Nov. 17, 1931. W. A. TRATSCH 1,831,893

RELEASE FOR VENDING MERCHANDISE

Filed Feb. 26, 1931 2 Sheets-Sheet 1

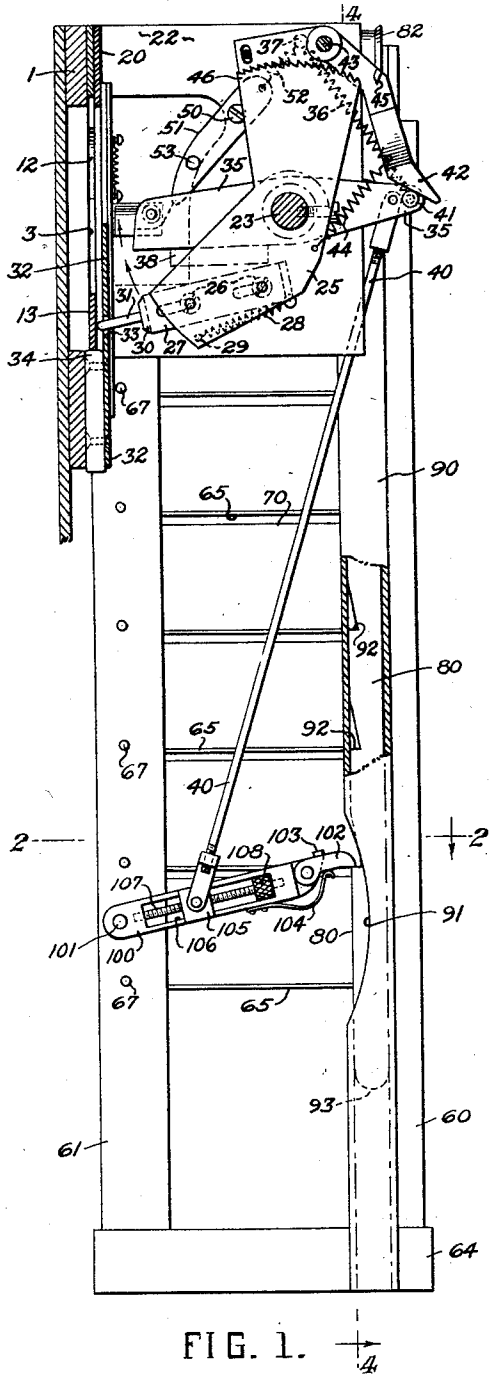


FIG. 1.

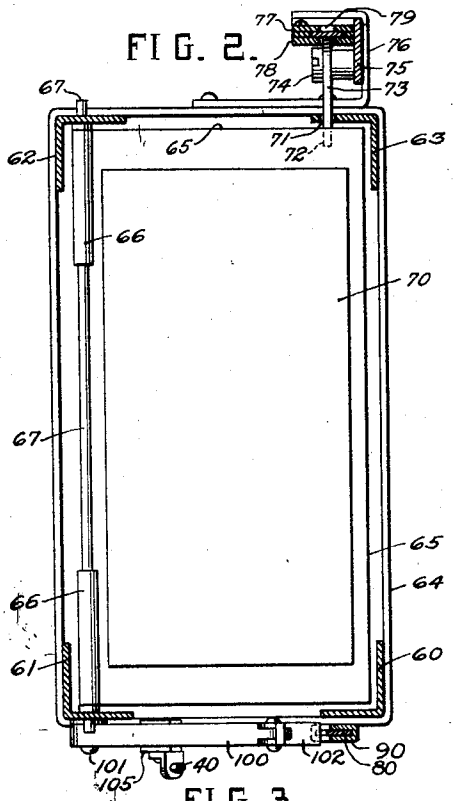


FIG. 2.

