

June 29, 1926.

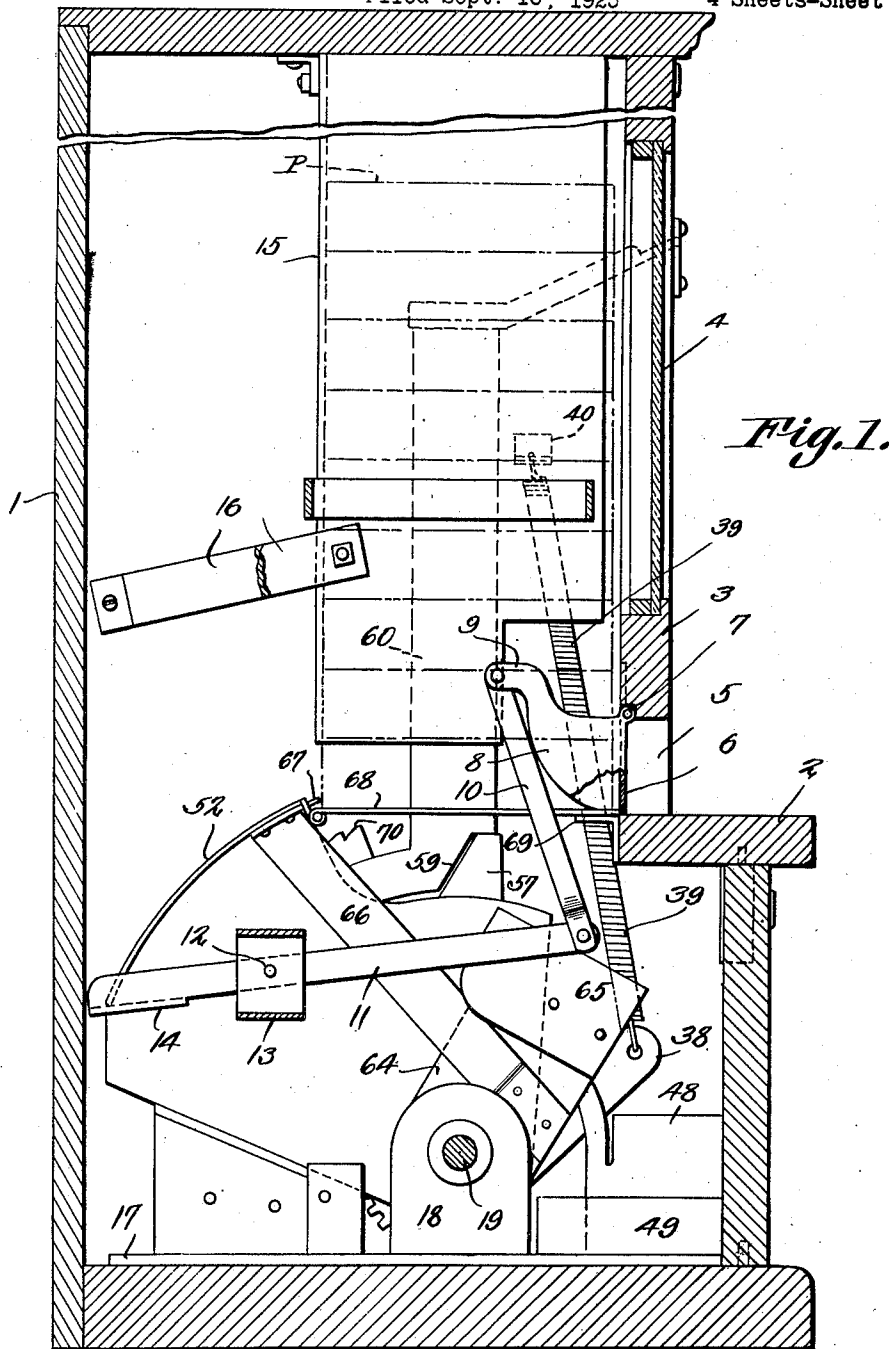
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L. D. ROBERTS

