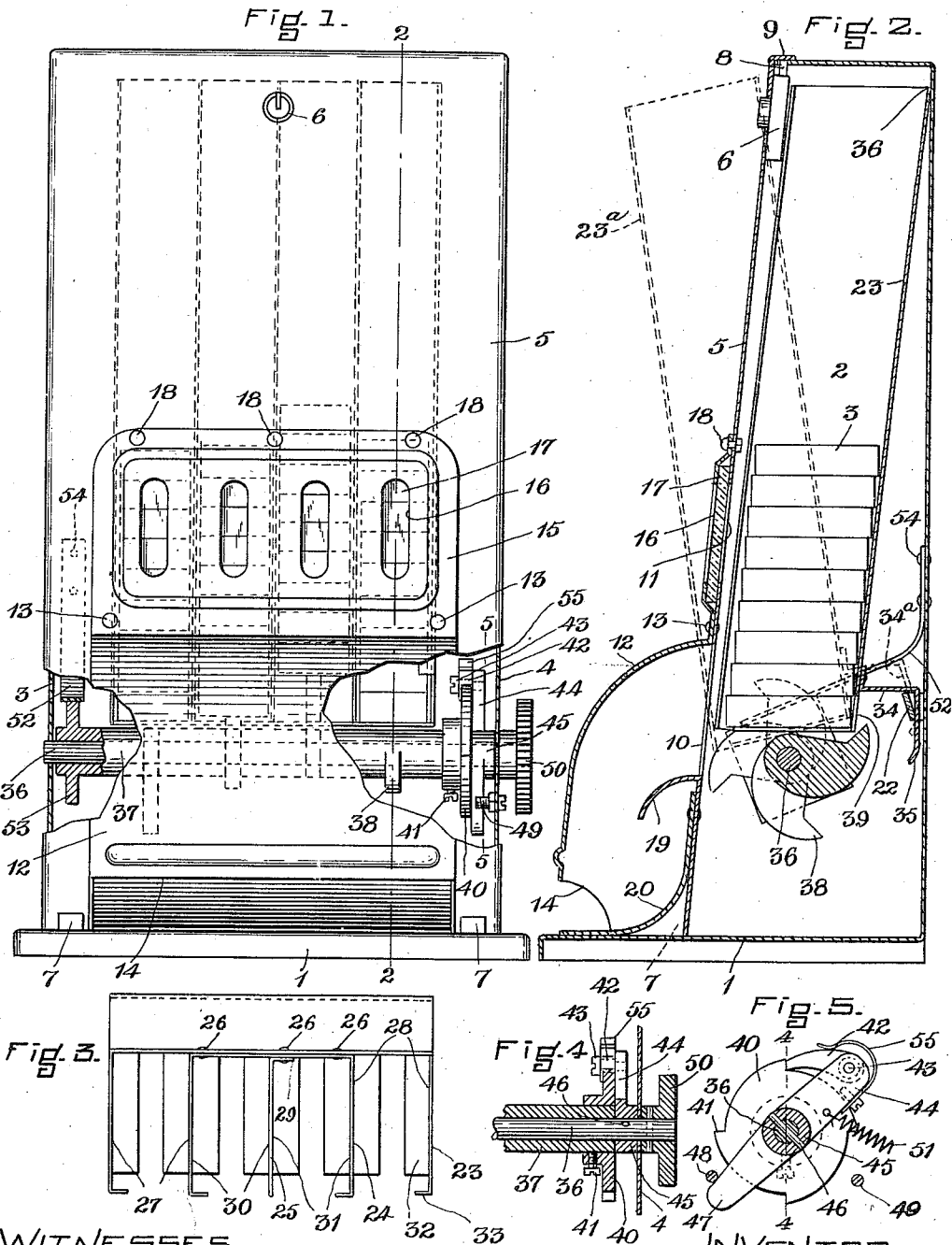


A. D. GROVER.
DISPENSING MACHINE.
APPLICATION FILED SEPT. 14, 1912.

1,284,319.

Patented Nov. 12, 1918.



WITNESSES.

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UNITED STATES PATENT OFFICE.

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DISPENSING-MACHINE.

1,284,319.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT D. GROVER, a citizen of the United States, and a resident of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Dispensing-Machines, of which the following is a specification.

My invention relates to dispensing machines or cabinets for the delivery of suitable merchandise upon the manual manipulation of a dispensing or ejecting mechanism, and has for its general object the provision of a machine involving various features of novelty and advantage over machines of this class heretofore constructed.

