S. A. LISS.

VENDING MACHINE.

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1,145,027.

Patented July 6, 1915.

Fig. 1.

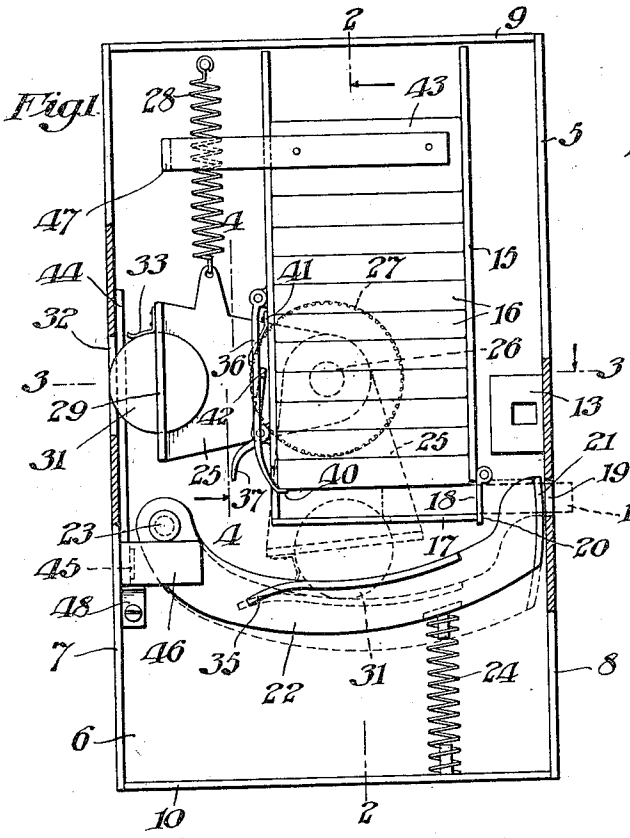


Fig. 2.

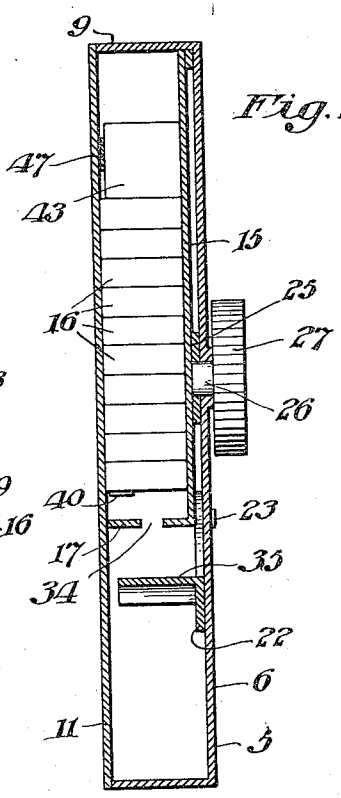


Fig. 4.

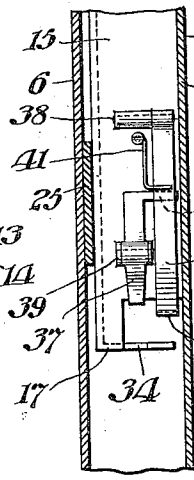


Fig. 5.

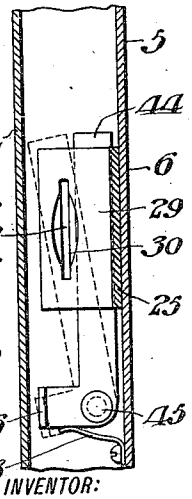
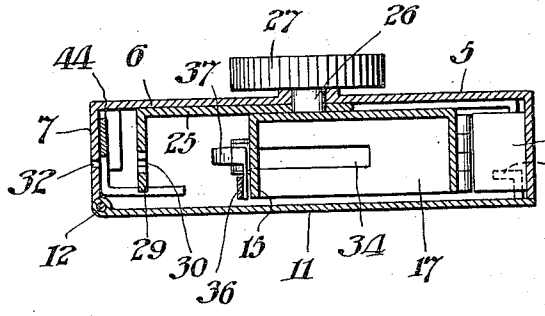


Fig. 3.



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SAMUEL A. LISS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO BEN KINGSDORF, OF PHILADELPHIA, PENNSYLVANIA.

VENDING-MACHINE.

