RECENTLY PATENTED INVENTIONS.

Bicycle Improvements.

TIRE.—Herman A. Fonteine, Auburn, N. Y. The improvement of this inventor consists in providing a wheel-rim with a number of pneumatic bulbs projecting outwardly, the bulbs being in communication with one another, so that they may be simultaneously inflated and deflated. The bulbs are independently movable, so that if one of them should be punctured, it can be removed and fitted with an interior skin or film of fabric. It can then be replaced and the series of bulbs may be again inflated by the usual means.

BICYCLE.—Albert S. Weaver, Hamilton, Canada. The purpose of this invention is to provide a bicycle which is arranged for carrying a number of persons, the seats for whom are mounted in pairs, one behind the other. Each person has a separate pedaling device and is enabled to steer the bicycle. The bicycle is provided with a front frame extending transversely and having side arms and top and bottom cross-arms connecting the side arms. A center brace is located between and parallel with the side arms and connects the top and bottom cross-arms. A brace connects the center-brace with the upper part of the steering head for the front wheel. Braces connect the steering head with the bottom cross-arm at each side of the center brace. A saddle and pedaling device are carried at each side of the frame. Saddles and pedaling devices are also carried in front of the bicycle and over the rear wheel.

Mechanical Devices.

VOTING MACHINE.—Andrew H. Hart, Winchester, Ky. This voting machine comprises a case, a delivery-roller and a take-up roller mounted in the case and a numbered tape extending between the rollers. A block is movable in a slot in the top of the case, and a dog is mounted to swing on the block. When the voter has finished voting, the election officer pushes the block forward so as to impart motion to the take-up roller, moving the tape through the space from one numeral to another, the numerals indicating the total number of votes registered. The dog mentioned is adapted to engage with ratchet teeth formed in a flange of the take-up roller. From the block, a resilient detent-strip extends and has a hook end, a rod over which the hook is designed to engage and means for lifting the detent from the rod. This mechanism is all controlled by the block. The detent prevents the voter from voting twice and also prevents repeating.

GRAIN-SEPARATOR.—Jacob F. Koch, New Athens, Ill. This invention consists chiefly of a straw-conveying mechanism elevated over the separating pans to carry the straw bodily clear of the pans and independently of chaff and grain. The apparatus is provided with a thrashing cylinder and concave. A vibrating separating pan is located below the cylinder and concave, the separating pan receiving the straw and grain from the cylinder and concave. A vibrating lifting rack is located in the rear of the point on the separating pan, which point first receives the straw and grain, and serves to raise the straw and other coarse material from the separating pan. An elevated straw carrier is located over the separating-pan and receives the straw from the lifting-rack.

ARTIFICIAL FLOWER CRIMPING MACHINE.—Lucien Ebert, New York city. This machine for crimping and goffering fabric-blanks is provided with a fixed bar, a pivoted bar adapted to swing toward and from the fixed bar to hold the blanks between the bars, and heads mounted to slide on the bars to press the blanks endwise. Means are provided for imparting a swinging motion to the pivoted bar and an adjusting device regulates the position of the movable bar relatively to the fixed bar.

STREET-SWEEPER.—Alvin Brown, Aurora, Ill. The street-sweeper of this inventor is provided with a casing and an endless traveling brush-belt running on front and rear sprocket wheels. The shaft of the front wheels projects through the slotted sides of the casing. Frame-bars extend along the sides of the casing and have a lengthwise slot. Brackets are connected with the shaft ends and have a projecting portion or rib that slides in the slots of the bars. A screw-bolt works horizontally in a threaded lug on the bars and is connected with the bracket for adjusting the brush higher or lower. An inclined pan or chute is arranged beneath the brush and receives the dust or dirt. Means are provided for adjusting the pan to the brush.

POTATO-PLANTER.—John A. Cooper, Summit, Ia. This potato-planter, designed to distribute seeds automatically and to plant one or two rows, is provided with a hopper around which a seed-receiving receptacle revolves. Stationary strippers are carried by the receptacle and pickers also carried by the receptacle have movement to and from the strippers. Means are provided for operating the strippers so that the tines of the pickers may pick up the seed potatoes from the bottom of the receiver. The seed receptacle is provided with openings between the sections at which the strippers and pickers are located. Platforms adjustably supported from the hopper control the distribution of the seed and levers are connected to the platforms to raise and lower them. Cleaning-blades have vertical movement in the bottom of the seed-receptacle and travel on an undulating track.

