July 3, 1923. 1,460,879

D. ALLEN

VENDING MACHINE

Filed Aug. 19, 1922 2 Sheets-Sheet 1

Fig. 1.

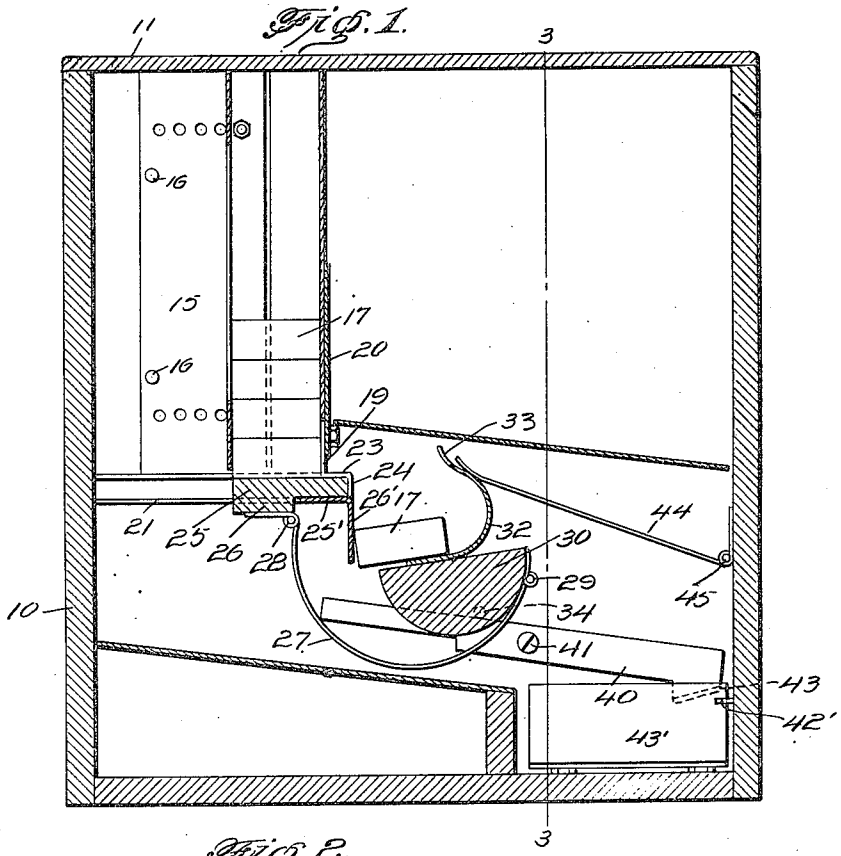
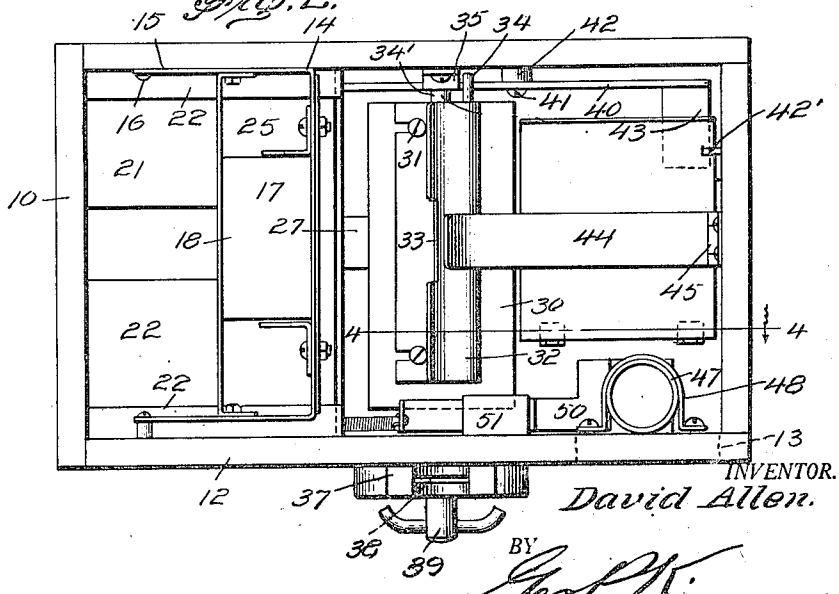


Fig. 2.



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Fig. 3.

