

Feb. 21, 1956

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COMBINED SELECTING AND EJECTING MECHANISM
FOR MULTIPLE VENDING MACHINES

2,735,580

Filed May 7, 1952

2 Sheets-Sheet 1

Fig. 1.

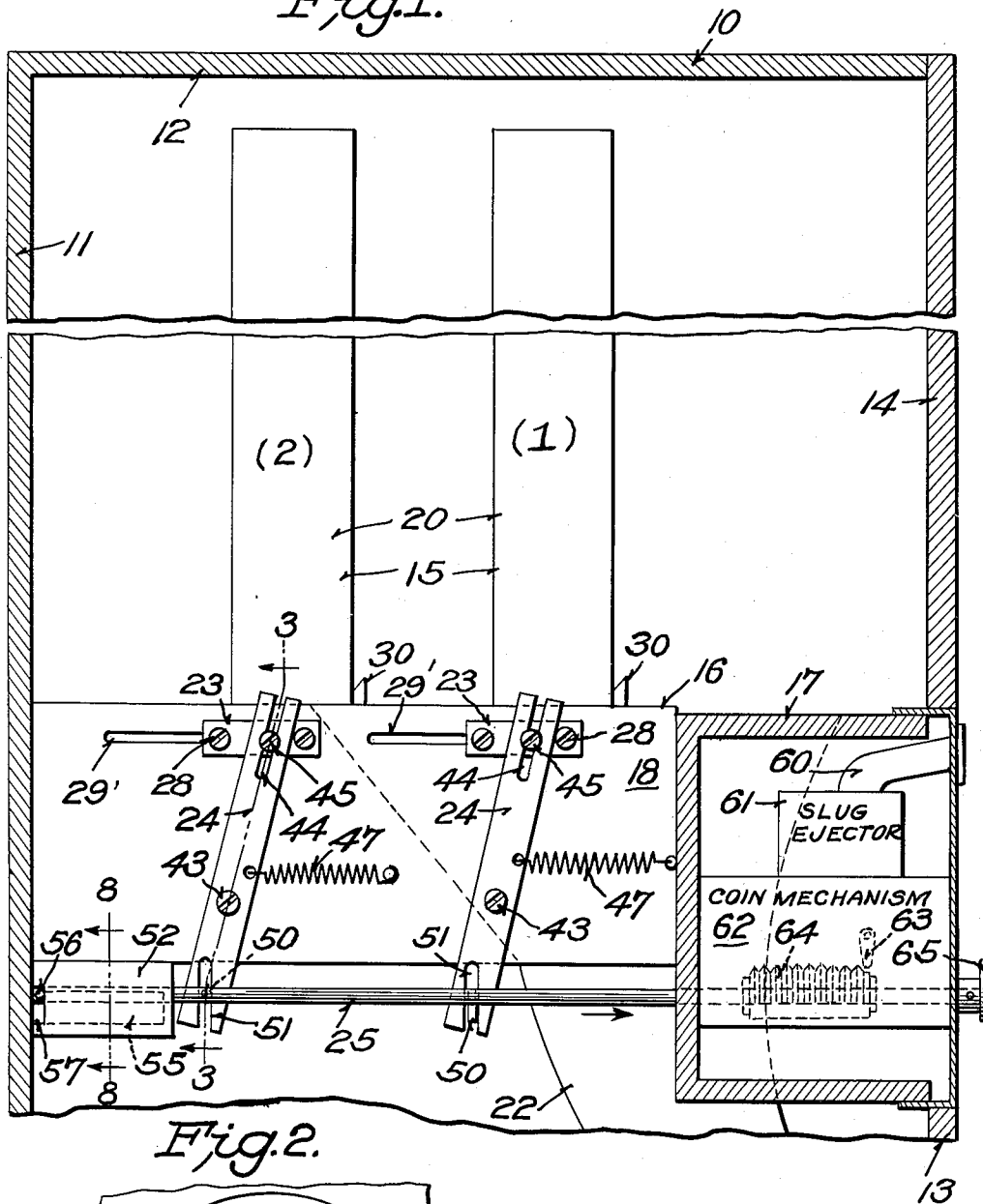
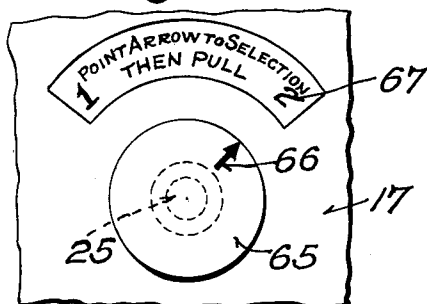


Fig. 2.



