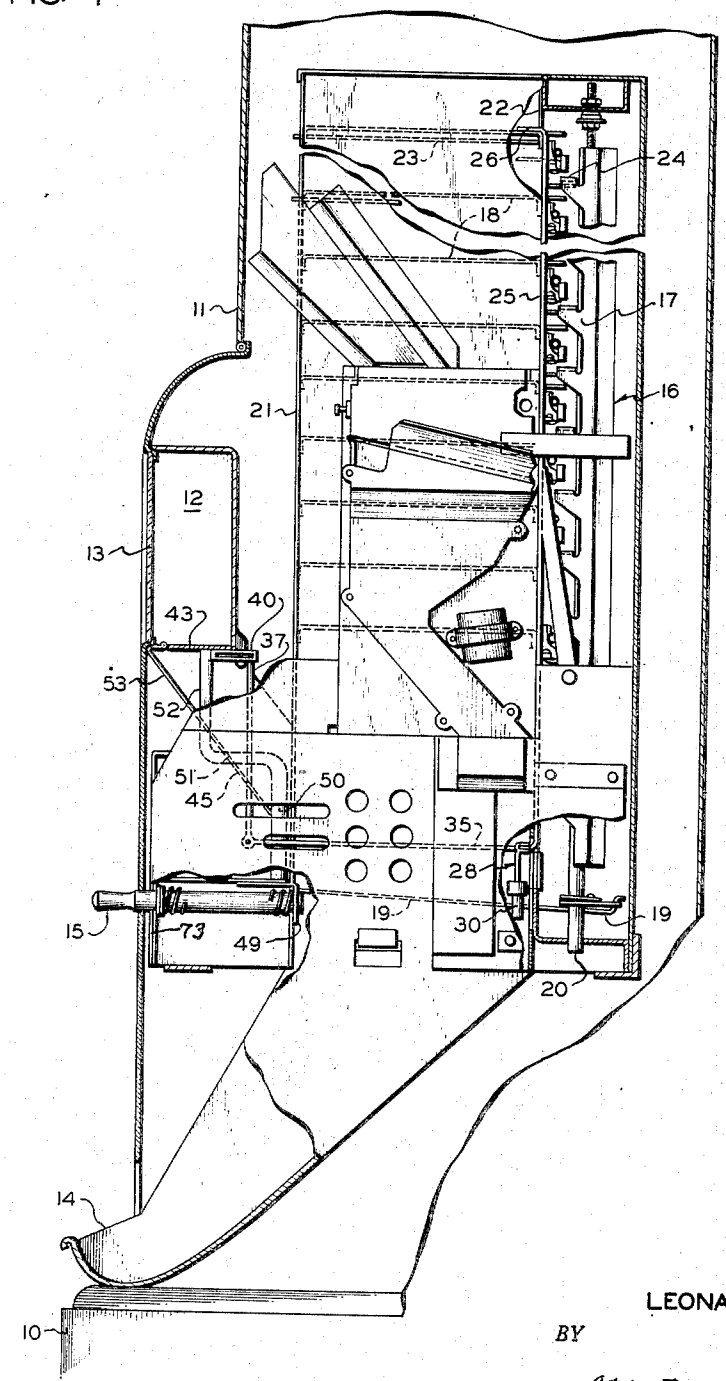
Oct. 10, 1950 L. KAPLAN 2,525,682

VENDING MACHINE

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FIG. 1



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