

Nov. 5, 1940.

G. H. NITSCHMAN
DISPENSING DISPLAY CASE

2,220,870

Filed Sept. 3, 1938

3 Sheets-Sheet 1

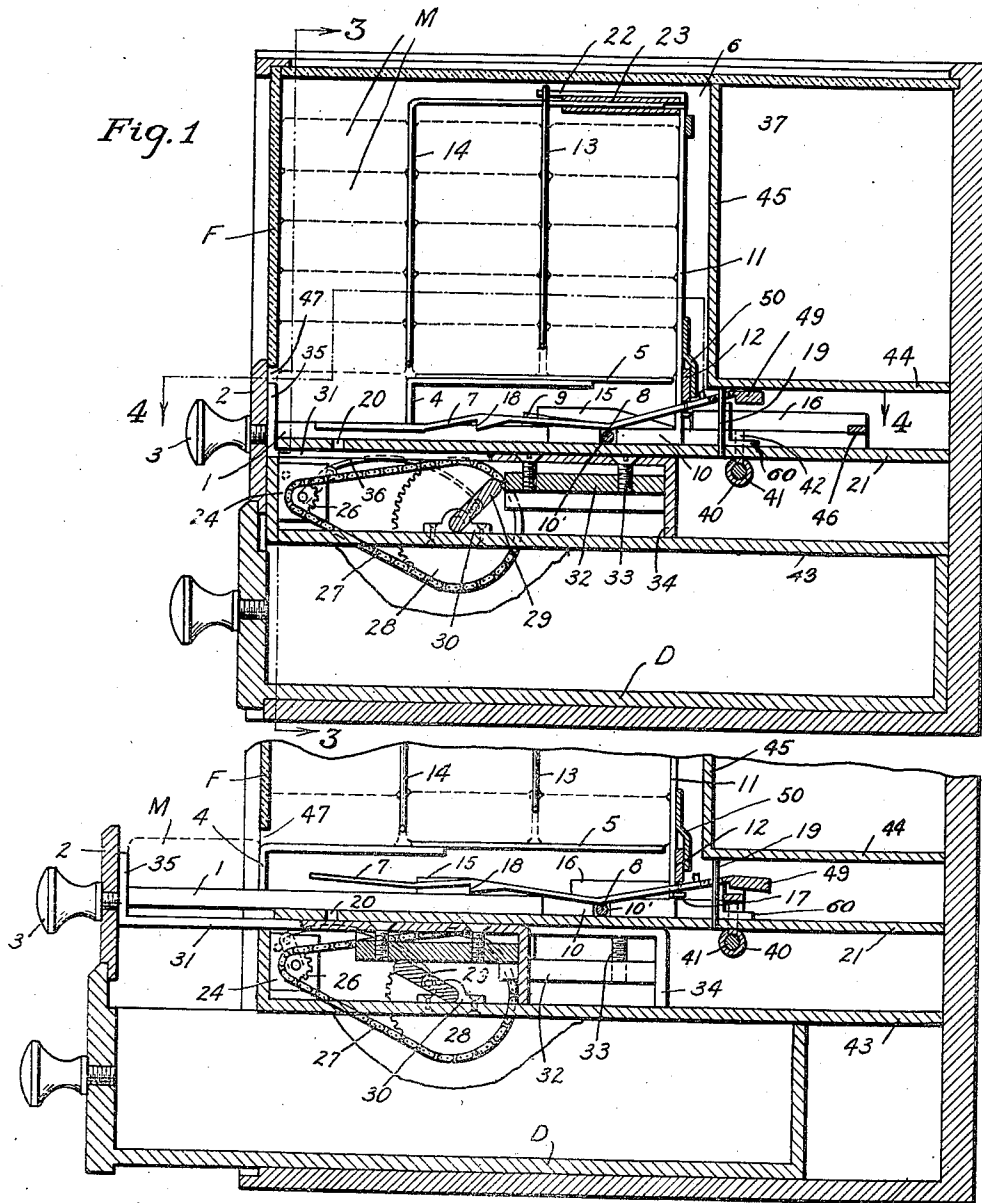


Fig. 2

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3 Sheets-Sheet 2

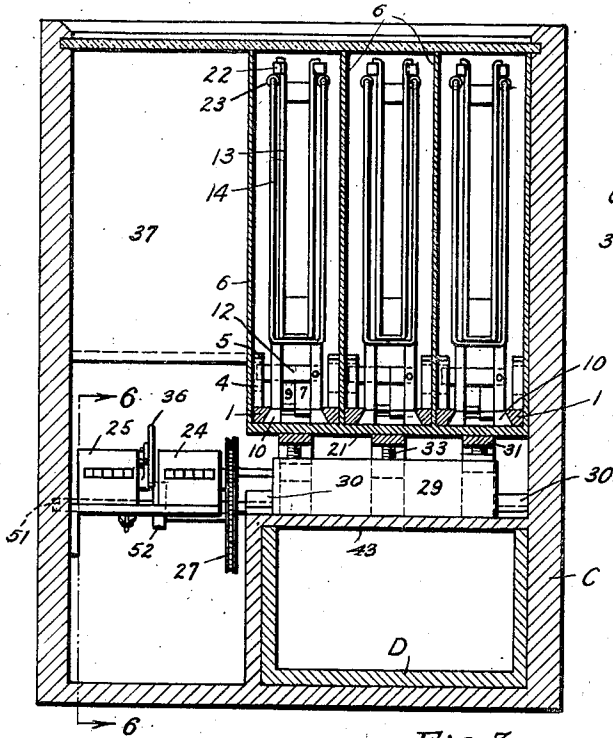


Fig. 3

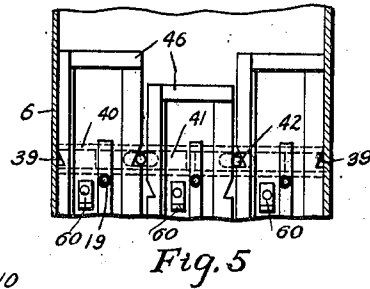


Fig. 5

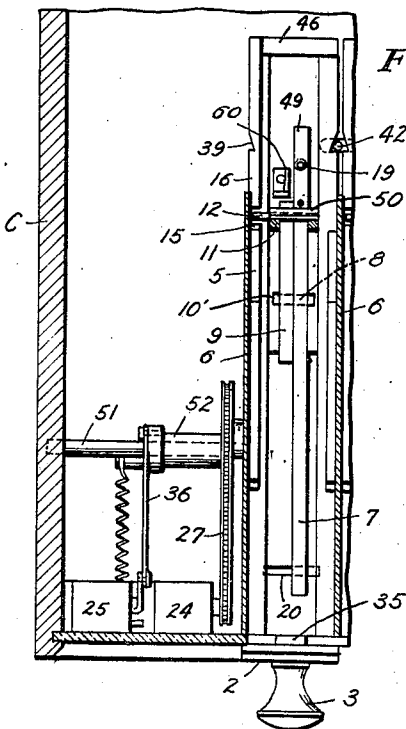


Fig. 4

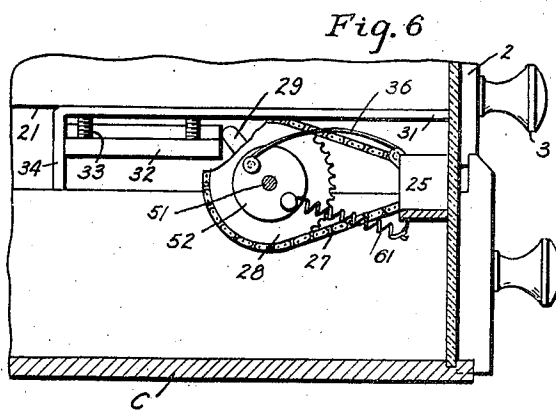


Fig. 6

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3 Sheets-Sheet 3

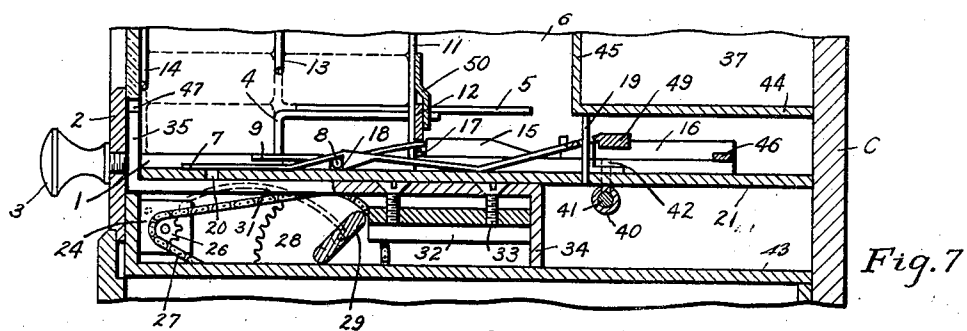


Fig. 7

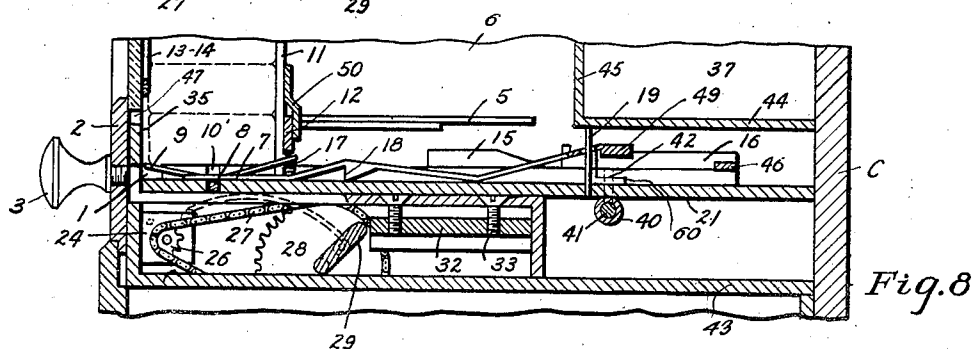


Fig. 8

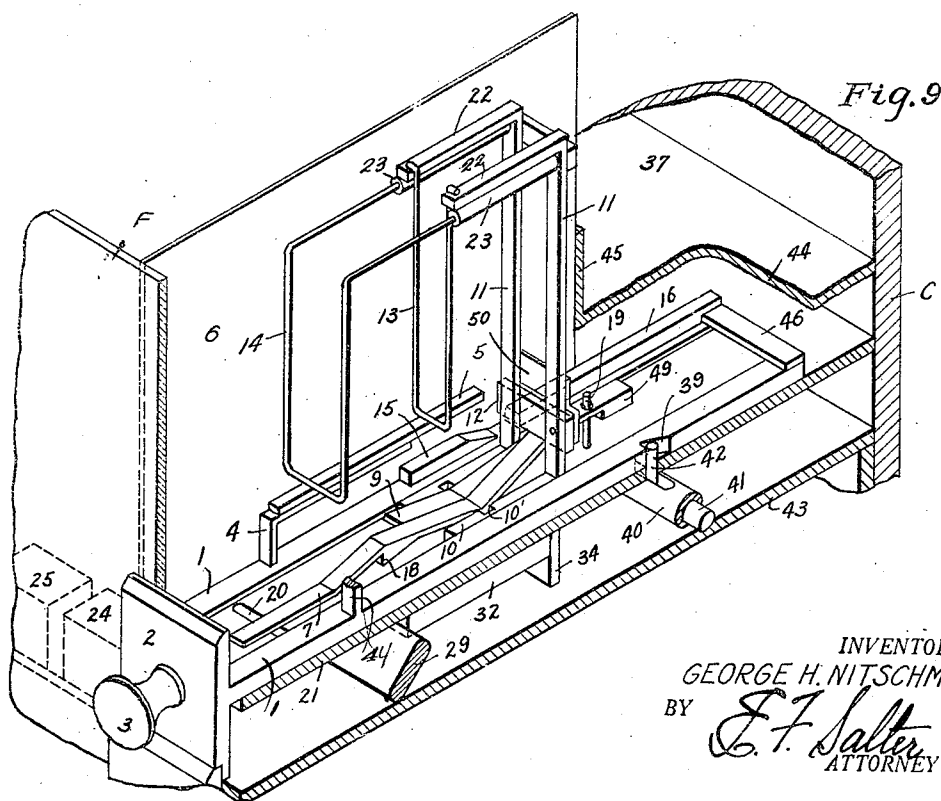


Fig. 9

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2,220,870

DISPENSING DISPLAY CASE

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Application September 3, 1938, Serial No. 228,437

10 Claims. (Cl. 312-67)

This invention relates to the art of dispensing containers of the display type, and particularly to display cases provided with means for dispensing packaged merchandise contained therein.

Dispensing display cases are generally of the vending machine type, outstanding examples of which are the coin operated machines for vending packages of cigarettes, candy, and the like. Coins deposited in such machines are impounded until removed by an authorized agent at periodic intervals. In the interim the impounded coins are out of circulation and are not available for change making. It usually is the case that a purchaser obtains change from the cashier or attendant of the establishment in which the machine is located, in order to operate the machine, and this frequently results in a loose change shortage in the establishment with consequent inconvenience to both patrons and management, and in some instances in loss of sales. Further, such machines do not register sales made therefrom.