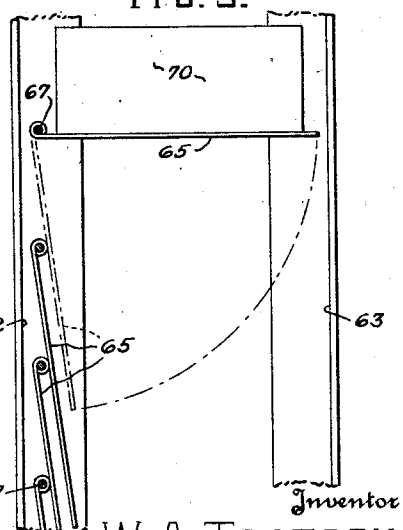


FIG. 3.

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RELEASE FOR VENDING MERCHANDISE

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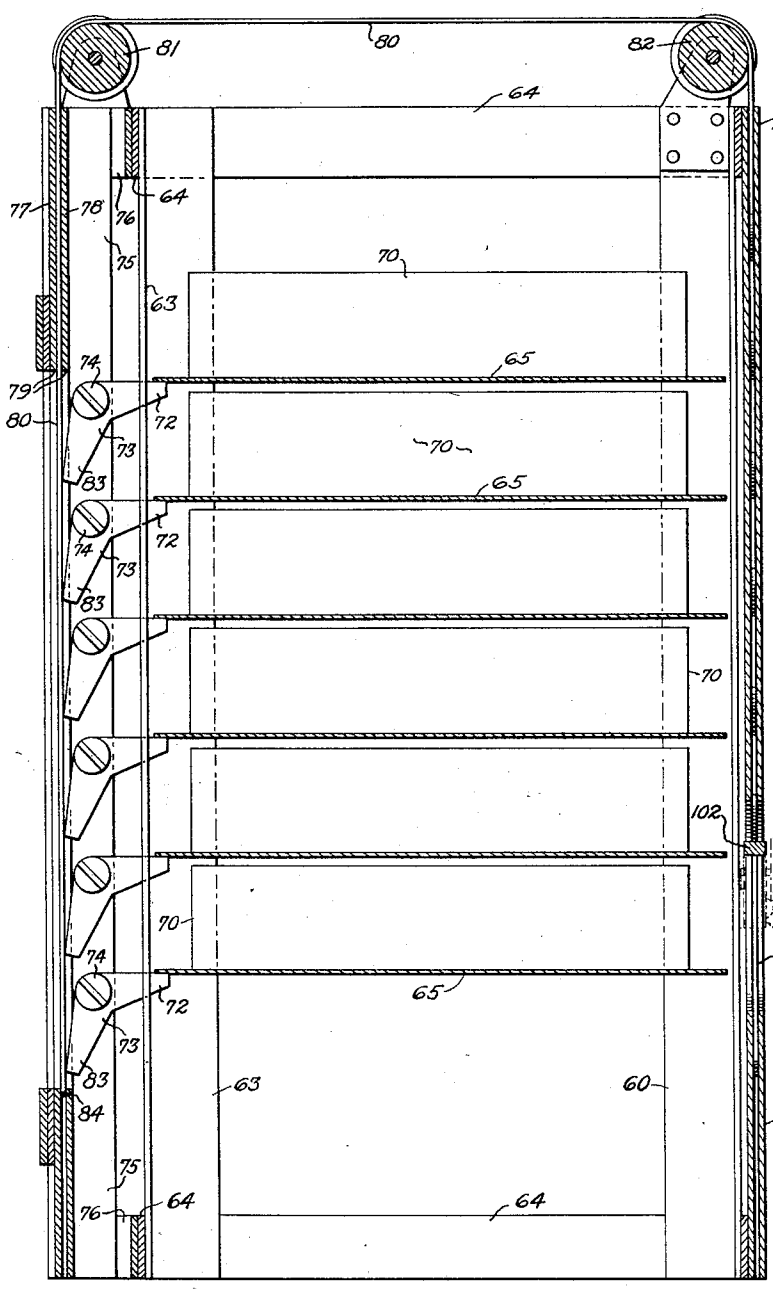


FIG. 4.