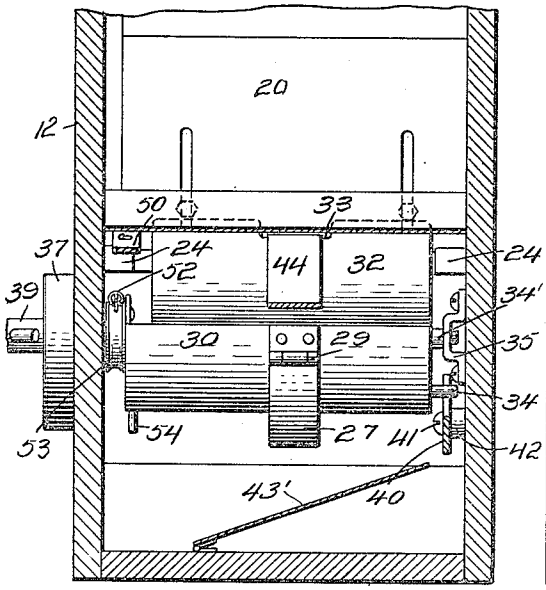


Fig. 4.

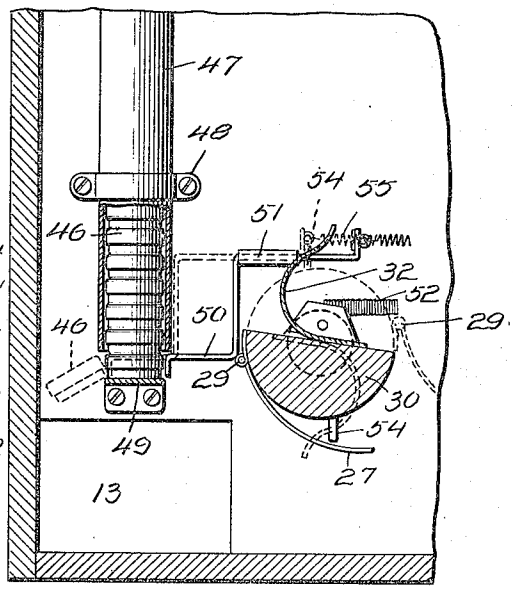


Fig. 5.

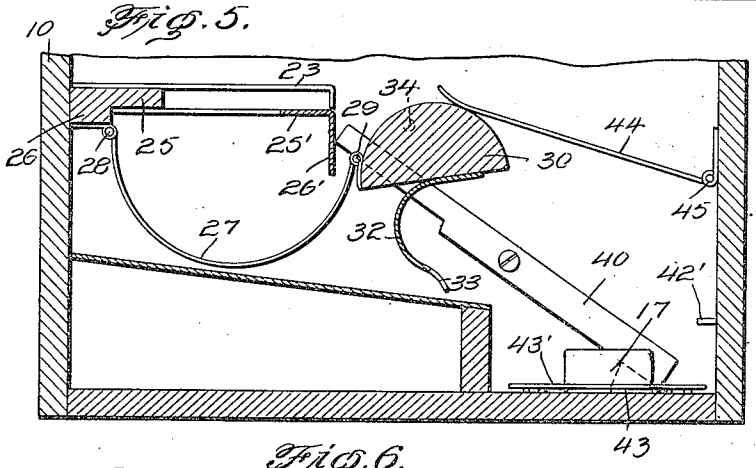


Fig. 8.

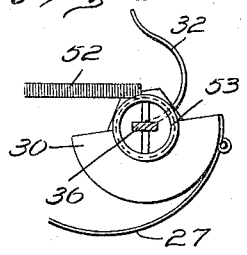
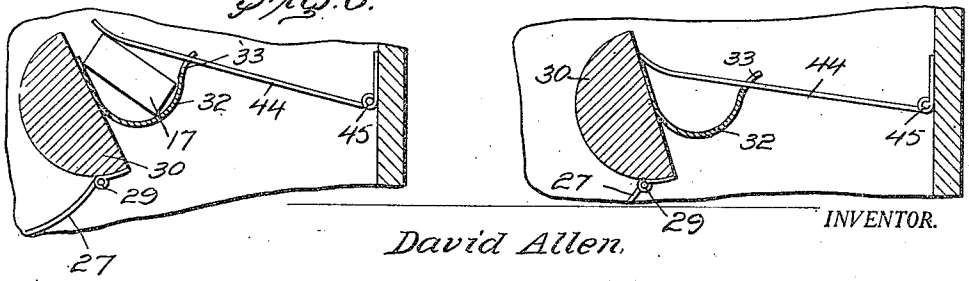


Fig. 7.