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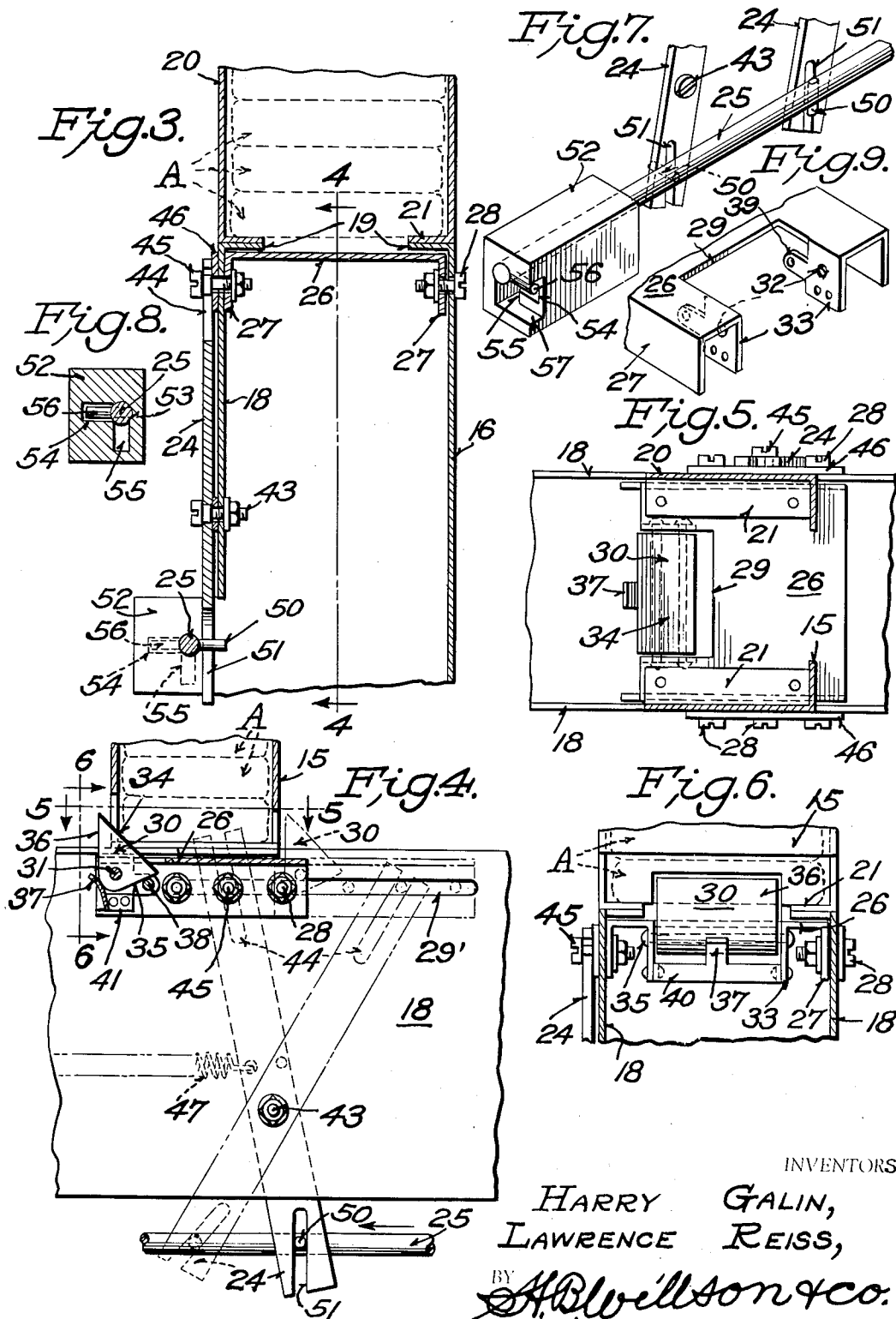
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COMBINED SELECTING AND EJECTING MECHANISM FOR MULTIPLE VENDING MACHINES