Engineering Appliances.

STEAM BOILER AND FURNACE.—William Hopkine, Dubuque, Ia. The boiler of this inventor is provided with tubular fire-chambers, each having an annular water space extending throughout the length of the furnace and connecting the water-space near each end of the furnace, and boiler with the shell of the latter, so as to insure a rapid, continuous water-circulation. The tubular fire-chamber or furnace is provided with a corrugated interior cylindrical fire wall, held concentric within the exterior shell of the furnace, thereby affording an annular water-space around the fire-wall, which is to be branch-connected by thimbles or like means, with the water space in the boiler to establish free water-circulation between the water-holding compartment of the furnace and the water-space of the boiler. Means are provided for **raising the temperature of the water before entering the boiler.**

BOILER.—Benjamin P. Emery, Kennebunk, Me. This boiler is provided with a fire-box surrounded by a water-jacket. A casing incloses the upper portion of the fire-box and the boiler is located in the upper portion of the casing. A coil of pipe extends around the sides of the fire-box and around its rear end and communicates with the water-jacket. Stand-pipes are located at each side of the fire-box and extend upwardly to and communicate with the boiler. The stand pipes also communicate with the water-jacket, and coils of pipe are located between the boiler and the fire-box, and also between the stand pipes, the coils communicating with the water-jacket and with the boiler.

MOTOR.—Francis A. Brennan, Brockville, Canada. The motor of this inventor consists principally of a hollow cone, connected with the crank arm of the main shaft, a cone of flexible material and united at its base with the base of the hollow cone, and a fixed connection with the apex of the flexible cone for the inlet and exhaust of the motive agent to and from the cones.

Miscellaneous Inventions.

RAILWAY-RAIL TIE.—Edward R. Stiles, Decatur, Ill. The purpose of this invention is to provide a rail which will not creep, and to provide a bed for the rail which is designed to deaden the sound. The blocks upon which the rails rest fit into a channel-bar, each block having the lower portion of its outer end inclined upwardly and outwardly and its inner end inclined from top to bottom. Shoes are secured on the channel bar and have an inclined face resting against the outer inclined portion of the block. Bolts extend through the blocks and bottom of the channel-bar.

WIRE-FENCING TOOL.—James R Smith, Jefferson, Ala. This wire tool has a staff and two plates respectively engaging opposite edges of the staff, each plate having a hook thereon. The hook of one plate has a recess therein capable of receiving the wire and of holding the wire to permit its stretching. The other hook is capable of receiving the wire so as to handle it.

CUTTER AND HOLDER FOR FRUIT AND FLOWERS.—William W. Crockett, Falls City, Neb. This invention consists principally of a pair of jaws adapted to be moved toward and from each other, and a cutter on one of the jaws having its edge operating in conjunction with the top edge of the other jaw to cut the stem of the fruit, flower or like article before clamping it upon further closing the jaws.

ORGAN.—John E. Davis, Washington, N. J. The purpose of the inventor is to provide means whereby a proper actuating of the swells, mutes, couplers and like parts is obtained without binding and undue friction of the moving parts caused by lateral motion and shrinkage. The organ is provided with a lever formed with a pivot portion and arms extending therefrom and at angles to one another. One of the arms has a bent portion extending parallel and in alignment with the pivot portion and arranged for connection with the actuating part. The other arm is formed with a bend by which it is brought in line with the center of the pivot portion, the latter arm being arranged for connection with the part to be actuated.

GARMENT HANGER.—Thomas G. Owen, Newport, R. I. This garment-hanger has a body to which a bracket is fixed and is provided with a forwardly projecting hook. The bracket also has a forwardly and upwardly projecting hook. Both hooks are adapted to carry garments, and the forwardly and upwardly projecting hook is provided with a wall inclined toward the body, so that a cleat may be forced between the body and the wall.

DISH-DRAINER.—Marie L. Perrottet, New York city. With this apparatus, a simple method is provided not only for draining dishes, but for holding them in such position as to prevent them from becoming injured by falling on one another. Folding shelves are also provided for the drainer which are adapted to receive knives, forks and small dishes. These shelves may be carried close to the body of the drainer when the apparatus is not in use, thus permitting it to be stored in a small space. The shelves are so constructed that anyone of them may be folded upon the body of the drainer out of the way. The drippings are conducted to a reservoir forming part of the device.

