

July 7, 1959

C. GABRIELSEN

2,893,596

SANDWICH MERCHANDISING MACHINE

Filed March 4, 1953

3 Sheets-Sheet 1

Fig 1

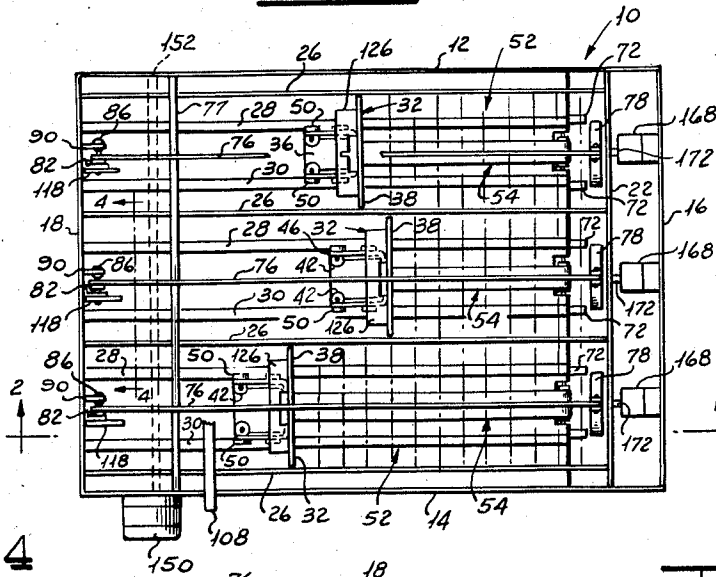


Fig 4

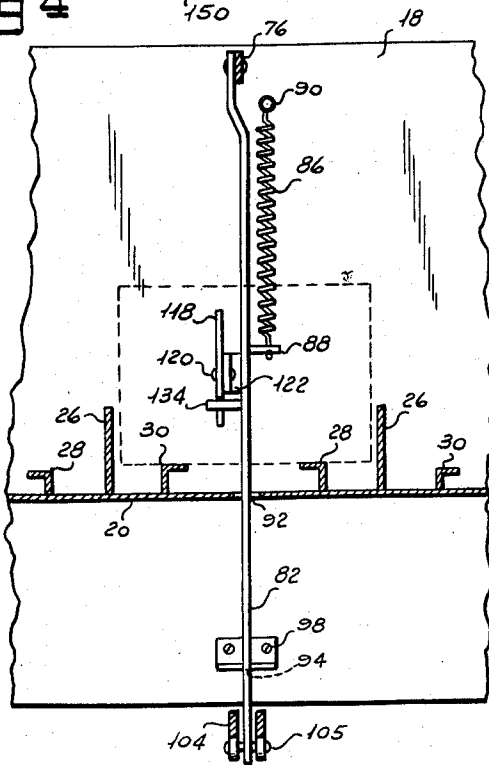
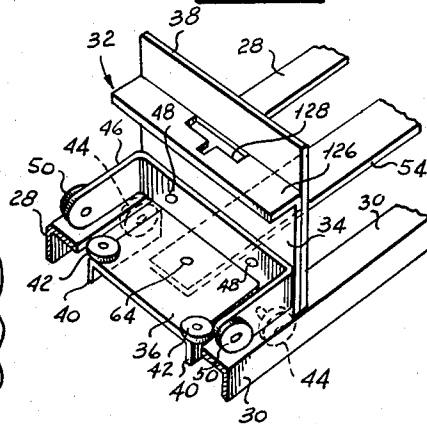