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Application May 7, 1952, Serial No. 286,582

4 Claims. (Cl. 221—127)

This invention relates to coin controlled vending machines of the multiple type in which different kinds of sandwiches or other vendable articles are stacked in two or more magazines to be ejected one at a time upon each operation of the machine; and it relates more particularly to an improved combination selecting and ejecting mechanism for such multiple dispensing or vending machines.

The object of the invention is to provide in a multiple vending machine a simple, effective and practical selecting and ejecting mechanism in which a single operating member may be rotated to operatively connect it with any one of the ejectors of the two or more article magazines and then slid longitudinally to actuate the selected ejector.

With the above and other objects and advantages in view, the invention resides in the novel combinations and arrangements of parts and the novel features of construction hereinafter described and claimed, and illustrated in the accompanying drawings which show the present preferred embodiment of the invention.

In the drawings:

Fig. 1 is a vertical front-to-rear sectional view of portions of a vending machine embodying the invention, parts being diagrammatically illustrated;

Fig. 2 is a detail view of a portion of the front of the cabinet showing the outer end of the hand piece on the rotatable and slidable operating rod and associated parts;

Fig. 3 is a detail vertical section taken on line 3—3 in Fig. 1;

Fig. 4 is a detail vertical section taken on line 4—4 in Fig. 3;

Fig. 5 is a detail horizontal section taken on line 5—5 in Fig. 4;

Fig. 6 is a detail vertical section taken on line 6—6 in Fig. 4;

Fig. 7 is a detail perspective view of parts of the selector mechanism;

Fig. 8 is a detail section taken on line 8—8 in Fig. 1; and

Fig. 9 is a detail perspective view of a portion of one of the ejector slides.

Referring more in detail to the drawings the numeral 10 denotes generally a suitable casing or cabinet which may have a back wall 11, a top wall 12 and a front wall 13. The upper portion 14 of the front may be in the form of a hinged or removable door to give access to the interior of the cabinet. In the upper part of the cabinet are two or more upright magazines 15 in which different kinds of sandwiches or other packages or articles to be selectively vended or dispensed are stacked as indicated at A in Fig. 3. The vertical merchandise containers or magazines 15 are arranged in a row, and as shown are supported on an interior frame structure 16 arranged between the rear wall 11 and the casing 17 of a coin activating mechanism set into the front wall 13 beneath the door 14. The supporting frame 16 preferably includes two horizontally spaced parallel plates 18 which have intumed longitudinal flanges 19 along at least their upper edges. The magazines 15 may be of any suitable con-

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struction to hold the vertical stacks of articles A, but as shown they are of rectangular shape in cross section and have parallel side plates 20 with intumed bottom flanges 21 secured to the flanges 19 as seen in Fig. 3. The stack of articles A in each holder 15 rests on the flanges 21 and the lowermost article is ejected in a forward direction into a suitable discharge chute 22 having an upper end large enough to receive the articles ejected from both stacks.