One feature of novelty of my invention resides in the construction of the outer casing which contains the magazine rack and the operative parts of the machine. In my new and improved casing, the front wall of panel is provided with a hood for the delivery opening having a vertically extended portion adapted to receive and inclose a plate of glass or other transparent material through which the goods in the magazines may be viewed from the outside. This extended portion is adapted to be sprung back at the top to permit the ready removal of the glass plate.

Another feature of novelty which characterizes my invention consists in the magazine rack in which the vendible articles are contained. This rack is so supported by the casing that it is normally maintained in an upright position but may be tilted forwardly a predetermined amount, the supporting means being arranged to sustain the rack in either position. The rack is formed of sheet metal comprising a pair of substantially U-shaped members secured together at the back, one within the other. The sides of these members are suitably spaced apart to provide a plurality of magazines. If desired, a third member consisting of a plate may be secured within the smaller U-shaped member intermediate the sides thereof, whereby four magazines are provided in the rack.

Another feature of novelty resides in the delivery or dispensing mechanism whereby the lowermost article in one of the magazines is ejected at each operation of the machine. The ejecting portion of this mechanism consists of a rotatable shaft provided with a

plurality of delivery fingers arranged in staggered relation. This shaft has fixed thereon a ratchet having a number of teeth corresponding to the number of delivery fingers. The hand-operated part carries a pawl arranged to engage the teeth of the ratchet. The movement of this hand-operated part is so limited that at each operation thereof, the delivery shaft causes one of the fingers to deliver a package of goods. As soon as the hand-operated part is released it is automatically returned to normal position.

The above and other objects and advantages of my invention will become apparent from a detailed description of the accompanying drawings in which—

Figure 1, is a front view of a machine embodying the various features of my invention, portions of the front panel being broken away to expose certain parts within.

Fig. 2, is a vertical section on line 2—2 of Fig. 1.

Fig. 3, is a top plan view of the magazine rack.

Fig. 4, is a section on line 4—4 of Fig. 5, showing details of the ratchet device which operates the delivery shaft; and

Fig. 5, is a detail view of the ratchet device on section line 5—5 of Fig. 1.

The outer casing or housing which incloses the operative parts of the machine, is preferably formed of sheet metal and comprises the base 1, the back 2, the sides 3 and 4, and the front wall or panel 5. The latter is entirely separate from the main body of the casing and is held thereon by means of a suitable lock 6 and lugs 7 which are struck up from the base plate 1 and engage the lower edge of the front panel. In this way the latter is secured to the casing and may be released by simply withdrawing the bolt 8 of the lock 6. Preferably the front panel is provided at its sides and top with a continuous flange 9 arranged to lie over the sides and top of the main body of the casing when the front panel is in place. The front panel is at its lower portion provided with the transverse delivery opening 10 and above this with the display opening or window 11. The delivery opening 10 is covered by the forwardly curved hood 12 secured to the front panel by rivets 13 or other suitable fastening devices. At its lower end the hood has a discharge opening or mouth 14. The hood 12 is provided with an extension 15

having display openings or windows 16, one for each magazine. The extension 15 is a frame work adapted to receive a plate 17 of glass or other suitable transparent material. 5 through which the contents of the magazines may be viewed from the outside. The upper edge of the extension 15 is secured to the front panel by removable bolts 18 or other fastening devices that may be readily removed from the inside of the panel. By 10 making the hood and its extension of sheet metal, the transparent plate 17 may be easily removed by simply loosening the fastening devices 18 and springing back the extension 15 at its upper edge. This exposes the plate 17 for withdrawal and a new plate may be inserted in its place. This construction which permits a ready removal and insertion of the plates 17 is of great advantage; when 20 it is considered that these plates of glass have to be frequently renewed, being broken by mischievous persons in an endeavor to get at the contents of the machine. In machines heretofore constructed it was necessary to 25 remove the entire frame work holding the glass plate, before the broken plate could be withdrawn and a new one put in its place. That process of course required considerable time. In my construction it is only necessary to spring back the extension 15 to take 30 out and put in the glass plates.

The front panel 5 is at the lower edge of the delivery opening 10 provided with a curved lip or guard 19 to prevent the easy 35 insertion of a wire or other object through the delivery opening 10. Below the guard 19, the front panel 5 is provided with a forwardly extending apron or deflector 20 which extends to the discharge mouth of the hood. The deflector 20 which is secured to 40 the front panel by rivets 21, or any other suitable way, directs the ejected package toward the discharge mouth of the hood.

