Dec. 23, 1941.

A. A. BRADT

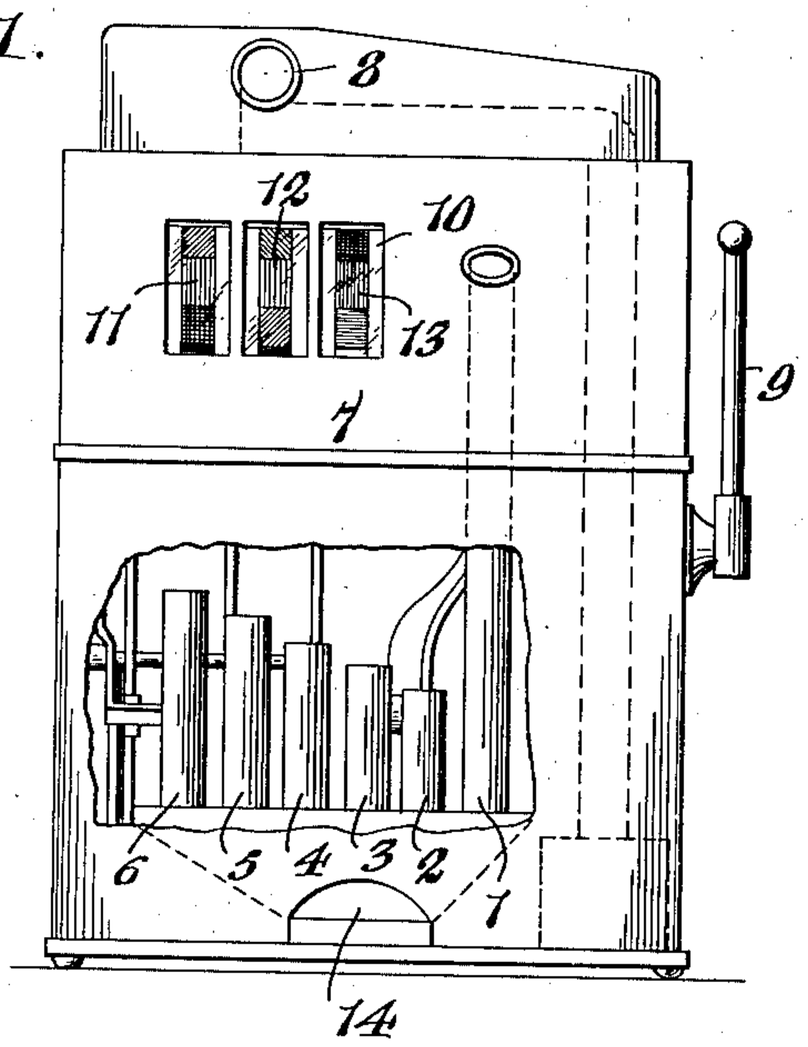
2,267,599

VENDING MACHINE

Filed May 1, 1939

3 Sheets-Sheet 1

Fig. 1.



