No. 781,026. PATENTED JAN. 31, 1905.

A. A. SCHARFF.

VENDING MACHINE.

APPLICATION FILED APR. 21, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

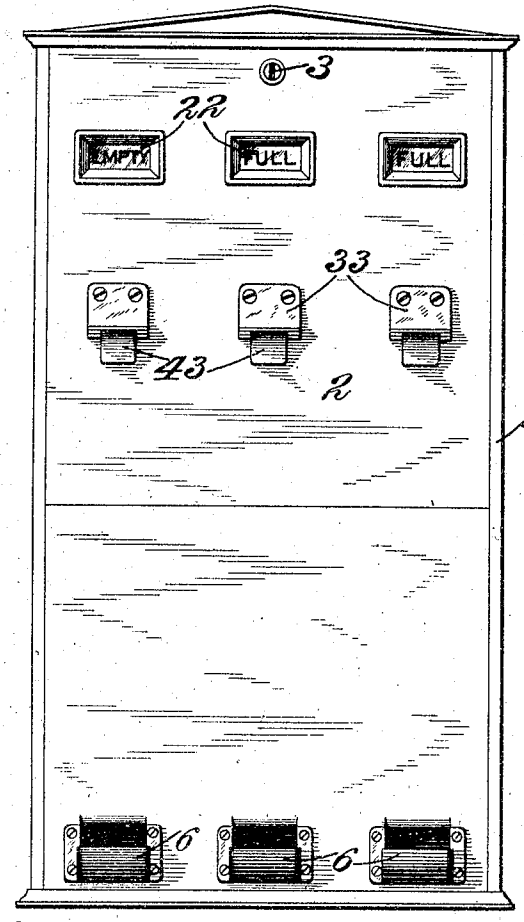
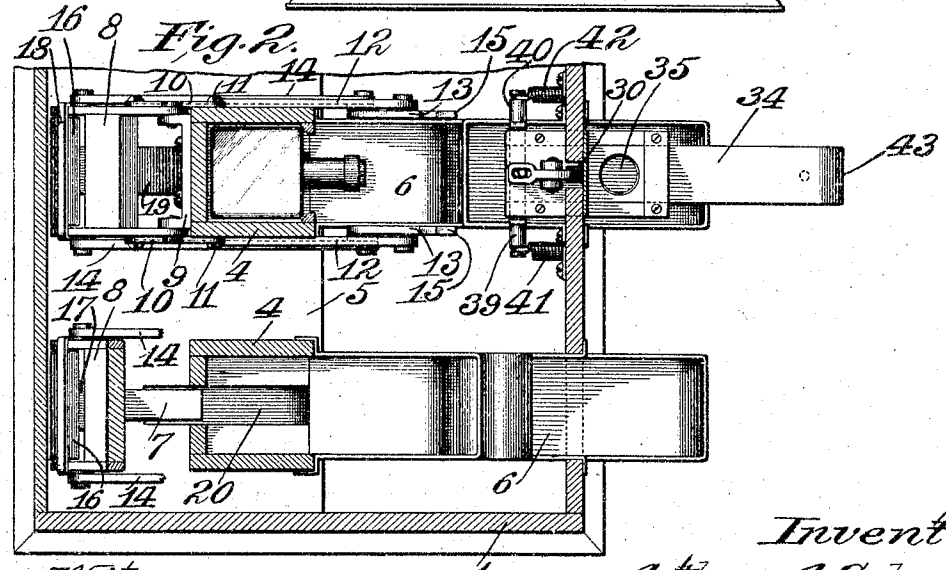