Each of the article magazines 15 has its own ejector unit 23 actuated by a lever 24, and these levers are selectively actuated by a single operating member 25 as hereinafter described. The ejectors are of the same construction and description of one will suffice for both or for all if more than two kinds of articles are to be dispensed. The unit 23 is slidable in a forward and rearward direction on the frame plates 18 and includes a slide plate 26 disposed beneath the flanges 19 and formed with downturned flanges 27. The latter are formed with openings to receive at least two guide pins or bolts 28 movable in longitudinal slots 29' formed in the plates 18. The ejector slide 26 has a recess 29 at one end to receive an article-engaging ejector member or block 30 of less length than the distance between the opposed flanges 19 and 21. The block 30 is of substantially triangular shape in cross section and is pivoted adjacent one of its angles on a transverse rod 31, the ends of which are supported in openings 32 formed in downturned lugs 33 struck from the recessed portion of the slide plate 26. The ejector block 30 has three flat faces 34, 35 and 36 and is so proportioned and mounted that when the slide unit 23 is in normal position shown in Fig. 4 the face 34 will be disposed in a downwardly and rearwardly inclined position in advance of the forward bottom edge of the lowermost article A. The block is held in that position by a spring 37 which engages the face 36 and thrusts the face 35 against a stop rod 38. The latter is supported by ears 39 formed on the lugs 33. The spring 37 is of the leaf type and is carried by the center of a transverse resilient cross bar 40 having bent ends 41 secured by suitable fastenings in apertures in the opposed lugs 33. The parts are so proportioned and arranged that when the slide unit 23 is moved rearwardly from the position in Fig. 4, the lowermost article A will swing the ejector block against the tension of spring 37 so that the face 34 will slide along the bottom of that article until the forward edge of face 34 passes the rear end of the article, whereupon spring 37 moves the block to the dotted line position in Fig. 4 to dispose the face 35 against the stop 38 and the face 36 in rear of the lowermost article. When the slide unit 23 returns to its forward position, the face 36 will push the lowermost article from the stack and allow it to drop into the chute 22. It is to be understood that other forms of slidable ejectors may be employed.

The levers 24 are disposed on the outer side of one of the frame plates 18 and each is pivoted between its ends on a suitable fulcrum such as a bolt 43. The levers are thus mounted in a row parallel with the longitudinal axis of the rod 25. A sliding and pivotal connection is provided between the upper ends of the levers and the ejector slides. As shown these ends of the levers are formed with longitudinal slots 44 to receive pivot bolts 45 which are arranged between the bolts 28 and which also pass through the slots 29'. To more effectively guide the slide plate 26 of the unit 23, the bolts 28 and 45 may pass through openings in an outer plate or strap 46 disposed against the outer face of the adjacent frame plate 18. Each lever 24 is actuated in one direction by a coil spring 47 fastened at one end to the upper arm of the lever and at its other end to the plate 18, the casing 17 or some fixed part in the cabinet.

The single operating member 25 is a combined selector and ejector actuator. It is in the form of a cylindrical rod or plunger which may be rotated about its axis to operatively connect it with any one of the levers 24 and which is then slid longitudinally to actuate the selected ejector lever. The selector feature comprises pins 50 spaced longitudinally along the rod and projecting radially at circumferentially spaced points around the axis of the rod, one pin being provided for each lever and being movable into and out of a longitudinal slot 51 in the lower end of the lever when the rod is rotated. The arrangement is such that only one of the pins will project into the slot in the coacting lever at a time. The circumferential spacing of the pins will depend upon the number of magazines in the cabinet. When two magazines are used, the pins 50 may be circumferentially spaced 90° apart as shown, so that a one quarter rotation of the operating rod will dispose one pin or the other in the slot of its lever to operatively connect these elements. In order to insure that one pin or the other may be connected to its lever, means are provided, preferably at the rear end of the rod, to limit its rotation and to dispose the pins in positions that will permit either pin to be turned into or out of its lever slot when the rod is in its innermost position. This means comprises a guiding and supporting member 52 in the form of a rectangular block projecting from the rear wall 11 or otherwise fixedly mounted. The block has a cylindrical bore 53 in which the rod 25 is slidably and rotatably arranged, the block also having two longitudinal grooves or channels 54 and 55 which open into the bore and are disposed 90° apart. On the end of the rod is a radial pin 56 which may be turned for alinement with either channel. The control pin 56 is normally disposed in a recess 57 at the end of the block and into which both the bore and the channels open. It will be seen upon reference to Figs. 7 and 8, that the pin 56 will prevent sliding movement of the operating rod until it is in register with one or the other of the channels. It will also be seen that the guide block 52, in connection with the pin 56, will not only control both the rotary and sliding movements of the selector rod or bar 25, but will also form a support for the rear end of the same.