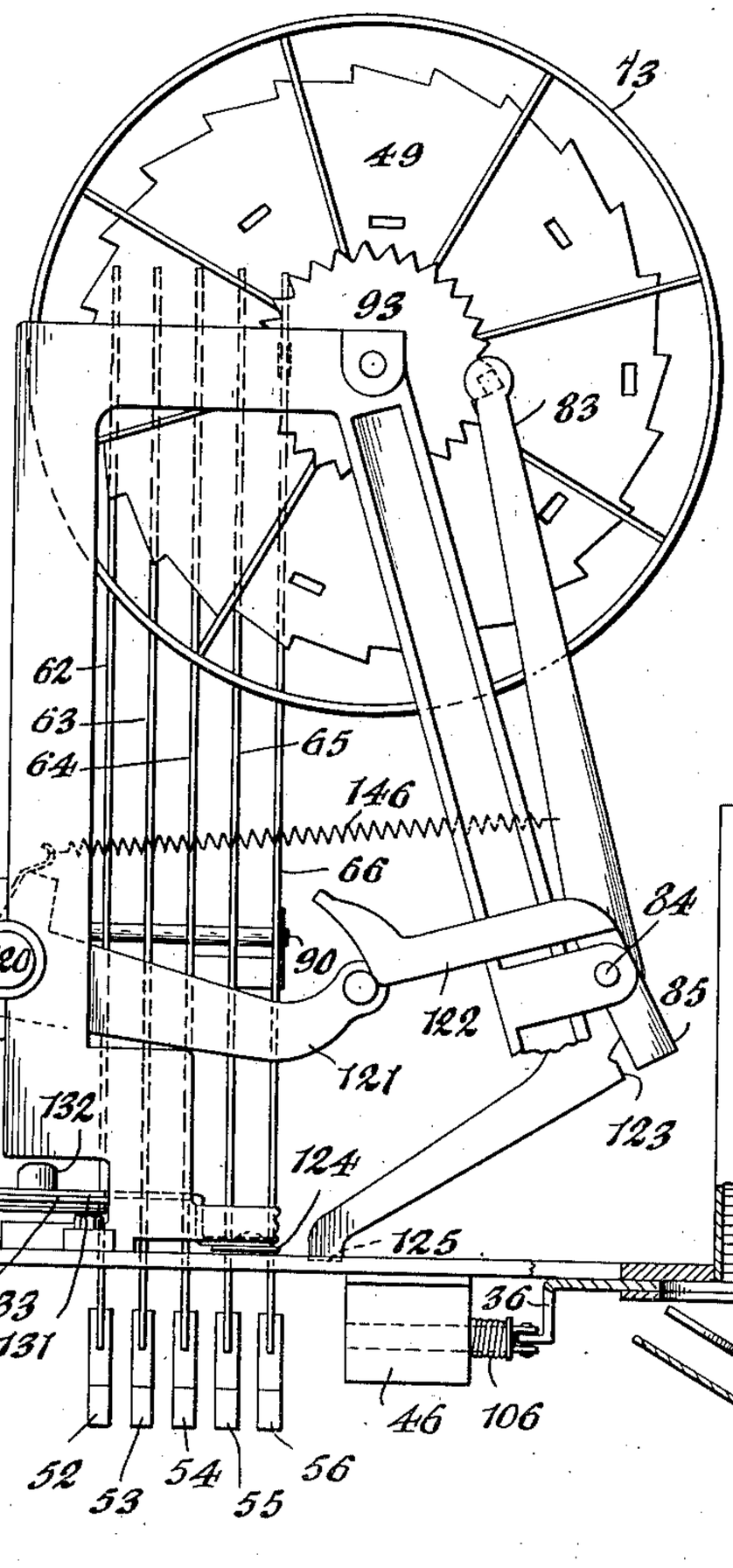


Fig. 3.

