Sept. 3, 1929. J. B. RYAN 1,726,924

VENDING MACHINE

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Fig. 1.

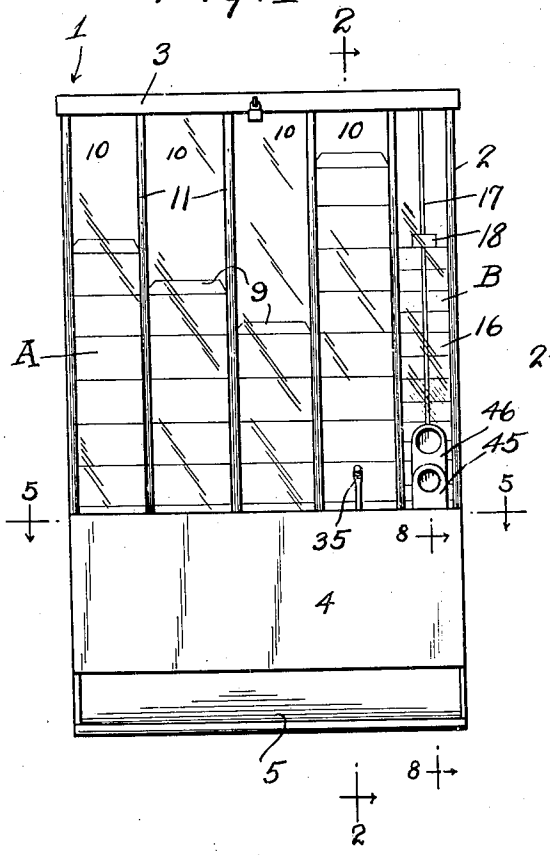


Fig. 2.

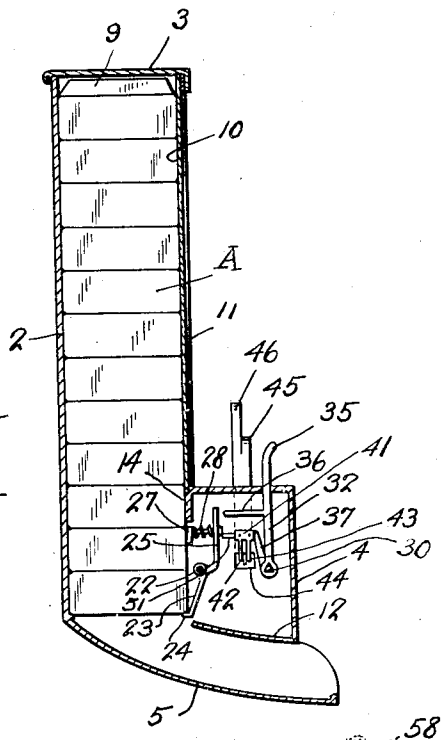


Fig. 3.

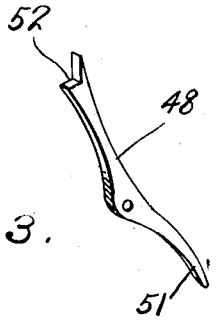
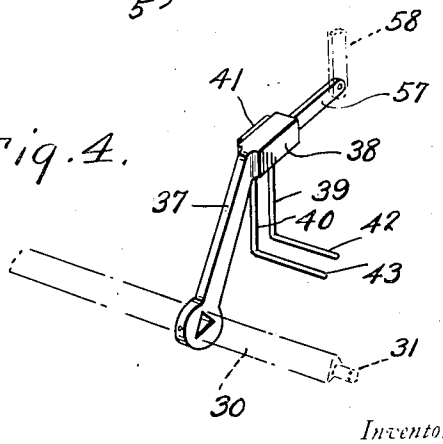


Fig. 4.



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Fig. 5.

