

Jan. 24, 1950

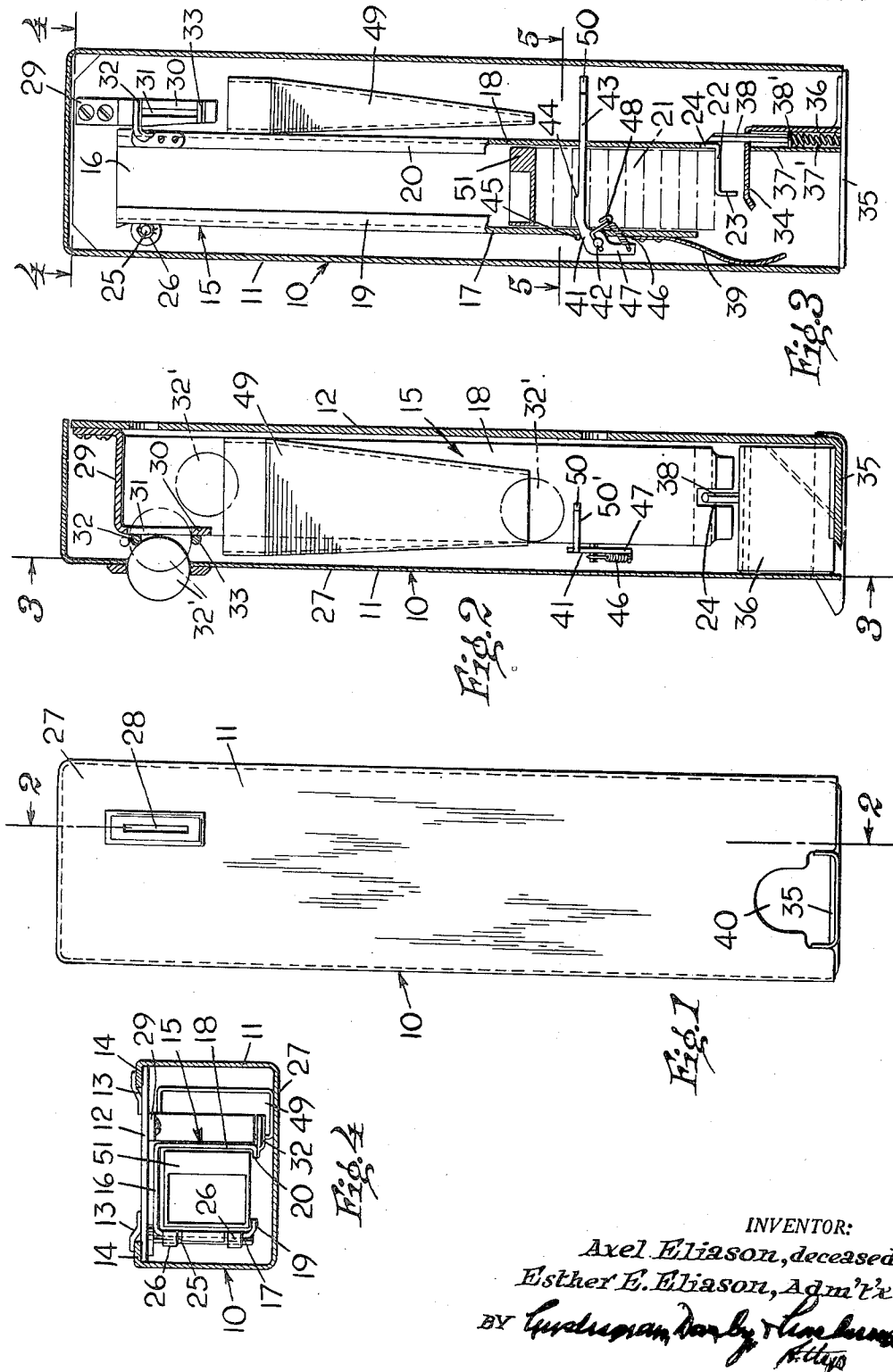
A. ELIASON

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AUTOMATIC VENDING MACHINE

Filed Nov. 15, 1945

2 Sheets-Sheet 1



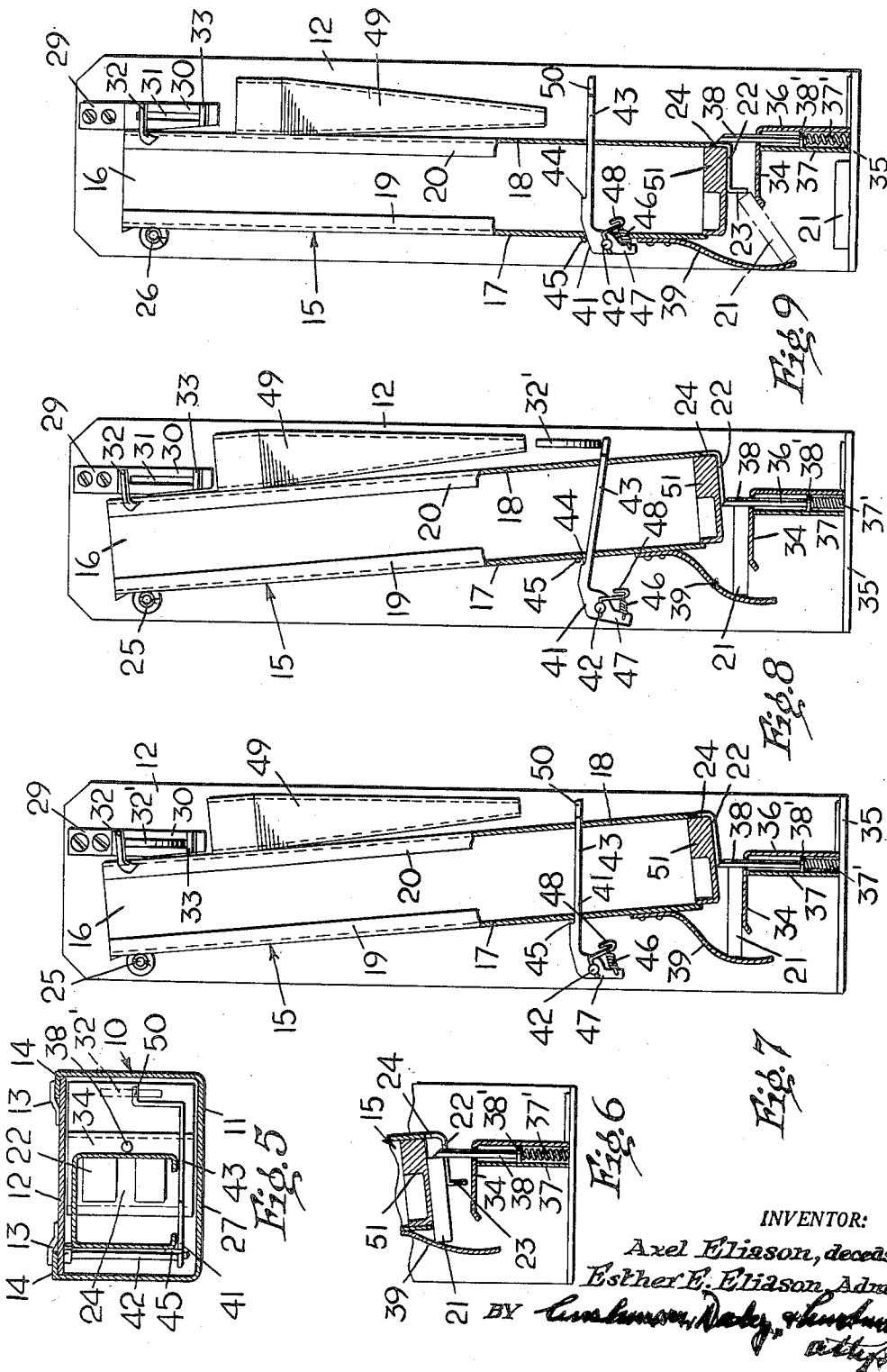
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UNITED STATES PATENT OFFICE

2,495,576

AUTOMATIC VENDING MACHINE

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Application November 15, 1945, Serial No. 623,719

9 Claims. (Cl. 194—2)

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The present invention relates to vending machines. One of the objects of the invention is the provision of a machine of this character having a movable magazine or article holder wherein movement of the article holder will effect discharge of the articles therefrom.