To the back wall 2 of the casing is rigidly 45 secured a transverse bracket 22 which, in the particular instance illustrated, consists of a bar spaced from the back plate 2 of the casing. This bar or bracket forms the support for the magazine rack which is formed 50 of sheet metal and comprises the members 23, 24 and 25, secured together by rivets 26 at the back. The members 23 and 24 are substantially U-shaped in cross-section and the sides of these members are suitably 55 spaced apart to provide the magazines 27 and 28. The central member 25 is in the form of a plate having a lateral flange 29 by means of which it is secured to the back of the members 23 and 24. The plate 25 is 60 spaced substantially midway of the sides of the member 24, so as to provide the magazine 30 and 31. In this way, by means of three members formed of sheet metal, are provided four magazines. Of course, it will 65 be understood that the number of magazines

may be varied. For instance, by omitting the plate 25, a rack of three magazines is formed. To provide six magazines, it would only be necessary to add another U-shaped member to surround the outer member 23 in 70 the same way that this outer member surrounds the U-shaped member 24. Another advantage of this rack construction is that equal dimensions of the magazines are readily secured. Thus, by centering the plate 25 75 on inner member 24 with respect to the outer member 23, the four magazines will have equal widths. This makes it unnecessary to look after the dimensions of each magazine separately, as is the case with the magazine 80 racks heretofore constructed. The goods or packages are supported in the magazines on ledges 32 formed at the bottom of the members or sections which compose the rack. The packages are prevented from falling 85 forwardly out of the magazines by the vertical flanges 33 formed at the front of the members comprising the rack.

To the back of the rack is secured the bracket 34 having a downwardly extending 90 flange or finger 35 adapted to hook over the bar or bracket 22 carried by the casing. The normal position of the magazine rack is shown in full lines in Fig. 2, from which it will be clear that the bracket 34 rests on the 95 top of the bar or bracket 22 to support the rack. It will be observed that the rack is at the top tilted backwardly, so that the rear upper edge of the rack rests against the back of the casing, as shown at 36 in Fig. 2. The 100 goods or packages in the magazines are indicated at 37. When it is desired to replenish or remove the rack, the operator simply tilts the rack forwardly into the position shown in dotted lines at 23^a in Fig. 2. The 105 loose engagement between the supporting brackets 22 and 34 readily permits tilting. When the rack is in tilted position the flange or finger 35 engages the back of the casing and thereby forms a positive stop for the 110 rack. The position of the bracket 34, when the rack is in tilted position, is indicated in dotted lines at 34^a in Fig. 2. The bar 22 is inclined forwardly so as to accommodate the bracket 34 in tilted position. 115

It will thus be seen that the cooperating brackets on the casing and the merchandise rack not only support the rack in upright position, but also support the same in tilted position, without requiring any auxiliary or 120 supplementary means. The advantage of this tilting rack in the replenishing of the machine, will be obvious. All that the operator has to do when he wants to fill the machine with goods, after removing the 125 front panel, is to take hold of the rack near the top and pull the same forwardly, whereupon the rack assumes the tilted position indicated in dotted lines in Fig. 2. With the rack in this position, the packages of goods 130

are easily inserted in the magazines from the top. When the rack is full, the operator simply pushes the rack back, whereupon the same will automatically assume its upright position.

In the sides 3 and 4 of the outer casing is journaled the rod or shaft 36 on which is rotatably mounted the sleeve or hollow shaft 37 provided with suitable ejecting fingers 38. In the present instance there are four of these fingers, because there are four magazines for the vendible goods. These fingers are arranged in staggered relation, as best shown in Fig. 2, so that only one finger at a time is in ejecting position. The magazine rack is at the back provided with slots 39 through which the ejecting fingers pass into engagement with the lowermost packages. The fingers may conveniently be cast integral with the hollow shaft 37. To one end of the shaft 37 is secured the ratchet 40 by means of a screw 41 or other suitable fastening device. The number of teeth 41 on the ratchet is the same as the number of ejecting fingers on the shaft 37. By comparing Figs. 3 and 5 it will be seen that the teeth 41 are in axial alinement with the ejecting fingers 38. The normal angular position of the shaft 37 is shown in Fig. 3, from which it will be seen that one of the ejecting fingers 38 is in position to move forwardly against the lowermost package of the associated magazine to eject the same during the next quarter revolution of the shaft 37. At the end of its ejecting movement, any particular finger remains in vertical position and temporarily supports the column of packages in the corresponding magazine. This is the position of the second finger from the right, as indicated in dotted lines in Fig. 1.