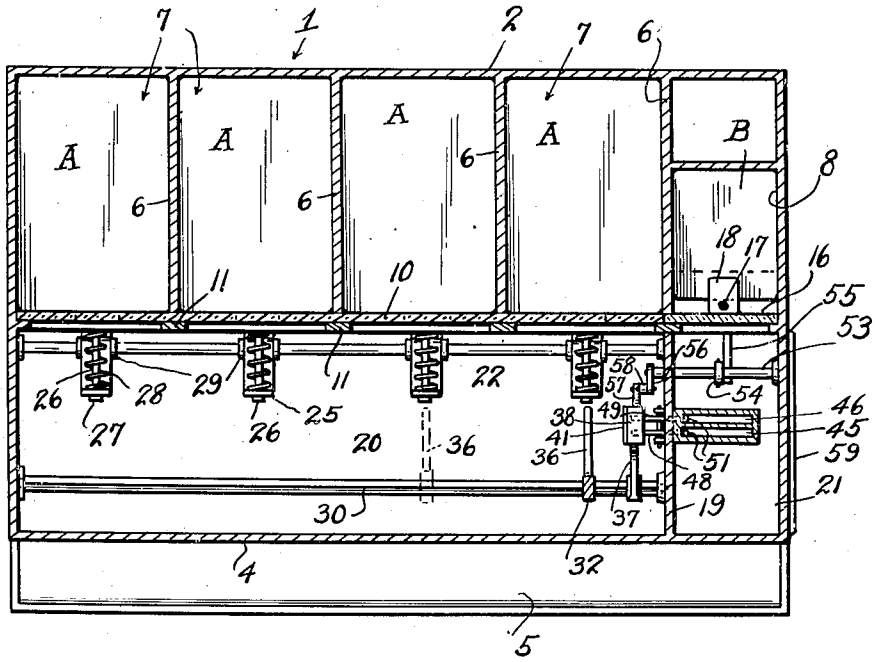
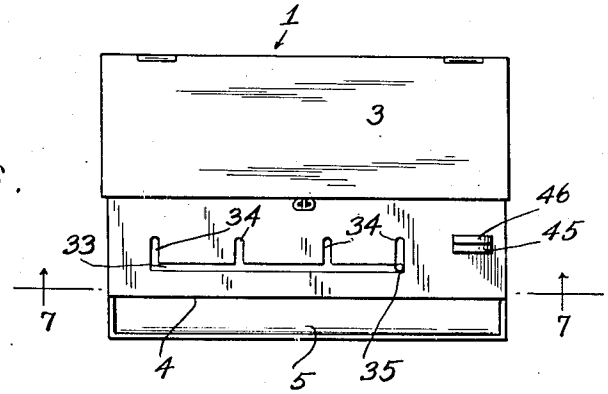


Fig. 6.



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VENDING MACHINE

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Fig. 7.

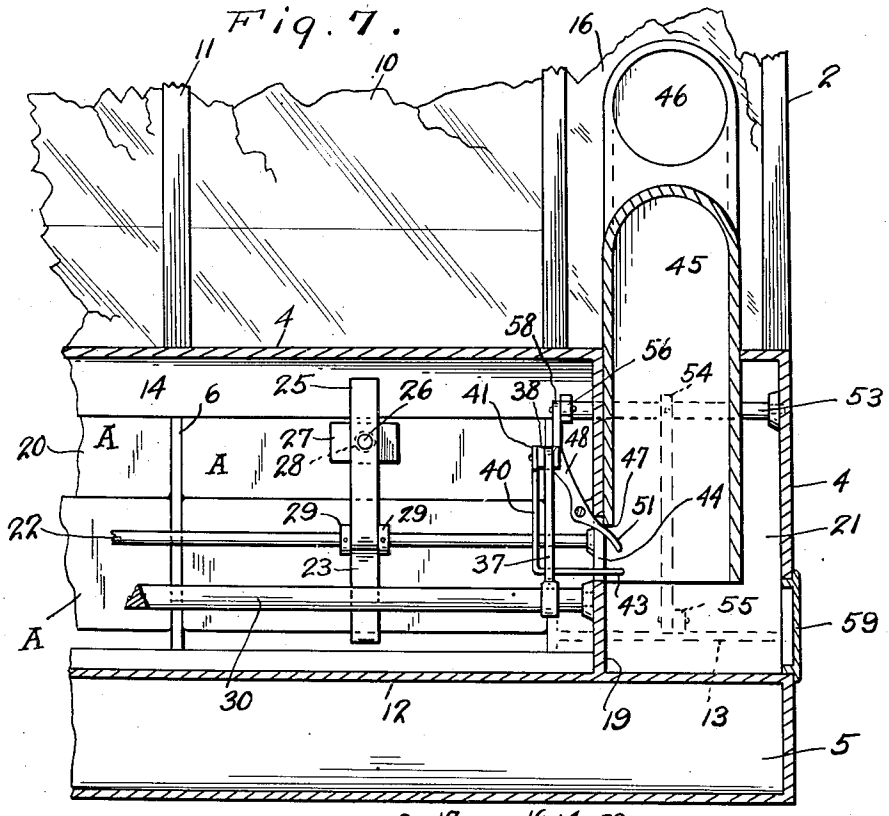
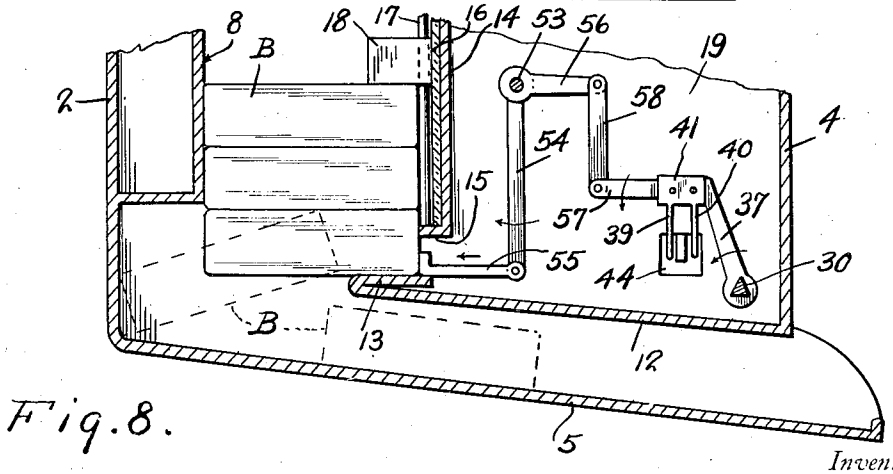