VENDING MACHINE

Filed Sept. 16, 1925

4 Sheets-Sheet 1



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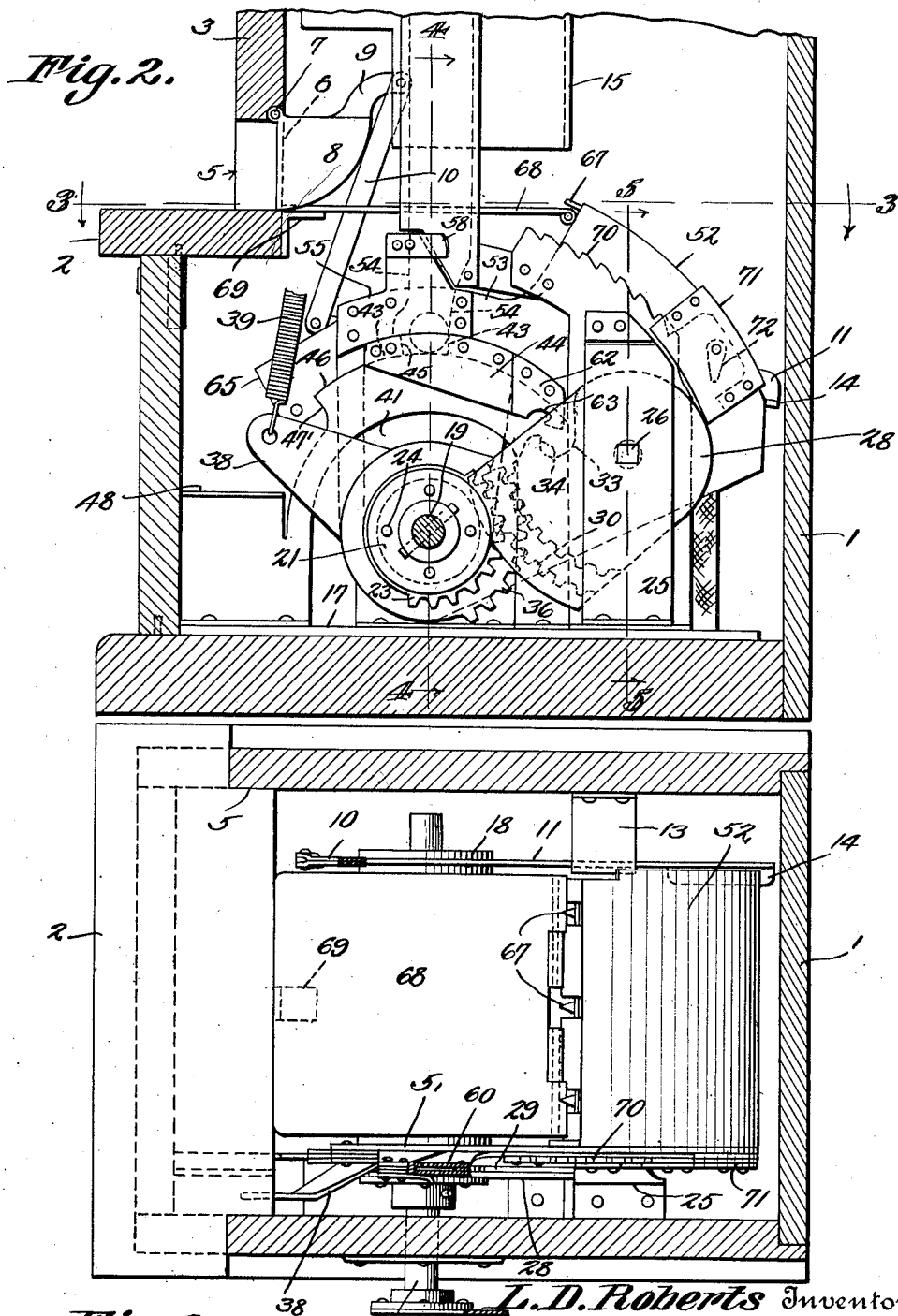
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4 Sheets-Sheet 3

Fig. 4.