An object of the present invention is to provide a merchandise dispensing display case having means automatically operable to register the number of articles or packages dispensed, and/or to register the cash transactions, so that at all times the total number of packages which have been dispensed is indicated, and also the total cash value of the merchandise which has been removed.

Another object is to provide a dispensing display case provided with register means so related to the dispensing means as to render impossible the actual dispensing of the contents without actuation of the register means.

Still another object is to provide a dispensing register display case having a coin till associated therewith and accessible for change making purposes independently of or in conjunction with the operation of the dispensing means and/or the register means.

Other objects will be apparent from the description, to those skilled in the art.

In the accompanying drawings, wherein like characters of reference designate like parts throughout the several views:

Figure 1 is a vertical section through my improved machine at one of the dispensing compartments.

Figure 2 is a fragmentary sectional view similar to Figure 1 but illustrating the position of the parts with the dispensing slide and coin till in delivery position.

Figure 3 is a vertical section on the line 3-3 of Figure 1.

Figure 4 is a fragmentary horizontal section on the line 4-4 of Figure 1.

Figure 5 is a fragmentary plan view illustrating details of the dispensing slide locking means.

Figure 6 is a vertical section on the line of 6-6 of Figure 3.

Figure 7 is a fragmentary vertical section similar to Figure 1 but illustrating an advanced position of the merchandise package containing magazine.

Figure 8 is a section similar to Figure 7 but illustrating the final position of the magazine prior to replenishment.

Figure 9 is a perspective view, partly in section, of one of the dispensing slides and its associated magazine structure.

The herein disclosed embodiment of the machine comprises a substantially rectangular casing C having a front display panel F through which the merchandise contained in the casing is clearly visible. One wall of the casing, preferably the front F, constitutes a detachable closure whereby access may be had to the casing interior. At its bottom the casing is provided with a coin drawer or till D opening through the front and slidable beneath a horizontal panel 43 fixedly secured within the casing by appropriate supporting means. Also rigidly mounted within the casing is a horizontal base plate 21 arranged in vertically spaced relation above the panel 43 and parallel thereto. Preferably, but not necessarily, the base plate 21 and panel 43 are coextensive in width and length, and extend from front to rear of the casing and from one side wall thereof, terminating in spaced relation from the opposite side wall of the casing at a distance suitable for the accommodation of a pair of registers 24 and 25 arranged in longitudinal alignment transversely of the casing immediately behind the display front F and visible therethrough.