A further object is to provide a vending machine of this type wherein the act of inserting a coin will effect initial movement of the article holder in its vending operation.

Another object is to provide a two step discharge of the material, the first step being performed during initial movement of the holder, while the second step takes place during return movement of the holder to its original position.

A further object is to provide a construction of this character wherein the coin not only effects initial movement of the holder, but also controls means for permitting return movement of the holder to its original position.

With the foregoing and other objects in view, the invention will now be more fully described, reference being had to the accompanying drawings, in which:

Figure 1 is a front elevation of the vending machine,

Figure 2 is a vertical section taken on line 2—2 of Figure 1,

Figure 3 is a vertical section taken on line 3—3 of Figure 2,

Figure 4 is a transverse section taken on line 4—4 of Figure 3,

Figure 5 is a transverse section taken on line 5—5 of Figure 3,

Figure 6 is a fragmentary view showing the lower end of the article holder as it is being swung from its normally vertical position, and

Figures 7, 8 and 9 are front views of the vending machine, with the casing removed and showing the article holder in its various positions during the operation of the machine.

Referring now to the drawings and particularly to Figures 1, 2 and 3, the numeral 10 designates generally the present vending machine having an enclosing casing 11 which is open on its rear side and cooperates with a vertically extending support 12 to enclose the vending mechanism. As will be observed from Figure 2, the support 12 forms the rear vertical wall of the casing and this wall is provided with one or more sets of clips 13 (see Figures 4 and 5) which receive inwardly extending flanges 14 of the casing 11. The casing may be removed by sliding the same upwardly on the support 12 until the flanges 14 are moved out of contact with the clips 13.

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The numeral 15 designates a magazine or article holder having a rear wall 16 and side walls 17 and 18, respectively. The front edge of side wall 17 is bent inwardly to form a front flange 19 and side wall 18 is formed in the same manner to provide front flange 20 which cooperates with the flange 19 to retain the articles 21 within the holder. The bottom wall or floor 22 of the holder is of sufficient size to adequately support the articles but this wall does not extend across the entire area of the holder. As shown in Figure 3, bottom wall 22 terminates at a point spaced from the lower end of side wall 17 to form therewith an article discharge opening. Bottom wall 22 is also provided with a downwardly extending flange or finger 23 and also has a centrally disposed slot 24 which extends upwardly a short distance into side wall 18. The objects and functions of the flange and slot will be described in detail hereinafter.

The article holder 15 is pivotally mounted on the support 12 adjacent its upper end. The pivot comprises a transversely extending rod 25 having one end thereof secured to the support 12. A pair of bearings 26 (see Figure 4) project outwardly from side wall 17 and cooperate with the rod 25 to swingingly mount the article holder on its support 12. The front wall 27 of the casing 11 is provided with a coin slot 28 adjacent its upper end. Secured to the upper portion of the support 12 is a bracket 29 (see Figure 2) having a downwardly extending front flange 30 which is provided with a slot 31 registering with slot 28 and spaced therefrom a distance less than the width of the coin or check which is to be employed in initiating operation of the machine.

A coin engaging arm 32 is secured adjacent the upper end of flange 30 and provides the laterally extending portion which normally is positioned in front of and below the upper end of slot 31 when the article holder is in its normal vertical position. The arrangement of these elements is such that insertion of a coin 32' in slot 28 will engage the under side of arm 32 and raise the same, thereby swinging the arm and article holder about its pivot. To assist in guiding the coin into the slot 31 at the moment that the coin engages the arm 32, there is provided a lug or projection 33 secured to the front of flange 30 so that its upper edge is on a level with the lower end of slot 31. With this arrangement, there is no opportunity for the coin to slip downwardly before it has performed its function of lifting the arm 32 and swinging the holder 15 about its pivot.