Fig 5



INVENTOR.
CHRISTIAN GABRIELSEN
BY *Harry Shaver*
ATTORNEY

July 7, 1959

C. GABRIELSEN

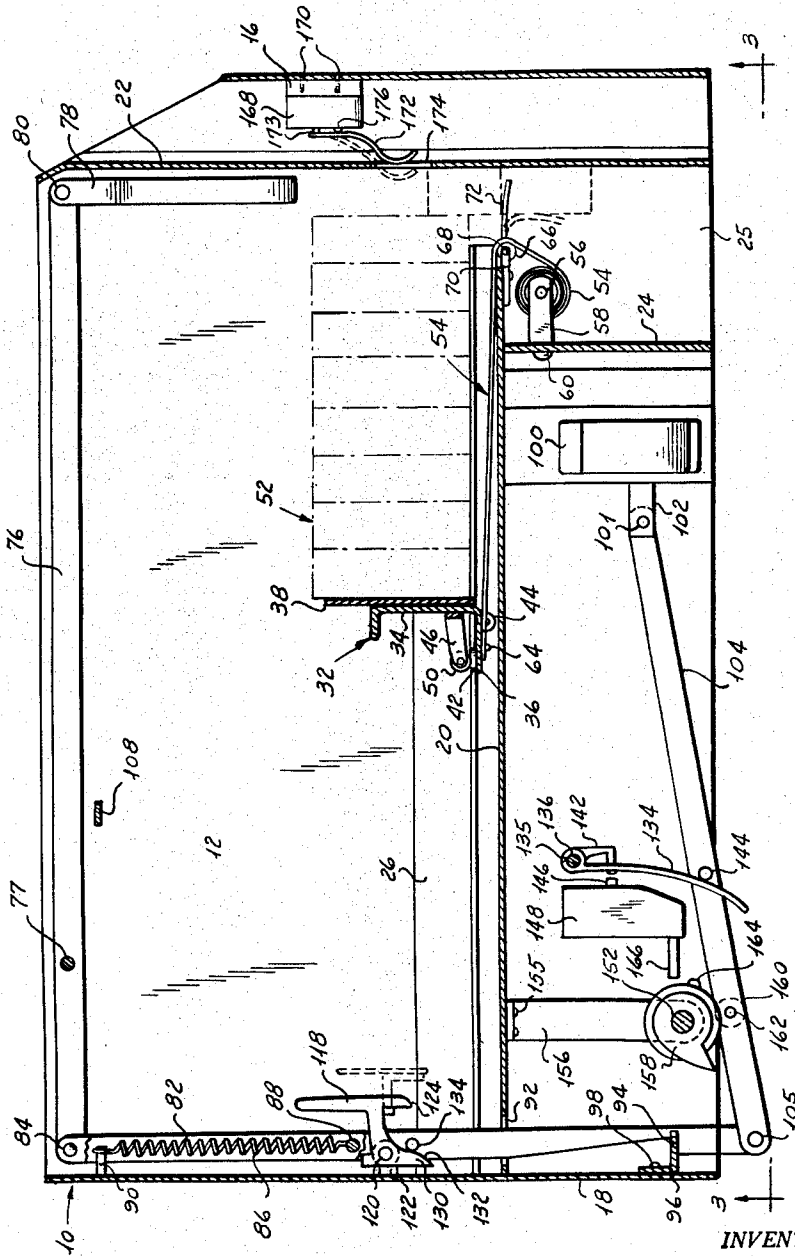
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3 Sheets-Sheet 2