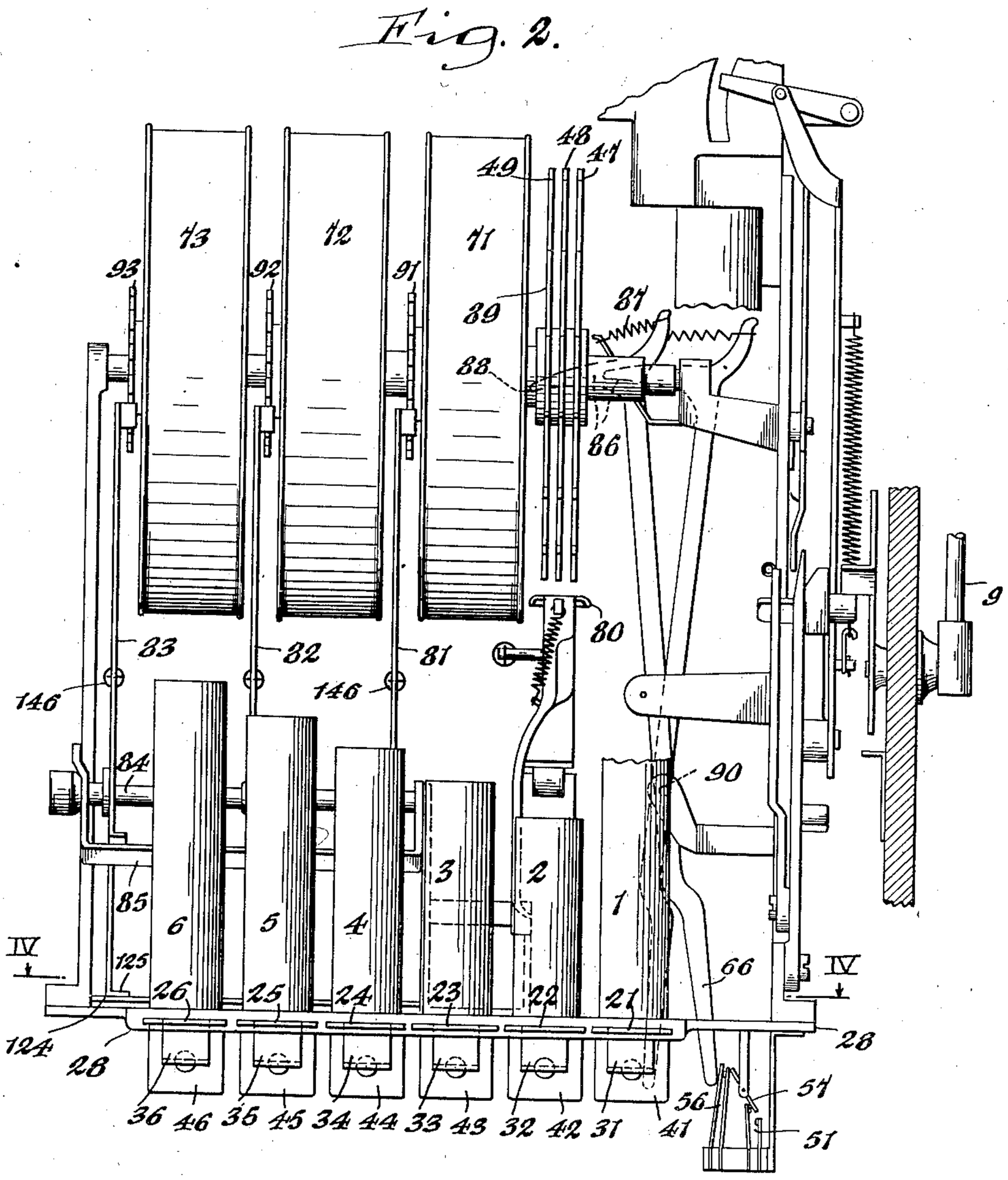
INVENTOR
Ardon A. Bradt
BY W. J. Boley
his ATTORNEY

Dec. 23, 1941. A. A. BRADT 2,267,599

VENDING MACHINE

Filed May 1, 1939 3 Sheets-Sheet 2

Fig. 2.



INVENTOR
Ardon A. Bradt
BY W. F. Doley
his ATTORNEY

Dec. 23, 1941. A. A. BRADT 2,267,599

VENDING MACHINE

Filed May 1, 1939 3 Sheets-Sheet 3

Fig. 4.