The upper back portion of the casing is provided with a merchandise storage chamber 37 having a horizontal bottom 44 spaced vertically above the base 21 and having a vertical front wall 45 disposed transversely of the casing interior and which serves as the rear wall of a plurality of merchandise magazine compartments comprised between a plurality of parallel vertical partitions 6 disposed in spaced relation transversely of the casing and extending from the storage compartment wall 45 to the front wall of the casing and from the base 21 to the casing top, as best shown in Figures 3 and 9.

Each magazine compartment is adapted to contain a plurality of merchandise packages M, by way of example, packages of cigarettes, superimposed vertically in a plurality of tiers. In the embodiment illustrated the tiers are three in number but the number may be varied to suit the character of the merchandise and the size of the casing.

While Figure 3 indicates an arrangement of three magazine compartments of equal width, it is intended that this number may be varied to conform to casing size and also that the width of individual magazine compartments may differ to accommodate different classes of merchandise. An important feature of the invention resides in the fact that by providing a plurality of serially arranged tiers in each magazine compartment the height of the case may be kept low and yet at the same time its capacity may actually be increased as compared to familiar types of vending machines which utilize tall casings in which the packages to be dispensed are piled in single tiers.

Each magazine compartment is provided with an individual bottom dispensing slide, see Figure 9, comprising a pair of spaced parallel side bars 1 secured at their front ends to a front closure plate 2 carrying an external knob 3 by which the slide is manually operable in the manner of a drawer. The side bars 1 are connected at their rear ends by a transverse brace 46. In effect, the slide comprises a longitudinally slotted member, the central space between the relatively narrow side bars comprising a slot. The slide in each magazine compartment extends across its bottom, the side bars 1 bearing against the partitions 6 and seating slidably on the base 21. The length of each slide is such that when it is fully retracted within the casing its inner rear end extends well beneath the storage compartment 37. The limit of outward travel of the slide is determined by an appropriately located stop 60 on the base 21 behind a vertical pin 19 which is anchored in the base 21 and rises to the bottom 44 of the storage compartment 37 in approximately the longitudinal median of the slide. When the rear brace 46 of the slide abuts against the stop 60 the front end of the slide will have traveled sufficiently far outwardly to permit the ready removal of the bottommost package dispensed from the first tier through the delivery port 47 as the slide is pulled out.

Figures 1 and 2 disclose that the front plate 2 of the slide completely covers the delivery port when the slide is retracted, and that the lower edge of the slide front plate has an internal ship-lapped joint engagement with the upper edge of the front of the coin drawer D. It will be understood that the front of the coin drawer extends across the fronts of all the magazine compartments. By this arrangement it becomes obvious that each time a slide is pulled out the coin drawer is pulled open but the coin drawer may be opened independently of the slides and without actuating same. This feature is of material value in that the contents of the coin drawer are at all times available for making change, and the money is not impounded.

The invention comprehends follower means in each magazine operable by actuation of the associated slide, with latch means biased to operatively connect the slide and follower means, and with latch release means operable by displacement when a package is in dispensing position on the slide to hold the latch means disengaged. The follower means, when actuated, successively

advances the series of package tiers in the magazine compartment to dispensing position.

As the slides, followers, and latch means for each magazine compartment are identical a description of one will suffice for all. The follower, shown best in Figure 9, comprises a pair of parallel uprights 11 spaced apart transversely of the magazine and disposed behind the innermost tier of packages. At their upper ends the uprights have rigidly fixed thereto forward extensions 22 overlying the uppermost package. The front end portions of these extensions are notched at their inner side edges to receive in detachable engagement the spring arms of a substantially U-shaped tier separator 13 disposed vertically between the innermost and the intermediate tiers of packages and which provides a pusher for the intermediate tier when the follower is advanced. Each extension 22 also carries a rigidly attached tubular socket 23 extending longitudinally of the extension and receiving in sliding telescopic engagement the horizontally disposed and rearwardly directed arms of a second separator 14, similar to the separator 13 and disposed vertically between the outermost and intermediate tiers. The separator cooperates with the front wall of the casing to provide vertical guide means directing the successive packages of the first tier by gravity onto the forward end portion of the dispensing slide.

As shown in Figure 1, the lowermost package of the outer or first tier rests on the forward end portion of the slide and supports the stack of packages above it. The packages of the other tiers are supported above the slide by horizontal supports 5, here shown as ribs, carried by the partitions 6, which permit free sliding of the tiers horizontally but which prevent the packages from dropping onto the slide until they have advanced beyond the front ends of the ribs. The front ends of the ribs 5 are spaced sufficiently inwardly from the front wall of the casing to permit free dropping of packages when the tiers are advanced to dispensing position.

The follower uprights 11 are rigidly secured at their lower ends to base blocks 10 slidably seating on the base plate 21 and bevelled along their outer side edges to interfit with undercut bevels along the inner side edges of the side bars 1 of the slide. Thus the follower has a dovetailed sliding engagement with the slide which permits free relative movement between the two when reciprocated longitudinally with respect to the slide.