Fig. 6.



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UNITED STATES PATENT OFFICE.

DAVID ALLEN, OF NEW YORK, N. Y.

VENDING MACHINE.

Application filed August 19, 1922. Serial No. 582,965.

To all whom it may concern:

Be it known that I, DAVID ALLEN, a citizen of the United States, residing at New York, in the county of Bronx and State of New York, have invented certain new and useful Improvements in Vending Machines, of which the following is a specification.

This invention relates to a vending machine, of the coin controlled class, more particularly however, to the article delivery of vending mechanisms of said machine, and has for its object to provide a machine of such class, in the manner as hereinafter set forth, for delivering two articles of merchandise simultaneously from the delivery or vending mechanisms thereof, or an article of merchandise and the amount of change due the operator, if the article of merchandise is of less value than the value of the coin inserted in the machine to provide for its operation to deliver or vend the article of merchandise.

A further object of the invention is to provide a machine of such class, in the manner as hereinafter set forth, with means to prevent the operation of the delivery or vending mechanism thereof, when the machine has been emptied of merchandise, and further to prevent the passing of the coin, inserted to operate the machine when the latter is emptied of merchandise, to the interior of the machine, so that the person to whom the coin belongs can readily obtain the same.

A further object of the invention is to provide a machine of such class, in the manner as hereinafter set forth, with means for projecting the article of merchandise after it has been discharged from the delivery or vending mechanism, towards the outlet of the machine, so that the article can be conveniently reached by the person who has inserted the coin to cause the operation of the machine to deliver the article.

Further objects of the invention are to provide a vending machine for the purpose set forth, which is simple in its construction and arrangement, strong, durable, compact, efficient and convenient in its use, readily set up, and comparatively inexpensive to manufacture, as well as designed to be conveniently refilled with merchandise when the occasion requires.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is a vertical sectional view of a vending machine in accordance with this invention.

Fig. 2 is a top plan view, with the cover removed.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 2.

Fig. 5 is a vertical sectional view illustrating one of the delivery mechanisms in position when the article has been delivered therefrom.

Fig. 6 is a fragmentary sectional view of a portion of one of the delivery mechanisms showing the position thereof during the step of delivering the article.

Fig. 7 is a view similar to Fig. 6, showing the position of the stop element, with respect to the delivery mechanisms, when the machine is emptied of merchandise.

Fig. 8 is an end view illustrating the connection between the two delivery mechanisms.

Referring to the drawings in detail, 10 denotes the casing, having a removable cover 11, so that access can be had to the interior of the casing 10, to refill the storage receptacles which are suitably supported within the casing 10. The casing 10 may also be provided with a hinged door, or one of the walls thereof may be hinged, that is the side wall, so that access can be had to the interior of the casing to remove the coins therefrom. It will be stated, however, that any suitable means can be employed, so that access can be had to the interior of the casing, not only to fill the storage receptacles, but also to remove the coins, and in this connection any one of the walls, or the top of the casing 10 can be constructed to obtain the functions stated. The front wall of the casing 10, which is indicated at 12, has the lower portion thereof cut away, to provide a discharge opening for the removal of the merchandise, or change, when the occasion

so requires, and said opening is indicated by dotted lines in Fig. 2, and the reference character 13 is applied thereto. The opening is shown in full lines in Fig. 4.

Supported within the casing 10 is a storage receptacle 14, the latter is formed of suitable metallic material, that is sheet metal, and is constructed with rearward extensions 15, which are secured to the inner faces of the front and back walls of the casing, by the holdfast devices 16. The storage receptacle is indicated by the reference character 14 and has arranged therein a pair of spaced guides 18 between which are arranged the articles of merchandise, indicated at 17, and which are adapted to be delivered from the receptacle 14. The receptacle 14 is open at its lower end, and further has the front wall thereof, at the lower end, cut away to provide a discharge opening 19. The opening 19 is of a height greater than the height of the articles 17, and associated with the opening 19 is an adjustable retainer plate 20, connected to the front wall of the receptacle 14. The plate 20 is employed to regulate the size of the opening 19. Projecting from the receptacle 14 and rearwardly from the front thereof, is a pair of track members 21 and 22, which are secured to the front and rear walls of the casing 10, and each of which project forwardly from the lower end of the receptacle 14, as at 23, and is bent downwardly as at 24, to provide a stop, for a plunger 25 which slides along the track members 21 and 22, and the purpose of which is to deliver the articles 17 from the lower end of the receptacle 14. The track members 21, 22 are connected together at their forward ends, by an angle shaped member 25′, the vertical leg 26′ of which forms an arresting element to prevent the articles 17 from dropping rearwardly from out the delivery mechanism, when the article has been dislodged from the receptacle 14 and discharged into the delivery mechanism for the purpose of delivering or vending the article.