Fig 2



INVENTOR.
CHRISTIAN GABRIELSEN
BY *Henry H. Shaver*
ATTORNEY

July 7, 1959

C. GABRIELSEN

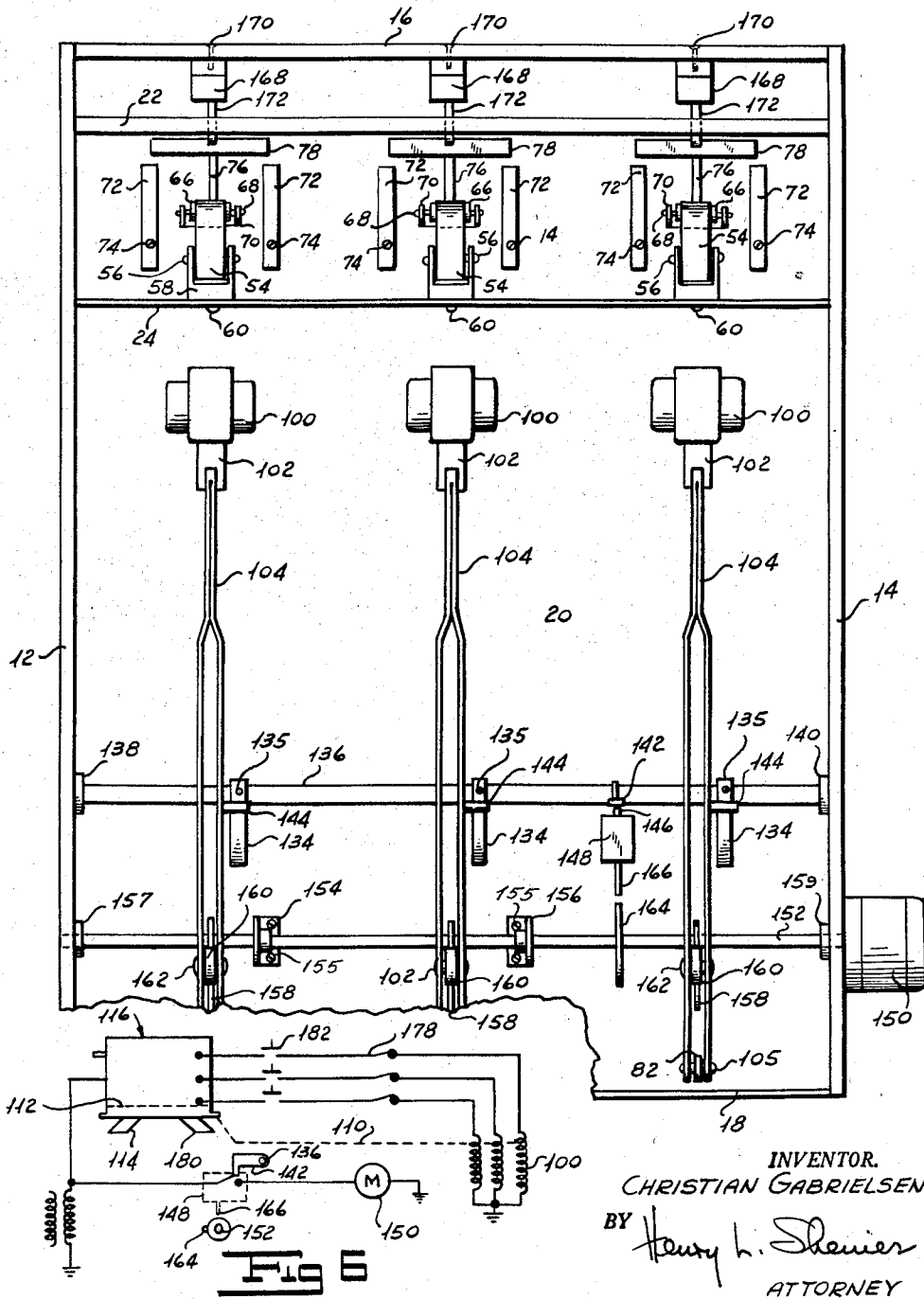
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SANDWICH MERCHANDISING MACHINE

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3 Sheets-Sheet 3

Fig 3



INVENTOR.
CHRISTIAN GABRIELSEN
BY *Henry H. Shenier*
ATTORNEY

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2,893,596

SANDWICH MERCHANDISING MACHINE

Christian Gabrielsen, Mountain Lakes, N.J., assignor to Rowe Manufacturing Co., Inc., Whippany, N.J., a corporation of New York

Application March 4, 1953, Serial No. 340,247

2 Claims. (Cl. 221—129)

My invention relates to sandwich merchandising machines and more particularly to an improved sandwich merchandising machine which is inexpensive to construct, simple in operation, easy to maintain and which provides a large capacity for sandwiches or other merchandise in a relatively small space.