Fig. 8.



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Patented Sept. 3, 1929. 1,726,924

UNITED STATES PATENT OFFICE.

JAMES BERNARD RYAN, OF HAVERSTRAW, NEW YORK.

VENDING MACHINE.

Application filed January 31, 1928. Serial No. 250,803.

The present invention relates to improvements in coin controlled vending machines and has reference more particularly to a machine for use in the sale of packages of cigarettes or cigars along with packages of matches.

One of the important objects of the present invention is to provide a coin controlled vending machine which includes a plurality of independent magazines adapted to contain packages of cigarettes of different brands, and a magazine for containing packages of matches, means being associated with the machine for enabling a purchaser to obtain the desired brand of cigarettes and simultaneously delivering a box of matches with the ejection of a single package of cigarettes, upon the insertion of the proper coins in the machine.

A further object resides in the provision of a coin controlled vending machine of the above mentioned character wherein the ejector actuating means is normally locked, the same being released by the deposit of two coins whose denominations are equivalent to the selling price of a package of cigarettes and a box of matches, so that a customer can procure both a package of cigarettes and a box of matches at open operation of the machine.

A still further object of the invention is to provide a coin controlled vending machine of the above mentioned character which will at all times be positive and efficient in its operation, the same being further simple in construction, inexpensive, strong and durable and further well adapted to the purpose for which it is designed.

Other objects and advantages of the invention will become apparent from the following description when taken in connection with the accompanying drawings.

In the accompanying drawings wherein like reference characters indicate corresponding parts throughout the several views:

Figure 1 is a front elevation of the coin controlled vending machine embodying my invention.

Figure 2 is a vertical sectional view taken approximately on the line 2—2 of Figure 1 looking in the direction of the arrows.

Figure 3 is a detail perspective view of one of the locking dogs forming a salient part of the present invention.

Figure 4 is a detail perspective view of the unit that cooperates with the pivoted dogs or triggers and is operatively associated with the longitudinally extending rocker shaft.

Figure 5 is a horizontal section taken substantially on the line 5—5 of Figure 1 looking in the direction of the arrows.

Figure 6 is a top plan view of the machine.

Figure 7 is a sectional view taken substantially upon the line 7—7 of Figure 6, and

Figure 8 is an enlarged section taken substantially upon the line 8—8 of Figure 1 looking in the direction of the arrows.