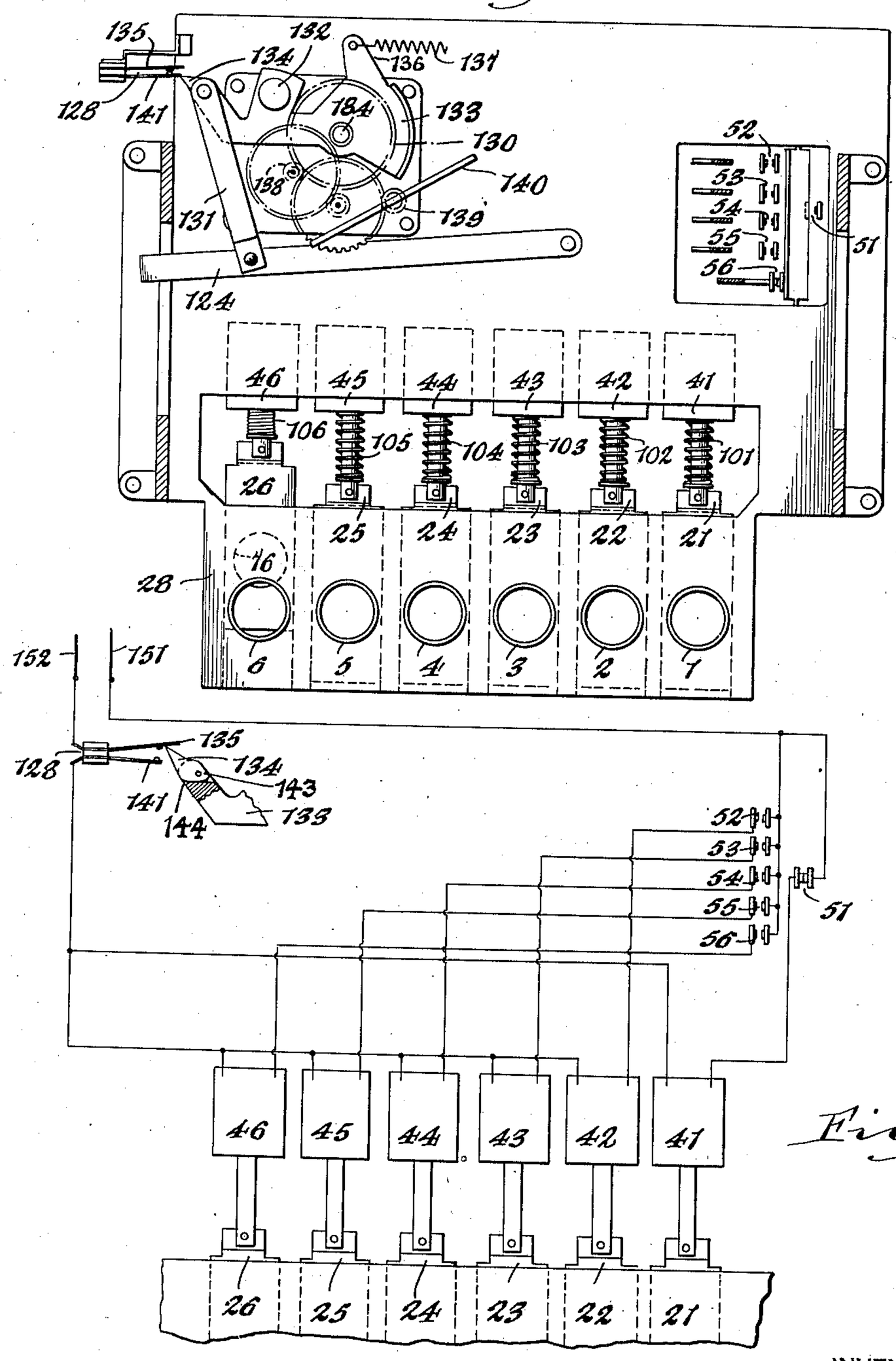


Fig. 5.

INVENTOR
Ardon A. Bradt
BY W. F. Doley
his ATTORNEY

Patented Dec. 23, 1941

2,267,599

UNITED STATES PATENT OFFICE

2,267,599

VENDING MACHINE

Ardon A. Bradt, Niagara Falls, N. Y.

Application May 1, 1939, Serial No. 271,091

5 Claims. (Cl. 312—47)

This invention relates to coin operated vending machines and has for an object the provision of an improved machine of the character referred to.

In the drawings, which are appended for the purpose of illustrating the invention and aiding in the understanding of the invention,

Figure 1 is a front view of the exterior and part of the interior of a machine embodying the present invention;

Figure 2 is a front view of a mechanism embodying the present invention;

Figure 3 is a side view of the machine illustrated in Figure 2;

Figure 4 is a plan view of the machine illustrated in Figures 2 and 3, obtained by removing the frame of the machine and all of the structure attached thereto above the line IV—IV of Figure 2; and

Figure 5 is a wiring diagram of the machine illustrated in the other figures.