The swinging movement of the article holder

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effects a discharge of the lowermost article 21 from the holder and this is performed in a two step operation. Directly below the bottom wall 22 of the holder is mounted an article receiving shelf 34 which is supported on the base 35 of the support 12. This shelf comprises an upwardly projecting wall 36 which cooperates with a curved casing 37 to house a post 38. This post projects upwardly through an opening in the rear of the shelf 34 and is in alignment with the slot 24 of the base 22 of the holder. A coil spring 37' is mounted in the housing below the post and engages the head 38' of the post to normally retain the post in the position shown in Figure 3.

Referring to Figure 6, it will be observed that as the holder is initially swung on its pivot 15 by the insertion of a coin in the slots 28 and 31, the post 38 will contact the foremost article 21 and transfer it from the floor 22 to the shelf 34. In this connection, a leaf spring 39 is secured to the lower end of side wall 17 and extends downwardly below the shelf 34. The spring engages one edge of the article as it is being moved off of the base 22 and guides it on to the shelf 34. It will be observed that when the lowermost article has been deposited on the shelf 34, the flange or finger 23 which is swung to the position shown in Figure 7 is in contact with an edge of the article. Therefore, during the return movement of the article holder, the flange 23 will shove the article off of the shelf 34 and upon the base 35 directly in the rear of the discharge opening 40, formed in the front wall 27 of the casing 11. After the lowermost article has been deposited on the shelf 34, the next article will engage the top of the post 38 and thereby depress the same as shown in Figure 7. This action greatly facilitates the operation of the machine and assures that the weight of the article upon the post will not retard or prevent return of the holder to its original position. If the post was rigidly fixed in the housing 37, the weight of the articles, particularly when the holder was filled, might cause the top of the post to penetrate the lowermost article and thereby prevent return of the holder. It will be observed that the top of the post 38 is beveled or inclined so as to present a very small contacting surface to the article.

In order to provide a momentary locking of the holder at the end of its initial swing and to insure that the article will be properly discharged, means are provided to retain the holder in its inclined position. This means comprises a latch member 41 which is pivotally mounted on a rod 42 supported by and extending outwardly from the support 12. The latch is provided with a longitudinally extending portion 43 which is maintained in a horizontal position when the holder is in its normal position (see Figures 3 and 9). The longitudinally extending portion 43 has a notch 44 formed therein which is adapted to cooperate with a pin 45 formed on the wall 17 of the holder and projecting outwardly beyond the edge of the wall so that it will overlap the latch member. A coil spring 46 extends between the downwardly extending arm 47 of the latch member and a stationary bracket 48 and urges the latch member into contact with the lower edge of the pin 45.

Mounted on the article holder at a point directly below the slot 31 of the bracket 30 is a coin chute 49. This chute is of sufficient width to receive a coin after the latter has raised the arm 32 and swung the holder to the position shown in Figure 7. Furthermore, the free end of the longitudinally extending portion 43 of the

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latch member is bent at substantially right angles to the rest of the member and then bent again so that it will be directly in line with the lower end of the coin chute 49 when the holder has been swung to its extreme position as shown in Figure 7, thus forming a coin engageable element 50. It will further be observed that the transversely bent portion 50' (see Figure 2) acts as a guard to prevent the holder from swinging too far and possibly contacting the adjacent wall of the casing 11.

With this construction and assuming that a coin has been inserted in the coin slot, the article holder will be swung about its pivot and as it reaches the end of its swing, the pin 45 will engage the notch 44 and thereby retain the holder in the position shown in Figure 7. However, the holder is only momentarily maintained in this inclined position due to the fact that the coin after it leaves the coin chute will fall upon the portion 50 of the latch member and move the same about its pivot. This will release the notch 44 from the pin 45 and the article holder will thereby swing back to its normal vertical position, where it will be in position to receive another coin. As described above, the initial swinging movement of the holder will transfer the lowermost article to the shelf 34, while the return swing of the holder will, by reason of the flange 23, shove the article off the shelf and upon the base 35 directly behind the opening 40 in the casing where it can be easily reached and removed.