In the normal operation of the apparatus, until the last package is dispensed from the first tier, the follower means comprising base blocks 10, attached uprights 11, and separators 13 and 14, remain stationary while the slide reciprocates freely relative thereto. Each side bar 1 of the slide is provided with an attached pusher 4 spaced inwardly from the front end of the slide a distance sufficient to dispose it in position to engage the rear edge of a package M when it rests upon the forward end portion of the slide. When a package thus disposed is to be dispensed the slide is pulled out to the limit of its travel. The pushers 4 carry the package out through the delivery port 47 into the position shown in Figure 2, whereupon it may be lifted from the slide. The pushers 4 have rearwardly directed horizontal extensions which slide beneath the package support ribs 5 and as the slide moves outwardly these extensions slide under and support the package in the first tier just above the one being dispensed. As the slide is returned to retracted position the

extensions slide rearwardly under the ribs 5, permitting the package which they supported to drop down upon the slide. In this manner dispensing is continued until all packages in the first tier are removed.

When the slide is retracted, as shown in Figures 1 and 9, so long as a package rests upon its forward end portion ahead of the pushers 4 it displaces downwardly the flat forward end of a trigger lever 7 which comprises a relatively narrow strip extending longitudinally of the slide in the open area between the slide side bars 1. Lying alongside the trigger lever 7 is a second and much shorter substantially arcuate lever 9 having front and rear arms diverging upwardly at a very wide angle from a rounded fulcrum 8 which comprises a pin extending laterally from opposite sides of the lever 9 and resting loosely on the base plate 21 with the ends of the pin seating in sockets 10' provided in the base blocks 10 of the follower of the dispensing slide. The lever 7 rests loosely upon and fulcrums on the pin 8, from which point the lever inclines upwardly and rearwardly to a weighted terminal 49 located rearwardly of the stop pin 19. This pin 19 is disposed through a slot provided in the body of the lever whereby the lever may be vertically oscillated on its fulcrum 8 but cannot be moved longitudinally with respect to the slide. In the position of the lever 7 as shown in Figures 1 and 9 its upwardly inclined rear end portion engages beneath and supports in elevated position a latch bar 12 mounted on the follower uprights 11 and which is biased to drop downwardly whenever released. The latch bar is capable of free vertical movement relative to the uprights 11 and a keeper 50 carried thereby. The keeper is secured to the rear faces of the uprights and extends transversely thereof, providing a brace which imparts rigidity to the follower assembly.

The function of the lever 7 is to maintain the latch 12 disengaged during dispensing operations of the slide until the first tier of packages is exhausted. One side bar of the slide has at its rear end portion a longitudinally extending raised guideway 16 having a flat top edge adapted to slide beneath the latch 12 and hold it in elevated position when the slide is pulled out and when it is pushed in. The forward end of the raised guide 16 terminates in a vertical shoulder which, when the latch has been permitted to drop down on the slide, engages the rear face of the latch bar so that when the slide is moved outwardly the follower uprights 11 will be correspondingly advanced. However, as the forward end of the lever 7 remains depressed while a package rests thereon, it is evident that the latch 12 cannot be released to drop down and operatively connect the follower and slide until the last package of the first tier has been removed and the slide returned to its retracted position. In such position the weight 49 causes the lever 7 to rock on its fulcrum and permits the latch bar to drop down on the slide just ahead of the shoulder of the guide 16.

When next the slide is pulled out the follower moves forward with the slide, the uprights 11 and separator 13 acting as pushers which advance the second and third tiers of packages along their supports 5 until the last tier occupies the position formerly held by the second tier, and with the second tier resting at its bottom on the rear extensions of the slide carried pushers 4. The slide is then pushed in, whereupon the bot-

tom package of the second tier, now at the front of the casing, drops onto the front end of the slide ahead of the pushers 4 and the machine is again ready to dispense.

In the recharging operation of the slide as just described the advancing movement of the follower will correspondingly advance the short lever 9, due to the fact that the ends of its fulcrum pin 8 rest in sockets 10' in the base blocks 10 of the follower. As the lever 7 is restrained against longitudinal movement by the stop pin 19, when the fulcrum 8 moves forwardly the lever will drop down to lie inert on the base plate 21.

The rear end of the short lever 9 is at all times engaged with a pin 17 carried by the latch bar 12, the connection providing the requisite loose play to permit of the lever 9 being oscillated on its fulcrum as the latch is lifted and lowered. As the inward movement of the slide imparts a frictional drag on the base blocks 10 of the follower the resultant rearward thrust of the lever 9 against the latch carried pin 17 might cause the follower to move back to a point at which the second tier of packages would again be supported on the ribs 5. In order to obviate this contingency I have provided means to lock the follower against rearward movement each time it is advanced.

To accomplish the locking of the follower at the end of its first advance a detent 18 is provided on the forward portion of the lever 7 in a position to engage behind the fulcrum pin 8 when it comes to rest at the end of its first stage of advance. The pin 8 is, of course, attached to or integral with the lever 9. The under side of the lever 7 has formed thereon a stop shoulder 18 having an inclined approach edge under which the pin 8 rides to lift the lever as it advances until it passes beyond the shoulder, whereupon the lever drops back down upon the base plate 21. The shoulder 18 thus provides a detent engageable with the lever 9, through the pin 8, to lock it against rearward movement. It has already been explained that the lever 7 is restrained against longitudinal movement by the stop pin 19.