The machine illustrated in the drawings is of the type that dispenses tokens, coupons or fortune telling cards, but it is to be understood that the invention is not limited to machines dispensing such articles because the drawings are for illustrative purposes only and the machines can be modified to dispense merchandise of substantially any description without departing from the scope of the invention. In the present disclosure, the term "token" will be used for simplicity of language, with the understanding that the term shall be taken to mean not only tokens of the usual sort but coupons, fortune telling cards and merchandise of the nature that can be dispensed by a machine.

Figure 1 shows a machine comprising a plurality of magazines **1**, **2**, **3**, **4**, **5** and **6**, adapted to contain a supply of different kinds of tokens, in a case **7**. At the top of the machine illustrated is a coin slot **8** and at the right of the machine is a handle **9** which is adapted to set into operation the mechanism in the case **7** when pulled down after a coin has been deposited in the coin slot **8**. A window **10** permits a view of the symbols **11**, **12** and **13**, which are carried on revolvable wheels and which indicate the nature of the token that is to be dispensed through the opening **14** at the lower part of the case **7** at the conclusion of the particular operation of the machine.

Figure 2 shows the magazines **1**, **2**, **3**, **4**, **5** and **6** provided with bottom closure members **21**, **22**, **23**, **24**, **25** and **26**, respectively, which are slidably mounted beneath the magazines and in slots provided for them in the plate **28**. The closure plates **21**, **22**, **23**, **24**, **25** and **26** have normally projecting legs **31**, **32**, **33**, **34**, **35** and **36**, respectively, which are operatively connected to the electromagnets **41**, **42**, **43**, **44**, **45** and **46** respectively.

Each of the electromagnets is controlled by a switch but only the switches **51** and **56** that control the electromagnets **41** and **46** respectively are shown in Figure 2. The other switches **52**, **53**, **54** and **55** are shown in Figures 3, 4 and 5.

As shown in Figure 2 the switch **56** has been closed by the movement of the lever **66** and the switch **51** has been opened by the rotation of the pivoted lever **57**, which received its rotation by virtue of the pressure exerted on the members of the switch **56** by the lever **66**.

The movement of the lever **66**, and hence the movement of the switches **51** and **56**, is controlled by the relative positions of the perforated disks **47**, **48** and **49**, which are connected to the drums **71**, **72** and **73** respectively. Each of the disks and its respectively connected drum is independently rotatable with respect to the other disks and drums.

The disks **47**, **48** and **49** have notches completely around their peripheries (as shown in Figure 3) and these notches are engageable by the spring actuated pawl **80**. Engagement of the pawl **80** with the notches in the disks **47**, **48**, **49** causes these disks and their respectively connected drums **71**, **72** and **73** to rotate freely and independently until the pawls **81**, **82** and **83** engage the notched peripheries of the disks **91**, **92** and **93**, respectively, and causes them and the respectively connected drums **71**, **72** and **73** to come to rest. The pawls **81**, **82** and **83** are rotatable about the shaft **84** and are engaged by the arm **85**, which turns on the shaft **84** just prior to the actuation of the drums **71**, **72**, and **73** by the engagement of the pawl **80** with the notched disks **47**, **48** and **49** and pushes the lower parts of the pawls **81**, **82** and **83** toward the rear of the machine and thus lifts the opposite ends of the pawls **81**, **82** and **83** away from and out of engagement with the notched disks **91**, **92** and **93**.

When the movement of the handle **9** has proceeded to a certain point it becomes disengaged from the actuating mechanism and the arm **85** is returned to a position toward the front of the machine and out of engagement with the pawls **81**, **82** and **83**, whereupon the pawls **81**, **82** and **83** again engage the notched disks **91**, **92** and **93** and bring the drums **71**, **72** and **73** with their

respectively connected disks 47, 48 and 49 to rest.

As stated above, the disks 47, 48 and 49 are perforated. These perforations are in a predetermined pattern such that by the disks 47, 48 and 49 coming to rest at certain positions, a perforation in each of the disks will come into alignment and provide an opening through which the finger 86 at the upper end of the lever 66 will be urged by the spring 87. In this arrangement of the disks 47, 48 and 49 the finger 86 passes through all of them and the tip 88 of the finger 86 protrudes beyond the face 89 of the disk 49. This movement of the finger 86 through the disks 47, 48 and 49 causes the lever 66 to turn on its pivot 90 and thereby move its lower arm in a counterclockwise direction. Such counter-clockwise movement of the lower arm of the lever 66 pushes the switch 56 into the closed position and the switch 51 into the open position and causes the movement of the plate 26 into a dispensing position, as shown in Figure 4.