To insure against insertion of a coin when the article holder is empty, there is provided a follower plate 51 which rides upon the topmost article and eventually moves to the position shown in Figure 9. It will be observed that the thickness of the follower 51 is greater than that of each of the articles. Furthermore, the thickness of the follower is such that the upper edge of the follower will overlap the extreme lower end of the side wall 17. Since the post 38 will be directly behind the follower 51 in the position shown in Figure 9, any attempt to insert a coin will be prevented by reason of the fact that the follower will engage the post and since it is not free to slide off of the base or floor 22 of the holder, because of engagement of the front wall 17 with the follower, the holder will be prevented from swinging about its pivot. This will, of course, prevent the arm 32 from being lifted above the upper end of the slot 31 so that it will act as a lock to prevent insertion of a coin through the slot 31.

It is to be understood that the tension of the spring 46 is such that the latch will only be tripped if a coin of sufficient weight is inserted in the coin slot. Thus, if a lightweight slug or the like is inserted in the slot, an article will not be delivered even though the holder has been swung to its inclined position and the holder cannot be released until a coin of the correct dimension and weight is inserted in the coin slot. When this has been done, the coin will engage the latch member and release the holder so that it may then swing back to its normal vertical position and in doing so, will discharge the lowermost article.

It is to be understood that the invention is not limited to the details of construction shown in the drawings and that the phraseology employed in the specification is for the purpose of description and not of limitation.

What is claimed is:

1. In a vending machine, a support, an article

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holder swingingly mounted on said support and normally maintained in a substantially vertical position, a shelf located below said article holder for receiving an article from the holder as the latter is swung from its vertical position, means for engaging and removing an article from the holder during the initial swinging movement of the latter, and a downwardly projecting element carried by said article holder for engaging and removing the article from the shelf when the holder is swung back to its vertical position.

2. In a vending machine, a support, an article holder swingingly mounted on said support and normally maintained in a substantially vertical position, a shelf located below said article holder for receiving an article from the holder as the latter is swung from its vertical position, a pin projecting upwardly from the shelf and adapted to engage the lowermost article in the holder and effect its removal to the shelf during the swinging movement of the holder, and a downwardly projecting member carried by said article holder for engaging and removing the article from the shelf when the holder is swung back to its vertical position.

3. In a vending machine, a support, an article holder swingingly mounted on said support and normally maintained in a substantially vertical position, a shelf located below said article holder for receiving an article from the holder as the latter is swung from its vertical position, the holder having an article supporting floor extending partially across the lower end of the holder and terminating short of the adjacent vertical wall of the holder to provide a discharge opening for the articles, means for engaging and removing an article through said discharge opening during the swinging movement of the holder, and means carried by said holder for contacting and removing the article from the shelf when the holder is swung back to its vertical position.

4. In a vending machine, a support, an article holder swingingly mounted on said support and normally maintained in a substantially vertical position, a shelf located below said article holder for receiving an article from the holder as the latter is swung from its vertical position, the holder having an article supporting floor extending partially across the lower end of the holder and terminating short of the adjacent vertical wall of the holder to provide a discharge opening for the articles, means for engaging and removing an article through said discharge opening during the swinging movement of the holder, the article supporting floor having a downwardly projecting flange adapted to engage and remove the article from the shelf when the holder is swung back to its vertical position.

5. In a vending machine, a support, an article holder swingingly mounted on said support and normally maintained in a substantially vertical position, a shelf located below said article holder for receiving an article from the holder as the latter is swung from its vertical position, the holder having an article supporting floor extending partially across the lower end of the holder and terminating short of the adjacent vertical wall of the holder to provide a discharge opening for the articles, means for engaging and removing an article through said discharge opening during the swinging movement of the holder, a spring member carried by the holder and depending below the discharge opening and the shelf and adapted to engage the projecting edge of an article which has been discharged upon the shelf

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and prevent displacement of the article from the shelf during the initial swinging movement of the holder, and means carried by said holder for contacting and removing the article from the shelf when the holder is swung back to its vertical position.