In this advanced position of the follower, shown in Figure 7, the forward end of the short lever 9 will be projected ahead of the slide pushers 4 so that the lever 9 now takes up the primary function of the lever 7, which it replaces, the weight of a package on its forward end causing the lever to rock on its fulcrum 8 to elevate its rear end and thus hold the latch bar 12 in elevated position, disengaged from the slide. The slide may now be operated as before to dispense packages until the second tier is exhausted.

During dispensing of the second tier the latch is maintained in elevated position independently of the lever 9 by means of a second raised guideway 15 carried by the slide in advance of and longitudinally aligned with the guideway 16. The guideway 15 is also provided with a flat top edge tapered down at its rear end, which slides beneath the latch and holds it raised while the slide is reciprocated. At its front end the guideway 15 terminates in a vertical shoulder which, when the latch has been permitted to drop down on the slide, engages the rear face of the latch bar so that when the slide is moved outwardly the follower uprights 11 will be correspondingly advanced. However, as the forward end of the lever 9 remains depressed while a package rests thereon, it is evident that the latch cannot be

released to drop down and operatively connect the slide and follower until the last package of the second tier has been removed and the slide returned to its retracted position. When this occurs the bias of the latch bar causes the lever to rock on its fulcrum and permit the latch to drop down onto the slide just ahead of the shoulder at the front end of the raised guideway 15.

When the slide is again pulled out the follower will move forward with the slide and the top arms of the separator 14, which now bears against the front face of the casing, will telescope within the sockets 23. It should here be noted that, as shown in Figure 9, the width and height of the separator 13 is less than that of the separator 14. Thus, as the third tier is pushed forward by the uprights 11 the separator 13 nests within the separator 14 against the front face of the casing. The bottom package of the third tier now is supported on the rear extensions of the slide pushers 4. The slide is then pushed in, whereupon the bottom package drops onto the slide ahead of the pushers and the machine is again ready to dispense.

In this second recharging operation of the slide as just described the advancing movement of the follower will cause a corresponding advance of the lever 9 until it occupies the position shown in Figure 8. As its fulcrum pin 8 has moved beyond influence of the shoulder 18 on the lever 7 the necessary locking of the lever against rearward movement is effected by lodgement of the pin 8 in a socket recess 20 provided therefor in the base plate 21, into which the pin drops at the limit of forward movement of the lever with the follower. In this final advanced position of the magazine follower the slide may be operated as before until the tier is exhausted. As the rear end of the lever 9 is connected to the latch pin 17 the follower cannot be moved rearwardly with the slide. The engagement of the pin 8 in its holding socket 20 locks the lever and follower against such movement.

The invention further comprehends an arrangement by which the idle stroke of the slide in advancing the second and third tiers is eliminated. This consists in so balancing the trigger levers 7 and 9 that when less than the weight of two packages rests on their outer ends the latch will be allowed to drop into operative connection with the slide at the shoulders of the raised guideways 16 or 15 as the case may be.

An additional important feature of the invention lies in the provision of means by which all slides except the one selected for operation are locked against movement, preventing operation of more than one slide at a time. With particular reference to Figures 9 and 5 it will be seen that the outside edges of the side bars 1 of the slides, adjacent their inner ends, are notched as at 39 in transverse alignment. The notches have their inner walls inclined inwardly from their rear ends and providing cam surfaces which engage vertical pins 42 carried by a plurality of axially aligned short rods 41 axially slidable in a tubular holder 40 secured to the under face of the base plate 21. The upper portion of the holder is longitudinally slotted to permit shifting of the pins 42 axially of the holder under the camming action of the notch walls as the respective slides are pulled outwardly. The depth of the notches is such that one notch will just house a pin moved thereinto by the camming action of the mating notch of an adjoining slide as it moves outwardly; the pins 42 being preferably

disposed between adjacent slides. It will be apparent that when one slide is moved out its trailing side edge in rear of its notch restrains the adjacent pin against movement out of the notch in the adjacent slide in which it is housed, thus preventing movement of more than one slide at a time.

The present apparatus is especially adapted for counter use where the dispensing operation is performed by an attendant on order of purchasers. As a means of insuring that the contents of the cash drawer shall tally with the cash value of the merchandise dispensed, the machine is provided with means for registering the total cash value of merchandise as it is dispensed, and/or with means for registering the total number of packages or articles removed.

The total monetary value of merchandise dispensed from the display case is registered on a counter 24, of which there are many known types, mounted in the casing at one side of the battery of magazines. The operating sprocket 26 which forms a part of the counter has a chain drive 27 from a larger sprocket 28 on a shaft 51 extending transversely of the casing. A counter actuator 29, here shown as a relatively wide flat member extends transversely across the entire width of the magazine compartments beneath the base 21, being pivotally mounted at its opposite ends in the axis of its lower edge in bearings 30 mounted on the panel 43. The actuator member is capable of oscillation in a vertical arc between the base 21 and the underlying panel 43. At one end the actuator has an operating attachment to the sprocket 28 whereby as the actuator is oscillated forwardly with respect to the casing the sprocket is correspondingly rotated on the shaft 51. Ratchet means, not shown, prevents reverse operation of the counter when the actuator is moved rearwardly.