VENDING MACHINE

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FIG. 2

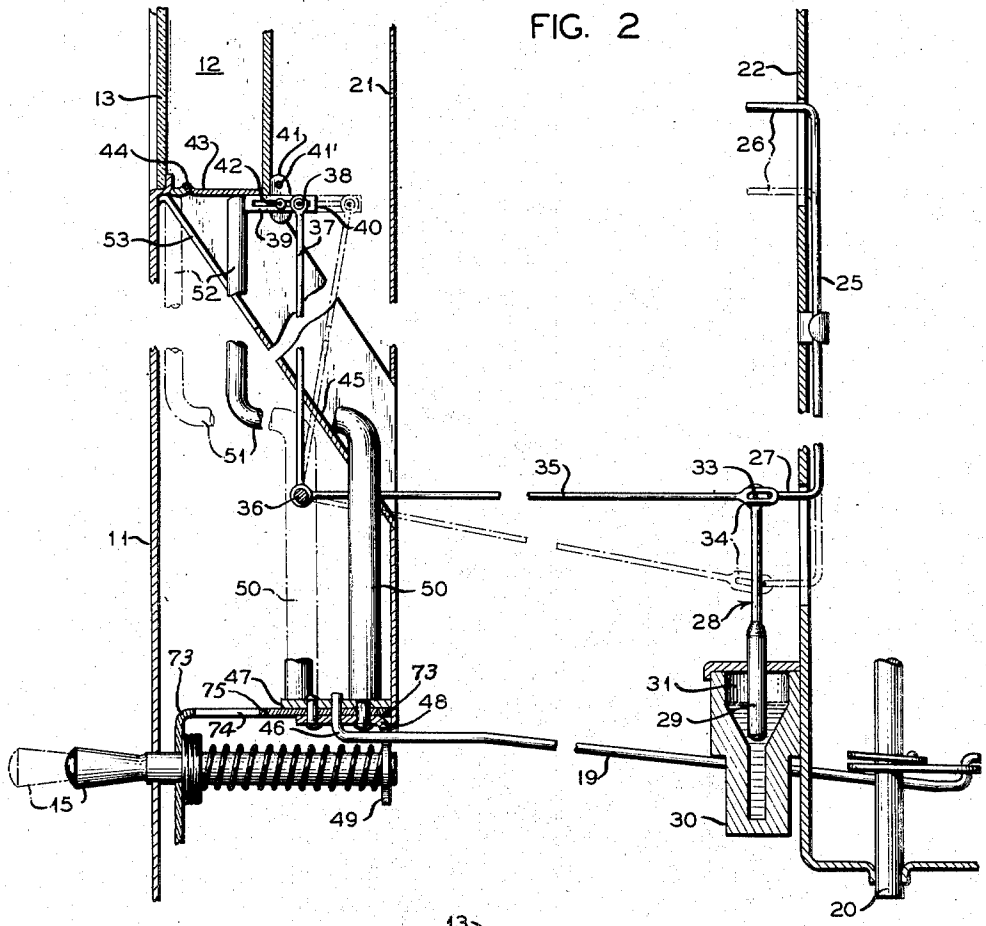
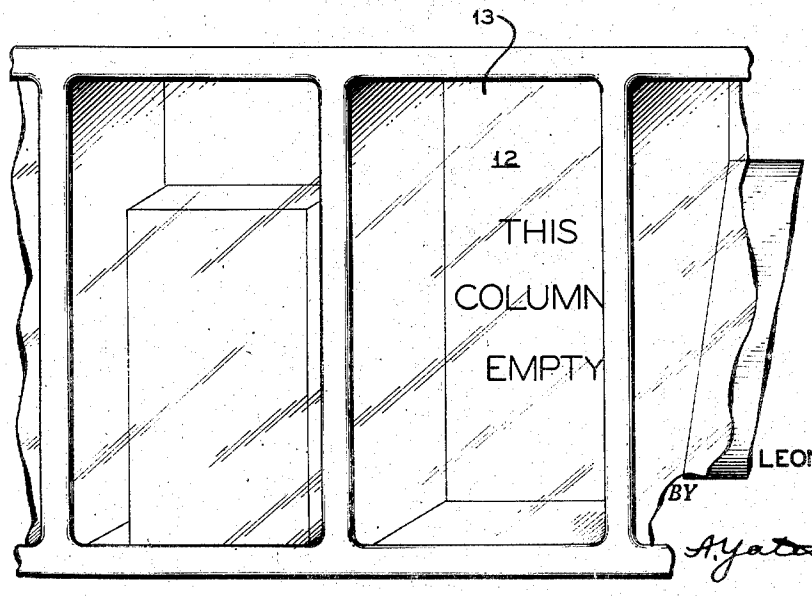