1,145,027. Specification of Letters Patent. Patented July 6, 1915.

Application filed April 24, 1914. Serial No. 834,058.

To all whom it may concern:

Be it known that I, SAMUEL A. LISS, a subject of the Czar of Russia, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

The object of my invention is to provide a coin-controlled vending machine of novel, simple and efficient construction, having provision, first, whereby a coin inserted into the machine may act directly against the articles to be vended for the purpose of discharging them from the machine when a hand operated part is moved; secondly, whereby the coin may be discharged from its operative position after it has been operated to discharge one of said articles; thirdly, whereby the coin may open a door which normally closes the opening in the casing of the machine through which the said articles are discharged; fourthly, whereby the said articles may be prevented from being taken from the machine except under the influence of a coin inserted therein; and fifthly, whereby various novel and advantageous results are attained, as will be hereinafter fully described and particularly claimed.

In the accompanying drawings, illustrating my invention: Figure 1, is a rear elevation of my improved machine, with the rear wall of the casing removed, showing parts of the casing in section. Fig. 2, is a vertical section of the machine, on line 2—2 of Fig. 1. Fig. 3, is a horizontal section of the machine, on line 3—3 of Fig. 1. Fig. 4, is a vertical section of the machine, on line 4—4 of Fig. 1, looking in the direction of the arrow. Fig. 5, is a vertical section of the machine, on line 4—4 looking in the reverse direction to that indicated by the arrow.

Referring to the drawings, 5 designates a rectangular casing having a front wall 6, side walls 7 and 8, a top wall 9 and a bottom wall 10 formed integral with each other or suitably secured together. The rear wall 11 of the casing is hinged, at 12, to the casing 5 and is movable outwardly therefrom to afford access to the interior of the casing, and is held in the closed position by a suitable locking device 13 arranged to engage a projection 14 on the wall 11.

Suitably supported within the casing 5 is a vertically disposed magazine 15 adapted to contain a stack of the articles 16 to be vended. The side of the magazine toward the rear wall 11 is open to permit the articles 16 to be inserted into the magazine when the rear wall 11 is opened on the hinge 12. When the rear wall 11 is closed it closes the open side of the magazine 15.

The articles 16 are adapted to rest upon a support 17 forming the bottom or floor of the magazine 15, and the lowermost article 16 when it rests upon the support 17 is adapted to be moved horizontally therefrom through an opening 18 in the bottom of one side wall of the magazine 15 and through an opening 19 in the side wall 8 of the casing 5. The magazine 15 and wall 8 are spaced from each other and the openings 18 and 19 are in alinement with each other and in alinement with one of the articles 16 when it rests upon the floor 17. The opening 18 is normally closed by a door 20 having its upper edge hinged to the magazine 15 and held in the closed or full line position by gravity. When the article 16 is moved through the openings 18 from within the bottom of the magazine 15, the article moves the door 20 on its hinge to the dotted line position, and when the article 16 is withdrawn from the machine through the openings 18 and 19, the door 20 returns to the full line position closing the opening 18. The opening 19 is normally closed by a door 21 carried by the free end of an arm 22 which is pivoted to the casing 5, at 23. The arm 22 and door 21 are held in the normal full position by a spring 24 against which they may be moved, as will be hereinafter explained, to the dotted line position to open the door 21.

Between the magazine 15 and front wall 6 of the casing 5 is a flat plate-like arm 25 which is secured to the inner end of a shaft 26 extending through and mounted to turn in a bearing in the casing wall 6. The outer end of the shaft 26 is provided with a suitable handle 27 by means of which the shaft may be turned by hand to move the arm 25 from the full line position to the dotted line position, when the machine is operated, as will be hereinafter explained. The arm 25 is held normally in the full line position by a spring 28, one end of which is attached to the arm and the other end of which is attached to the casing. The arm 25 may be moved from the full line position to the dotted line position against the action of the