When the disks 47, 48 and 49 come to rest in certain other positions, their perforations line up to provide an opening through which one or another of fingers similar to that of the lever 66 shown in Figure 2, but which are connected to other levers not shown in Figure 2, may pass and thus cause the operation of one or another of the other closure members 22, 23, 24 or 25.

If desired, the disks 47, 48 and 49 could be so perforated and the levers 62, 63, 64, 65 and 66 or any of them could be so adjusted that the pay out mechanism of any stack or stacks could be operated by a perforation in one disk, e. g. disk 47 or by a combination of perforations in two disks, e. g., disks 47 and 48.

In still other positions of the disks 47, 48 and 49, no through opening will be provided for any finger of a lever similar to the lever 66 shown in Figure 2, in which case none of the closures 22, 23, 24, 25 or 26 is caused to open and dispense a token, coupon or fortune-telling card. When the disks line up in such positions that none of the closures 22, 23, 24, 25 or 26 is opened, the switch 51 remains in its normally closed position and the closure member 21 of the magazine 1 is operated to dispense a token, coupon, fortune-telling card or other article contained in that magazine.

Figure 3 shows a side view of the notched disk 49, which is connected to the drum 73, when the finger 86 of the lever 56 has passed through the perforated disks 47, 48 and 49 and therefore has closed the switch 56 and energized the electromagnet 46 that actuates the slide 26 of the closure member for the stack 6 against the action of the spring 106.

Figure 3 also shows the mechanism for freeing the drum 73 for rotation. As shown in the drawings, the pawl 83 is in engagement with the notched disk 93, which is connected to the drum 73. When the handle 9 (shown in Figure 1 and Figure 2) is pulled down, the rear bell-crank 121 is rotated about its shaft 120 in a counter-clockwise direction and thereby engages the forward bell-crank 122 and causes it to move about the shaft 84 in a clockwise direction. As the forward bell-crank moves in a clockwise direction, it engages the foot 123 of the pivoted pawl 83 and causes it to move along in a clockwise direction also. The clockwise movement of the foot 123 of the pawl 83 causes the upper end of the pawl 83 to move out of engagement with the notched disk 93 and thereby frees the drum 73 for rotation. Drums 71 and 72 shown in the other drawings are freed by the similar actions of levers 81 and 82, respectively.

At the same time the foot 123 of the pawl 83 is moved clockwise, the lever 124 is moved forward until it is under the end 125 of the foot 123 of the pawl 83. By this time the rear bell-crank 121 has moved up to its limit of movement and has become disengaged from the actuating handle 9, whereupon it is pulled back in a clockwise direction by the spring 146 and permits the forward bell-crank 122 to drop back in a counter-clockwise direction. The lever 124 then temporarily holds up the end 125 of the foot 123 of the pawl 83 so that the drum 73 can rotate freely. Removal of the pawls 81 and 82 from engagement with the notched disks 91 and 92, respectively, is accomplished in the same manner, namely, by means of the forward bell-crank 122 and the lever 124.

In addition to causing disengagement of the pawl 83 with the notched disk 93, the counter-clockwise movement of the rear bell-crank 121 also causes engagement of its lower end 127 with the projecting pin 132 on the flat bell-crank 133 and causes that bell-crank to move in a counter-clockwise direction against the action of the spring 137. This mechanism is shown also in Figure 4.

As shown in Figure 4, the counter-clockwise rotation of the flat bell-crank 133 causes the link 131 to push the lever 124 forward until that lever is under and supporting the foot 125 of the pawl 83, as described in connection with Figure 3. When the flat bell-crank 133 moves in a counterclockwise direction, the pivoted tip 134 of the bell-crank 133 moves out of engagement with the long arm 135 of the switch 128 and because of its being pivoted as shown in Figure 5 it slips over the shorter arm 141 and thus does not disturb the open position of that switch.