In the drawings wherein for the purpose of illustration is shown the preferred embodiment of my invention, the numeral 1 designates generally my improved vending machine, the same comprising a rectangular shaped casing 2 that is open at its front and top sides. A cover 3 is hingedly associated with the top of the casing to provide a closure therefor.

A substantially rectangular shaped housing 4 is arranged at the lower front side of the casing and a delivery chute 5 is provided at the bottom of the casing and the same extends beyond the housing 4 in the manner as clearly illustrated in the drawings. The housing 4 extends for the full width of the casing 1 as does also the delivery chute 5.

A series of vertically disposed parallel spaced partitions such as are shown at 6 with reference more particularly to Figure 5 divide the casing 1 into a series of independent compartments 7 for the reception of packages of cigarettes or cigars and it is of course to be understood by arranging or providing a plurality of such compartments, cigarettes or cigars of various brands that are put up in package form may be placed in the several compartments or magazines. A smaller compartment or magazine 8 is arranged vertically adjacent one end of the casing for the reception of boxes of matches which are to be dispensed one at a time from the machine simultaneously with the ejection of a single selected package of cigarettes.

The magazines or compartments are adapted to be filled with packages of cigarettes designated by the letter A from the top of the machine and it is preferred that each compartment contain a different brand of cigarettes or cigars for obvious purposes. The boxes of matches B are also placed in the compartment A from the top of the machine and the packages of cigarettes as well as the matches are arranged in stacked relation and

if desired, suitable weights such as are shown at 9 may be placed in the top of each of the cigarettes holding compartments for normally urging the packages downwardly.

The front face of each of the compartments or magazines is open and a glass panel 10 extends across the open front side of the casing to cover the open front sides of the respective magazines, suitable retaining strips 11 being arranged vertically at the front side of the casing and directly in alinement with the respective partitions 6.

As is clearly shown in Figure 8 of the drawings, the bottom 12 of the housing 4 that is spaced from the delivery chute 5 has its rear edge portion extending slightly into the open bottom of the match box holding magazine 8, this particular end portion of the bottom 12 being bent back upon itself to form a supporting ledge 13 for the lowermost package of matches. The inner or rear wall 14 of the housing 4 has its lower edge spaced from the bottom 12 of the housing and the portion of the rear wall that is disposed in front of the match holding compartment 8 extends downwardly to a point adjacent the bottom 12 and is then directed rearwardly to form a shoulder 15 as clearly illustrated in Figure 8 for a purpose to be presently described.

The glass panel 16 that is provided for the open front side of the match box compartment or magazine 8 rests at its lower edge on the shoulder 15 while the lower edge of the glass panel provided for the open front faces of the cigarette package holding magazine is supported in the manner as shown in Figure 2.

A rod 17 is arranged vertically in the match box holding magazine 8 and the lower end of this rod rests on the shoulder 15. A weight 18 is slidable on this rod 17 and rests on the top of the uppermost box of matches and this slideable weight 18 cooperates with the ledge 13 for properly supporting the boxes of matches B in a stacked position in said magazine with the lowermost box resting horizontally on the ledge.

A vertical partition 19 is arranged in the end of the housing 4 adjacent the match box compartment or magazine 8 whereby to divide the housing into a relatively large compartment 20 and a relatively small compartment 21 and this construction is more clearly illustrated in Figure 5.

A shaft 22 extends longitudinally in the compartment 20 adjacent the rear side thereof, the ends of the shaft being supported in any appropriate manner on the partition 19 and the remote end wall of the housing 4. Pivotally supported on the shaft 22 at predetermined spaced intervals are the levers 23, as many levers being provided as there are cigarette package holding magazines, and in the present instance, four of such magazines are illustrated, consequently there are four levers. A rearwardly extending foot 24 is formed on the lower end of each lever, the same provides a means for cooperating with the rear edge portion of the delivery chute 5 in supporting the lowermost package of cigarettes A in the lower end of its respective compartment. This feature is clearly shown in Figure 2 of the drawings.