FIG. 3



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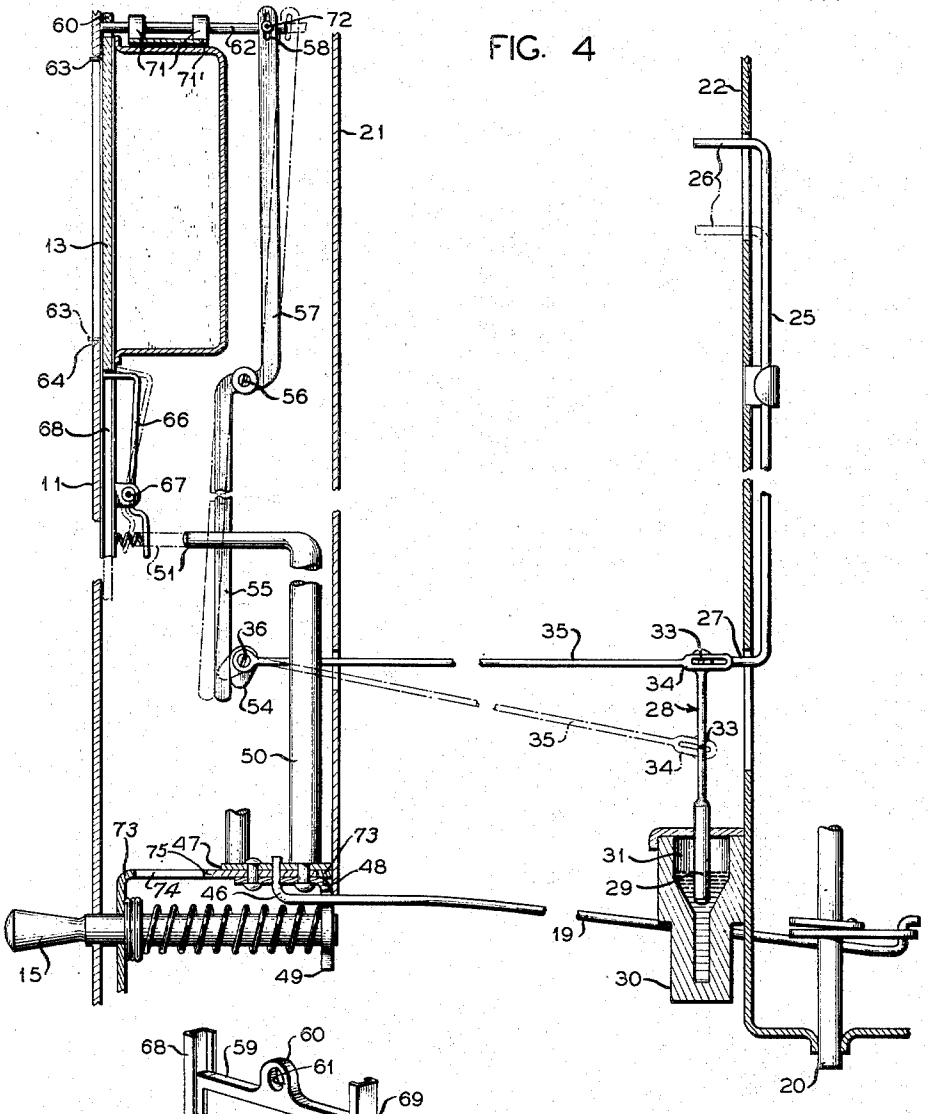
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VENDING MACHINE

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FIG. 4



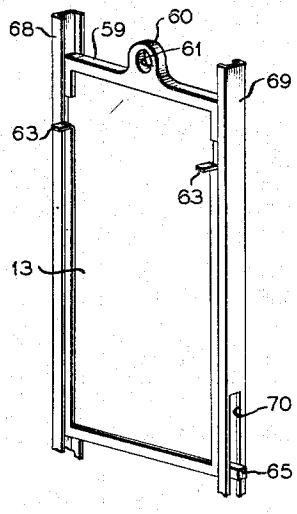


FIG. 5

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UNITED STATES PATENT OFFICE

2,525,682

VENDING MACHINE

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Application October 4, 1948, Serial No. 52,759

6 Claims. (Cl. 312—94)

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This invention relates to a vending machine, or in other words a machine in which a coin such as a 5¢-piece is inserted in a slot, and by operation of a lever or other mechanism an object is dispensed, for example, a candy bar or the like.