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

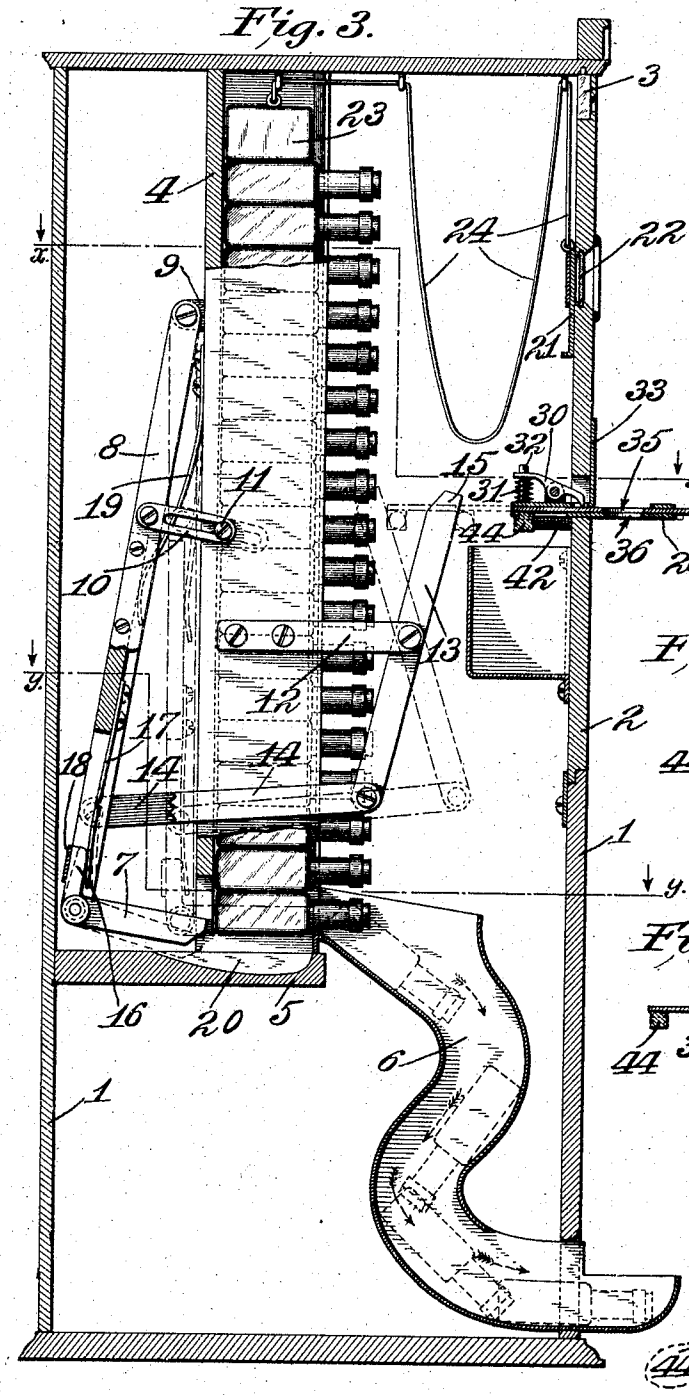


Fig. 4.

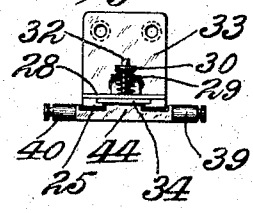


Fig. 5.

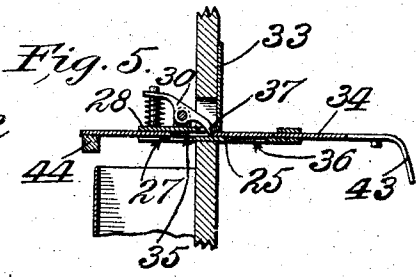


Fig. 6.

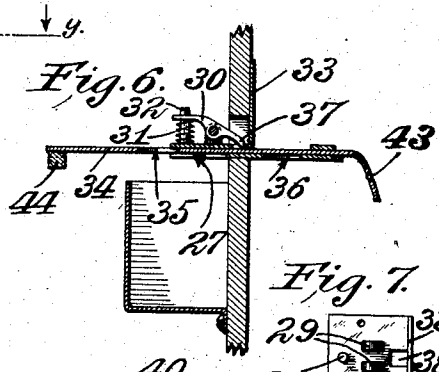


Fig. 7.

Fig. 8.

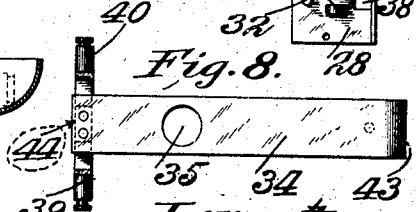
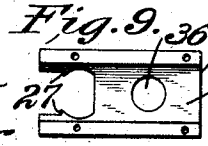


Fig. 9.



