to the movement of the pick-board, so that when the pick is pressed and the pick-board is moved, the pick picks its string.

DEVELOPING-TRAY.—Auley B. Sheppard, South Burgettstown, Pa. The tray has overhanging sides to form a partial cover, the ends of the bottom being gradually curved upward in the form of a rocker, whereby the tray may be rocked to flow the developer over the plate without spilling. The tray is made of glass and is graduated so that the developer can be measured. By reason of the peculiar construction, the solution can be effectively applied without spilling and without staining the hands.

PHOTOGRAPHIC WASHING APPARATUS.—Augustus Studdiford, Liberty, N. Y. The tank of the apparatus is formed with a well and contains a tray-carrying wheel. Extending down into the well is a pipe provided at its end with a nozzle adapted to throw a jet of water against the wheel. A branch pipe above the nozzle and in the upper part of the tank is provided with a sprinkler whereby to spray the trays while the tank refills after being emptied by a siphon mounted in the well. A very thorough washing of films, plates, and prints can thus be obtained without special manipulation of the trays.

SHIRT-WAIST ATTACHMENT.—Charlotte E. Hurd, Unadilla, N. Y. The attachment is designed to enable a skirt to be utilized for holding a waist in proper position so that no space will be visible between a waist and skirt. The device is so constructed that a pliable member will be a fixture upon the waist, which member can be readily passed through the wash. The attachment is not uncomfortable when worn and is invisible when in use.

TOOL-HOLDER.—Frank B. Kendrick, Lebanon, N. H. The present device is a novel tool-holder which can be operated with one hand and in which spring-tempered jaws are provided that automatically open when released from the pressure of a regulating device. This regulating device also serves to close the jaws upon the tool, the jaws being then locked so as to grip the tool. The device can also be used as a pin-vise or as an ordinary clutch for light work.

POCKET-KNIFE.—Ernst Kühn, Untenkatternberg, Prussia, Germany. In this pocket-knife a very simple substitution is provided for the springs usually employed, by which the knife-blade can be held firmly in position. In the handle of the knife the usual blade is pivoted. An arm is mounted on the pivot of the blade to move therewith. The arm serves to engage the handle to hold the blade locked in open or closed position.

MATCH-SAFE.—John C. Gilbert, Boston, Mass. On a bracket or support a human figure is mounted. A rock-shaft is journaled in the figure and carries the figure's movable arms; while a cord is wound over the rock-shaft and is connected with the movable leg. When the leg is pulled, the shaft is turned so as to cause the arms to swing up and lift the cover from the match-box.

Designs.

BROOM-COVER.—Oscar S. Kulman, Savannah, Ga. The purpose of the cover is to keep the Kulman antiseptic broom, or any other broom, clean during shipment, to preserve its shape, and to prevent the evaporation of the disinfecting or antiseptic matter.

CLOTHES-LINE PULLEY.—Thomas Rubino, Hazleton, Pa. The leading feature of the design is found in a plate having divergent slots. The lines are placed in these slots and are thus prevented from becoming entangled, and are held in proper position.

DIAPER.—William M. Stinson, Louisville, Ky. The design consists of a middle portion and integral end pieces and extending beyond both sides of the shank, with the end piece arched at its outer edge and half round at the sides. The outer edge of the end piece is straight and the sides rounded off. The end piece has cuts to form flaps.

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(7732) T. W. says: Will you oblige me by letting me know by mail receipt for substitute for white lead. I am looking for a cheap white paint, for out door work; something that will stand weather fairly well, and that could be painted over should the occasion require it. A. Skim milk, 2 qts.; fresh slaked lime, 8 oz.; linseed oil, 6 oz.; white Burgundy pitch, 2 oz.; Spanish white 3 lb. The lime to be slaked in water, exposed to the air, and mixed in one-fourth the milk. Dissolve the pitch in the oil and add a little at a time. Then add the rest of the milk and the Spanish white.

(7733) S. G. asks: Which is the proper side of a leather belt to run next the pulley, the grain side or flesh side? A. The question as to which side of a belt should run next to the pulley has been a subject of discussion among mechanics since the earlier days of the use of belting. It has been proved that a belt pulls harder, or with less strain, with the grain side next the pulley. Still, we see almost universally the better-looking side of the belt on the outside, with belt grease and wax used to make it stick.

NEW BOOKS, ETC.

Inorganic Chemical Preparations. By Phelix Lengfeld. New York: The Macmillan Company. 1899. 16mo. Pp. 58. Price 60 cents.

This manual is written for the classes in inorganic preparations at the University of Chicago, and is an excellent laboratory guide. The directions are simple and the student cannot go wrong if he follows them. The preparations are arranged in the order of increasing difficulty. It is an excellent contribution to modern text books on chemistry.

Embroidery, or the Craft of the Needle. By W. G. Paulson Townsend. Assisted by Louisa T. Pesel and Others. With Preface by Walter Crane. London and New York: Truslove, Hanson & Comba. 1899. 16mo. Pp. 116.

A really modern book on embroidery will be warmly welcomed. While it evidently took several authors to write even this small book, they have performed their task in an admirable manner. Excellent half-tone engravings are given of the fine samples of embroidery of all kinds, and there are many plates of stitches. The matter has been approached seriously and the authors have acquitted themselves of their task in an excellent manner. It is a book that we can recommend to both the student of historical embroidery and also to those who are anxious to do work of this kind themselves.

Crude Rubber and Compounding Ingredients. The Text Book for Rubber Manufacturers. By Henry C. Pearson. New York and London: India Rubber Publishing Company. 1899. 8vo. Pp. 251. Price $10.

We have on many occasions received inquiries relative to a good book on rubber manufacture and we were always obliged to say that the literature on the subject was limited to stray articles and pamphlets. Now, however, we have a thoroughly practical book on the subject, and we have no hesitation in saying it is the most important contribution ever made to the literature of the manufacture of rubber, and the information is given in succinct form. The author is the editor of The India