A second and similar counter 25 is arranged in axial alignment with the counter 24, and is operable to register the total number of packages dispensed. The number counter, see Figure 6, is actuated by means of a leaf spring connecting rod 36 connected at one end to a crank on the counter shaft and at its other end to a hub extension 52 of the sprocket 28.

Both counters thus are operated from the same actuator member 29. This member receives its oscillatory forward stroke by blocks 32 adjustable vertically by means of screw 33 in depending relation to slide bars 31 which are mounted for reciprocation longitudinally in the space between the base plate 21 and the panel 43. It will be understood that one such slide 31 with its associated block 32 is provided beneath each dispensing slide. Each slide 31 has a downturned vertical rear end 34 bearing slidably on the panel 43 and backstopping its block 32, and is further provided with an upturned vertical front end portion 35 which projects up between the side bars 1 of the dispensing slide normally in a position to lie against the inner face of the slide front plate 2 when the dispensing slide is fully retracted. In this position the upstanding end 35 of the register slide is engaged by a package when seated on the front end of the slide ahead of the pushers 4 and is thus moved by the package forwardly with the dispensing slide as it is pulled out.

As the register slide 31 thus moves outwardly its block 32 engages the actuator member 29 and carries it forwardly through a vertical arc from its rear limit as shown in Figure 1 to its front

limit as shown in Figure 2. Accordingly both counters are operated. The actuator 29 is biased by a spring 61 to return to its rear limit position as the slide 31 is carried inwardly by retracting movement of the dispensing slide.

It is apparent that by adjusting the blocks 32 to a lower position the stroke of the actuator may be lengthened, and correspondingly, an elevation of the blocks will decrease the actuator stroke. Since the value count registered on counter 24 is directly proportional to the extent of arcuate travel of the actuator 29, and as each slide 31 has a separate adjustable block 32, it is evident that the merchandise dispensed by each slide may have a different value if desired, and the correct total value will be registered on the counter and there indicated.

Due to the fact that for different price ranges on the separate dispensing slides the actuator 29 will be differently moved as the various slides are operated, the cranks operating the number counter 25 are so proportioned as to register a single count at the minimum price range. Stop means is provided for the crank on the shaft of counter 25 so that it may not be operated beyond registry of a single unit. Under such conditions, where the actuator 29 moves through a greater arc than that through which it moves in registering the minimum value, the spring connecting rod 36 will flex sufficiently to permit the additional movement without damage to the counter 25.

When no package is present on the dispensing slide, as in the case of its outward movement when advancing the magazine tiers, the register means cannot be operated for no element of the dispensing slide engages the upstanding front end 35 of the register slide 31. Thus the operation of the slide in changing tiers is not registered and does not affect the totals.

However, when a package is in position on the slide to be dispensed, the dispensing slide cannot be pulled out without the act of its operation being registered on the counters.

When all packages have been dispensed from the last tier in a magazine the casing front may be removed and the follower and trigger lever assembly be reset by hand before reloading. In reloading the magazine of any compartment the separators 13 and 14 are detached from the horizontal top extensions 22 of the follower uprights 11. The third or innermost tier is then packed and the separator 13 is attached by engagement of its spring arms in the notches of the extensions. The second or intermediate tier is then packed and the separator 14 is positioned by sliding its top arms within the sockets 23. Thereupon the outermost or first tier is packed and the casing front replaced. The casing is provided with appropriate locks, not shown, by which unauthorized access to its cash drawer and interior is prevented.

Having thus described the invention, what is claimed is:

1. In a package dispensing apparatus, a magazine arranged to house a plurality of separate and serially aligned tiers of packages, a dispensing slide reciprocable beneath all said tiers and supporting one end tier with its lowermost package seated on the slide, pusher means carried by said slide for delivering said lowermost package on dispensing movement of the slide, means on the slide engageable with the next lower package to support said end tier during dispensing movement of the slide, a follower for advancing said tiers in

the magazine to the position of said end tier following its exhaustion, latch means on said follower and biased to engage said slide for operatively connecting said slide and follower whereby to advance the follower and tiers on movement of said slide in one direction, a lever fulcrumed intermediate its ends beneath the magazine, one end of said lever engaging and being depressed by a package when seated on the slide, and the other end of said lever engaging said latch means to maintain same disengaged from the slide while a package is seated on the slide over the first named end of the lever.

2. In a package dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a dispensing slide reciprocable relative thereto to receive a package from one end tier at one limit of its travel and to deliver the package at its other travel limit, a follower in the magazine, means on said follower and biased to operative connection with said slide for moving said follower with the slide to advance the tiers in the magazine, means operable by engagement with a package when received on said slide to hold said connecting means inoperative, said holding means being restrained against movement with said slide as it is reciprocated, and means on said slide engageable with said connecting means on dispensing movement of the slide prior to disengagement of said package controlled holding means whereby to maintain said connecting means inoperative until the first named holding means has again become engaged with a replacement package received on the slide.

3. In a package dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a dispensing slide reciprocable relative thereto to receive at one limit of its travel a package from an end tier and to deliver said package at its other travel limit, a follower in the magazine engaging the other end tier, a slide engaging means on said follower and biased to an operative connection with the slide whereby to advance said follower and tiers by dispensing movement of the slide, and means displaceable by a package on the slide at its package receiving position to abut said slide engaging means and disconnect the slide and follower.