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PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 781,026. Patented January 31, 1905.

UNITED STATES PATENT OFFICE.

ARTHUR A. SCHARFF, OF ST. LOUIS, MISSOURI.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 781,026, dated January 31, 1905.

Application filed April 21, 1904. Serial No. 204,245.

To all whom it may concern:

Be it known that I, ARTHUR A. SCHARFF, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Vending-Machines, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevational view of one form of a vending-machine constructed in accordance with my invention. Fig. 2 is a divided sectional view on the lines *x x* and *y y*, respectively, of Fig. 3. Fig. 3 is a vertical longitudinal sectional view through the casing, parts of the mechanism being shown in elevation and parts in section. Fig. 4 is a rear end elevational view of the coin-controlled mechanism. Fig. 5 is a vertical longitudinal sectional view through the coin mechanism, showing the position of the locking-dog when the coin-carrier has been moved without inserting the coin. Fig. 6 is a similar view showing the position of the dog after the coin-carrier has been moved by being provided with a coin. Fig. 7 is a plan view of the dog-carrying bracket. Fig. 8 is a plan view of the coin carrier or slide, and Fig. 9 is a plan view of the guide-plate for the coin-carrying slide.

This invention relates to vending-machines; and one of the objects thereof is to provide means whereby certain articles or packages can be vended automatically from a suitable receptacle or casing by suitable mechanism contained within the receptacle or casing when a suitable check, coin, or token has been fed into the machine.

Another object of the invention is to provide means whereby the articles or packages of merchandise are inaccessible unless the discharging mechanism is operated.

A further object is to provide means for indicating when a particular part or parts of the machine has been emptied of the contents to to be vended.

Other objects and advantages, as well as the novel details of construction of this invention, will be specifically described hereinafter, it being understood that changes in form, proportion, and minor details of construction can be resorted to without departing from the spirit or sacrificing any of the advantages thereof.

The present invention is illustrated as being particularly adapted for use in vending bottles containing suitable liquids; but I do not wish to limit myself to this particular use, as the machine is equally capable of vending other articles, such as cakes or packages of material.

In the drawings illustrating the preferred embodiment of my invention, 1 designates a casing which may be of any desired conformation, said casing being designed to inclose and protect the interior mechanism. This casing 1 is provided with a removable door or closure 2, a lock 3 being preferably employed to secure the door against removal by unauthorized persons. Suitably mounted within the casing is a vertically-disposed chute 4, having rear and side walls and an open front, said chute being designed to receive and contain the articles to be vended, so that they may drop by gravity to a point adjacent the floor 5, which is carried by the interior of the casing and assists in supporting the chute 4. Leading from the discharge end of the chute 4 is a delivery-chute 6, preferably including the tortuous passage to prevent the removal of the bottles from the chute 4 by the insertion of wire or other implements through the chute 6.

Means is provided for vending the articles from the chute 4 through the chute 6, and this means is illustrated in Figs. 2 and 3 as comprising a pusher-bar 7, pivotally secured to one end of its actuating device, illustrated as a lever 8. The lever 8 is pivoted at its end distant from the pusher-bar 7 to a bracket 9, and its swinging movement is guided by the slotted guide-links 10, the slotted portions of which engage the guide-pins 11, carried by the side of the article chute or receptacle 4. Extending forwardly of the chute or recepta-

cle 4 are parallel projections 12, in which are journaled the intermediately-pivoted levers or rocker-arms 13. One end of each rocker-arm is connected to the lever 8 by links 14, so that a rearward movement of the ends 15 of the levers 13 will impart a forward movement to the end of the lever 8, carrying the pusher-bar in such a manner that one of the bottles or articles, as the case may be, in the containing-chute 4 will be forced into the discharge-chute 6, from which it can be removed.