The plunger 25 forms a part of what may be termed the main delivery mechanism, and the said plunger 25 has a depending portion 26 to which is connected a shifting rod 27, the latter being hinged as at 28 to the plunger 25, and as at 29 to an actuating member 30, the latter being semi-cylindrical in contour. Adjustably mounted on the flat portion of the actuating member 30, as at 31, is a curved retaining arm 32, having its upper edge cut away as at 33, to provide a clearance for a member to be presently referred to. The actuating member 30 has projecting from one end thereof a lug 34 for a purpose to be presently referred to. One end of the actuating member 30 is provided with a shaft or spindle 34′, which is mounted in a bearing 35, and the other end of the member 30 is attached to a shaft 36 which is connected with a coin releasing mechanism 37, of known construction, and so set up that when a coin is inserted in the slot 38 the handle 39, can be actuated to revolve the member 30, and deliver the article 17 therefrom.

Associated with the main article delivery mechanism is a projecting element for the purpose of projecting the article after it has been delivered from said mechanism, towards the opening 13 so that the article can be conveniently moved by the person operating the machine. The said element comprises an elongated lever arm 40, which is pivotally connected as at 41 to a support 42. The forward end of the lever arm 40 has a right angular extension 43, which provides a projector for the article 17 when it is discharged from the delivery mechanism. The rear end of the lever arm 40 extends in the path of the lug 34 for the purpose of being engaged and shifted by the lug 34 during the movement of the actuating member 30, so as to project the article from a hinged pan 43′, by the extension 43. When the article 17 is delivered from the actuating member 30 it falls upon the hinged pan 43′, so that on the further movement of the member 30 the arm 40 will be rocked and the extension 43 riding against the pan 43′ will shift the latter outwardly, so that the article 17 will be projected towards the opening 13. A stop 42′ is provided to arrest forward movement of the pan 43′ and which accelerates the projecting of the merchandise.

The trackways 21 and 22 are of sufficient width to retain an article 17, so that the article won't drop towards the bottom of the case 10, when the plunger 25 has been moved rearwardly, that is to the position shown in Fig. 5. When the plunger 25 is moved to the position shown in Fig. 5, an article 17 is supported by the forward portion of the base of the track members 21, 22 and is arranged in the path of the plunger 25, so that when the plunger moves forwardly the article will be discharged to the delivery mechanism.

The normal position of the delivery mechanism, when the machine contains merchandise, is that as shown in Figure 1, and with an article 17 in position to be delivered. When the main delivery mechanism is released, by the inserting of a coin in the coin controlled releasing mechanism, the member 30 is revolved, first to the position shown in Fig. 6, and then to assume the position shown in Fig. 5. As the member 30 is revolved the plunger 25 is shifted rearwardly with respect to the storage receptacle 14, as illustrated in Fig. 5 of the drawings, and an article 17 can drop down on the base of the track members 21 and 22, so as to be

positioned in the path of the plunger 25 when the latter moves forwardly. When the actuating member 30 is shifted in a direction opposite to that shown in Fig. 5, the plunger 25 is moved forwardly by rod 27, and the member 30 assumes the position shown in Fig. 1, and by that time the plunger 25 is moved to the forward end of the base of the track members 21, 22 and the article 17 is discharged onto the member 30 and retained thereon by the element 32, in connection with the vertical leg of the member 26'.

The machine includes a means to prevent the operation of the main delivery mechanism when the storage receptacle 14 is emptied of merchandise, and said means consists of an arm 44, which is pivotally connected as at 45, and permanently rides on the retaining member 32. The clearance 33 is provided for the arm 44, as the latter extends over the retainer member 32. If the article 17 is supported by the retainer member 32, see Fig. 6, the arm 44 rides over said article 17 and is prevented from contacting with the actuating member 30. If the storage receptacle 14 is emptied of merchandise, so that no article 17 can be discharged into the delivery mechanism, the arm 44 will abut against the actuating member 30, see Fig. 7, and prevent the operation of the main delivery mechanism. The abutting of the arm 44 against the actuating member 30 will be had before the coin releasing mechanism can be completely operated.