Machines of this character in use at the present time include several columns holding articles such as candy bars or other articles to be dispensed by each operation of the device. One bar is always retained in each column of the machine for display purposes thus when the capacity of the machine is 15 bars the machine is about 86% efficient.

An object of the invention is to provide a vending machine in which the article on display will be dispensed after the articles in the column are dispensed, thus increasing the efficiency of the machine and permitting the public speedily to comprehend that the machine is empty and without any loss or objectionable result by the retention of a display item.

Further objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings, wherein:

Fig. 1 is a vertical section illustrating one application of the invention;

Fig. 2, a fragmentary detail of the operating mechanism in elevation;

Fig. 3, a front perspective of a portion of the display compartments;

Fig. 4, a fragmentary detail of a modified type of operating mechanism in elevation; and

Fig. 5, a perspective of a display window and its mounting.

With continued reference to the drawings, a vending machine is disclosed having a base 10, a hollow upright wall portion 11 providing a display compartment 12 with glass windows 13. A discharge chute 14 is located in the lower portion of the machine and is provided with a spring-loaded manipulating lever 15. Operating mechanism 16 includes an upright or vertical release member 17 for engagement with shelves or supports 18 for receiving the articles to be dispensed or vended. By movement of a manipulating lever 15 motion is transmitted through a connecting arm 19 to an operating shaft or rod 20 and thence to the vertical release member 17.

The shelves or support 18 are disposed between walls 21 and 22 and are mounted on pivots 23 held in position by lugs 24 of the vertical release member 17. Articles to be vended or dispensed are placed upon the supports 18, and when the

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manipulating lever is operated movement is imparted to the shaft 20 by means of the connecting arm 19 and like movement is in turn imparted to the release member 17, freeing the shelves or supports 18 so that the article supported may move downwardly by gravity. Upon each operation of the spring-loaded manipulating lever 15 the shelves or supports are released sequentially from the bottom upwardly, each shelf rotating on its pivot 23, thus permitting downward movement by gravity into the discharge chute 14 of the respective article supported.

An elongated vertical rod 25 is disposed along the wall 22 of the operating mechanism, the upper part of said rod having a right angular portion 26 disposed in such a manner that it will come to rest on the upper surface of the highest shelf or support. Consequently, when the highest shelf or support has released its load the vertical rod 25 will move downwardly with the shelf as is clearly illustrated in Figs. 1 and 2.

The rod 25 has a right angular portion 27 at its lower end which is rigidly connected to the upper end portion of a plunger 28, such plunger having a cooperating end portion 29. In order to cause a retarded movement of the display release mechanism to be later described, a dashpot 30 is employed having an enlarged recess 31 in its upper portion and a smaller recess in its lower portion, the smaller recess is a dimension to snugly encompass the end portion 29 of the plunger 28.

On the upper portion of the plunger 28 there is mounted a pin 33 for engagement with a lost motion member 34 supported on an arm 35 pivoted by means of a shaft 36 to the frame of the machine. The arm 35 is provided with an extension 37 at its pivot point and is disposed at right angles to the aforementioned arm. The upper end portion of the extension 37 is provided with a pin 38 for engagement in the slot 39 of a detent 40. The detent 40 is suspended by a transverse rod 41' disposed across the frame of the machine by means of an ear 41, welded or otherwise secured to said rod. The ear 41 is provided with a pin 42 rigidly carried thereby for engagement in the slot 39 of the detent 40.

The window display compartment 12 is provided with a trap door 43 pivotally connected by means of a pin 44 with the outer frame or casing of the machine. An auxiliary chute 45 is employed for conducting the contents of the display compartment into the main vending or discharge

chute of the machine formed by the walls 21 and 22 and thence into the discharge chute 14.