An upwardly disposed arm 25 is formed on the upper end of each swinging lever 23 and this arm has extending through a suitable opening formed therein a headed pin 26 that carries on its inner or rear end a cigarette package engaging finger 27 that is normally held against the forward edge of the next lowermost package of cigarettes in each of the magazines 7 by the action of an expansible coil spring 28 that encircles the pin 26 and is disposed between the arm 25 and the finger 27 as is clearly shown in Figures 2 and 5. Each of the swinging levers 23 is secured at its upper end on the shaft or rod 22 against sliding movement by means of the collars 29 in the manner as clearly illustrated in Figure 7.

The levers 23 and the feet 24 formed on the lower ends thereof really constitute ejectors for the packages of cigarettes in the respective magazines 7 and the manner in which these ejectors are actuated will be presently described.

Journaled for rotation in suitable bearings provided therefor in the compartment 20 in the housing 4 is triangular shaped rocker shaft 30, the same being located forwardly of the stationary rod 22. Each end of the triangular shaped rocker shaft is formed with a round pintle such as is shown at 31 in the dotted lines in Figure 4 whereby to permit the rocker shaft to be supported in the compartment or chamber 20 for rocking movement.

Adapted for slidable movement along this triangular shaped rocker shaft 30 is a vertically disposed lever 32 that extends upwardly through the top of the housing 4, the top wall of the housing being formed with a longitudinal slot 33 to accommodate the sliding lever 32. Furthermore, the top of the housing 4 is formed with laterally extending slots 34 that communicate at their forward ends with the longitudinal slots 33 and these lateral slots 34 are preferably arranged centrally of each of the cigarette package holding magazines. The upper end of the vertically disposed lever 32 provides a handle 35 whereby the same may be readily and easily actuated.

A rod-like extension 36 is carried by the lever 32 and the same extends rearwardly at substantially right angles to the lever and this rod 36 is adapted to cooperate with the respective upwardly disposed arms 25 associated with the ejector forming levers 23 in the manner to be presently described.

Secured on the rocker-shaft 30 for disposi-

tion within the chamber 20 adjacent the partition 19 is the rearwardly extending arm 37, the upper end thereof being formed with an enlarged horizontally disposed head 38 that is of substantial rectangular shape. A pair of vertically disposed rods 39 and 40 depend from the plate 41 that is secured to one side of the rectangular shaped head 38 as is clearly shown in Figure 8. These rods are bent at a point intermediate their ends to provide the laterally extending portions 42 and 43 respectively, and the partition 19 is provided with the opening 44 through which the laterally extending portions 42 and 43 extend for disposition within the chamber 21. The free ends of the laterally extending portions 42 and 43 form stops for the coins inserted in the machine as will be presently more fully described.

A pair of independent coin chutes that are formed to provide a single unit are arranged vertically through the top of the chamber 21 of the housing 4, the coin chutes being designated by the numerals 45 and 46, respectively. The lower ends of the coin chutes are open and terminate adjacent the bottom wall of the housing and as is clearly shown in the drawings, the upper end of the rear coin chute extends beyond the adjacent end of the forwardmost coin chute.

One side of each coin chute adjacent its lower end is cut away as shown at 47 for registration with the cut out portion 44 formed in the partition 19 and the dividing wall for the two coin chutes will be disposed centrally of the opening 44 so that the stop forming fingers 42 and 43 that extend through the opening 44 in the partition 19 will extend into the lower ends of the respective coin chutes, and this is clearly shown in Figures 5 and 7 of the drawings. The coin chutes are adapted to receive coins of predetermined denominations, it being understood of course that the packages of cigarettes are to be sold at such a price as to only necessitate the insertion of but a single coin, the same being also true with respect to the selling price of the boxes of matches contained in the magazine 8.

Also forming an important part of the present invention are the pair of triggers or dogs 48 and 49 that are pivotally supported intermediate their ends of a rod or pin 50 that is supported in suitable brackets arranged on the partition 19 directly above the opening 44. The upper end of each pivoted trigger or dog is weighted whereby to normally cause the lower end portion 51 to extend through the opening 44 and the cut out portion 47 of each coin chute so that the lower extremity of each trigger will be disposed in the path of movement of the coins deposited in the coin chute.

The upper weighted end of each pivoted trigger or dog is formed with a notch 52 as more clearly shown in Figure 3 for engagement with the horizontally disposed rectangular head 38 carried by the upper end of the arm 37 that is secured for rocking movement with the rocker shaft 30 and normally the notched upper ends of the pair of triggers engage the head 38 to prevent rocking movement of the shaft 30.