The machine further includes an auxiliary delivery mechanism, and also an auxiliary storage receptacle. The auxiliary storage receptacle, as well as the auxiliary delivery mechanism, can be employed for delivering another article of merchandise, or for delivering the change between the cost of the article delivered from the main delivery mechanism and the value of the coin inserted in the machine. If employed for delivering change, the change amounting to the difference between the value of the coin, and the cost of the article, is arranged in boxes 46, which are positioned in a vertically disposed tube 47, secured in position as at 48, and which constitutes the auxiliary storage receptacle. Associated with the lower end of the tube 47, as well as being spaced therefrom, is a supporting element 49, for the box 46, so that the latter cannot drop entirely from the tube 47. The element 49 supports the box 46 until the same is discharged through the medium of the delivery mechanism. The auxiliary delivery mechanism consists of an angle shaped member 50, mounted in a guide tube 51, and connected at its upper end to a coiled spring 55, the function of the latter being to retain the member 50 in an inoperative position, and further for shifting the arm 50, clear of the tube 47 after the arm 50 has delivered a box 46 therefrom. A spring 52 is connected to a drum 53, attached to the shaft 36. The member 30 is provided with a lug 54, which is positioned in the path of the member 50, so that when the member 30 is revolved, the lug 54 will engage the bar or element moving the same forward to deliver a receptacle or box 46 from out the support 49. After the lug 54 has shifted the bar or member 50, the latter is restored to normal position by the spring 55.

The shifting of the member 30 to position to deliver the article 17, is had against the action of the spring 52, so that after the article 17 has been delivered, and the handle 39 released, the spring 52 will restore the main delivery mechanism to the position shown in Fig. 1 to receive the article 17. When the main delivery mechanism is actuated to deliver an article, the spring 52 winds on the drum 53.

The operation of the main delivery mechanism is had in advance of the operation of the auxiliary mechanism, but the article discharged from the auxiliary is in advance of the shifting of the article delivered from the main delivery mechanism by the projecting element.

What I claim is:—

1. A vending machine comprising a delivery mechanism including a rotatable support provided with a curved element for receiving, supporting and delivering an article of merchandise during the delivery operation of said mechanism, and a pivoted stop element extended over said element and deflected to an inoperative position by the article carried by said element and further automatically movable to operative position to engage and arrest the operation of said support when said element is in normal position and empty.

2. A vending machine comprising an article delivery mechanism including a rotatable member provided with a retaining element for receiving, supporting and delivering an article of merchandise during the operation of said mechanism, and a pivoted stop bar, the pivot for said bar being disposed at one end thereof and said bar extending transversely of said element and deflected to inoperative position with respect to said member by the article carried by and to be delivered from said member, the free end of said bar automatically movable to engage said member when said element is in normal position and empty of an article of merchandise thereby arresting the operation of said mechanism.

3. A vending machine comprising a storage receptacle, an article delivery mechanism arranged in operative relation with respect to said receptacle and provided with means

for receiving, supporting and delivering an article of merchandise deposited in said means from said receptacle, means for discharging an article of merchandise from said receptacle into said means, and an article projecting device arranged in cooperative relation with respect to said mechanism for receiving the delivered article of merchandise, and means projecting from said mechanism to operate said device to project the article.

4. A vending machine comprising a pair of storage receptacles, a shiftable main article delivery mechanism arranged in cooperative relation with one of said receptacles and provided with a retaining member for receiving, supporting and delivering an article of merchandise from that storage receptacle with which said mechanism cooperates, a shiftable auxiliary article delivery mechanism coperating with the other of said storage receptacles for discharging an article therefrom, means carried by the main delivery mechanism for operating said auxiliary mechanism during the operation of said main delivery mechanism, a projecting device cooperating with the main delivery mechanism and adapted to receive the article delivered therefrom, and means extended from the main delivery mechanism and engaging with and operating said device for projecting an article.