The selecting and operating member or rod 25 is shown as extending through and forming a part of a coin controlled mechanism within the casing 17. The mechanism includes a coin chute 60 leading to a slug ejector 61 associated with a coin mechanism 62, these parts being diagrammatically shown in Fig. 1. The coin mechanism includes a reversible pawl 63 coacting with a ratchet or rack bar 64 arranged in a well known manner, so that when a knob or finger piece 65, fixed to the outer end of the member 25, is operated to pull or push the latter in either direction, it must make a full stroke in either direction before its direction of movement can be reversed. The bar or plunger 25 is shown as continuous from end to end but it will be understood that it will be made of separable sections connected to rotate and slide as a unit. On the outer face of the knob 65 is placed an arrow or other mark 66 to coact with an arcuate scale 67 suitably applied to the front of the casing 17 so that the user of the machine may set the selector bar 25 to operatively connect it with the ejector mechanism of either the front magazine marked (1) or the rear magazine marked (2). The coin mechanism normally locks the selector bar or plunger against sliding movement until a proper coin has been deposited in the slot of chute 60 but permits it to be turned so that the arrow 66 may be directed toward either the numeral 1 or 2 on the scale 67 and thus properly position the pins 50 according to which ejector unit is to be operated when the knob is pulled outwardly.

The operation of the machine is apparent from the foregoing description but will be briefly described. The knob 65 is turned to cause its arrow to point to the nu-

meral 1 or 2 on the scale according to the kind of sand-wich or other article desired by the operator. A coin is then deposited in the chute 60 to unlock the member 25 for sliding movement. The operator then pulls the knob outwardly to the limit of its sliding movement and releases it. On the outward movement the proper lever 24 will be actuated to eject the lowermost article in the selected magazine into the chute 22. Upon release of the member 25, one of the springs 47 or spring means within the coin mechanism will restore the parts to their original or normal positions.

From the foregoing, taken in connection with the accompanying drawing, it will be seen that novel and advantageous provision has been made for carrying out the objects of the invention, and while preferences have been disclosed, attention is invited to the possibility of making variations within the scope of the invention as claimed.

What is claimed is:

1. In a machine of the character described, a combined selector and ejector rod, means mounting said rod for both rotary and sliding movements, said mounting means including an elongated body having a longitudinal bore in which said rod is slidably and rotatably positioned, the interior of said body having a plurality of longitudinal channels which open into said bore throughout their lengths and are disposed at different radial angles around said bore, said body also having a transverse recess into which one end of said bore and one end of each of said channels open, a control pin projecting radially from said rod and normally disposed in said transverse recess when said rod is in one position of longitudinal adjustment, said pin being movable by rotation of said rod into alinement with any one of said channels so that said rod may be moved longitudinally as said pin slides in one of said channels, a plurality of ejector-actuating pins spaced apart longitudinally on said rod, the last mentioned pins projecting from said rod at different radial angles corresponding to the radial arrangement of said channels, and a plurality of ejector-operating levers mounted in a row parallel with the axis of said rod, said levers corresponding in number with the last mentioned pins and having slots to selectively receive said pins.

2. The structure of claim 1 together with a handle fixed to said rod for manually rotating it and pulling it longitudinally from its said one position, and spring means for returning the rod to said one position.

3. The structure of claim 1 together with coin released mechanism for controlling the sliding movement of said rod.

4. The structure of claim 1 in which said levers are fulcrumed between their ends on an upright frame plate extending forwardly and rearwardly in a casing, said slots opening through the lower ends of said levers, in which said rod extends in a forward and rearward direction in said casing past the slotted lower ends of said levers and has its forward end extending through the front of the casing and provided with an operating handle, and in which said elongated body is disposed at the rear of said casing and serves as a support for the rear end of said rod, together with spring means for actuating said levers in one direction.

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