LOCK.—Georges L. E. Pétorin, San Francisco, Cal. The purpose of this inventor is to provide a lock which may be cheaply manufactured. The lock comprises a double throw-bolt and a pivoted and spring-pressed locking yoke. One portion of the yoke body has an interlocking engagement with the bolt and the other portion extends to within a short distance of the key-hole. The key engages the yoke to free the bolt and then the bolt so as to throw it.

BAG-CLOSURE.—Archia L. Ross, New York city. This inventor has provided a bag to be used for receiving ashes, papers and refuse, which may be easily suspended, held open and hermetically closed. The bag-closure comprises a frame having two spring-metal members pivotally connected with each other. One member is provided near its middle with a pivoted loop and the other with a transversely extending catch having a shoulder adapted to snap under the other frame member, between the members of the loop, to lock them and keep the frame in closed position. A cord packing is arranged on the inside of the frame and follows the line of the members thereof, so that when the bag is closed the packing hermetically seals the mouth of the bag.

CALL-BOX SYSTEM.—Edgar E. Salisbury and Albert E. Dean, Tacoma, Wash. These inventors have provided a call-box system in which telephones are used, which makes use of a permanently magnetized circuit but employing no local battery. The purpose of the invention is to cut the primary circuit of a coil within which the transmitter is located, in and out of the main-line circuit, when either in use or not in use without disturbing the secondary which is the local circuit. Means are also provided whereby the hanging up of the receiver indicates that the subscriber has finished his conversation.

BOOKBINDING.—Joshua R. Wales, Marlborough, Mass. In this invention, a strip of fabric constituting the back-binding has transversely separated portions or tongues which are secured on the covers and body of the book. Tapes are arranged within the binding, are passed through longitudinal slits in the tongues and are glued down on the tongues.

BARRICADE ALARM FOR DOORS.—George D. Winters, Reno, Nev. The alarm of this inventor is of such nature that when a door is partially opened the alarm will be immediately sounded when set. The alarm is provided with a strut-bar having at its upper end a sliding connection with the door and an alarm mechanism supported on the door and including a trip-bar arranged for operation by the upper end of the strut bar.

EGG-CARRIER.—Charles Goetz, Viola, Idaho. This carrier is composed of a cruciform base, four vertical posts set in the end portions thereof encircled by coiled springs, and a horizontal platform having holes to receive the posts and provided with a large central opening for the reception and support of an egg-basket, the upper portions of the posts projecting a considerable distance above the platform.

GATE-HINGE.—John R. Haldeman, Springfield, Mo. The gate forming the subject of this invention is constructed in the usual manner and is supported and slides on flanged rollers which are journaled on the face of a vertical bar pivoted to a post. The arrangement of the pivots whereby the bar is attached to the post prevents the bar from swinging by mere friction of the gate-bars with the rollers, as the gate is slid back and forth.

RAILWAY SIGNALING AND SWITCHING APPARATUS.—John D. Taylor, Chillicothe, O. The purpose of this invention is to construct an interlocking or controlling apparatus having means for preventing a lever changing its position in either direction before the track-switch has made its complete movement. The signal-operating mechanism is provided with two semaphores or signals. A reversible electric motor operates the signals and a clutch mechanism on the shaft of the motor selects either one or the other signal, depending on the direction of rotation of the motor. A polarized pole-changing relay determines the direction of the current through the motor-armature. A two-position circuit closer is attached to each of the two signal operating levers, one for each signal. These circuit closers act conjointly to control the circuit through the polarized relay and severally to control circuits through the motor. A generator and electrical connections are also provided. The switching apparatus comprises a series of operating levers, primary and secondary locking bars, connections between the primary bars and levers, yielding connections between the primary and secondary bars, holding latches for the secondary bars and electrical means for releasing the latches.

MOP-WRINGER FOR PAILS.—Frank Trimble, Greensburg, Ind. The mop provided for by this inventor may be conveniently wrung without the use of the hands. The mop-wringing attachment comprises a section arranged for attachment to a pail, and a pivoted section, both sections being provided with rollers at their inner edges. Means for locking the two sections together when the mop is to be drawn from the pail are provided.

