

Oct. 8, 1968

J. T. SCHULLER ET AL

3,404,807

ARTICLE VENDOR WITH DISPLAY

Filed Nov. 23, 1966

5 Sheets-Sheet 1

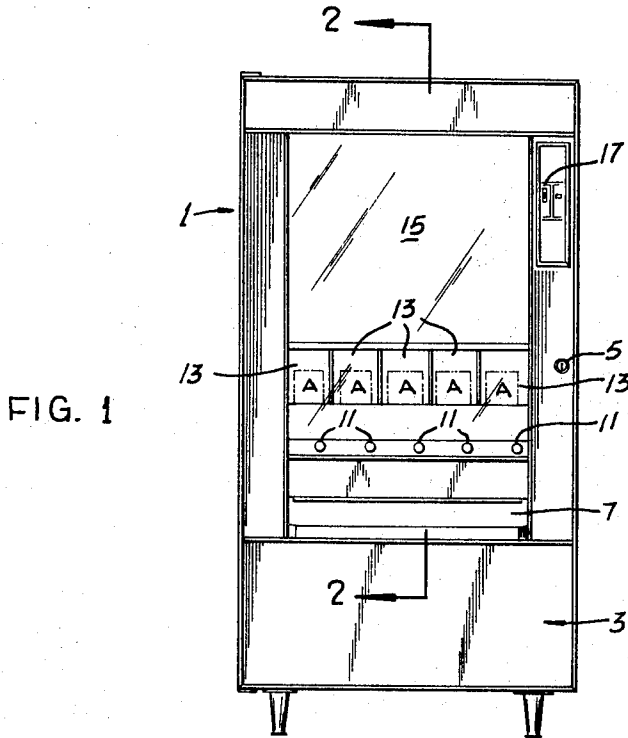


FIG. 1

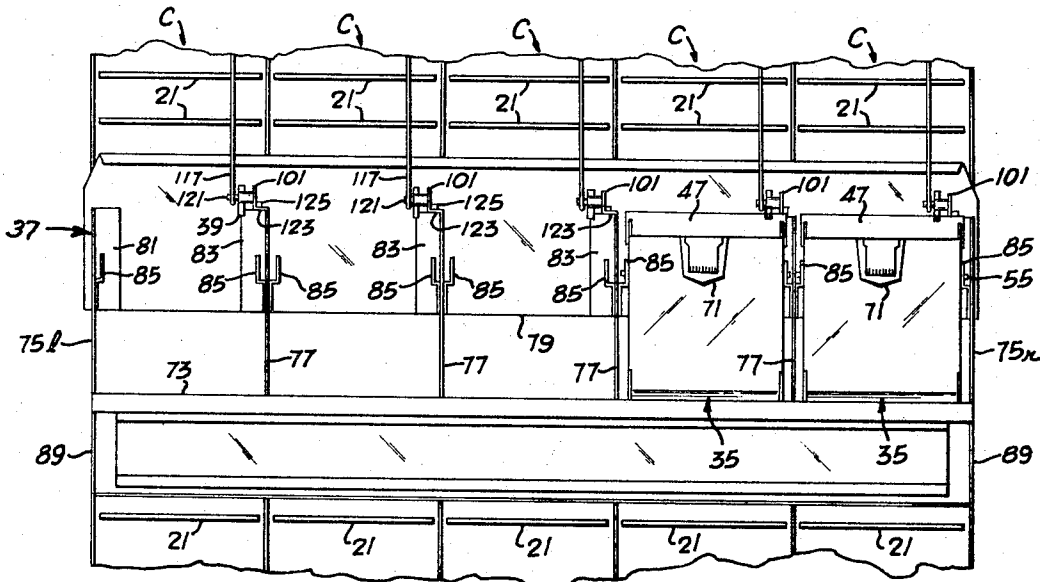


FIG. 5

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Oct. 8, 1968

J. T. SCHULLER ET AL
ARTICLE VENDOR WITH DISPLAY

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5 Sheets-Sheet 2