By reference to Fig. 3 it will be observed that the pusher-bar is provided with a projection or finger 16, against which one end of a leaf-spring 17, carried by the lever 8, bears, so as to maintain the pusher-bar in a plane approximately at right angles to the plane of the lever 8; but inasmuch as the pusher-bar is pivoted to the lever 8 a sufficient amount of play will be permitted to insure the proper discharge of the vended articles from the containing-chute 4. The tension of the spring 17 against the projection 16 obstructs or limits the movement of the pusher-bar 7 in one direction, a movement of the pusher-bar in the opposite direction being limited by the stop 18, carried by the lever. In order that the pusher-bar will normally be in a retracted position—that is to say, in order that it may be out of engagement with the article at the end of the chute 4 which is to be discharged—a retracting device 19 is provided. This retracting device is illustrated as being in the form of a leaf-spring, one end of which is connected to the chute 4, while the other end bears against one face of the lever 8. In order to release one article, it is necessary that the rocker-arms 13 be actuated, the free ends of the arms being movable toward the chute 4. This movement will result in moving the opposite ends of the arms away from the chute 4, so as to draw the lever 8 toward the articles, and thereby cause the pusher-bar 7 to dislodge the article to be vended. The release movement of the lever 8 will impart a slight swinging movement to the pusher-bar 7, which is permitted by the recessed or concave portion 20 in the floor 5 of the chute. As soon as pressure is relieved on the ends 15 of the rocker-arms 13 the retracting device 19 will move the lever back to its normal position, as shown in full lines in Fig. 3, and thereby move the pusher-bar 7 into position to dislodge the next succeeding article. When the chute 4 is empty, the fact will be indicated by a sliding plate 21, movable behind a window 22 in the casing, said plate being moved into such a position as to display the word "Empty" or its equivalent. This plate may be actuated by a weight 23, slidable in the containing-chute 4 and connected to the plate 21 by a suitable connection 24. The weight also serves the purpose of assisting the gravitation of the bottles or articles in the chute 4, so that any liability of their becoming lodged in the chute so as to frictionally engage the walls thereof will be avoided.

A novel means is provided for actuating the vending mechanism, the preferred form of which consists of a base or plate 25, secured to the casing and projecting through an opening therein. This plate 25 is provided with a guide-groove 26, and at one end it is formed with projections having inwardly-projecting shoulders 27. Secured to the top edges of the guide-groove 26 is a dog-supporting plate 28, having lugs or projections 29 thereon, between which is pivoted a dog 30, one end of which is spring-pressed by a coil-spring 31, surrounding the integral pin or projection 32 on the plate. The front end of the plate is connected to the casing by a bracket-flange 33, which is fastened to the front of the casing. Interposed between the plate 25 and the plate 28 is a longitudinally-sliding coin-carrier 34, having a coin-receiving opening 35, adapted when in its normal position to register with an opening 36 in the plate 25, the latter opening being of a different diameter to the diameter of the opening 35. The object of providing the opening 35 of a diameter different to that of the opening 36 is to permit a coin, check, or token of smaller diameter than the determined diameter to drop through the opening 36, so that the mechanism cannot be properly actuated.

By reference to Figs. 3, 5, and 7 it will be observed that the engaging point 37 of the dog 30 projects through the opening 38 in the plate 28. If an inward movement is imparted to the sliding plate or coin-carrier 34, as soon as the opening 35 registers with the opening 38 the point of the dog 30 will engage the edge of the opening 35 and prevent further inward movement. If a coin or smooth check is deposited in the opening 35 of less thickness than the thickness of the plate 34, the dog will engage the edge of the opening 35 and arrest further inward movement. In order to push the slide 34 its full stroke, it will be necessary to place the coin, check, or token of the proper diameter and thickness in the opening 35, in which event the pointed end of the dog will slide over the coin, pass the opening 35, and permit the slide to be actuated its full stroke until the opening 35 assumes a position as indicated in Fig. 6, in which event the coin will drop into the receptacle therebelow. Carried on the inner end of the slide 34 are oppositely-disposed projections 39 and 40 to respectively engage the levers or rocking arms 13 so as to push the ends 15 thereof toward the chute 4, as indicated in dotted lines in Fig. 3. The oppositely-disposed projections 39 and 40 being connected to the casing by means of retracting devices, illustrated as

springs 41 and 42, the coin-carrier or slide 34 will be immediately retracted to its original position as soon as pressure is relieved on the end 43, the rearward-sliding movement of the slide 34 being limited by the stop-block 44 coming in contact with the shoulders 27 on the plate 25.