In general, sandwich merchandising machines of the prior art are arranged so that the sandwiches or other articles of merchandise are stacked in vertical columns and dispensed downwardly by gravity or other suitable means upon the initiation of the dispensing cycle. These vertical machines are unsuitable for use in many locations because of space considerations or because the height of the machine obstructs the view. Where it is necessary or desirable to utilize a low machine, a machine must be provided which is capable of storing and vending merchandise horizontally. I have provided an improved merchandising machine which is simple in operation, easy to maintain and inexpensive to construct, in which a large quantity of merchandise is stored horizontally in a small space in such a manner that the difficulties encountered in the vertical machines of the prior art are eliminated.

One object of my invention is to provide an improved merchandising machine in which a large quantity of merchandise is horizontally arranged in a small space.

Another object of my invention is the provision of a merchandising machine in which the merchandise is arranged in a number of rows, separate dispensing means are provided for each row and a common means is provided for resetting the dispensing means.

Another object of my invention is to provide an improved merchandising machine in which different kinds of merchandise are arranged in horizontal rows and may be selectively dispensed.

Another object of my invention is the provision of an improved merchandising machine in which a loading lock is provided for each row of merchandise and means for releasing the loading lock when the first vending cycle is initiated.

Another object of my invention is the provision of an improved merchandising machine having a plurality of sections and indicating means for each section operable when the section is empty.

Other and further objects of my invention will appear from the following description.

In general my invention contemplates a housing divided into a plurality of sections, a pair of horizontally extending tracks in each section to receive the merchandise to be dispensed, dispensing means including an ejector associated with each pair of tracks, a feeder mounted on each pair of tracks for movement therealong, means for urging each feeder and the associated merchandise along a pair of tracks in a direction toward the corresponding ejector, means for selectively rendering said dispensing means active and reset means common to all dispensing means to reset the actuated dispensing means after each dispensing operation. In addition

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I provide a loading lock for each feeder to prevent the feeder from moving along the tracks when its respective section is being loaded and means associated with each pair of tracks to prevent the machine from operating when the respective section is empty.

In the accompanying drawings which form part of the instant specification and which are to be read in conjunction therewith and in which like reference numerals are used to indicate like parts in the various views:

Figure 1 is a top plan view of my improved merchandising machine with the top removed.

Figure 2 is an enlarged sectional view of the machine taken along the line 2—2 of Figure 1.

Figure 3 is a bottom plan view taken along the line 3—3 of Figure 2.

Figure 4 is an enlarged fragmentary sectional view taken along the line 4—4 of Figure 1.

Figure 5 is a perspective view drawn on an enlarged scale showing the details of the feeder of my improved merchandising machine.

Figure 6 is a schematic view showing the electrical connections of my improved merchandising machine.

More particularly, referring now to the drawings, I provide a housing, generally indicated by the reference numeral 10, formed with side panels 12 and 14 and front and back panels 16 and 18, respectively. A vertical partition 22 between side panels 12 and 14 extends from top to bottom of the housing a short distance behind the front panel 16. A horizontal partition 20 extends across the housing between the side panels from the back panel 18 toward the front so that its forward end lies adjacent the vertical partition 22, and the housing is divided generally into top and bottom compartments. A second vertical partition 24 extends from the bottom of the housing to a point near the forward end of the underside of partition 20 to form a delivery or dispensing chute 25, as can readily be seen by reference to Figure 2. I divide the upper compartment into a number of sections by longitudinally extending partitions 26 which are mounted on the horizontal partition 20 at spaced intervals.

Between each pair of panels 26 I mount guide means, such as a pair of tracks 28 and 30 which may be formed of angle irons. Feeders, generally indicated by the numeral 32, are mounted for sliding movement along these tracks. Each feeder, as can readily be seen by reference to Figure 5, is formed of an upright portion 34 and a horizontal portion 36. A plate 38 is carried by the upright portion 34 and fixed thereto by suitable means, such as welding or the like. The horizontal portion 36 of each feeder has a pair of depending flanges 40 formed on either side adjacent the tracks 28 and 30. A first pair of guide rollers 42 are rotatably carried by the horizontal portion of feeder 32 so that each engages the edge of the horizontal flange of one of the tracks 28 and 30 to prevent lateral movement of the feeder. On the sides of flanges 40 I mount a second pair of guide rollers 44 to ride along the undersurfaces of the horizontal rail flanges. On the back of the upright portion 34 of feeder 32, I attach a rearwardly extending, U-shaped bracket 46 by appropriate means such as bolts 48. I mount rollers 50 on the ends of the legs of brackets 46 so that each rides on the upper surface of a horizontal flange of one of the rails 28 or 30. By the cooperation of rollers 44 and 50 with the under and upper surfaces of the rail flanges, I have prevented any tilting movement of feeder 32 and plate 38.