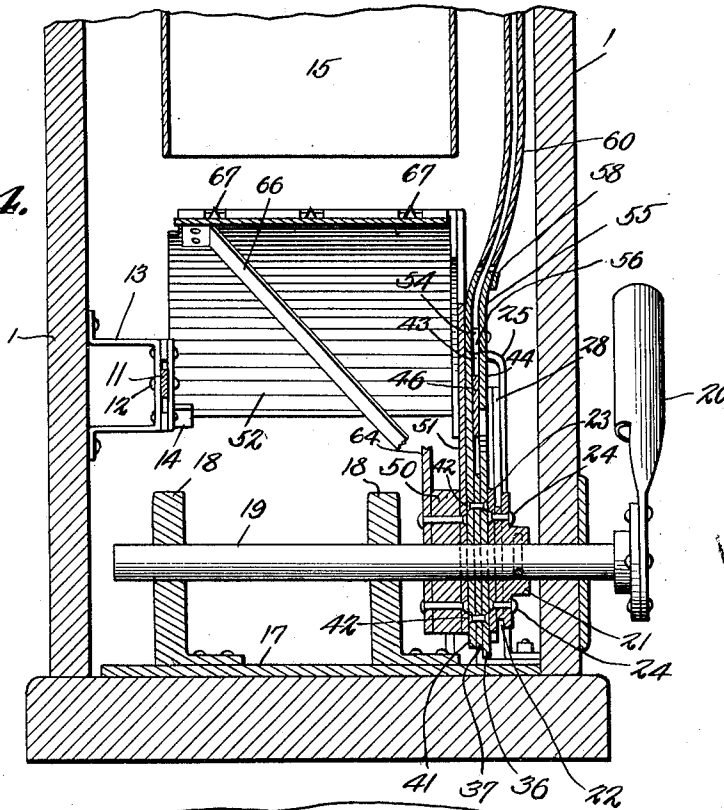
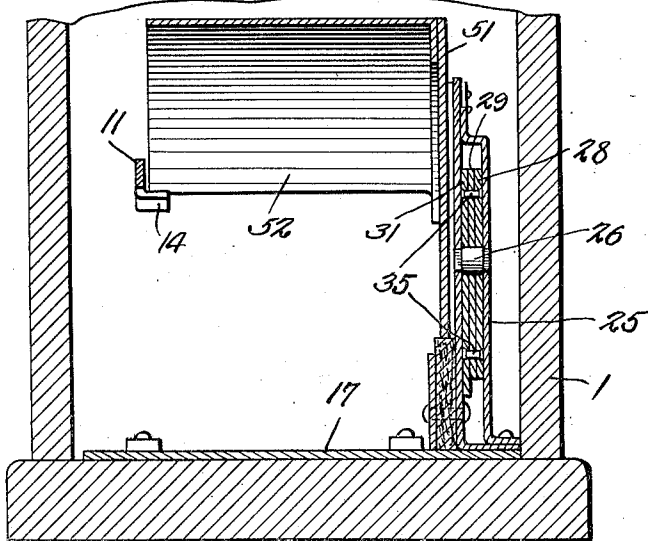


Fig. 5.