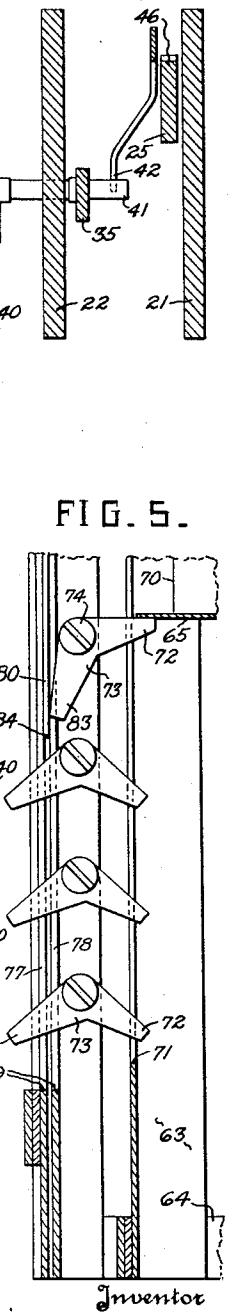


FIG. 5.

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RELEASE FOR VENDING MERCHANDISE

Application filed February 26, 1931. Serial No. 518,529.

This invention relates to a release for vending merchandise and has for its object to provide a construction simple in parts and more efficient in operation than those heretofore proposed.

With these and other objects in view the invention resides in the novel details of construction and combinations of parts as will appear more fully hereinafter and be particularly pointed out in the claims.

Referring to the accompanying drawings forming a part of this specification in which like numerals designate like parts in all the views,

Fig. 1 is a vertical sectional view, with parts broken away for clearness, illustrating the control of the release mechanism;

Fig. 2 is a horizontal sectional view taken as on the line 2—2 of Fig. 1 and looking in the direction of the arrow;

Fig. 3 is a vertical detail of a portion of the merchandise magazine illustrating the nesting of the shelves after the merchandise has been vended;

Fig. 4 is a vertical sectional view taken as on the line 4—4 of Fig. 1 and looking in the direction of the arrow, illustrating the shelving of this mechanism and the release trip therefor; and

Fig. 5 is a detail similar to Fig. 4 showing some of the release trips in different positions.

In order that this invention may be better understood, reference is made to the U. S. Letters Patent 1,766,152 granted June 24, 1930, to Walter A. Tratsch entitled Control mechanism for vending machines wherein there is disclosed a mechanism controlled by a coin for setting into operation the vending of merchandise. This invention is directed to the release of the merchandise to be vended and while it is to be understood that any suitable coin controlled mechanism may be utilized for actuating this release yet that disclosed in said patent will be found practical, and therefore the parts shown in Fig. 3 of said patent have been substantially copied to illustrate the functioning of this present invention.

There is provided a front plate 1 in which coin grooves are formed one of which is indicated at 3, and to said plate 1 is attached a cover plate 20 or its equivalent so that the aforementioned grooves will become coin chutes. The cover plate 20 has rigidly secured thereto spaced vertical parallel walls 21 and 22 serving as a mounting for a horizontal main operating shaft 23 which is extended through the casing of the vending machine and provided at its exterior end with a suitable operating handle not shown but understood.

Rigidly secured to the shaft 23 is an arm 25 having mounted on one face thereof a pair of headed pins such as 26 adapted to serve as stops for a lifting bar 27 having an elongated slot for each pin as clearly shown to permit limited movement of said bar. The lifting bar has secured to its rear end one end of a spring 28 the other end of which is secured to a pin 29 carried by the arm 25, said spring serving to force the lifting bar in a direction toward the coin chute. The forward end of this bar is angularly bent as indicated at 30 and provided with a finger 31 adapted to project into the vertical coin chute 3 and move in the central plane thereof.