spring 28 by turning the handle 27, and, when the handle 27 is released, the spring 28 will return the arm 25 to the normal position. The arm 25 lies parallel to the wall 6 and is provided with a flange 29 which extends at right angles to the arm 25 and occupies a position substantially parallel to the side wall 7 of the casing 5, when the arm 25 is in the full line or normal position, and which is adapted to move beneath the magazine 15 when the arm 25 is moved to the dotted line position. The flange 29 has a slot 30 formed therein and adapted to receive a coin 31; and formed in the wall 7 of the casing 5 is a slot 32, directly in front of the slot 30, when the arm 25 is in normal position, so that when the coin 31 is inserted into the machine through the slot 32, the coin will enter the slot 30. The length of the slot 30 is slightly less than the diameter of the coin 31 which operates the machine, so that the center of a coin of the proper diameter may not pass the center line extending between the top and bottom of the slot 30. It will, therefore, be seen that the ends of the slot 30 act as a stop to limit the inward movement of the coin when it is inserted. When the coin 31 is inserted into the slot 30 the coin is held therein by a flat spring 33 secured to the flange 29 and having a lower outwardly and upwardly curved end. The spring 33 engages the top of the coin 31 and presses the coin against the bottom of the slot 30 and holds it therein. The relation of the walls of the slots 30 and 32 and shaft 26 is such that when the coin 31 is inserted into the machine and the arm 25 is moved to the dotted line position, the coin 31 will, during the initial movement of the arm 25, be forced by the bottom wall of the slot 32 into the position shown, even though the coin is not inserted into the position shown before the arm 25 is moved. The coin 31 is thus firmly held within the slot 30 in such position that when the handle 27 is turned to move the arm 25 from the normal position to the dotted line position, the upper portion of the coin 31 will pass through a slot 34 in the floor 17 of the magazine 15 and through the space occupied by one of the articles 16 when it rests upon the floor 17. It will thus be understood that when the arm 25 is moved to the dotted line position, the coin 31 will engage the article 16 upon the floor 17 and move it to the dotted line position, shown in Fig. 1, in which one end portion of the article 16 projects through the opening 19 outwardly beyond the casing wall 8, and from which the article 16 may be readily withdrawn from the machine by hand. Before the forward end of the article 16 being projected by the coin 31 reaches the opening 19, the coin 31 engages a flange 35 on the arm 22 and forces the arm 22 down against the spring 24 and thus opens the door 21 to permit the article 16 to be projected through the opening 19.

The stack of articles 16 rests normally on a latch device, with the lowermost article 16 above the floor 17; and this latch device comprises a pair of levers 36 and 37 pivoted to the magazine 15, at 38 and 39, respectively, the bottom of the lever 36 has a projection 40 which extends into the magazine 15 and supports the stack of articles 16, and the lever 36 is held normally in position to support the stack by a suitable spring 41. The upper end of the lever 37 has a projection 42 extending between the lever 36 and the magazine 15, so that when the lower end of the lever 37 is moved toward the magazine, the lever 36 will be moved outwardly, against the action of the spring 41, from the magazine 15 by the projection 42, thereby moving the projection 40 from beneath the stack of articles 16 and permitting them to fall to the floor or support 17. The lower end of the lever 37 is normally in the path of the coin 31 when the arm 25 is moved; and, during the movement of the arm 25 from the normal to the dotted line position, the coin 31 operates the lever 37 and causes it to operate the lever 36 to release the stack of articles 16, whereupon the coin 31 escapes the lever 37 and enters the lower portion of the magazine 15 and engages the lowermost article 16, now resting upon the floor 17 and projects the article 16 through the openings 18 and 19 to the dotted line position, as previously explained. As the lowermost article 16 is projected, the spring 41 causes the projection 40 to enter the magazine 15 below the article 16 next above the article being projected, to again support the stack of articles normally above the floor 17, for a succeeding operation. After a coin has been inserted into the machine and the handle 27 has been turned to eject an article 16 and the handle 27 has been released, the spring 28 will return the arm 25 to the normal or full line position, for a succeeding operation; and, during the return of the arm 25, the lower end of the lever 37 will engage the top of the coin 31 carried by the arm 25 and eject the coin downwardly from the slot 30 in the flange 29, and the coin will fall to the bottom of the casing 5. After the arm 25 has been returned to the normal position and the ejected article 16 has been withdrawn from the machine, the spring 24 will raise the arm 22 and close the door 21.

The advantage of providing the two doors 20 and 21 and supporting the stack of articles 16 normally above the floor 17 is that by such construction it is practically impossible to rob the machine or remove an article 16 therefrom excepting by the insertion of a coin of the proper size.

To insure the descent of the stack of articles 16 within the magazine 15, as they are successively removed from the bottom thereof, I provide a suitable weight 43 which rests upon the stack.