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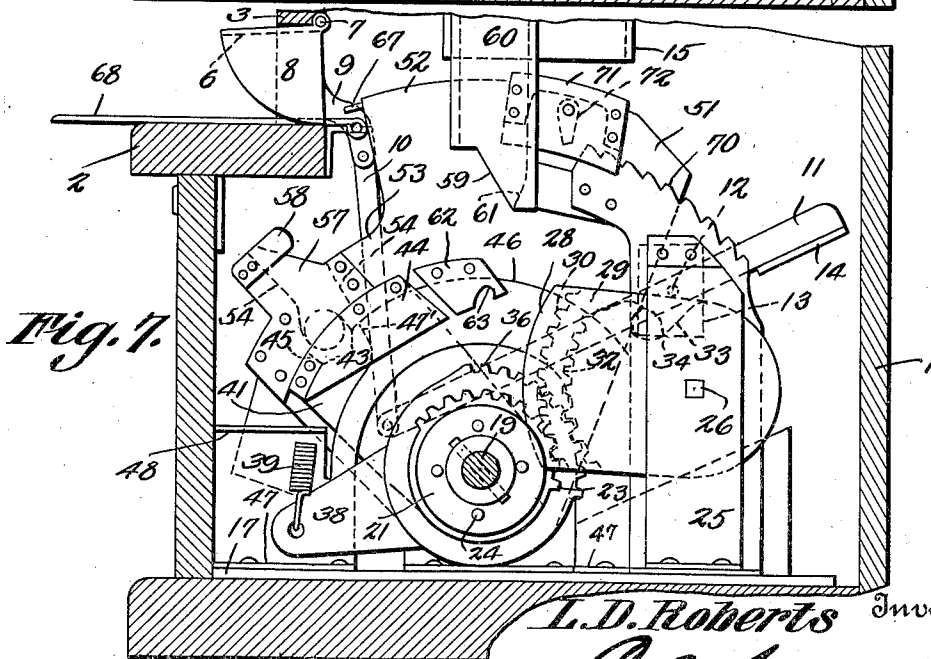
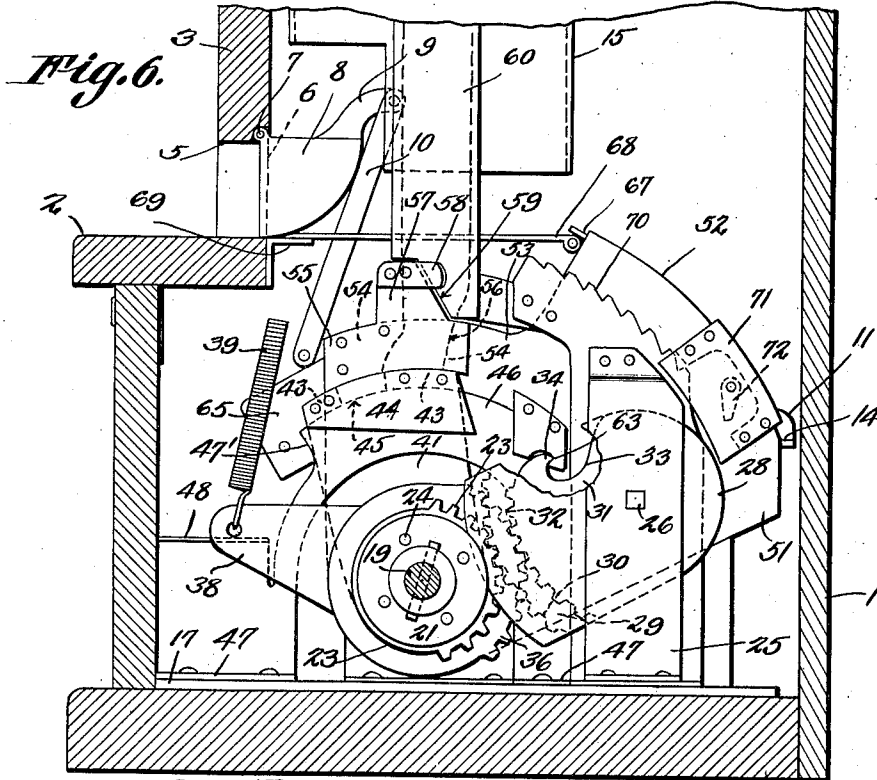
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4 Sheets-Sheet 4



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UNITED STATES PATENT OFFICE.

LEWIS D. ROBERTS, OF YORK, PENNSYLVANIA.

VENDING MACHINE.

Application filed September 16, 1925. Serial No. 58,694.

This invention relates to vending machines designed primarily for use in dispensing packages such as wrapped sandwiches and the like.

changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—

Figure 1 is a vertical section through the housing of the vending machine taken from front to rear and showing the interior mechanism in normal position.

Figure 2 is a section through the opposite side of the housing and showing the other side of the interior mechanism in elevation, the upper portion of the housing being removed.

Figure 3 is a section on line 3—3 Figure 2.

Figure 4 is a section on line 4—4 Figure 2.

Figure 5 is a section on line 5—5 Figure 2.

Figure 6 is a view similar to Figure 2 showing the means for locking the ejector against movement when an effort is made to actuate the same without the insertion of a coin or check.

Figure 7 is a view similar to Figure 6 showing the relative positions of the parts after the completion of the ejection of an article.

Referring to the figures by characters of reference 1 designates the housing of the machine and this can be of any preferred construction. In the structure illustrated there is provided a ledge or shelf 2 at the front of the housing and a front panel 3 extending upwardly from the ledge, this panel having a window 4 through which the articles to be dispensed are visible. An outlet opening 5 is provided at the bottom of the panel and the articles to be dispensed are adapted to be delivered one at a time through this opening and onto the shelf or ledge 2. A door 6 is hingedly mounted at 7 and normally closes the outlet opening 5, this door being provided with segmental side wings 8 from one of which is extended an arm 9. A link 10 is pivotally connected to this arm and extends downwardly and is pivotally connected to one end of the lever 11 fulcrumed as at 12, upon a bracket 13 extending inwardly from one wall of the housing. A laterally extending flange 14 is provided at the other end of lever 11 and is for the purpose hereinafter explained.