The ratchet 40 is operated by the pawl 42 pivoted at 43 to the upper end of the arm 44 which is fixed upon the shaft 36 in any suitable way. In the drawings I have shown the arm 44 as being integral with the sleeve 45 which is secured to the shaft 36 by a pin 46. From the sleeve 45 also extends an arm 47 adapted to engage the fixed stops 48 and 49 carried by the side 4 of the casing 1 to limit the movement of the shaft 36. To the outer end of the shaft 36 is secured a knob or wheel 50 by means of which the shaft 36, and with it the pawl-carrying arm 44, may be manually rotated. The contractile spring 51, secured at one end of the arm 44 and at the other end to a convenient point on the casing, normally holds the arm in the position shown in Fig. 5. The hollow shaft 37 is normally held in the position shown in Figs. 2 and 5 by suitable centering means, such as the flat spring 52 engaging at its free end the cam wheel 53, which in the present instance is shown as rectangular in form because there are four ejecting fingers on

the shaft 37 arranged at an angle of 90 degrees apart. The spring 52 may be conveniently secured to the back wall of the casing by rivets 54. It will be clear from Fig. 3 that the tendency of the spring 52 is to always hold the shaft in a position corresponding with that shown in Fig. 2.

The operation of the dispensing or ejecting shaft by means of the pawl and ratchet device referred to, will now be clear and may be stated as follows:

When the operator turns the knob 50 toward him, the pawl 42, which is always held in engagement with one of the teeth 41 by means of the spring 55 carried by the arm 44, will carry the ratchet 40 along with it until the arm 47 encounters the rear stop 49. This limits the forward movement of the pawl. During this forward movement of the pawl, the ratchet 40, and with it the shaft 37, is given one quarter of a revolution and one of the ejecting fingers pushes the lowermost package out of the associated magazine. The ejected package drops through the opening 10 to the mouth 14 of the hood 12, whence it may be removed by the patron. The spring 52 gives the shaft 37 its final ejecting movement and positively insures the quarter revolution of the shaft at each operation of the machine. Consequently, when the knob 50 is released and the arm 44 returned to normal position by the spring 51, the pawl 42 is in engagement with the next succeeding tooth, whereupon the machine is ready for the next operation.

It will be clear from the above that I have provided an exceedingly simple machine, comprising relatively few parts, which are inexpensive to make and are readily assembled. It is understood that I do not intend to be limited to the precise details shown and described, and that the scope of the invention as defined in the appended claims, admits of changes and modifications being made by those skilled in the art.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a vending or dispensing machine, an outer casing, a merchandise rack within said casing, a transverse supporting bracket carried by said casing at the rear, and a transverse member extending rearwardly from the back wall of said rack and having a downwardly extending flange or finger adapted to hook over said bracket for supporting the rack, said engagement between said bracket and said transverse member being automatically adjustable so that the rack may be tilted forwardly and be supported by said bracket in tilted position.

2. In a vending or dispensing machine, an outer casing, a merchandise rack within said casing, a transverse supporting bracket car-

ried by said casing at the rear, and a transverse member extending rearwardly from the back wall of said rack and having downwardly extending flange or finger adapted to hook over said bracket for supporting the rack, said engagement between said bracket and said transverse member being automatically adjustable so that the rack may be tilted forwardly and be supported by said bracket in tilted position, said flange being adapted to limit the tilting movement of the bracket.

3. In a vending or dispensing machine, an outer casing, a merchandise rack within said casing, a single supporting bracket carried by said casing, and a single member extending from said rack and arranged to engage said bracket for supporting the rack, said engagement between said bracket and said member being automatically adjustable, so that the rack may be tilted forwardly and be supported by said bracket in tilted position, said bracket and member being readily separable when the rack is in tilted position.

4. In a vending or dispensing machine, an outer casing, a merchandise rack within said casing, a transverse supporting bracket carried by said casing at the rear, and a transverse member extending rearwardly from the back wall of said rack and having a downwardly extending flange or finger adapted to hook over said bracket for supporting the rack, said engagement between said bracket and said transverse member being automatically adjustable so that the rack may be tilted forwardly and be supported by said bracket in tilted position, and said flange being readily separable to permit removal of the tilted rack.