GRAIN-SPOUT.—Albert D. Bellinger, West Superior, Wis. The purpose of this invention is to provide an easily manipulated spout which can direct grain to any part of a boat and which may be quickly lengthened and shortened at will. The spout comprises two telescopic sections. One of these sections is longitudinally slotted at the top and adapted to slide on the other section. An arm extends from the lower end of the upper section through the slot. Means are provided for moving the movable section on the other section.

COMPOSITION FOR REMOVING BOILER INCRUSTATIONS.—George Linde, Omaha, Neb. This composition, designed to remove the scales in boilers consists of gallic powder, sal-ammoniac, soda, salt, acetic acid, catechu and Irish moss. It is claimed that a small quantity of the composition introduced from time to time suffices to keep the boiler completely free of all incrustations.

CARRIAGE-STEP.—William F. Hopkins, Caruthersville, Mo. The object of this inventor is to provide a carriage step which will readily turn to one side or move upward when coming in contact with or passing over a stump or other obstruction. The step is provided with a fixed rod having a lateral projection. A shank is formed with two downwardly inclined cam-surfaces approaching each other at their adjacent ends. The shank is mounted to slide and turn on the rod with the cam-surfaces above the projection and in engagement with it. By this means the shank will be rotated with longitudinal movement. A foot-piece is attached to the shank to press the latter against the projection.

Designs.

PIPE.—Julius Becker, New York city. This design consists in forming the stem so as to simulate the appearance of a war-vessel. The bowl rests upon the war-vessel and the mouthpiece is a continuation of the vessel.

BOTTLE.—George Miller, Jersey City, N. J. The leading feature of this design consists in forming the upper part of the body of a bottle like a dome. A base and a tapered longitudinally-paneled section between the dome and the base complete the design.

CREAM-SEPARATOR.—Arthur C. Webber, Knowlesville, N. Y. This design consists in a box, approximately rectangular in shape, and having a hopper-shaped bottom inclined longitudinally and in an upward direction from the front end of the box to the rear end. The box is mounted on legs and has a cover at the top.

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(7454) H M. P. says: 1. In the table of United States ordnance, at the end of the NAVAL SUPPLEMENT, I notice that, in the first column, it says, for example: "6 in. B. L. R. Mark III, of 40 calibers." Will you please explain to me, either by letter or in the "Notes and Queries" of the SCIENTIFIC AMERICAN, what "Mark III" and also "of 40 calibers" mean, and why the different "Marks" and "calibers" change the dimensions of the gun? I do not suppose that the "of 40 calibers" is the length of the gun, for in the column of lengths, the length of this gun is given as 21·3 feet, which is longer than 40 calibers. A. "Mark III" refers to a shop mark, which distinguishes a particular kind of gun of the same caliber. "40 calibers" means forty times the caliber of the gun, but this again has some latitude, as, in some cases, the length of the gun is meant, while in other cases the length of the bore only is considered. 2. Will you also give me the dimensions and other particulars concerning the Canet 6 inch gun, of 60 calibers? A. The Canet 16-centimeter gun (6·30-inch) of 60 calibers, is 31½ feet long, weighs 8·56 tons; the projectile weighs 101·4 lb., the muzzle velocity is 2,953 foot-seconds; the muzzle energy is 6·138 foot-tons; perforation through wrought iron at the muzzle is 25·3.

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(7455) C. W. C. asks: What is the voltage and amperage of an ordinary 6 by 8 telegraph battery or gravity cell? A. The voltage of a gravity cell is 1 volt. Its internal resistance under mean working conditions is 0·5 ohm. Its maximum current in short circuit is the quotient of the volts by the ohms, or 2 amperes. It should not deliver this amount for any length of time. In the telegraph, the external resistance is large, and the current used is a very small fraction of an ampere.

(7456) T. H. S. writes: I am thinking of building a frame cottage and covering the outside with pressed metal shingles, roof and sides. I would like to know if this makes a hotter house than simple frame sheathing. A. The chances of a colder house in winter would seem to be greater than of a hotter house in summer. By using proper sheathing paper and having ample dead air space between outside and inside walls, the house may be made as comfortable as any house. 2. What would be the danger from lightning in such a dwelling, if the metal sides had proper connection with ground? I presume it would be more likely to be struck than frame, but would it not be practically absolutely safe to the inmates? A. The metal covering properly grounded, and numerous wire points from ridge, gables and chimneys will render it safe from lightning. You will need no separate lightning rods.

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