Arranged within the housing back of the panel 3 is a magazine 15 in which can be

One of the objects of the invention is to provide a dispensing machine the mechanism of which can be stamped from sheet metal, thereby materially reducing the cost of production.

A further object is to provide a dispensing machine which is attractive and is especially useful upon the counters of lunch-rooms and stores, at soda fountains and like places.

A further object is to provide a vending machine having efficient means for supporting a stack of packages or other articles to be dispensed, said supporting means being connected to and operable with the ejecting mechanism of the apparatus so that the ejected article will not be disfigured or otherwise injured during the dispensing operation.

A further object is to provide novel mechanism for transmitting motion from the operating element to the ejector, said mechanism including a lock for preventing operation of the ejecting mechanism until a check or coin of the required size has been placed in the machine.

Another object is to provide simple and efficient means for preventing retrograde movement of the ejecting mechanism until after the completion of the ejecting operation.

A still further object is to provide a means for closing the outlet of the machine so that access can not be had therethrough to the contents of the machine, said closing means operating automatically to open the outlet and to close the same in properly timed relation to the operation of the ejecting means.

A still further object is to provide improved means for holding the inserted coin or check in proper position relative to the parts cooperating therewith and for ultimately releasing it during the completion of the ejection.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that

arranged a stack of packages P or other articles to be dispensed. As before explained these can be in the form of wrapped sandwiches or the like. In the structure illustrated this magazine is suspended from the top of the housing 1. The front of the magazine is open so that the packages P will project slightly beyond said open face as shown by broken lines in Figure 1. Thus by unlocking and removing the panel 3 access to the interior of the magazine is provided and the same can be easily filled after which the panel can be replaced and locked.

The bottom of the magazine is open and disposed in a plane slightly below the top wall of the outlet opening 5. As shown in Figure 1 the magazine can be reinforced by braces 16 attached to the side walls thereof and to the side walls of the housing.

Secured upon the bottom of the housing 1 is the base plate 17 of the dispensing mechanism, there being bearings 18 mounted on this base plate. A shaft 19 is journaled in the bearings and extends through one side wall of the housing 1, this shaft being provided with any suitable means, such as a handle 20, whereby it can be rotated. To this shaft is keyed or otherwise secured a disk 21 having an annular groove 22 in its periphery one wall of which is formed by a segmental gear 23 which is mounted on the shaft and held to the disk 21 by rivets 24. Spaced upstanding strips 25 are fastened on the base plate 17, as shown in Figure 5 and cooperate to constitute a standard in which is seated a bearing 26. Mounted for rotation within the standard and on this bearing is a plate 28 one end of which is concentric with the bearing 26 and is adapted to work freely within the groove 22. Another plate 29 is mounted on the bearing 26 and has one end thereof terminating back from the arcuate end of the plate 28 and shaped to constitute a segmental gear 30 which meshes with the segmental gear 23. As the arcuate end of the plate 28 projects into the groove 22 the gears are properly held against lateral displacement relative to each other. Another plate 31 is mounted for rotation on the bearing 26 and has a segmental gear 32 at one end. This gear 32 is of less diameter than the gear 30 and the upper edge of the plate 31 is formed with a recess 33 one end of which is overhung by a hook 34 integral with the plate. See Figure 6. The three plates 28, 29 and 31 are held together by rivets 35 or the like so as to rotate as one member.

Mounted for rotation on the shaft 19 is a segmental gear 36 supported in the same plane and meshing with the gear 32. A spacing disk 37 is arranged upon the inner face of gear 36 and extending from this spacing disk is an arm 38 held normally elevated, as in Figure 2, by a coiled spring

39 or the like the upper end of which can be connected to a bracket 40 in housing 1 as shown particularly in Figure 1. A coupling plate 41 is arranged against one side of the disk 37 and this plate, disk 37 and gear 36 are all held together by rivets 42 so that they will rotate as one body.