The pivot 184 is rigidly attached to the bell-crank 133 and also to the gear 130 which is beneath the bell-crank 133 and engages a spur gear 138 which forms a part of a train of gears terminating in the gear 139, to which is connected the vane 140.

Upon disengagement between the handle 9 and the rear bell-crank being effected, the rear bell-crank 121 is pulled back to its starting position by the spring 146 connected thereto. The end 127 of the rear bell-crank 121 thus being removed from engagement with the pin 132 of the bell-crank 133, the bell-crank 133 is urged towards its starting position by the spring 137 connected to the arm 136. The rate of return of the bell-crank 133 to its starting position is controlled, however, by the rotating vane 140, which is driven by the train of gears beginning with the gear 130 and ending with the spur gear 139 connected to the shaft supporting the vane 140. The windage caused by the rotation of the vane 140 causes the return of the rear bell-crank 121 to its starting position to be retarded and thereby permit free rotation of the drums 71, 72 and 73 for a period of time of longer duration than would be the case were the rear bell-crank urged back by the spring 137 without interference by the vane 140.

As the rear bell-crank 121 is slowly moved back to its starting position, it pulls the lever 124 in a clockwise direction by means of the link 131 and this clockwise movement of the pivoted lever 124 draws that member from beneath the foot 125

of the pawl 83 (and also from beneath the corresponding feet of the pawls 82 and 81). Withdrawal of the pivoted lever 124 from beneath the feet of pawls 81, 82 and 83 permits those pawls to be drawn into engagement with the notched disks 91, 92 and 93, respectively, and thus stop the rotation of the drums 71, 72 and 73, respectively.

If the drums 71, 72 and 73 are thus stopped in such positions that their respectively connected perforated disks 47, 48 and 49 are so positioned that a perforation in each then lines up to provide an opening into which the end finger of one of the levers 62, 63, 64, 65 or 66 can pass through all three disks that lever will be caused to rotate counter-clockwise about the pivot 90 by virtue of a spring 87 and cause one of the switches 52, 53, 54, 55 or 56 to close and the switch 51 to open.

After moving from beneath the feet of the levers 81, 82 and 83 the lever 124 continues to move slowly back to its original position it occupied before the machine was put into operation by the movement of the handle 9. As the flat bell-crank 133 continues to pull back to lever 124, and just after one of the levers 62, 63, 64, 65 or 66 has closed one of the switches 52, 53, 55 or 56 and opened switch 51, the tip 134 of the flat bell-crank 133 engages the shorter arm 141 of the normally open master switch 128 and pushes it into contact with the longer arm 135 of the same switch and then passes out of engagement with the shorter arm 141 and into engagement with the longer arm 135. Thus, while one of the switches 52, 53, 54, 55 or 56 is closed, and while the switch 51 is open, the normally open master switch 128 is closed for a short period of time and one of the electromagnets 42, 43, 44 or 45 (depending upon which of the switches 52, 53, 54, 55 or 56 is closed) is engaged. The energized electromagnet then pulls the corresponding slide 22, 23, 24, 25 or 26 from beneath the corresponding stack 2, 3, 4, 5 or 6 and dispenses the token that has rested in the opening therein, for example opening 76 of slide 26 as shown in Figures 3 and 4.

Inasmuch as the normally open master switch 128 is closed only for a short period of time, the electromagnet that is energized by its closing is de-energized after causing the dispensing of a token and the slide operated by that electromagnet is restored to its original position immediately after having dispensed the token by the action of the spring 102, 103, 104, 105 or 106.

In the event that the drums 71, 72 and 73 come to rest in such positions that none of the fingers of the levers 62, 63, 64, 65 or 66 can pass through all of the disks 47, 48 and 49 as described above, the normally closed switch 51 remains closed and none of the normally open switches 52, 53, 54, 55 or 56 close. Then, as described above, the return movement of the flat bell-crank 133 causes the normally open master switch 128 to close for a short period of time and thus energize the electromagnet 41. Energizing of the electromagnet 41 causes the slide 21 under the stack 1 to move toward the electromagnet, against the action of the spring 101, and causes the token in the opening of the slide 21 to be dispensed.