4. In a package dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a dispensing slide reciprocable beneath the magazine to receive at one position of its travel a package from an end tier and to deliver the package at another position of its travel, a follower in the magazine behind the other end tier of the series, slide engaging means on said follower and biased to an operative connection with the slide whereby to advance the follower and tiers by dispensing movement of the slide, means operable by a package on the slide when at its package receiving position to hold said engaging means disengaged, said holding means being ineffective in the absence of a package on the slide whereby on dispensing movement of the slide said follower and succeeding tiers will be advanced the depth of one tier, separate means operable by a package on the slide received from the succeeding advanced tier to hold said engaging means disengaged, said separate holding means being ineffective in the absence of a package on the slide, and means operable upon advancing movement of the follower to lock it against retrograde movement.

5. In a package dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a dispensing slide reciprocable beneath the magazine to receive at one position of its travel a package from the magazine and to deliver the package at another position of its travel, a follower in the magazine for successively advancing the tiers, and means operable by movement of the slide following exhaustion of one tier to advance the succeeding tiers.

6. In a package dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a dispensing slide reciprocable beneath the magazine to receive at one position of its travel a package from an end tier and to deliver the package at another position of its travel, a follower in the magazine behind the other end tier of the series, a planal support on which said slide is reciprocated, said follower having a base slidable on said support independently of said slide, a latch on said follower and biased to a position operatively connecting said slide and follower for simultaneous movement, a short lever having a connection at one end with said latch, fulcrum means for said lever engaging said base for movement therewith, a longer lever loosely supported by said fulcrum means and fulcrumed thereon intermediate the lever ends, one end of said longer lever being disposed to be depressed by a package on said slide at its package receiving position, the other end of said longer lever being thereby positioned to move said latch to disconnected position, said longer lever being ineffective for operation of the latch in the absence of a package on the slide when in receiving position, whereby, on dispensing movement of the slide said follower and its base are moved with and by the slide to advance the succeeding tier in the magazine, said short lever and the fulcrum means moving with the follower base to dispose the free end of said short lever in position to be depressed by a package received on said slide from said succeeding tier whereby to elevate its latch connected end to move said latch to slide disconnected position, a detent on said longer lever, and said fulcrum means of the short lever being engageable with the detent when said short lever is advanced to lock said short lever and the follower against retrograde movement.

7. In a package dispensing apparatus, a magazine arranged to house a plurality of tiers of packages in serial alignment, a dispensing slide reciprocable beneath the magazine to receive at one position a package from one end tier and to deliver the package at another position, a planal support on which said slide reciprocates, said slide being longitudinally slotted, a follower in the magazine behind the other end tier and having a base slidable on said planal support in the slot of said slide, a latch on said follower and biased to a position operatively connecting said slide and follower for simultaneous movement, a long lever loosely supported on a fulcrum carried by the follower base and shiftable therewith relative to the lever, means restraining said lever against shifting but permitting oscillation on said fulcrum, one end of said lever engaging

said latch and the other end being positioned for displacement by a package received on the slide whereby to rock the lever and move said latch to disconnected position, a short lever alongside the long lever and attached to said fulcrum for oscillation thereon and shifting movement therewith longitudinally of the long lever, said short lever having one end connected to said latch, said long lever being ineffective with respect to the latch in the absence of a package on the slide from the end tier, whereby, on dispensing movement of the slide said follower, its base, the short lever and the fulcrum are all shifted with the slide to advance a following tier in the magazine, and also to dispose the other end of the short lever in position to be displaced by a package received on the slide from the advanced tier, said short lever being rocked on the fulcrum by such end displacement to move said latch to disconnected position, and said short lever being ineffective to move the latch in the absence of a package received on the slide from said advanced tier whereby upon dispensing movement of the slide all said follower, its base, the short lever and the fulcrum are shifted by the slide to advance another following tier in the magazine, and means operable to lock said follower against retrograde movement.

8. In a dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a slide reciprocable beneath the magazine to dispense a package from one end tier, a follower disposed vertically in the magazine behind the other end tier of the series, a horizontal top extension on said follower overlying the adjacent end tier, a separator detachably carried by said extension vertically between said end tier and the adjacent intermediate tier, a socket carried by said extension, a second separator disposed vertically between said intermediate tier and the first named end tier, and means on the upper end of said second separator in telescopic supporting engagement with said socket over the top of said intermediate tier.

9. In a package dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a dispensing slide reciprocable relative thereto to receive at one limit of its travel a package from an end tier and to deliver said package at its other travel limit, tier follower means in the magazine and biased to an operative connection with the slide for advancing the follower on dispensing movement of the slide, and means operable to disconnect said slide and follower while a package is on said slide.

10. In a package dispensing apparatus, a magazine arranged to house a plurality of serially aligned tiers of packages, a dispensing slide reciprocable relative thereto to receive at one limit of its travel a package from an end tier and to deliver said package at its other travel limit, tier follower means in the magazine and movable relative to said slide, means biased to establish a connection between said slide and follower for movement in unison, and means in the magazine independently of the slide to disconnect the slide and follower while a package is on said slide.

GEORGE H. NITSCHMAN.