Secured to the peripheral portion of the coupling plate 41 are spaced blocks 43 connected by a side strip 44 so that a coin receiving pocket 45 is thus produced between plates 41 and 44 and between the blocks 43. Blocks 43 are located close to and adapted to slide along the arcuate outer edge of a guide plate 46 which extends over shaft 19 and has its ends attached to the base plate 17 as shown at 47. This guide plate 46 is in line with the pocket 45 so as normally to close the bottom thereof. The arcuate upper edge of the guide plate 46 terminates in a shoulder 47' extending downwardly therefrom and the forward lower portion of the plate is provided with a forwardly extending laterally inclined deflecting lip 48 for directing a deposited coin or check into a tray 49 adjacent thereto.

Mounted to rotate on shaft 19 is a bearing 50 secured to the inner side of a segmental wing 51 provided at one side of an arcuate ejector 52. A curved arm 53 is extended forwardly from the segmental plate 51 and is adapted to work close to and at one side of the segmental plate 41. This curved arm 53 has spaced blocks 54 on one side thereof connected by a side plate 55 riveted or otherwise attached to them. A check or coin receiving space 56 is thus formed between the blocks 54, this space being open at the top and bottom and adapted to register with the pocket 45 on plate 41. Plate 55 has an extension 57 provided with a side wing 58 and when the parts are in their normal positions, this extension fits against or within the cutaway lower end 59 of a coin chute 60. Wing 58 laps one side of the coin chute, so as to hold the parts against relative lateral displacement, as will be obvious.

It is to be understood that the coin chute can be extended to any desired point within the housing so that a coin or check can be readily inserted thereinto. Thereafter the coin will gravitate within the chute until it reaches the lower end thereof whereupon it will strike a slightly offset wall 61 and be directed downwardly into the coin receiving space 56. The walls of this space formed by the blocks 54 diverge downwardly and the rear block 43 carried by the plate 41 normally closes the bottom of the space 56. These relative positions of the parts have been illustrated in Figure 6.

The segmental wing 57 carries a block 62 which laps the guide plate 46 and has a recess 63 into which hook 34 is adapted to pro-

ject as shown thereby to hold the ejector 52 and the parts carried thereby against movement away from their inactive positions.

An arm 64 connected to the bearing 50 carries a weight 65 and constitutes means for counter-balancing the ejector. The ejector can be reinforced by a brace 6 extending diagonally thereunder from the plate 64 to the far side of the ejector as shown in Figures 1 and 4.

Extending forwardly from the arcuate ejector 52 are one or more prongs 67 adapted to come against the back of and engage a package to be ejected. Hingedly connected to the forward end of the ejector 52 is a supporting and delivering plate 68 and when the parts are in their normal positions the front or free end of this plate rests upon a bracket 69 located with its upper face flush with the bottom wall of the outlet opening 5.

An arcuate ratchet bar 70 is connected to the standard 25 and secured to the wing 57 is a block 71 having a recess in which is hung a pawl 72. This pawl is so positioned that during the forward movement of the ejector 52, said pawl will slide over the teeth of the ratchet bar. Should the ejector be stopped at any intermediate points during its movement, the pawl, by engaging the ratchet bar, would prevent the return of the ejector. After the ejector has moved completely forward the pawl will move off of the forward end of the ratchet bar and drop downwardly so that, during the return movement of the ejector said pawl will again slip over the teeth of the ratchet bar. Obviously, therefore, it is only possible to return the ejector after it has made one complete forward movement.

When the ejector is in its normal or rear-most position it rests against the flange 14 on lever 11 so that it therefore becomes impossible to open the door or gate 6.

Assuming that the magazine 15 contains a stack of packages, such as wrapped sandwiches, it will be understood that the lowermost package will rest upon the plate 68. The forward swinging or rotation of the ejector 52 is prevented because the recessed block 62 will be engaged by the hook 34.

When it is desired to remove one of the articles from the machine a coin or check of the proper size is inserted into the chute 60 and will gravitate into the space 56 between the blocks 54 and project into the pocket 45. These relative positions have been shown in Figure 2. At this time the hook 34 is out of the recess 63 and the pawl 72 is suspended back of the ratchet bar 70. The operator then rotates shaft 19 by means of the handle 20 or other structure provided for that purpose. As gear 23 rotates with shaft 19 motion will be transmitted therefrom to the segmental gear 30 and this, in turn, will cause gear 32 to rotate upwardly and pro-