While the stack or magazine closure slides 21, 22, 23, 24, 25 or 26 shown in the drawings are of such thickness to permit only one coin or token to be dispensed at a time from any given magazines, it will be understood that any or all of the said slides can be made of such thickness as will accommodate a plurality of coins or tokens and therefore cause more than one coin or token to be dispensed when such slide is operated by its corresponding electromagnet.

Figure 5 shows a wiring diagram for a machine of the kind illustrated and described above and also shows the tip of the flat bell-crank 133 in more detail. The leads 151 and 152 are to be connected to the source of electrical energy, which is not shown in these drawings. The one lead 151 connects with one side of each of the switches 51, 52, 53, 54, 55 and 56. The other terminals of the said switches are connected respectively to the electromagnets 41, 42, 43, 44, 45 and 46.

The other lead 152 is connected to one terminal of the normally open master switch 128. The other terminal of the normally open master switch 128 is connected to all of the electromagnets 41, 42, 43, 44, 45 and 46.

As shown in Figure 5, the tip 134 of the flat bell-crank 133 is pivoted at 143 and is against the shoulder 144 of the flat bell-crank 133. Thus, when the bell-crank moves in a clockwise direction, the tip 134 is engaged by the shoulder 144 and is urged along, but when the flat bell-crank 133 moves in a counter-clockwise direction the tip 133 turns on its pivot 143 when it engages the arm 141 of the master switch 128.

While the foregoing disclosure and the appended drawings specifically describe one modification of a machine, it is to be understood that the invention is not limited to such details as are specifically described and illustrated, but that modifications can be made without departing from the scope of the invention as defined in the appended claims.

I claim:

1. In a vending machine, the combination comprising a plurality of token stacks having individually and electromagnetically operable dispensing closure means, and selective actuating means for the same operable at each operation of the machine to automatically select and actuate one only of said stack closures at each operation of the machine.

2. In a vending machine, the combination comprising a plurality of token stacks having individually and electromagnetically operable dispensing closure means, and selective actuating means for the same operable automatically to actuate one only of said stack closures at each operation of the machine comprising a plurality of switches, each of which controls one of said dispensing closure means, and means operable automatically to actuate one only of said switches at each operation of the machine.

3. In a vending machine, the combination comprising a plurality of token stacks having individually and electromagnetically operable dispensing closure means, and selective actuating means for the same operable automatically to actuate one only of said stack closures at each operation of the machine comprising a plurality of switches, each of which controls one of said dispensing closure means, and means operable automatically to actuate one only of said switches at each operation of the machine comprising a plurality of levers in individual engagement with said switches and means operable automatically to actuate one only of said levers at each operation of the machine.

4. In a vending machine, the combination comprising a plurality of token stacks having in-

dividually and electromagnetically operable dispensing closure means, and selective actuating means for the same operable automatically to actuate one only of said stack closures at each operation of the machine comprising a plurality of switches, each of which controls one of said dispensing closure means, and means operable automatically to actuate one only of said switches at each operation of the machine comprising a plurality of levers in individual engagement with said switches and means operable automatically to actuate one only of said levers at each operation of the machine comprising a plurality of coaxially mounted and perforated disks which are individually and freely rotatable and positioned to receive said levers in the perforations.

5. In a vending machine, the combination comprising a plurality of stacks, a dispensing closure member associated with each of said stacks, an electromagnetic means associated with each of said dispensing closure members for actuating the same and automatic means for selectively operating one only of said electromagnetic means at each operation of the machine comprising a normally closed switch in series with one of said electromagnetic means, a normally open switch in series with each of the other electromaengtic means, a lever in engagement with each of said normally open switches and all of said levers being in engagement with said closed switch and a plurality of independently rotatable disks mounted coaxially and having a plurality of perforations therein providing a plurality of combinations wherein a perforation in one of said disk lines up with perforations in the other disks to provide an opening to receive one only of said levers and thereby permit a movement of such lever which causes the opening of the normally closed switch and the closing of one of the normally open switches.

ARDON A. BRADT.