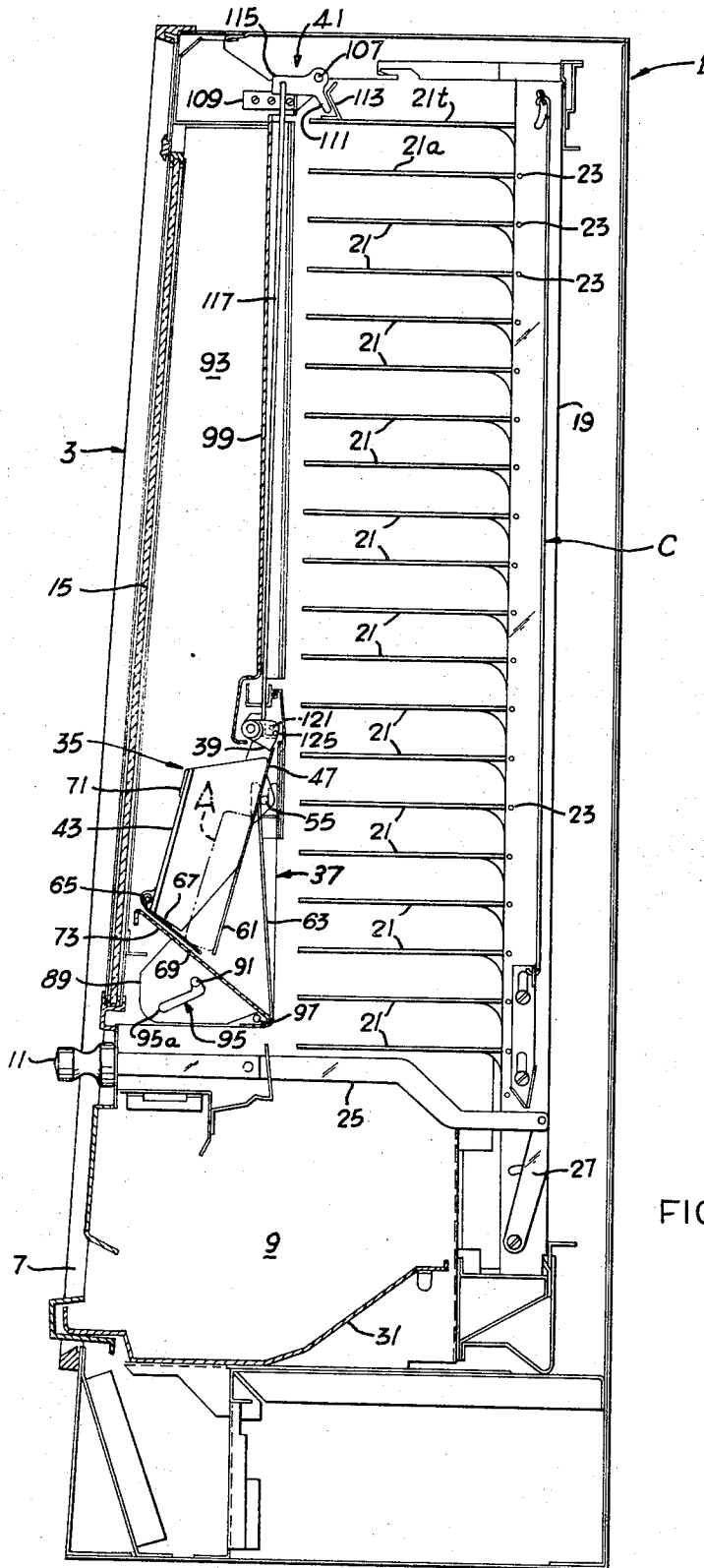


FIG. 2

Oct. 8, 1968

J. T. SCHULLER ET AL
ARTICLE VENDOR WITH DISPLAY

3,404,807

Filed Nov. 23, 1966

5 Sheets-Sheet 3

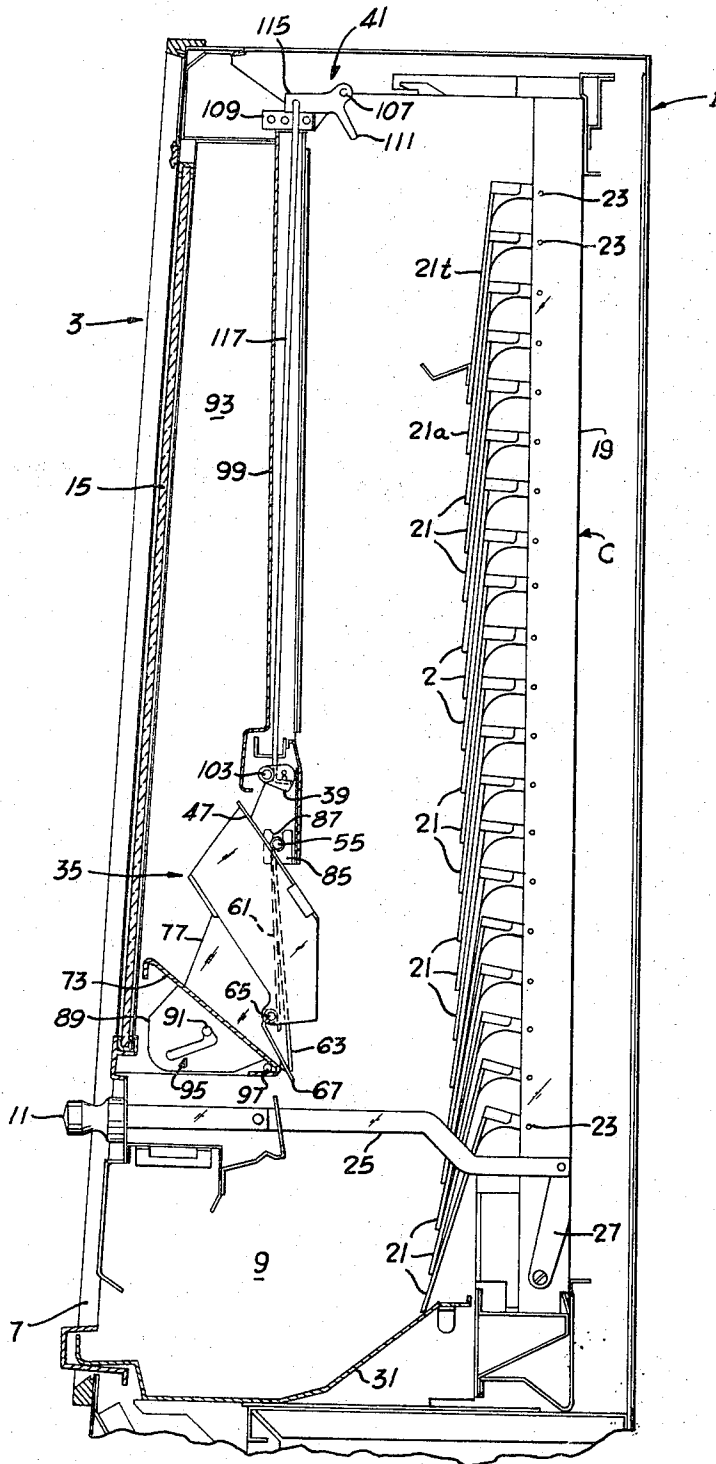


FIG. 3

Oct. 8, 1968

J. T. SCHULLER ET AL

3,404,807

ARTICLE VENDOR WITH DISPLAY

Filed Nov. 23, 1966

5 Sheets-Sheet 4

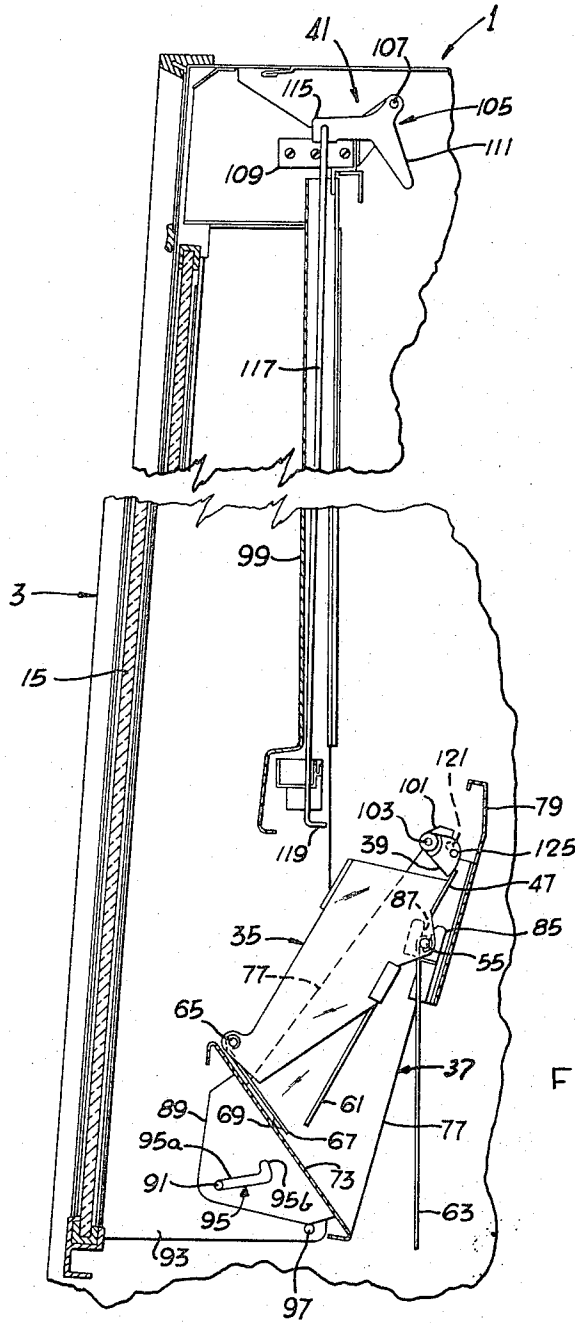


FIG. 4

Oct. 8, 1968

J. T. SCHULLER ET AL

