The invention relates to improvements in a vending machine, and has among its objects the production of such a machine which shall be neat and attractive in appearance, simple in construction and operation, sturdy and durable so as to effectively perform its intended functions, economical to build, and satisfactory and efficient for all purposes for which the same is adaptable.

One of the principal purposes and objects of the invention is the production of such a vending machine which shall be composed of a series of horizontally mounted commodity-receiving platforms rotatable in a step-by-step movement to successively deliver said individual units of the commodity to the operator of the machine.

Another object of the invention is to so construct said device that it will be automatically locked against movement in one direction of rotation when the same is open for inspection, filling, etc., independent of the normal operating means, but permit of rotational movement of the magazine platforms in the reverse direction.

A still further object of this invention is the provision of means to engage with the normal operating means at the end of a full rotation of each magazine, to lock it against further reception of operating coins until the same has been refilled with a fresh supply of the vendible commodity.

Another object of our invention is the production of a merchandise vending machine comprising a series of horizontally mounted rotatable magazine platforms, selectively operable so as to deliver the particular kind of the varieties of merchandise displayed, each of the magazines having a spring for normally propelling the same upon operation of the coin-controlled mechanism, in the direction of the unwinding of the spring, and in which the respective springs are wound up whenever the magazines are being replenished with fresh merchandise and during the operation of moving the platforms to effect this filling.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art to which this invention appertains, from the disclosures herein given.

To this end, our invention consists in the novel construction, arrangement, and combination of parts herein shown and described and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts throughout the views,

Figure 1 is a partial front elevation of the machine, with a portion of the front broken away in order to better see the interior;

Figure 2 is a horizontal cross-sectional view of one of the units of the machine, with certain of the parts in plan view, and with the rear door opened;

Figure 3 is a fragmentary portion of a similar portion of the machine, showing the door closed in normal position, and with the plunger and associated operated mechanism in a different position; and

Figure 4 is a side elevation of the plunger-operated mechanism as mounted in place and viewed from the rear.

Referring more particularly to the drawings, wherein we have illustrated a preferred embodiment of our invention, there is shown a vending machine for the dispensing of any desirable articles or commodities of a variety or assorted kind, there being a supply of each variety in the machine, and in which the purchaser may select the particular species he desires before operation of the device, and receive said species upon operation.

In said mechanism there is an outer covering or casing A, of any suitable size, shape and material, and in the present instance shown as rectangular in horizontal cross-sectional shape, the same provided with a number of coin-controlled plungers I, one for each of the commodity magazines, and if desired arranged in staggered relation on the face of the vending machine, some what as shown. In addition, there may be a display compartment or window 2, each containing one of the different commodities, to aid in the choice of selection of merchandise. A discharge opening or delivery outlet 3 is also arranged at 40 the front of the mechanism, for reception by the purchaser of each of the varieties.

Any suitable coin-receiving means may be used in the device, the same not forming a part of the invention, the only requirement being that there be a plunger-operated element I for operation in a manner to be hereinafter set forth.

A series of vertically spaced platforms or trays B are arranged within the mechanism, there being one of these platforms for each variety of merchandise offered for sale, and each providing a magazine to hold a supply of such material.

Each of said magazines may be made of a top and a bottom horizontal plate 4 and 5, respectively, spaced apart a sufficient distance to receive the 55
commodity to be sold, and provided with a series of substantially radial partitions 6 to divide each of the trays into the series of circumferentially spaced compartments 7, the circumferential length of these compartments at the outer edge being substantially equal to that of the delivery openings 3, so that when one of the compartments is in registry with its discharge opening, as shown in Fig. 2, practically the full effective size of the compartment will be accessible, and whereby the purchaser may remove the article in said compartment at that time.

A coil spring 8 may be used to propel each of the magazines, one of the ends of the spring being secured or anchored to its respective magazine, and the other end anchored to some fixed point, as for example to a shaft or rod 9 upon which the magazines are rotatably and horizontally mounted.

Adjacent each of the magazines is a means for cooperating with the operating plunger 1, so as to release the former just a sufficient amount to permit the spring to propel the magazine through the distance required to bring the next adjacent compartment into registry with the discharge opening 3, to permit emptying of said compartment, leaving the platform at the termination of such limited movement. This step-by-step movement of the magazine is had in the following manner.

A lever 10 is pivoted at one end at 11 to swing about said end in a horizontal plane, said lever having a pawl 12 at the other, free end, to engage against the forward side of the partition wall 5, the direction of rotation of the magazine being as indicated by the arrow in Fig. 2, and there being an offset or abutment 13 projecting a short distance upwardly adjacent said end 12. A second lever 14 is also mounted on the pivot 11, intermediate its ends, so as to be similarly pivotally movable in a horizontal plane, one end of said lever projecting in the same direction as but beyond the end of the lever 10 and provided thereat with a pawl or dog 15 adapted for engagement with said partition wall 5 and against the forward side of the compartments also, the distance between the engaging surfaces of said paws 12 and 15 being substantially equal to two and one-half compartments at their outermost peripheral edges. The other end of said lever 14 is adjustably secured to one end of a rod 16 connected to release the latter from its normal function. Even though the plunger rod 16 is operated with excessive and unusual force, no damage will result in returning the lever 14 and the plunger mechanism connected therewith to its original and normal position indicated in Fig. 2.