The connecting arm 19 has a right angular portion 46 in one of its extremities for cooperation with a pair of slide plates 47 and 48, the lower of which is provided with a reverse bend 49 for rigid connection with the spring-loaded manipulating lever 15. To the upper slide plate 47 is connected an actuating bar 50 having a right angular extension 51 and an upwardly extending portion 52 for slidable engagement with the lower surface of the trap door 43 in the display compartment 12. A frame member 73 is slotted at 74 to receive a guide plate 75 which is secured between slide plates 47 and 48 to guide and restrict the movement thereof.

In the operation of the device when the highest shelf or support has rotated on its pivot to release its contents into the display chute the vertical rod 25 will move downwardly with it. Said downward movement being retarded by means of the dashpot 30. This delay is desirable in order to allow the manipulating lever 15 to return to its normal position. Without the dashpot the detent 40 would open at the same time that the manipulating lever is operated, causing the machine to discharge two bars instead of one.

The upright portion of the actuating bar is in contact with the trap door 43, which will allow the contents of the highest shelf or support and the display compartment to discharge upon proper operation. It will readily be apparent that by the use of the dashpot 30 and the detent 40 that the upright extension of the actuating bar will return to its normal locking position under the trap door before the detent has been released so that by the insertion of an additional coin and the subsequent operation of the manipulating lever that the upper extension of the actuating bar will move forwardly releasing the contents of the respective display compartments through the auxiliary trap door and the connecting discharge chute.

The chute 45 is provided with a slot 53 to permit movement of the extension on the upper end of the actuating bar. The rear wall of the display compartment is provided with lettering imbedded on its forward portion so that when the contents of the display compartment have been discharged this imbedded sign will be readily visible through the window and thereby reveal the futility of further attempting to secure the article from the machine.

Further modification of the device is revealed in Figs. 4 and 5, wherein the arm 35 terminates at the shaft 36 and is provided with a cam 54 for engagement with an arm 55 pivoted on the shaft 56 and having an extension 57, the end of which is provided with a slotted portion 58.

The window 13 is enclosed in a metal frame or casing 59, the upper end of which carries an ear 60 with a circular aperture 61 for receiving a detent 62.

The window frame 59 has bent-out lugs 63 at its outer surface for engagement with the cowling 64 in the outer casing of the machine. The lower portion of the frame 59 is equipped on one side only with a lug 65, for engagement with a spring-loaded member 66 mounted on a pivot pin 67.

The window 13 is slidably mounted in channel members 68 and 69, the latter being provided with an opening 70 for the introduction of the lug 65 on the frame 59. A transverse member 71' is disposed between the machine frame on which are

mounted two bearings 71 in which the upper detent rides, said detent being provided with a pin 72 for engagement with the slotted portion 58 of the extension 57. The actuating bar 50 is provided with an extension 51, which upon operation of the manipulating lever 15 will engage the lower portion of the spring-loaded member 66. In the operation of this modified structure, as in the first embodiment, when the contents of the highest shelf at the shaft 36 and is provided with a cam 54 for engagement with an arm 55 pivoted on the shaft 56 and having an extension 57, the end of which is provided with a slotted portion 58.

The window 13 is enclosed in a metal frame or casing 59, the upper end of which carries an ear 60 with a circular aperture 61 for receiving a detent 62.

The window frame 59 has bent-out lugs 63 at its outer surface for engagement with the cowling 64 in the outer casing of the machine. The lower portion of the frame 59 is equipped on one side only with a lug 65, for engagement with a spring-loaded member 66 mounted on a pivot pin 67.

The window 13 is slidably mounted in channel members 68 and 69, the latter being provided with an opening 70 for the introduction of the lug 65 on the frame 59. On the upper portion of the walls forming the display compartment are two bearings 71 in which the upper detent rides, said detent being provided with a pin 72 for engagement with the slotted portion 58 of the extension 57. The actuating bar 50 is provided with an extension 51, which upon operation of the manipulating lever 15 will engage the lower portion of the spring-loaded member 66. In the operation of this modified structure, as in the first embodiment, when the contents of the highest shelf have been released into the discharge chute the vertical rod 25 will move downwardly with delayed action under the influence of the dashpot, such delay being sufficient to permit the actuating bar to return to its normal position. As soon as the dashpot permits the arm to fully descend the cam 54 will actuate the arm 55 and pivot about the shaft 56, so that the extension 57 will pull the upper detent 62 out of contact with the aperture 61 in the window frame 59. Further action of the manipulating lever will cause the angular extension 51 on the actuating bar 50 to contact the lower portion of the spring-loaded member 66 and cause it to revolve on its pivot 67, thus freeing itself from contact with the lug 65 on the frame 59 of the window, thereby allowing the window to drop.