3,404,807

ARTICLE VENDOR WITH DISPLAY

Filed Nov. 23, 1966

5 Sheets-Sheet 5

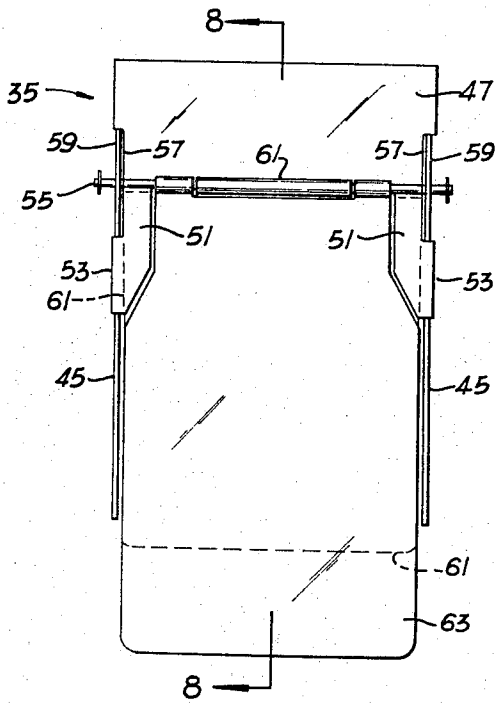


FIG. 7

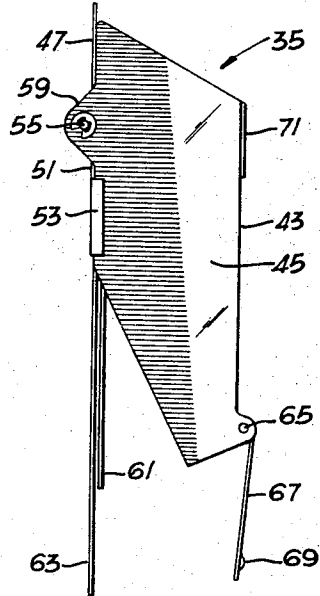


FIG. 6

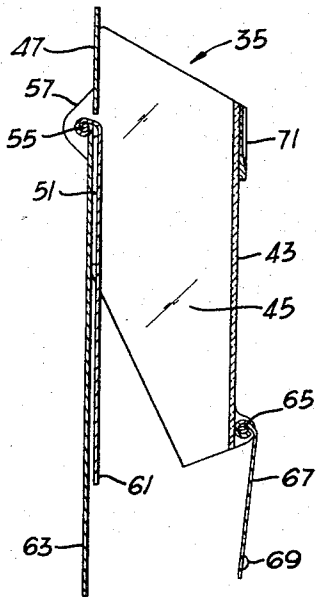


FIG. 8

1

3,404,807

ARTICLE VENDOR WITH DISPLAY

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Filed Nov. 23, 1966, Ser. No. 596,650

10 Claims. (Cl. 221-8)

ABSTRACT OF THE DISCLOSURE

A vendor, particularly for pastries or other food products, comprising a cabinet with a plurality of dispenser columns therein, each of the so-called drop-shelf type. For each column, there is a display of the product stocked in that column, this display being operable by the release of the uppermost shelf of the column after all the articles in the column have been dispensed, for vending the displayed product.