To prevent the insertion of a coin into the machine after the last article 16 has been removed, I provide a plate or door 44 adjacent to the slot 32 and pivoted to the wall 7, at 45. The door 44 is provided with a projection 46 arranged to be engaged by a projection 47 on the weight 43 when the weight comes into position resting upon the projection 40 of the lever 36. As the weight 43 comes into this position, the projection 47 acts upon the projection 46 and moves the door 44 into the dotted line position, shown in Fig. 5, closing the slot 32. The door 44 is held normally in the full line position, shown in Fig. 5, away from the slot 32 by a spring 47 secured to the wall 6 of the casing and engaging the bottom of the projection 46.

I claim:

1. In a vending machine, the combination of a casing having a coin-receiving slot therein and having an opening therein for the discharge of the article to be vended, a magazine within the casing for supporting the articles to be vended, and a movable arm pivoted adjacent to one side of said magazine and having a flange extending substantially at right angles to the arm, said flange being substantially parallel to the wall of the casing having the coin-receiving slot therein when said arm is in its normal position, said flange having a coin-receiving slot therein, and the side walls of the slot in said flange being substantially in planes at right angles to the axis of the pivot of said arm, whereby a coin may be supported within the slot in said flange and moved edgewise into the lower portion of said magazine to eject an article therefrom when said arm is moved.

2. In a vending machine, the combination of a casing having a coin-receiving slot therein and having an opening therein for the discharge of the article to be vended, a magazine within the casing for supporting the articles to be vended, a movable arm pivoted adjacent to one side of said magazine and having a flange extending substantially at right angles to the arm, said flange being substantially parallel to the wall of the casing having the coin-receiving slot therein when said arm is in its normal position, said flange having a coin-receiving slot therein, and the side walls of the slot in said flange being substantially in planes at right angles to the axis of the pivot of said arm, whereby a coin may be supported within the slot in said flange and moved edgewise into the lower portion of said magazine to eject an article therefrom when said arm is moved, and a coin retaining spring secured to said flange and extending therefrom in a direction away from said magazine.

3. In a vending machine, the combination of a casing having a coin-receiving slot therein and having an opening therein for the discharge of the article to be vended, a magazine within the casing for supporting the articles to be vended, a movable arm pivoted adjacent to one side of said magazine and having a flange extending substantially at right angles to the arm, said flange being substantially parallel to the wall of the casing having the coin-receiving slot therein when said arm is in its normal position, said flange having a coin-receiving slot therein, and the side walls of the slot in said flange being substantially in planes at right angles to the axis of the pivot of said arm, whereby a coin may be supported within the slot in said flange and moved edgewise into the lower portion of said magazine to eject an article therefrom when said arm is moved, a pivoted arm below the path of movement of said flange and adapted to be moved from a normal position by a coin carried by said flange, a spring holding said arm in normal position, and a door carried by said arm and closing said discharge opening when said arm is in normal position.

4. In a vending machine, the combination of a casing having a coin-receiving slot therein and having an opening therein for the discharge of the article to be vended, a magazine within the casing for supporting the articles to be vended, a movable arm pivoted adjacent to one side of said magazine and having a flange extending substantially at right angles to the arm, said flange being substantially parallel to the wall of the casing having the coin-receiving slot therein when said arm is in its normal position, said flange having a coin-receiving slot therein, and the side walls of the slot in said flange being substantially in planes at right angles to the axis of the pivot of said arm, whereby a coin may be supported within the slot in said flange and moved edgewise into the lower portion of said magazine to eject an article therefrom when said arm is moved, and a spring operated arm between said magazine and the path of movement of said flange and arranged to eject a coin from said flange when the arm carrying said flange is returned to normal position.

5. In a vending machine, the combination of a casing having a coin-receiving opening therein, and having an opening therein for the discharge of the article to be vended, a support within the casing for the article to be vended, and, coin controlled means for discharging an article from said support and through said opening, said means including an arm provided with a flange hav-

ing a coin-receiving slot therein and a spring secured to said flange and extending outwardly therefrom adjacent to one end of said slot and having a free end movable toward and from the other end of said slot and arranged to engage the edge of a coin and hold it within said slot.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL A. LISS.

Witnesses:
S. I. HARPER,
A. V. GROUPE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."