The merchandise to be dispensed, such as sandwiches in boxes, indicated generally by the reference numeral 52, is disposed in horizontal rows between the partitions 26 on tracks 28 and 30 in front of feeders 32, as shown in Figures 1 and 2. It is to be noted that the sandwiches are arranged on the tracks 28 and 30 so that the boxes

contact only the upper surfaces of the horizontal flanges of tracks 28 and 30 so that the frictional force resisting sliding movement of the boxes along the tracks is at a minimum. To urge each of the feeders 32 and thus the merchandise in a direction toward the dispensing chute 25, I provide negative spring 54 carried by pin 56 on a bracket 58 mounted on partition 24 by appropriate means such as a bolt 60. By a "negative" spring I mean a spring which tends normally to coil rather than to uncoil. The end of the negative spring 54 is attached to the horizontal portion 36 of the feeder 32 by appropriate means such as a rivet 64. Partition 20 extends part way across the chute 25 and a guide roller 66 for negative spring 54 is rotatably mounted by a pin 68 on a bracket 70 on the end of partition 20. A plurality of leaf springs 72 attached to partition 20 by screws 74 extend substantially across the opening between the end of partition 20 and partition 22 and prevent the article of merchandise which has been urged up against partition 22 from dropping into chute 25.

Adjacent the top of the housing, I mount a number of dispensing levers 76 around a common shaft 77 fixed in the sides 12 and 14 of the housing. Suitably shaped ejectors 78 are pivotally carried by pins 80 on the ends of levers 76. The dispensing levers 76 are actuated by links 82 connected to levers 76 by pins 84 and normally urged upwardly by springs 86, attached to links 82 at one end by pins 88 and fixed to the housing at the other end by pins 90 on back panel 18. The lower ends of links 82 extend through openings 92 in the partition 20 and are notched at points indicated by reference numeral 94. I provide the rear panel 18 with an angle bracket 96 attached by screws 98 and arrange the parts so that when notches 94 are engaged with the bracket 96, spring 86 cannot operate to raise link 82 and rotate dispensing lever 76 in a dispensing direction.

On the underside of panels 20 adjacent the partition 24, I mount a number of solenoids 100 which are energized when the proper number of coins have been inserted in the coin register and the selecting switch corresponding to the particular solenoid has been closed. Each of the solenoids 100 has an armature 102. Links 104 are connected to armatures 102 by pins 101 and to the lower ends of links 82 by pins 105.

I dispose a bar 108 under levers 76 to be engaged by any one of the levers during a dispensing operation. Bar 108 is connected by suitable mechanical linkage, indicated schematically by reference numeral 110 in Figure 6, to a coin tray 112. When bar 108 is moved downwardly, it tilts the coin tray 112 in a direction such that the coins drop into the till (not shown) through a chute 114. The coin register is indicated by reference numeral 116 in Figure 6 and may be of any appropriate construction, such as the type disclosed in application Serial No. 166,045, filed June 3, 1950, now Patent No. 2,677,450, issued May 4, 1954.

It is to be noted that I have provided my dispensing apparatus with a number of loading locks 118, each of which may engage its respective feeder 32 to hold the feeder in its rearmost position against the action of a negative spring 54 when the corresponding section is being loaded. Each lock 118 is rotatably carried by a pin 120 on a bracket 122 attached to the rear panel 18 and is provided at its forward end with a depending finger 124 for engagement with its associated feeder 32. As shown in Figure 5, the upright member 34 of each carrier 32 has a rearwardly extending flange 126 with a recess 128 therein for engagement with finger 124. When a section is being loaded, its carrier will be in its rearmost position, indicated in broken lines in Figure 2, and the finger 124 of the associated lock 118 will engage recess 128. Each lock 118 has a second depending finger 130 at its rear end which is formed with a cam surface 132. Each link 82 carries a pin 134 for engaging the underside of the horizontally extending portion of the associated

lock 118 to release the lock when link 82 is released and moved upwardly under the action of spring 86.