Background of the invention

The invention is in the field of article vendors which display the articles to be vended separately from the stocks of articles in the dispensers in the vendor. An example of this is a vendor for pastries and snacks (e.g., bags of potato chips). Such vendors generally comprise a cabinet having a window at the front and means for holding on display in the cabinet behind the window in side-by-side relation a number of different articles corresponding to the different articles stocked in the vendor. Heretofore, the displays in vendors of this class have been such that the articles on display are simply held behind the window without ever being vended. As a result, the displayed articles are usually left in the vendor, becoming stale and in some instances unsightly and unsanitary, and in many instances being wholly wasted.

Summary of the invention

The invention involves an article vendor of the above-described class providing for vending of each displayed article, in addition to its utilization for display purposes, thus attaining the object of eliminating waste of the displayed articles. The displayed articles are releasably held in display position behind a window at the front of the cabinet of the vendor, and means is provided for effecting delivery of each displayed article to a vendee on a vend cycle following the dispensing of the last article from the respective dispenser. This also attains the object of providing an indication to vendees that the vendor is out of stock as regards a particular article, absence of an article from the display clearly giving such indication. Other objects and features will be in part apparent and in part pointed out hereinafter.

Brief description of the drawings

FIG. 1 is a front elevation of a vendor incorporating the present invention;

FIG. 2 is a vertical section on line 2-2 of FIG. 1 showing one dispenser and the associated display of the vendor;

FIG. 3 is a view similar to FIG. 2 showing parts in the position occupied after dispensing of the displayed article;

FIG. 4 is a partial side elevation of a display station in a loading position, with a central portion of the mechanism being broken away;

FIG. 5 is a front elevation of a display rack showing two display holders mounted therein and others removed, also showing the drop-shelf dispensers of the vendor;

FIG. 6 is a side elevation of a display holder per se;

FIG. 7 is a rear elevation of a display holder and

2

FIG. 8 is a vertical section on line 8-8 of FIG. 7. Corresponding reference characters indicate corresponding parts throughout the several views of the drawings.

Description of the preferred embodiment

Referring to the drawings, there is indicated at 1 a cabinet having a front door 3. This is hinged at the left, and is adapted to be locked by the usual lock 5 at the right. In the door is an opening 7 for access to a delivery station 9. Above the opening is a row of pull knobs, each designated 11, one for each of a plurality of dispensers in the cabinet. Each knob is adapted to be pulled out by a vendee and returned for operating the respective dispenser to dispense an article. As herein illustrated, there are five dispensers and five knobs, but the number of dispensers may vary. Each dispenser is adapted to be stocked with articles of one class and the different dispensers are adapted to be stocked with articles of different classes. Above each knob, in close proximity thereto, is a display station 13 for displaying an article A of the class of articles stocked in the respective dispenser. The five display stations are located side-by-side in front of the respective dispensers toward the bottom of a window 15 in the door. A coin slot is indicated at 17, and it will be understood that any suitable coin mechanism may be provided for controlling the knobs.

Each of the five dispensers in the cabinet, as herein illustrated, is of the so-called drop-shelf column type, designated in its entirety by the reference character C. One of these columns is shown in FIGS. 2 and 3. It will be understood that the five columns C are located side-by-side within the cabinet. Each column may be of the type shown in Holstein U.S. Patent 2,896,817, issued July 28, 1959, comprising a vertically extending shelf support 19 carrying a series of vertically spaced pivoted shelves 21 located one above another. All of these shelves except the top shelf are adapted to carry articles of one class to be vended, and one of these articles is placed on display as indicated at A at the respective display station in front of the column. The top shelf, specially designated 21t, does not carry an article, but is an extra shelf utilized for effecting vending of the respective displayed article on the vend cycle following the vending of the article from the second shelf down from the top, as will appear. This second shelf down from the top, which is specially designated 21a, is the uppermost article-carrying shelf of the column. The pivots for the shelves are indicated at 23, it being understood from reference to said U.S. Patent 2,896,817 that these pivots are at the lower ends of depending rear flanges on the shelves. Means is provided for latching the shelves in their horizontal article-carrying position of FIG. 2 (and latching the top shelf 21t in its FIG. 2 horizontal position) and for releasing the latches successively from the bottom shelf up successively to release the shelves on successive actuations of the respective knob 11. This means includes a link 25 interconnecting the knob and a lever 27, which corresponds to the lever 93 shown in said U.S. Patent 2,896,817. Reference may be made to said patent for full details of the shelf-latching means and how the shelf latches are successively released. When each shelf up to shelf 21a is released, it swings down and the article thereon drops into a delivery pan 31, from which it is removable via opening 7. When the top shelf 21t is released, it swings down and effects vending of the displayed article as will appear.