A shaft 53 extends through the partition 19 adjacent the rear wall of the housing, one end of the shaft being journaled for rotation in a suitable bearing provided therefor on the outer end wall of the housing. An arm 54 is secured at its upper end on said shaft for swinging movement therewith and secured on the lower end of this arm is the laterally extending ejector foot 55 that is movable between the ledge 13 and the shoulder 15 for forcibly ejecting the lowermost package of matches B from the ledge into the rear end of the delivery chute as will be presently described. A forwardly extending arm 56 is rigidly secured to the inner end portion of the shaft 53 for disposition in the chamber or compartment 20 and the forward end of this arm is operatively connected to the rear end of the arm 57 that extends from the rear end of the head 38 through the medium of the connecting link 58 and this construction is more clearly illustrated in Figure 8 of the drawings.

The bottom of the chamber 21 provides a coin receiving box for receiving the coins deposited in the coin chutes 45 and 46 and access to this chamber may be had through an opening provided in the outer side of the chamber which is normally closed by the closure 59 and any appropriate locking means may be associated therewith.

The operation of my improved coin controlled vending machine may be briefly stated as follows. Normally, the parts are arranged as shown in the drawings and the notched weighted upper ends of the pivoted triggers or dogs 48 engage with the head 38. This will lock the rocker shaft against swinging movement and the ejectors for the packages of cigarettes and matches will be disposed in the position shown in Figures 2 and 8, respectively. The handle 35 of the lever 32 is moved along in the slot 33 until the particular brand of cigarette selected is reached and the handle is further so disposed as to permit registration of the lever with the adjacent lateral slot 34. The proper coins are then inserted in the coin chutes 45 and 46, respectively, and the coins will by gravity move downwardly in the respective coin chutes and will strike the lower ends of the pivoted triggers and the coins will overbalance the upper ends of the pivoted triggers to cause both of the triggers to move out of engagement with the head 38 and when the coins strike the stops 42 and 43, the same will be maintained in the lower ends of the coin

chutes in engagement with the lower extremity 51 of the pivoted triggers to hold the same in an inoperative position so that when the lever 32 is swung rearwardly, the rocker shaft 30 will be actuated.

When the rocker shaft 30 is free to rock, the free end of the rod-like extension 36 associated with the lever 32 will strike the upper end of the arm 25 of the adjacent lever 23 causing the latter to swing on its shaft 22 and to move the package supporting foot 24 forwardly so that the lowermost package of cigarettes will by gravity be discharged from its compartment into the delivery chute 5, and due to the particular shape of the chute, said package of cigarettes will be discharged at the front of the machine where the customer can readily obtain the same from the delivery chute.

As the shaft 30 rocks, the arm 37 will simultaneously be operated to effect the actuation of the shaft 53 whereby the arm 54 and the ejector foot 55 carried thereby will be brought into operation to discharge the lowermost package of matches B from the ledge 13 and the discharged package will by gravity move downwardly to the open forward end of the delivery chute.

The spring pressed plate or finger 27 will maintain the stack of packages of cigarettes in the compartment 7, while the lowermost package is being dispensed from the magazine and after the machine has completed a single operation, the spring pressed finger 27 will return to its normal position, thereby to permit the packages of cigarettes to move downwardly so that the lowermost one will be positioned for rest on the foot 24.

It will thus be seen from the foregoing description that I have provided a coin controlled vending machine for the selling principally of packages of cigarettes and boxes of matches wherein it is impossible to obtain either of said packages separately and therefore it is necessary to insert two coins in the machine for releasing the locking means for the rocker shaft whereby to permit the operation of the machine.

A coin controlled vending machine of the above mentioned character will at all times be positive and efficient in its operation and during the swinging movement of the arm 37 and the head 38 carried thereby, the rods 39 and 40 will also be subjected to a swinging movement so that the coins that rest on the stop forming ends 42 and 43 will be free to pass between said stops and the walls of the coin chutes and drop into the coin box in the housing.

While I have shown the preferred embodiment of my invention it is to be understood that various changes in the size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention and the scope of the appended claims.