5. A vending machine comprising a pair of storage receptacles, a shiftable main article delivery mechanism arranged in cooperative relation with one of said receptacles and provided with a retaining member for receiving, supporting and delivering an article of merchandise from that storage receptacle with which said mechanism cooperates, a shiftable auxiliary article delivery mechanism cooperating with the other of said storage receptacles for discharging an article therefrom, means carried by the main delivery mechanism for operating said auxiliary mechanism during the operation of said main delivery mechanism, a projecting device cooperating with the main delivery mechanism and adapted to receive the article delivered therefrom, means extended from the main delivery mechanism and engaging with and operating said device for projecting an article, and a pivoted stop element extended upon said main delivery mechanism and automatically movable to operative position to engage said main delivery mechanism to arrest the operation thereof when the machine is empty of merchandise.

6. In a vending machine, a delivery mechanism comprising a rotatable operating member, a curved article retaining member carried thereby, a plunger, and a plunger actuating member pivoted at one end of the plunger and at its other end to said operating member and shifting the plunger during the movement in either direction of said operating member.

7. In a vending machine, a delivery mechanism comprising a rotatable and spring controlled operating member, a curved article retaining member carried by the operating member and adapted to retain the article thereon during the operation of delivery by said mechanism, a plunger for discharging an article from the storage receptacle, and a plunger actuating member pivoted at its forward end to the front of said operating member and at its rear end to said plunger and shifting the plunger during the movement in either direction of said operating member.

8. In a vending machine, a delivery mechanism comprising a rotatable and spring controlled operating member semi-circular in contour, a curved article retaining member secured to the flat face of said operating member, a plunger for discharging an article from the storage receptacle, and a curved plunger actuating member pivoted at its forward end to the front of said actuating member and at its rear end to said plunger and shifting the plunger during the movement in either direction of said operating member.

9. A vending machine comprising a storage receptacle, a delivery mechanism for receiving, supporting and delivering an article from said storage receptacle and including an article receiving and delivering member provided at one edge with a clearance, operating means for said mechanism, and an automatically movable pivoted stop element extending transversely of said member and through said clearance and deflected to inoperative position with respect to said mechanism by an article carried by and to be delivered from said member, said element having that portion extended over said member automatically movable to operative position to engage and arrest the operation of said mechanism when said member is in normal position and free of an article.

10. A vending machine comprising a storage receptacle, a delivery mechanism for receiving, supporting and delivering an article from said storage receptacle and including an article receiving and delivering member provided at one edge with a clearance, operating means for said mechanism, an automatically movable pivoted stop element extending transversely of said member and through said clearance and deflected to inoperative position with respect to said mechanism by an article carried by and to be delivered from said member, said element having that portion extended over said member automatically movable to operative position to engage and arrest the operation of said mechanism when said member is in normal position and free of an article, an article

projecting element arranged in operative relation with respect to said mechanism and positioned to receive an article delivered by said member, and means projecting from said mechanism and engaging said article projecting element for operating the latter when an article has been delivered from said member.

11. A vending machine comprising a pair of storage receptacles, a shiftable main delivering mechanism for discharging, receiving and delivering an article from one of said storage receptacles and including a rotatable operating member provided with a pair of lugs, a shiftable auxiliary article delivery mechanism for discharging an article from the other of said receptacles and operated by one of said lugs, and an article projecting element operated by the other of said lugs for projecting outwardly the article delivered by said main delivery mechanism.

12. A vending machine comprising a pair of storage receptacles, a shiftable main delivering mechanism for discharging, receiving and delivering an article from one of said storage receptacles and including a rotatable operating member provided with a pair of lugs, a shiftable auxiliary article delivery mechanism for discharging an article from the other of said receptacles and operated by one of said lugs, an article projecting element operated by the other of said lugs for projecting outwardly the article delivered by said main delivery mechanism, and a stop element deflected to inoperative position by an article carried by and to be delivered from said main delivery mechanism and automatically movable to operative position to engage and arrest the operation of said main delivery mechanism when the machine is emptied of merchandise.

13. In a vending machine, a delivery mechanism, a pair of track members, a retaining element depending therefrom, a rotatable operating member, a curved article retaining member carried thereby and associated with said retaining element, a plunger shiftable on said track members for discharging an article from a receptacle, and a plunger actuating member pivoted at one end to said operating member and at its other end to the plunger and shifting the plunger during the movement in either direction of said operating member.

In testimony whereof, I affix my signature hereto.

DAVID ALLEN.