The article A on display at each of the five display stations 13 is held in a box-like dispensing display holder 35. Each of these is pivoted in a rack 37 for swinging by gravity from the display position of FIG. 2 to the dispensing position of FIG. 3. The rack itself is movable

from the FIG. 2 display position to the FIG. 4 loading position. Each holder is adapted to be held in its FIG. 2 display position (the rack being in its display position) by a latch 39. Means generally indicated at 41 in FIGS. 2-4 is provided for tripping each latch on the vend cycle following the vending of the last article in the respective dispenser, this means functioning in response to the dropping of the top shelf 21t above the uppermost article-carrying shelf 21a at the top of the respective dispenser.

As shown best in FIGS. 6-8, each display holder is in the form of a box, open at the top, having a transparent front wall 43 (which may be plastic), side walls 45 (which may also be made of plastic and transparent) and a partial rear wall 47. The latter spans the side walls adjacent the top of the holder and has two depending tabs 51 toward the sides thereof which have flanges 53 extending forward on the outside of the side walls. A pivot pin 55 extends through ears 57 on the rear wall 47 and ears 59 on the rear edges of the side walls. Pivoted on this pin is a depending forward flap 61, disposed at the front of tabs 51 and a depending rear flap 63. Pivoted at 65 adjacent the lower edge of the front wall 43 is a bottom trap door 67 for the display holder. The pivot 65 is slightly in front of the front wall and slightly above its lower edge, and the trap door, when closed, extends rearward beneath the lower edge of the front wall. Toward its rearward edge, the trap door has a pair of downstruck bosses 69. At the center of the top of the front wall is an escutcheon 71 adapted to receive a price tag.

The rack 37 comprises an inclined floor 73, left and right end walls 75l and 75r extending upward at the ends of the floor, partitions 77 extending upward from the floor, and an upper back panel 79 spanning the end walls, and backing the rear edges of the partitions. The end walls have flanges 81 at their rear edges and the partitions have similar flanges 83 at their rear edges secured to panel 79. The partitions divide the space between the end walls into five compartments for the five display holders. Each end wall is provided on the inside adjacent its upper end with a bracket 85 having a slot 87 extending down from the top, and the partitions are provided on opposite sides thereof toward the top with similar brackets 85, the slots in these brackets receiving the ends of the display holder pivot pins 55 for pivotally mounting the display holders in their respective compartments. The floor 73 of the rack has depending end flanges 89, and the rack is mounted at the back of the door for movement from its FIG. 2 display position to its FIG. 4 loading position by means of pins 91 extending inward from side panels 93 of the door 3 through slots 95 in these end flanges of the bottom wall of the rack. Each of these slots has an elongate portion 95a and an upwardly extending rear end portion 95b.

In the FIG. 2 display position of the rack 37, the pins 91 extend through the rear end portions 95b of the slots 95, and the bottom edges of the end flanges 89 of the rack bear on a horizontal rod 97 which extends between the side panels 93 of the door. The floor 73 of the rack is angled upward and forward. Above the rack, the front door has a vertical back panel 99 spaced rearward of the window 15. Each of the partitions 77 and the right end wall 75r of the rack has an ear 101 at its upper end. The latches 39 for the display holder are pivoted at 103 on these ears. The means 41 for tripping each latch in response to the dropping of the respective top shelf 21t is shown to comprise a lever 105 pivoted at 107 on a bracket 109 carried by the door. It will be understood that there are five such levers, one in front of each dispensing column C at the top thereof. Each lever has an arm 111 inclined downward and rearward in front of an inclined cam plate 113 secured on the respective top shelf 21t. The arrangement is such that, as shelf 21t swings downward from its FIG. 2 position, cam 113 engages the arm 111 of lever 105 and swings this lever in clockwise direction. Lever 105 has a forwardly extending arm 115. A rod 117 extends down from arm 115 in back of the panel 99 of

the door and has a finger 119 extending rearward at its lower end adapted to reach under a lateral stud 121 on the respective latch 39 when rack 37 is in its FIG. 2 display position. Thus, on clockwise swinging of lever 105 by the top shelf 21t when the latter swings down, the rod 117 is pulled up to trip the latch 39 and release the display holder. The lever 105 is biased counterclockwise by the weight of the rod toward its normal position of FIGS. 2 and 4.