The channel members 68 and 69 guide the window downwardly and the bent-out portion 63 of the frame will contact the outer cowling 64 with the machine frame thereby stopping the movement of the window and enabling the operator to remove the contents of the open display compartment.

With the construction described not only are the contents of each column of the machine vended, but even the last or display article is likewise vended, thus insuring the fresh replacement from stock, as well as increasing the capacity of the machine.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. In combination with a machine for vending articles of mechandise including wall structure, supports one above the other for mechandise to be vended, a display compartment for the merchandise, mechanism for freeing merchandise from said supports beginning at the bottom, manipulating mechanism for actuating said freeing mechanism; that improvement which comprises the provision of a closure for one side of said display compartment, a lock for said closure, releasing means for said closure operable on actuation of said manipulating mechanism, operating means associated with the support for the last article of merchandise to be vended and adapted to be actuated thereby for unlocking said lock, and retarding means for said unlocking means to delay the unlocking of said lock and provide time for return of the releasing means to the position to maintain the closure closed until freed by subsequent actuation of said releasing means by said manipulating mechanism.

2. In combination with a machine for vending articles of merchandise including supports one above the other for merchandise to be vended, a display compartment for the merchandise, mechanism for freeing merchandise from said supports beginning at the bottom, manipulating mechanism for actuating said freeing mechanism; that improvement which comprises the provision of a closure for said display compartment, a lock for said closure, releasing means for said closure operable on actuation of said manipulating mechanism, operating means associated with the support for the last article of merchandise to be vended and adapted to be actuated thereby for unlocking said lock, and retarding means for said unlocking means in the form of a dash pot to delay the unlocking of said lock and provide time for return of the releasing means to the position to maintain the closure closed until freed by subsequent actuation of said releasing means by said manipulating mechanism.

3. In combination in a vending machine constructed for the support of articles to be vended one above the other, a discharge chute, a display compartment for articles to be vended, a closure affording access to the compartment, a lock for said closure releasing means for said closure, operating means associated with the support for the last article to be vended and actuatable thereby for unlocking said lock, additional operating means for subsequently actuating said releasing means, and a chute from said closure to said discharge chute.

4. In a machine for vending articles of merchandise, a plurality of supports for articles to be vended, a display compartment for another of said articles, mechanism for releasing and dispensing the articles from said supports sequentially, manipulating mechanism for actuating said releasing mechanism, a closure for said display compartment, a lock for said closure, releasing means for said closure operable on actuation of said manipulating mechanism, operating means associated with the support for the final article sequentially vended and actuatable thereby for unlocking said lock, and retarding means for the unlocking means to delay the unlocking of the lock until said releasing means is in position to maintain said closure closed.

5. In a machine for vending articles of merchandise, a plurality of supports for articles to be vended, a display compartment for another of said articles, mechanism for releasing and dispensing the articles from said supports sequentially, manipulating mechanism for actuating said releasing mechanism, a closure for said display compartment, a lock for said closure, releasing means for said closure operated by the manipulating mechanism and operating means associated with the support for the final article sequentially vended and actuatable thereby for unlocking said lock, said releasing means being actuatable by subsequent operation of said manipulating mechanism for vending the article in the display compartment.

6. In a machine for vending articles of merchandise, means for supporting articles to be vended, a display compartment for another of said articles, mechanism for releasing and dispensing the articles from said supporting means sequentially, manipulating mechanism for actuating said releasing mechanism, a closure for said display compartment, a lock for said closure, releasing means for said closure operated by the manipulating mechanism, and operating means associated with the supporting means and actuatable upon the vending of the final article for unlocking said lock, said releasing means being actuatable by subsequent operation of said manipulating mechanism for vending the article in the display compartment.

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