6. In a vending machine, a support, an article holder swingingly mounted on said support and normally maintained in a substantially vertical position, a shelf located below said article holder for receiving an article from the holder as the latter is swung from its vertical position, a resiliently mounted pin projecting upwardly from the shelf and adapted to engage the lowermost article in the holder and effect its removal to the shelf during the swinging movement of the holder, said pin being capable of being urged downwardly by the weight of the articles in the holder, to facilitate return of the holder to its vertical position, and means carried by said holder for contacting and removing the article from the shelf when the holder is swung back to its vertical position.

7. In a vending machine having in combination a casing, an article holder pivotally mounted in said casing and movable from its normal vertical position to an inclined position, said holder having a fixed bottom supporting the articles and provided with an opening for withdrawing the lowermost article in the holder therefrom, a shelf below said bottom for receiving an article discharged from the holder through said opening, said casing having a delivery outlet in the bottom thereof, a coin chute connected to said holder and movable therewith, said casing having a coin slot adjacent the pivot point of said holder, means carried by said holder and adapted to be engaged by a coin inserted in said slot to move the holder from its vertical position to its inclined position, means for removing an article in the bottom of the holder therefrom so as to discharge the article onto said shelf as the holder is moved to its inclined position, displaceable means releasably connected to the holder for maintaining the same in its inclined position, said displaceable means extending into the path of a coin falling through the chute and operable by the coin to be released from the holder so as to allow the holder to return to its vertical position, and means on the holder for removing the article on the shelf and discharging the same into said delivery outlet as the holder is returned to its vertical position.

8. In a vending machine having in combination a casing, an article holder pivotally mounted in said casing and movable from its normal vertical position to an inclined position, said holder having a fixed bottom supporting the articles and provided with an opening for withdrawing the lowermost article in the holder therefrom, a shelf below said bottom for receiving an article discharged from the holder through said opening, said casing having a delivery outlet in the bottom thereof, a coin chute connected to said holder and movable therewith, said casing having a coin slot adjacent the pivot point of said holder, an arm carried by said holder and having a portion thereof extending across the coin slot when the holder is in its vertical position so that upon insertion of a coin in the slot, the coin engages the arm and moves the holder and the coin chute to their inclined position, means for removing an article in the bottom of the holder therefrom so as to discharge the article onto said shelf as the holder is moved to its inclined position, a latch member pivotally mounted in said casing and

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having a pin engaging notch thereon, said holder having a pin normally out of engagement with said notch when the holder is in its vertical position and adapted to engage said notch and retain the holder in its inclined position, said latch member having a portion in the path of the coin chute and operable by a coin as it falls through the chute to release the pin from the notch to allow the holder to return to its vertical position, and means on the holder for removing the article on the shelf and discharging the same into said delivery outlet as the holder is returned to its vertical position.

9. In a vending machine having in combination a casing, an article holder pivotally mounted in said casing and movable from its normal vertical position to an inclined position, said holder having a fixed bottom supporting the articles and provided with an opening for withdrawing the lowermost article in the holder therefrom, a shelf below said bottom for receiving an article discharged from the holder through said opening, said casing having a delivery outlet in the bottom thereof, a coin chute connected to said holder and movable therewith, said casing having a coin slot adjacent the pivot point of said holder, an arm carried by said holder and having a portion thereof extending across the coin slot when the holder is in its vertical position so that upon insertion of a coin in the slot, the coin engages the arm and moves the holder and the coin chute to their inclined position, means for removing an article in the bottom of the holder therefrom so

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as to discharge the article onto said shelf as the holder is moved to its inclined position, a latch member movably mounted in said casing, means on said holder engageable with said latch member to releasably retain the holder in its inclined position, said latch member being in the path of the coin falling through the chute and operable by the coin to release the holder from the latch member to allow the holder to return to its vertical position, and means on the holder for removing the article on the shelf and discharging the same into said delivery outlet as the holder is returned to its vertical position.

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Administratrix of Alex Eliason, Deceased.

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