duce a corresponding movement of the gear 36. Had no coin been inserted this operation would have resulted in the hook 34 swinging upwardly to the recess 63 as shown in Figure 6. However when a coin is inserted the plate 41 will be keyed by the coin or check to the arm 53 and wing 51 with the result that block 62 with the recess 33 therein will be swung forwardly out of the path of the hook 34. The coin, which keys together the parts 41 and 53, will travel along the arcuate edge of the guide plate 46 until the shoulder 47' is reached at which time said coin will gravitate from the pocket 45 and against deflecting lip 48 so as to be directed into the tray 49. During this forward movement of the coin and the parts connected thereto the spring 39 will be placed under tension and pawl 72 will be slid along the ratchet bar 70. At the same time the prongs 67 will come against the back of the article to be dispensed and will thrust said article forwardly, the same remaining on the plate 68 and being delivered therewith through the opening 5. Before the article reaches said opening the ejector 52 has left flange 14 and, consequently, the door or gate 6 is free to swing open as shown in Figure 7. As soon as the article is delivered the parts will be returned to their initial positions by the spring 39 and will immediately become reset so that another article can not be delivered until after another coin or check of the proper size has been inserted and the foregoing operation repeated.

It will be seen that the gears used for transmitting motion to the ejector from the shaft 19 serve to reduce speed and, consequently, the power required to operate the ejector is greatly reduced. Furthermore as the various parts of the mechanism are formed of sheet metal it will be apparent that the same can be stamped readily and can be easily assembled, thereby greatly reducing the cost of the structure as compared with those machines requiring the use of castings or the like.

What is claimed is:—

1. In a vending machine the combination with a magazine, of an ejector cooperating therewith, a train of gears, cooperating means upon one of the gears and the ejector movable into engagement with each other during the actuation of the gears to lock the ejector against complete movement, and means controlled by the insertion of a check or coin for actuating the ejector to prevent cooperation of said locking means.

2. In a vending machine an ejector, a train of gears, cooperating means upon the ejector and one of the gears movable into engagement to lock the ejector against complete movement, and cooperating means for the reception of a check or coin to couple the ejector to the gears and actuate the ejection.

tor to prevent cooperation of the locking means.

3. In a vending machine an ejector, a train of gears, means for actuating the gears, cooperating means upon the ejector and one of the gears movable into interfitting relation to lock the ejector against ejecting movement, a coin receiving member movable with one of the gears, a coin receiving member movable with the ejector, and means for directing a coin into said members to key them together and transmit motion to the ejector to prevent cooperation of the locking means.

4. In a vending machine an ejector, a train of gears for actuating the same, cooperating means carried by the ejector and movable with one of the gears for locking the ejector against complete movement in one direction, a coin receiving member movable with one of the gears, a coin receiving member movable with the ejector, a coin supporting guide fixedly mounted, and means for directing a coin into said members and onto the guide to key the members together and transmit motion from the gears to the ejector prior to the engagement of the cooperating locking means, thereby to prevent locking of the ejector.

5. The combination with an ejector, a train of gears for actuating the same, and a member movable with one of the gears and having a coin receiving pocket, of a member movable with the ejector and having a coin receiving space, means for directing a coin into said space and pocket for keying together the ejector and the said member thereby to operatively connect the ejector to the gears, and an arcuate guide for supporting the coin during the actuation of the ejector, said guide having means for releasing the coin during the completion of the ejecting operation.

6. In a vending machine an ejector, gears for transmitting motion thereto, said gears being normally uncoupled therefrom, a member movable with one of the gears and having a coin receiving pocket, a member movable with the ejector and having a coin receiving space, means for directing a coin into said space and pocket to key together said member and the ejector thereby to operatively connect the ejector to the gears, an arcuate guide for supporting the coin in the pocket during the operation of the ejector in one direction, said guide being cut away to release the coin during the completion of the ejecting operation, and yielding means for returning the ejector and gears to their initial positions on the completion of the ejecting operation.

7. In a vending machine an ejector, gears for transmitting motion thereto, said gears being normally uncoupled therefrom, a member movable with one of the gears and having a coin receiving pocket, a member movable with the ejector and having a coin receiving space, means for directing a coin into said space and pocket to key together said member and the ejector thereby to operatively connect the ejector to the gears, an arcuate guide for supporting the coin in the pocket during the operation of the ejector in one direction, said guide being cut away to release the coin during the completion of the ejecting operation, and cooperating means upon one of the gears and the ejector for movement into engagement to hold the ejector against movement in one direction prior to the insertion of a coin.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

LEWIS D. ROBERTS.