A slide 32 is provided with an aperture 33 through which said finger passes, said slide being mounted in guides associated with the cover plate 20 whereupon, during the movement of the finger 31 said slide will be operated vertically. The slide carries a lug 34 adapted to operate in the coin chute 3 and raise a coin 13 from the position shown in Figure 1 vertically in the chute 3 to a position at the upper extremity of said chute where it will be caused to roll laterally from the chute 3 into an transverse chute 12 from which latter the coin will ultimately pass to a suitable coin box not shown. The lug 34, aperture 33, and finger 31 are all so dimensioned and located that a coin resting on the top of said lug as indicated at 13 will cover the aperture 33 with the end of the pin 31 substantially touching the coin. Not only this but the parts are so positioned that the aperture 33 will be substantially coaxial with the center of the coin for a purpose presently to appear.

Loosely mounted on the shaft 23 is a rock-

ing lever 35 whose rear end is connected as by a heavy duty spring 36 to a pin 37 mounted on the supporting wall 22 which also carries a lug 38 engaging the forward end of said lever to limit the movement thereof under action of said spring. The length of the forward end of said lever is such that when the bar 27 is moved upwardly in the direction of the arrows in Fig. 1 upon rotation of the shaft 23, the extension 30 at the forward end of said bar will clear the extreme end of said lever if the bar has not been pushed back against the tension of its spring 28 by a coin in the chute 3 having a solid center. In other words, the bar 27 in its upward movement will clear the end of the lever 35 when it is operated with either no coin or a centrally apertured trade check in the chute 3. The reason for this is that the tension of the spring 28 will cause the bar to remain in the position shown in Fig. 1, or in other words, outwardly extended to the full limit permitted by the holding pins 26.

On the other hand, if there is a coin or trade check having a solid center in the chute 3 then the end of the finger 31 of the bar 27 in its upward movement will contact with said coin or trade check with the result that said bar will be forced inwardly or to the right as seen in Fig. 1. When this occurs the extension 30 of said bar will strike the underside of the forward end of the lever 35, causing said lever to rock about the shaft 23 against the tension of the spring 36 and in this movement a rod 40 pivotally secured to the rear end of said lever will be actuated to cause a vending of the merchandise in the machine. That is to say, the vending is caused by the downward movement of said rod which latter is only accomplished when the portion 30 of the bar 27 comes in under the end of the lever 35 as occasioned by a coin or a solid center trade check. When a trade check having an open center is used in place of a coin, then the finger 31 of the bar 27 is free to pass into and through said open center and therefore, when the bar is lifted its end 30 will travel in a circular path beyond the end of the lever 35 and therefore not actuate or rock said lever to move the rod 40.

The full stroke compelling feature as well as the unlatching mechanism for the parts 25, 27 and 35 are not necessary to an understanding of the present invention, but they are fully described in said above mentioned patent.

The magazine for merchandise comprises preferably a skeleton frame consisting of vertical angle pieces 60, 61, 62 and 63 whose tops and whose bottoms are joined by suitable horizontal frame members such as 64. A plurality of shelves such as 65 are contained within this frame, each shelf loosely hinged along one edge as at 66 on a pin 67 the ends of which have bearings in two opposite vertical frame members such for example as 61 and 62. The shelves are equally spaced from each other and each adapted to contain a package of merchandise or the like generally indicated at 70, said shelves upon being released adapted to fall under the urge of gravity plus the weight of the merchandise thereon to assume overlapped positions as indicated in Fig. 3, but leaving sufficient space within the magazine for the dropping of the package of merchandise to the bottom where said package will enter a suitable chute (not shown) for delivery to the operator of the machine.

Associated with the vertical frame members such as 60 and 63 and which constitute a pair opposite to the other pair serving as bearings for the hinged shelves, is the means for successively releasing the shelved merchandise. In other words, the vertical frame member such as 63 is provided in one of its flanges with a slot indicated at 71 through which extend the toes 72 of a plurality of dogs 73 each pivoted as at 74 to a plate 75 supported at its top and bottom by an angle member 76 carried by the horizontal frame members 64, said dogs being pivotally mounted at distances from each other equal to the spacing of the shelves 65. Further, the pivots 74 are so located that the toes 72 of the dogs may extend substantially horizontally and engage the under surface of one free edge of each shelf, as clearly indicated in Fig. 4.