Common means is provided for resetting the dispensing mechanism, no matter which of the dispensing members of the machine has been actuated. A plurality of curved fingers 134, one for each link 104 are mounted by suitable means such as set screws 135 on a shaft 136 rotatably carried in bearings 138 and 140 on the side panels of the housing. Each link 104 has a pin 144 for engagement with the associated finger 134 to rotate shaft 136 and initiate the reset operation when the vending operation is complete. A crank 142 is fixed on shaft 136 for rotation therewith in a position to engage the start button 146 of the reset stop-start switch 148 of a motor 150. Motor 150 drives a shaft 152 rotatably carried in bearings 157 and 159 on the sides 12 and 14 and supported at points intermediate its length by bearing brackets 154 and 156, fixed to the underside of panel 20 by suitable means such as screws 155. Shaft 152 carries for rotation therewith a number of reset cams 158 corresponding to the number of sections. When the vending operation is complete, the high point of one of the cams 158 is arranged to engage a roller 160 mounted on a pin 162 carried by one of the links 104 to reset the dispensing mechanism which has been actuated during the dispensing operation. It is to be noted that a cam 158 will always engage the roller 160 on the link 104 associated with the dispensing mechanism which has been actuated.

I arrange a stop cam 164 on shaft 152 so that it engages the stop button 166 of switch 148 after the reset operation has been performed. When the reset motor 150 is stopped, the parts are in the same positions which they occupied prior to the vending operation, and the machine is ready for a new vending operation. It is to be noted that my reset mechanism is common to all vending sections. That is, regardless of which section operates, the reset mechanism will be actuated to return the parts to their initial positions.

A number of normally open empty switches 168 are attached to the front panel 16 by suitable means such as rivets 170 or the like. These switches are provided with curved leaf springs 172 fixed on pins 173 on the switch and extending into openings 174 formed in panel 22. Springs 172 are adapted to bear against contacts 176 to keep the switches closed while merchandise remains in the sections and to flex to the dotted line position shown in Figure 2 to allow the switches to open when the supply of merchandise in the respective sections is exhausted. A coin return mechanism, well known in the art (not shown), is provided to return the coins through a coin return slot 180 shown in Figure 6 when any section is empty. Empty switches 168 are indicated schematically in Figure 6 by the reference character 178.

In use, the customer first deposits the required amount in coins in the coin register 116 and closes the switch 182 corresponding to the desired type of sandwich to complete the circuit of the proper solenoid 100. When the solenoid 100 is energized, its armature 102 moves to the right as viewed in Figure 2 pulling the link 104, which is connected to the lower end of link 82 by pin 105, to the right. This motion disengages the notch 94 from the bracket 96 and permits spring 86 to move the link 82 upwardly, thus rotating the dispensing lever 76 around shaft 77 in a clockwise direction. This rotation moves the ejector 78 downwardly into contact with the boxed sandwich or other merchandise resting on leaf springs 72 and forces the merchandise past the springs downwardly to the position indicated by broken lines in Figure 2.