Each latch 39 is gravity-biased toward its FIG. 2 display holder latching position wherein it engages the front face of the rear wall 47 of the respective display holder above the pivot pin 55 for the display holder to latch the display holder in its FIG. 2 display position. In the display position, the display holder is angled downward and forward. Its trap door 67 extends rearward beneath the bottom edge of the front wall 43 of the display holder, with the bosses 69 on the bottom of the trap door 67 bearing on the inclined floor 73 of the rack 37. The flap 61 of the display holder bears against the front faces of tabs 51 and extends generally parallel to the front wall 43 of the display holder. The rear flap 63 of the display holder, at its lower end, engages the rear edge of the floor 73 of the rack and serves as a guard to prevent articles dropping from shelves 21 above the floor 73 from catching on the floor. Each of the partitions 77 and the end wall 75r of the rack has a step 123 at its upper end. The latches 39 have lateral studs 125 engageable with these steps to limit their swing and determine their latching positions with respect to the display holders.

Operation is as follows:

It will be assumed that each column C is fully stocked with articles of a certain class, i.e., each of shelves 21 in each column C up to and including shelf 21 is in its horizontal article-carrying position of FIG. 2 and carries an article thereon, that the door 3 is closed, and that the rack 37 is in display position and the display holders 35 are latched in display position, with an article A in each display holder, all as indicated in FIG. 2. As to any given column C, the first time the respective knob 11 is pulled and then returned, the bottom shelf is released to dispense the article on the bottom shelf. Subsequent operations of the knob result in successive release of the shelves above the bottom shelf for dispensing of the articles on the shelves, ultimately resulting in release of the shelf 21a for dispensing of the last article in the column. On the next operation of the knob, the top shelf 21t is released and swings down. As the top shelf 21t swings down, the cam plate 113 thereon swings lever 105 clockwise. Lever 105 thereupon pulls up rod 117 to release the latch 39 for the respective display holder 35. The latter then swings counterclockwise on the axis of its pivot pin 55 rearward from its FIG. 2 position to a position such as shown in FIG. 3, under gravity bias. As it swings rearward, trap door 67 opens to allow the displayed article A to drop out of the display holder into the delivery pan 31. Flaps 61 and 63 then close the rear of the display holder.

It will be observed that the article in the display holder, when the latter is in display position, rests on the trap door 67, which is held in closed position by engagement of bosses 69 with the floor 73 of the rack 37. Due to the inclination of floor 73, the trap door swings open as display holder swings rearward. Engagement of the trap door with the floor of the rack only over the extremely small area of the noses of the bosses minimizes the frictional resistance to sliding of the door along the floor, to assure the rearward swinging of the display holder under its own weight for dispensing of the displayed article. This is preferred to use of a display holder without the trap door, as to which engagement of the displayed article with the floor of the rack may impose undue frictional resistance in some instances to rearward swing of the display holder.

When a display holder has been released for vending of the displayed article, it assumes the position shown in FIG. 3 wherein its open top is inaccessible for loading

it with another display article through the top. Even if the display holder is swung back to its FIG. 2 position, its top is inaccessible. However, it is a simple matter after opening the door 3, to slide out the rack 37 to the loading position shown in FIG. 4, wherein the forward ends of portions 95a of slots 95 engage the pins 91, and to relatch the display holder in its display position relative to the rack, thereby enabling loading of the display holder through its open top. In this respect, it will be observed that latches 39, being associated with the rack, move out together with the display holders, being readily disengageable from the lower ends of the latch trip rods 117.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As various changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. A vendor comprising a cabinet having a front door, a window in the door, a delivery station below the window, a plurality of drop-shelf dispensers located side-by-side in the cabinet, a horizontal row of knobs between the bottom of the window and the delivery station for actuating the respective dispensers, a rack carried by the door on the rear thereof, said rack having a floor inclined upward toward the front, a plurality of display holders, one for each dispenser, carried by the rack and located side-by-side, one above each knob, each display holder comprising a box having a transparent front wall, side walls and a back wall, and being pivoted at its back wall and toward its top for swinging movement under its own weight from a display position inclined downward toward the front bottomed by the floor, wherein it is adapted to hold an article on display, and a dispensing position inclined downward toward the rear opening up its bottom for drop-out of the displayed article, and a plurality of latches, one for each display holder, each adapted to latch the respective holder in its display position, each dispenser having an extra non-article-carrying shelf above its uppermost article-carrying shelf, and a plurality of trips carried by the door, one for each of the latches, each trip being operable by a respective extra shelf on drop of the latter when the door is in closed position.