Carried by the plate 75 and disposed substantially parallel with the side of the magazine, are two plates 77 and 78 provided with longitudinally extending registering slotways indicated at 79, said plates 77 and 78 spaced from each other in any suitable manner to provide therebetween a substantially closed guide to receive one end of a thin steel ribbon 80, the other end of which passes upwardly and out of said guide and over a suitable pulley 81 across the top of the magazine and over a second pulley 82 and down the opposite side of the magazine in a manner presently to be described, see Fig. 4. Through the registering slotways 79 is adapted to pass the heel 83 of each dog 73, but said heel is prevented from passing entirely through said slotway by the steel ribbon 80 until said ribbon has been moved step by step to uncover that portion of the slotway opposite the dog. With particular reference to Figs. 4 and 5 it will thus be seen that in the former the ribbon 80 is shown having its extreme end 84 extending below the bottommost dog, as a result of which all of the dogs are kept in raised position whereby they will support all of the shelves 65.

On the other hand, according to Fig. 5 it will be seen that the ribbon 80 has been moved upwardly on the side of the magazine where

the dogs are located so that its extremity 84 has passed upwardly beyond the three lowermost dogs and permitted them to have rocked about their pivots with their heels admitted to and through the slotways 79, and in this movement tripped or released the shelves 65 associated therewith and previously supported by them, such shelves having dropped about their hinges and discharged the merchandise contained thereon.

The opposite corner of the magazine frame has secured thereto a box like guide generally indicated by the numeral 90 to receive therein the other end of the ribbon 80 with a portion of one side of the box guide cut away as indicated at 91 to expose an edge of the ribbon. This edge of the ribbon is provided with serrations forming teeth 92 spaced apart according to the distances between the shelves 65, said teeth being arranged so that the ribbon will be moved on a down stroke of the aforementioned rod 40 to cause the uncovering of the dogs on the opposite side of the magazine. The free end 93 of the ribbon 80 will pass downwardly and out of the box guide upon the continued movement of the ribbon, but it is to be understood that the path of this end 93 will be such at all times that it will not interfere with the delivery of the packaged merchandise.

Any suitable means for actuating the ribbon 80 successively step by step may be employed, but for convenience there has been illustrated a device which is suitable. This constitutes a lever 100 pivoted at one end as at 101 to a vertical frame member such as 61 of the magazine, the other end of the lever 100 having pivotally mounted thereon a detent 102 adapted to engage a tooth 92 of the ribbon.

This detent has associated therewith a stop 103 to limit movement in one direction and a spring 104 to permit the detent to yield when it passes over the edge of the ribbon 80 in an inoperative movement as will be readily understood.

The lower end of the rod 40 is pivotally secured to this lever 100, and, in order to permit adjustment, the rod pivot is carried by a block 105 slidable in an elongated slot 106 of said lever and threaded on a worm 107 operated by a thumb nut 108. Also the rod 40 may be threaded at both ends for further and finer adjustment as found necessary.

From the foregoing, it will thus be seen that by this invention there is provided a release for merchandise from a vending machine whereby each package of merchandise will only be released when a coin of predetermined character is inserted in the machine. To operate the device a coin is first deposited which enters the chute 3 and comes to rest on the lug 34 carried by the slide 32. The shaft 23 is then rotated which causes an oscillation of the arm 25 carrying the lifting bar 27 whose extension 30 will abut the underside of the end of the lever 35 causing an oscillation of the latter. When the lever 35 thus oscillates its rear end causes a downward movement of the rod 40, which, in turn, oscillates the detent lever 100 to move the ribbon 80. The parts are so dimensioned and proportioned that a full stroke through the arm 25 will cause a movement of the ribbon 80 in the slotted guide plate 77—78 a distance equal to and sufficient to uncover each of the bell cranks or dogs 73 successively.