Having thus described the invention, what I claim as new is:—

1. A vending machine of the class described comprising an article holding machine open at its lower end, a delivery chute for association with the open lower end of the magazine, a vertically disposed lever pivotally mounted in front of the magazine in front of the delivery chute, the lower end of the lever being formed with a laterally directed foot for supporting the lowermost article in the magazine, an arm extending upwardly from the pivoted lever and being spaced with respect to the magazine, an actuating lever pivotally secured at its lower end forwardly of the first mentioned lever, and a laterally disposed extension arranged on the second mentioned lever for engagement with the arm to swing the foot to an inoperative position when the second mentioned lever is operated, whereby the lowermost package is discharged from the magazine into the delivery chute, and a spring pressed finger carried by the arm for engagement with the next lowermost package in the magazine to permit only the discharge of the lowermost article from the magazine.

2. A vending machine comprising a casing, a housing arranged at the lower front side of the casing, a plurality of vertically disposed article holding magazines arranged within the casing, the bottom of each magazine being opened, a delivery chute at the bottom of the casing for communication with the open lower ends of the magazines, the top of the housing being formed with a longitudinal slot and with laterally extending slots that communicate at one end with the longitudinal slot, said lateral slots being arranged centrally of the respective magazines, a rocker shaft arranged longitudinally within the housing, an ejector for each magazine arranged within the housing, a lever slidably secured at its lower end on the rocker shaft for swinging movement therewith, said lever extending upwardly through the longitudinal slot in the top of the housing, and means carired by the lever for engagement with a pre-selected ejector to actuate the same when the lever is disposed in alignment with a preselected one of said lateral slots, the upper end of the lever operating in said pre-selected lateral slot for effecting the actuation of the ejector.

3. A vending machine comprising a casing, a housing arranged at the lower front side of the casing, a plurality of vertically disposed article holding magazines arranged within the casing, the bottom of each magazine being open, a delivery chute at the bottom of the casing for communication with the open lower ends of the magazines, the top of the housing being formed with a longitudinal slot and with laterally extending slots that communicate at one end with the longitudi-

nal slot, said lateral slots being arranged centrally of the respective magazines, a rocker shaft arranged longitudinally within the housing, an ejector for each magazine arranged within the housing, a lever slidably secured at its lower end on the rocker shaft for swinging movement therewith, said lever extending upwardly through the longitudinal slot in the top of the housing, and means carried by the lever for engagement with a pre-selected ejector to actuate the same when the lever is disposed in alignment with a pre-selected one of said lateral slots, the upper end of the lever operating in said pre-selected lateral slot for effecting the actuation of the ejector, each of said ejectors comprising a lever mounted for rockable movement at its upper end, the lower end of the lever being formed with a laterally disposed foot that normally engages with the bottom of the lowermost package in each compartment or magazine, and an arm extending upwardly from the pivoted lever, with which the slidably and rockably mounted lever engages to move the foot to an inoperative position and cause the discharge of the lowermost package into the delivery chute.

4. A vending machine comprising a casing, a housing arranged at the lower front side of the casing, a plurality of vertically disposed article holding magazines arranged within the casing, the bottom of each magazine being open, a delivery chute at the bottom of the casing for communication with the open lower ends of the magazines, the top of the housing being formed with a longitudinal slot and with laterally extending slots that communicate at one end with the longitudinal slot, said lateral slots being arranged centrally of the respective magazines, a rocker shaft arranged longitudinally within the housing, an ejector for each magazine arranged within the housing, a lever slidably secured at its lower end on the rocker shaft for swinging movement therewith, said lever extending upwardly through the longitudinal slot in the top of the housing, and means carried by the lever for engagement with a pre-selected ejector to actuate the same when the lever is disposed in alignment with a pre-selected one of said lateral slots, the upper end of the lever operating in said pre-selected lateral slot for effecting the actuation of the ejector, each of said ejectors comprising a lever mounted for rockable movement at its upper end, the lower end of the lever being formed with a laterally disposed foot that normally engages with the bottom of the lowermost package in each compartment or magazine, and an arm extending upwardly from the pivoted lever, with which the slidably and rockably mounted lever engages to move the foot to an inoperative position and cause the discharge of the lowermost package into the delivery chute, and a spring pressed finger carried by each of the arms associated with the ejector member for engagement with the next lowest package, as and for the purpose described.

In testimony whereof I affix my signature.

JAMES BERNARD RYAN.