2. A vendor as set forth in claim 1 wherein each display holder has a trap door at the bottom pivoted adjacent the bottom of the front wall of the display holder and adapted to extend rearward therefrom in engagement with the floor of the rack.

3. A vendor as set forth in claim 2 wherein each display holder has a pivoted flap at the rear adapted to engage the rear edge of the floor to prevent articles dropping from the shelves of the respective dispenser from catching on the floor.

4. A vendor as set forth in claim 1 wherein the rack is mounted on the door for rearward movement relative to the door from a display position to a loading position, the latches being carried by the racks and being disengageable from the trips on movement of the rack to loading position.

5. A vendor comprising a cabinet having a display window at the front and a delivery station at the front below the window, a plurality of dispensers in the cabinet each adapted to be stocked with articles of one class and the different dispensers being adapted to be stocked with articles of different classes, means for selectively operating the dispensers to deliver articles therefrom to the delivery station, means for holding on display behind said window a plurality of articles, one for each dispenser, corresponding to the articles stocked in the dispensers, and means for delivering each displayed article to the delivery station on a vend cycle following the dispensing of the last article

from the respective dispenser, each display holder comprising a box having a transparent front wall, side walls and a back wall, said cabinet being provided with a floor for the bottoms of the boxes, each display holder being pivoted for swinging movement between a display position bottomed by the floor, and a dispensing position opening up its bottom for drop-out of the displayed article from the box, said means for delivering the displayed article effecting swinging of the holder from its display position to its dispensing position.

6. A vendor as set forth in claim 5 wherein each display holder has a trap door at the bottom engageable with said floor.

7. A vendor comprising a cabinet having a display window at the front and a delivery station at the front below the window, a plurality of dispensers in the cabinet each adapted to be stocked with articles of one class and the different dispensers being adapted to be stocked with articles of different classes, means for selectively operating the dispensers to deliver articles therefrom to the delivery station, means for holding on display behind said window a plurality of articles, one for each dispenser, corresponding to the articles stocked in the dispensers, and means for delivering each displayed article to the delivery station on a vend cycle following the dispensing of the last article from the respective dispenser, each display holder comprising a box having a transparent front wall, side walls and a back wall, said cabinet being provided with a floor for the bottoms of the boxes, each display holder being pivoted for swinging movement between a display position bottomed by the floor, and a dispensing position opening up its bottom for drop-out of the displayed article from the box, said means for delivering the displayed article effecting swinging of the holder from its display position to its dispensing position, wherein each dispenser is a drop-shelf dispenser, and wherein said means for delivering each displayed article comprises an extra non-article-carrying shelf above the uppermost article-carrying shelf of the respective dispenser, a latch for latching the respective display holder in its display position, and means actuated by said extra shelf on dropping thereof for releasing the latch.

8. A vendor as set forth in claim 7 wherein the cabinet has a front door, the window being in the door, the display holders being pivotally mounted in a rack carried by the door on the rear thereof, the floor being part of the rack, and the rack being movable relative to the door between a display position and a loading position, the latches being carried by the rack and being disengageable from the means for releasing the latches on movement of the rack to loading position.

9. A vendor comprising a cabinet having a display window at the front and a delivery station at the front below the window, a plurality of dispensers in the cabinet each adapted to be stocked with articles of one class and the different dispensers being adapted to be stocked with articles of different classes, means for selectively operating the dispensers to deliver articles therefrom to the delivery station, a plurality of boxes for holding on display behind said window a plurality of articles, one for each dispenser, corresponding to the articles stocked in the dispensers, each box having a front, sides and back, the article in each box being visible through the window, each box being bodily movable in its entirety from a display position to a dispensing position opening up the box at its bottom for drop-out of the displayed article from the box and delivery of the displayed article to the delivery station, and means for effecting bodily movement of each box in its entirety to its latter position on a vend cycle following the dispensing of the last article from the respective dispenser.

10. A vendor as set forth in claim 9 wherein the cabinet has a front door, the window being in the door, and having means mounting the boxes on the door at the rear

thereof for movement to a loading position in addition to being movable between display and dispensing position.

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WALTER SOBIN, Primary Examiner.

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,404,807

October 8, 1968

James T. Schuller et al.

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading to the specification, line 5, "VMC" should read -- UMC --.

Signed and sealed this 17th day of February 1970.

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.

Commissioner of Patents