As each dog is uncovered it will oscillate about its pivot and release a shelf 65 which it previously supported and with the release of each shelf the package of merchandise contained thereon will fall downwardly through the magazine past the previously tripped shelves and be delivered to the operator. The retroactive movement of the arm 25 will reset the lifting bar 27 and coin slide 32 and through the action of the spring 36 oscillate the lever 35 in a reverse direction, thus exerting an upward pull on the rod 40 which in turn moves the detent lever 100 to cause a detent to assume a position for engaging the next subsequent tooth 92 of the ribbon 80, after which the foregoing operation is repeated upon the insertion of the next coin and rotation of the shaft 23.

It is obvious that those skilled in the art may vary the details of construction as well as arrangements of parts without departing from the spirit of the invention, and therefore it is not desired to be limited to the foregoing except as may be required by the claims.

What is claimed is:—

1. In a vending machine the combination of a series of supports each movable about a fixed axis and each serving to sustain a package of merchandise; means for retaining said supports in package sustaining position; traveling means contacting said retaining means to hold said supports in sustaining position; and mechanism controlling the traveling means to successively move said means out of contact with the retaining means to permit consecutive discharge of the merchandise.

2. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; single means for retaining each of said supports in package sustaining position; uniform traveling means contacting said retaining means to hold said supports in sustaining position; and means for moving said traveling means successively out of contact with the retaining means.

3. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; freely pivoted single means

for retaining said supports in package sustaining position; a ribbon contacting said retaining means to hold said supports in sustaining position; and means for moving said ribbon successively out of contact with the retaining means.

4. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; means comprising freely pivoted bell cranks for retaining said supports in package sustaining position; traveling means contacting one arm of said cranks to hold said supports in sustaining position; and means for moving said traveling means successively out of contact with said cranks.

5. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; means for retaining said supports in package sustaining position; a traveler contacting said retaining means to hold said supports in sustaining position, said traveler confined against horizontal displacement at the contacting areas; and means for moving said traveler sucessively out of contact with the retaining means.

6. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; means for retaining said supports in package sustaining position; a ribbon contacting said retaining means to hold said supports in sustaining position said ribbon confined against lateral displacement adjacent said means; and means for moving said ribbon successively out of contact with the retaining means.

7. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; means for retaining said supports in package sustaining position; a traveler contacting said retaining means to hold said supports in sustaining position said traveler slidingly confined against displacement from the plane of contact with said means; and means for moving said traveler successively out of contact with the retaining means.

8. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; means for retaining said supports in package sustaining position; a traveler contacting said retaining means to hold said supports in sustaining position said traveler confined slidably in a guide slotted to receive a portion of said means; and means for moving said traveler successively out of contact with the retaining means.

9. In a vending machine the combination of a series of supports each serving of itself to sustain a package of merchandise and capable of moving to release a package sustained thereby; means comprising freely pivoted bell cranks for retaining said supports in package sustaining position; a ribbon contacting one arm of said cranks to hold said supports in sustaining position; said ribbon confined slidably in a guide slotted to receive said crank arms; and means for moving said ribbon successively out of contact with said cranks.

10. A release for vending plural units of merchandise each unit sustained by a support movable about a fixed axis, the same comprising means to retain the supports in unit holding position, and a member contacting the retaining means while the units are supported, said member slidable by intermittent movement out of contact with the retaining means successively to cause consecutive release of the supports.

11. Releasing mechanism for merchandise in units, said mechanism including a support for each unit movable to discharge the sustained unit, an apertured plate, a plurality of pivoted members one for each support and positioned to penetrate said plate when the aperture thereof is uncovered, said members serving in one position to sustain said supports, and a traveler covering said apertured plate said traveler intermittently movable to successively uncover portions of the plate aperture permitting consecutive entry of said members to assume positions serving to release the associated support.

In testimony whereof I affix my signature.

WALTER A. TRATSCH.