Thus, the forward actuation of the plunger first releases the pawl 12 from locking position, permitting partial rotation of the magazine through the action of the propelling spring, continued actuation of the plunger then locking the pawl 15 into locking position. Upon release of the plunger, the retrieving movement or return of the same to normal position, from that shown in Fig. 3, through the action of the springs 17 and 18, causes the pawl 15 to release and the pawl 12 to re-engage, and thus permit the spring 9 to propel the magazine through a full compartment length, sufficient to bring the adjacent succeeding compartment into registry with the opening 3 to permit withdrawal of the contents selected.

Thus, a positive step-by-step movement of each of the magazines rotating in its horizontal plane is had, and in which no unauthorized rotational movement in said direction may be had.

A stop element or pin 20 may be arranged at some point on each of the magazines, to cooperate with an abutment 21 on the rod 16 of the plunger 25 mechanism, so that when the magazine has made a complete revolution, thus permitting emptying of all of the compartments thereof, the offset 21 will then abut the pin 20 to lock the plunger rod against inward movement. Hence, the coin may not be inserted into the plunger mechanism and deposited within the receiving receptacle (not shown) without receiving the desired commodity for said coin, because when the next succeeding compartment of the magazine is empty, the rotation of the magazine by the plunger will be stopped, until the magazine has been re-issued and reloaded.

A locking pawl or dog 22 is arranged adjacent each magazine to swing into the path of movement of the latter, as by engagement with the partitions of the magazine, there being a spring 23 for urging said dog into locking engagement when the door or cover 17 is opened, as indicated in Fig. 2, the cover holding said dog out of locking engagement, as shown in Fig. 3, when the cover is in its normal, closed position. Even when the dog is in its locked relation with the magazine, as shown in Fig. 2, it is obvious that the magazine may be rotated in a direction to wind the spring, the dog ratcheting during the said winding direction of movement of the magazine.

When it is desired to hold the pawl 12 out of locking engagement for a long period of time, such as while filling the magazine with fresh products, this may be done by inserting a nail or other pointed element into the opening 24 to hold the element 10 in the position shown in Fig. 3, this nail or the like then engaging against the spring 18 to prevent the latter from returning the lever 10 to its partition engaging position. Then, with the cover open, the magazine may be actuated by hand in a direction reverse that shown by the arrow, and permit of filling the successive compartments with fresh articles in the opening 3, the dog 22 locking said magazine against forward movement but ratcheting and permitting the reverse rotation while feeding the magazine. It is to be noticed that during the process of re-loading the magazine, the propelling spring is wound up and will be effective to perform its normal function.

Even though the plunger rod 16 is operated with excessive and unusual force, no damage will result in releasing the lever 14 and the plunger mechanism connected therewith to its original and normal position indicated in Fig. 2.
result, because the actuation of the same, no matter how caused, will have no other result than to merely release the pair of pawls in regular sequence, and they are made strong enough to withstand such handling.

A flange or guard 25 may be provided to encircle the lower plate of the compartments and extending upwardly a short distance in order to prevent the merchandise therein from unduly shifting and extending too far radially and coming into contact with any obstructions during operation.

Having thus described our invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of our invention; hence we do not wish to be understood as limiting ourselves to the exact form, arrangement, construction or combination of parts herein shown and described, except as limited by the state of the art to which this invention appertains, or the claims hereunto appended.

What we claim as new and desire to secure by Letters Patent is:

1. In a vending machine having a delivery opening, a plunger controlled article delivery mechanism comprising a rotatably mounted magazine having a plurality of circumferentially spaced article compartments, means constantly urging said magazine to rotate in one direction, a pivotally moveable stop element engageable with said magazine to prevent movement thereof when the plunger is in normal inoperative position, a second stop element moveable independently of said first stop element and engageable with said magazine upon partial rotation of the latter and operable by said plunger to release said first stop element, and means operable upon return movement of said plunger to its normal inoperative position for releasing said second stop element and permitting further rotation of said magazine and re-engaging said magazine with said first stop element, to bring the succeeding compartment into registry with said opening to permit emptying of the said compartment through said opening.

2. In a plunger operated vending machine having a discharge opening for merchandise, a spring wound platform having a plurality of merchandise compartments, means to operate said platform in a step-by-step movement to successively register adjacent compartments with said opening, a cover for said machine, and locking means operable by opening movement of said cover to engage said platform at substantially any position thereof and prevent unwinding movement of said platform and spring.

3. In a coin-controlled vending machine having a discharge opening through which the merchandise is removed, a horizontal platform provided with a series of circumferentially arranged compartments to hold said merchandise and from which the same may be removed when the compartments register successively with said discharge opening, an operating plunger, a spring normally urging said platform in one direction of rotation, a pair of independently moveable lever means operable in succession by said plunger to permit said platform to rotate a distance less than the amount required to bring the next adjacent compartment into registry with said opening, and permitting the balance of the required rotational movement of the platform upon the retrieving movement of the plunger to normal position the first-acting of said lever means being fixed to said plunger.

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