When one of the bottles, packages, or articles is forced into the discharge-chute 6, the push-bar 7 will remain momentarily under the next succeeding bottle or article, so that as it gradually recedes the entire series of bottles, articles, or packages is permitted to gravitate toward the floor 5 without any unnecessary jar.

Of course it will be apparent that the mechanism described can be arranged in multiples in a single case, if desired, as illustrated in Figs. 1 and 2, or a case with a single mechanism can be constructed for certain purposes. Where the multiple mechanism is employed, each mechanism will be nearly a counterpart of the other and will operate entirely independent of the other.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A vending-machine having an article-holding receptacle, a lever, a pivoted article-releasing arm carried by one end of the lever and movable thereby to release an article and momentarily cushion the next succeeding article; substantially as described.

2. A vending-machine having an article-holding receptacle, a lever, a pivoted article-releasing means carried by one end of the lever, and yielding means for maintaining the article-releasing means in operative position with relation to the lever and the article-holding receptacle; substantially as described.

3. A vending-machine having an article-holding receptacle, a lever, a pivoted article-releasing pusher-bar carried by the lever, said pusher-bar projecting at substantially a right angle thereto and movable thereby to release an article, a rigid projection on the releasing-bar, a spring coöperating with the lever and bar and connected to one of them and bearing against the other to maintain the lever and bar in operative positions; substantially as described.

4. A vending-machine having an article-holding receptacle, a lever, an article-releasing bar pivoted to and projecting at a right angle to the lever, an angularly-disposed projection at one end of the bar, and a spring on the lever, one end of which bears against the angularly-disposed projection on the bar; substantially as described.

5. A vending-machine having an article-holding receptacle, a vertically-arranged lever, a horizontally-movable pusher-bar pivoted to one end of the lever, and an intermediate guiding means carried by the lever to govern the path of movement of the pusher-bar; substantially as described.

6. A vending-machine including means for holding articles to be vended, means for releasing the articles, comprising a lever and actuating means therefor, a pusher-bar carried at one end of the lever, guide-links carried by the lever, and projections carried by a part of the interior of the casing and projecting through slots in the guide-links; substantially as described.

7. A vending-machine including an article-holding receptacle, a lever pivoted at one end, a spring-pressed pusher-bar carried by the other end of the lever for releasing the articles, and a spring interposed between the lever and the holder for retracting the pusher-bar from engagement with the articles to be vended; substantially as described.

8. In a vending-machine; a casing, an article-holding receptacle within the casing, an article-releasing means including a lever and a pusher-bar carried thereby, rocker-arms spaced from the lever, and links connected to the lever and rocker-arms, said rocker-arms having free ends and an independently-slidable element exteriorly accessible and movable into engagement with the free ends of the rocker-arms; substantially as described.

9. A vending-machine, an article-holding receptacle, an article-releasing means including a lever and a pusher-bar carried thereby, rocker-arms having free ends and spaced from the lever, links connected to the lever and rocker-arms, and an independently-mounted slide having movement to contact with the free end of the rocker-arms to actuate all of the above-mentioned parts.

10. In a vending-machine, the combination with a casing having means for containing articles to be vended, of a spring-pressed lever, means for actuating the lever, and an article-releasing means carried by the lever, including a swinging spring-pressed pusher element; substantially as described.

11. In a vending-machine, the combination with a casing having means for containing articles to be vended, of a spring-pressed lever, means for actuating the lever, an article-releasing means carried by the lever, including a swinging spring-pressed pusher element, and guide means pivoted to the lever for governing the direction of movement of the lever and pusher element; substantially as described.

12. A vending-machine including a casing having means for containing articles to be vended, a lever pivoted to the interior of the casing, a pusher element for releasing the articles, said pusher element being pivoted to

one end of the lever and having a projection, a spring carried by the lever and bearing against the projection to yieldingly retard the pivotal movement of the pusher element, a spring interposed between the article-containing receptacle and the lever, guide means coöperating with the article-containing receptacle and the lever, intermediately-pivoted rocker-arms carried by the interior of the casing, and link connections between the rocker-arms and lever; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 16th day of April, 1904.

ARTHUR A. SCHARFF.

Witnesses:

B. F. FUNK,

GEORGE BAKEWELL.