When link 82 is moved upwardly by spring 86, link 104 is pivoted in a clockwise direction, as viewed in Figure 2, about pin 101. Pin 144 on link 104 engages its associated curved finger 134 to rotate shaft 136 and the bell crank lever 142 associated therewith also in a clockwise direction. Bell crank lever 142 engages the start

button 146 of the reset stop-start switch 148 and starts motor 150 which rotates shaft 152 in a clockwise direction, as viewed in Figure 2. When the dispensing operation is complete, solenoid 100 is de-energized and shaft 152 has rotated through an angle such that the high point of one of the reset cams 158 is in a position to engage the roller 160 on the link 104 which has been moved during the dispensing operation. Cam 158 moves the displaced link 104 in a counterclockwise direction about pin 101 and to the left. This movement pulls link 82 downwardly against the action of spring 86 and moves it to the left so that notch 94 re-engages bracket 96, and the dispensing mechanism which has been actuated, is reset. When link 82 is pulled downwardly, it rotates lever 76 in a counterclockwise direction about shaft 77 to withdraw ejector 78, and negative spring 54 moves carrier 32 along the track to push the next article of merchandise against partition 22 under the ejector 78. Shortly after the reset operation is completed, cam 164 on shaft 152 engages the stop button 166 of switch 148 to interrupt the circuit of motor 150 and stop the motor.

To load any section, its carrier may be moved manually to its extreme rearward position and finger 124 of lock 118 engaged with the carrier slot 128. In the course of the upward movement of link 82 when the initial dispensing operation is initiated, pin 134 on the link moves slightly to the right and engages the underside of the horizontally extending portion of loading lock 118 and rotates the lock 118 in a counterclockwise direction, as viewed in Figure 2, about pin 120. The finger 124 which is engaged with the slot 128 in its associated carrier 32 is thereby disengaged and spring 54 urges the carrier forward along tracks 28 and 30.

While merchandise remains in any particular section, the article of merchandise furthest forward of carrier 32 bears against spring 172 and keeps contact 176 of the "empty" switch 168 closed. When the supply of merchandise in a particular section is exhausted, no article bears against spring 172, and the spring flexes to the broken line position shown in Figure 2, thus opening contact 176. The coins are returned by the coin return mechanism (not shown) through slot 180 and associated indicating means (not shown) indicates that the supply of this type of merchandise is exhausted.

It will be seen that I have accomplished the objects of my invention in providing a merchandising machine in which the merchandise is arranged horizontally rather than vertically so that the machine may be used in locations in which dispensing machines of the prior art will not fit or are not convenient or desirable. In addition I have provided an improved merchandising machine in which various kinds of merchandise are arranged in horizontal rows and may be selectively dispensed. A common reset mechanism resets the dispensing mechanism regardless of which type of merchandise has been selected by the purchaser. I have provided such a machine in which one row is rendered operative while the other rows are prevented from operating and wherein individual loading locks are provided for each row.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of my claims. It is further obvious that various changes may be made in details within the scope of my claims without departing from the spirit of my invention. It is therefore to be understood that my invention is not to be limited to the specific details shown and described.

Having described my invention, what I claim is:

1. A merchandising machine for sandwiches or the like including in combination a plurality of horizontally extending guides to receive articles of merchandise to be dispensed, a plurality of dispensing means associated respectively with said guides and adapted when rendered operative to deliver an article of merchandise, each of said dispensing means including a separate ejector, a plurality of feeders each mounted adjacent one of said guides, means for urging each feeder and its associated merchandise in a direction toward the corresponding ejector, means for selectively rendering said dispensing means operative to deliver an article of merchandise, a motor, a shaft driven by said motor, a plurality of reset cams fixed on said shaft for rotation therewith, said dispensing means including levers having means thereon for engagement with said cams to reset said dispensing means and means operated by said dispensing means for starting said motor to reset the dispensing means when the dispensing operation is complete.

2. A merchandising machine for sandwiches or the like including in combination a plurality of horizontally extending guides to receive articles of merchandise to be dispensed, a plurality of dispensing means associated respectively with said guides and adapted when rendered operative to deliver an article of merchandise, each of said dispensing means including a separate ejector, a plurality of feeders each mounted adjacent one of said guides, means for urging each feeder and its associated merchandise in a direction toward the corresponding ejector, means for selectively rendering said dispensing means operative to deliver articles of merchandise, means for resetting said dispensing means after the dispensing operation, a shaft having a plurality of fingers fixed thereon, said dispensing means including levers having means thereon for engagement with said fingers during the dispensing operation to rotate said shaft and means on said shaft to actuate said resetting means.

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