5. In a vending or dispensing machine, a sheet metal casing provided with a readily removable front wall or panel having a delivery opening, said casing having a base portion extending forwardly of said front wall or panel, a forwardly extending guard-flange or lip formed integral on said panel at the lower edge of said opening, a forwardly and downwardly extending apron or deflector secured to said panel below said lip and resting at its forward end upon said base portion, and a forwardly extending hood mounted on said panel to cover said opening, said lip and said apron, said hood having a discharge mouth or opening at its lower end.

6. In a vending or dispensing machine, a sheet-metal casing comprising a magazine portion and a base portion extending forwardly of said magazine portion, a front sheet-metal panel adapted to close said magazine portion and readily separable therefrom, and lugs struck up from said base portion to engage the lower outer edge of said panel and thereby hold the same against displacement.

7. In a vending or dispensing machine, a merchandise rack formed of sheet metal and comprising a plurality of substantially U-shaped members secured together at the back, said members varying in size and so arranged that a smaller member is held within a larger member, the sides of said members being suitably spaced apart to provide a plurality of magazines.

8. In a dispensing machine, a casing provided with magazines for containing the vendible articles, a rotatable shaft mounted transversely of said casing below said magazines, a sleeve rotatably mounted upon said shaft and having delivery fingers in alignment with said magazines, a ratchet fixed upon one end of said sleeve and having a number of teeth corresponding to the number of delivery fingers, a member fixed upon said shaft adjacent to said ratchet, a pawl carried by said member and arranged to engage said ratchet, means for manually operating said shaft from the outside of the casing, means for positively limiting the forward movement of said shaft, so that each operation of said delivery shaft causes one of said fingers to deliver a package of goods, and means for automatically returning said shaft to normal position when released.

9. In a dispensing machine, a casing provided with magazines for containing the vendible articles, a rotatable shaft mounted transversely of said casing below said magazines, a sleeve rotatably mounted upon said shaft and having delivery fingers in alignment with said magazines, a ratchet fixed upon one end of said sleeve and having a number of teeth corresponding to the number of delivery fingers, a member fixed upon said shaft adjacent to said ratchet, a pawl carried by said member and arranged to engage said ratchet, means for manually operating said shaft from the outside of the casing, means for positively limiting the forward movement of said shaft, so that each operation of said delivery shaft causes one of said fingers to deliver a package of goods, means for automatically returning said shaft to normal position when released, an angular portion provided on said sleeve, and a spring cooperating with said portion to automatically center said sleeve at the end of each operation of said shaft to insure the stoppage of said sleeve in a position where said pawl engages one of the teeth on the ratchet.

10. In a dispensing machine, a casing provided with magazines for containing the vendible articles, a rotatable shaft mounted transversely of said casing below said magazines, a sleeve rotatably mounted on said shaft and having delivery fingers in alignment with said magazines, a ratchet fixed upon one end of said sleeve and having a

number of teeth corresponding to the number of delivery fingers, an arm fixed upon said shaft adjacent to said ratchet, a pawl pivotally mounted upon the free end of said arm and arranged to engage said ratchet for actuating said sleeve, means for manually operating said shaft from the outside of the casing, oppositely arranged stops for positively limiting the forward and return movement of said shaft, so that each operation of said delivery shaft causes one of said fingers to deliver a package of goods, and means for automatically returning said shaft to normal position when released.

11. In a dispensing machine, a casing provided with magazines for containing the vendible articles, a rotatable shaft mounted transversely of said casing below said magazines, a sleeve rotatably mounted on said shaft and having delivery fingers in alignment with said magazines, a ratchet fixed upon one end of said sleeve and having a number of teeth corresponding to the number of delivery fingers, an arm fixed upon said shaft adjacent to said ratchet, a pawl

pivotally mounted upon the free end of said arm and arranged to engage said ratchet for actuating said sleeve, means for manually operating said shaft from the outside of the casing, oppositely arranged stops for positively limiting the forward and return movement of said shaft, so that each operation of said delivery shaft causes one of said fingers to deliver a package of goods, means for automatically returning said shaft to normal position when released, an angular portion provided on said sleeve, and a spring cooperating with said portion to automatically center said sleeve at the end of each operation of said shaft to insure the stoppage of said sleeve in a position where said part engages one of the teeth on the ratchet.

In witness whereof, I hereunto subscribe my name this third day of September 1912.

ALBERT D. GROVER.

Witnesses:

C. H. SAWYER,
H. B. BENSON.