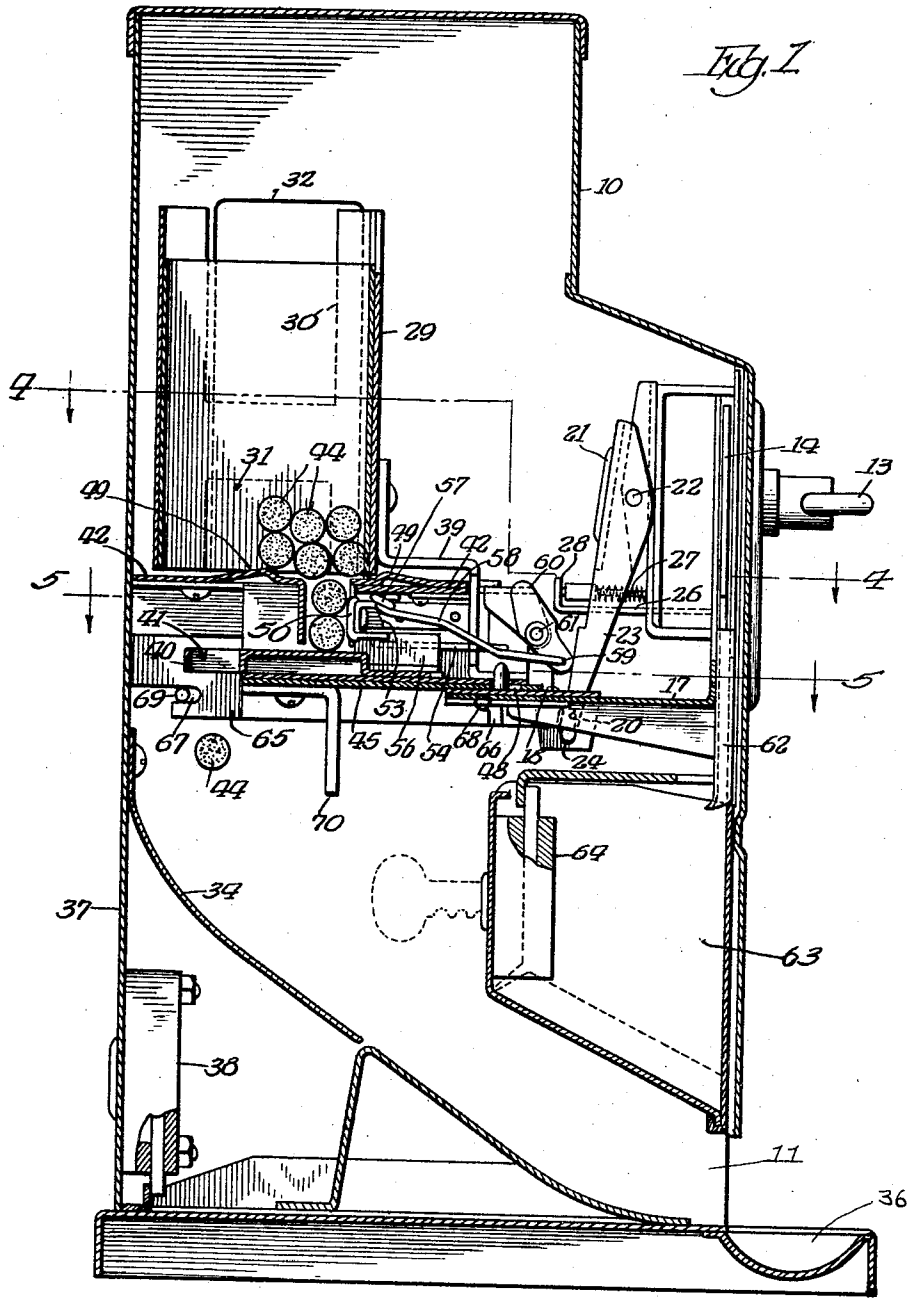
May 30, 1933. M. H. RICHARDSON ET AL 1,912,160

VENDING MACHINE

Original Filed May 4, 1931 3 Sheets-Sheet 1

Fig. 1.



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VENDING MACHINE

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Fig. 2.

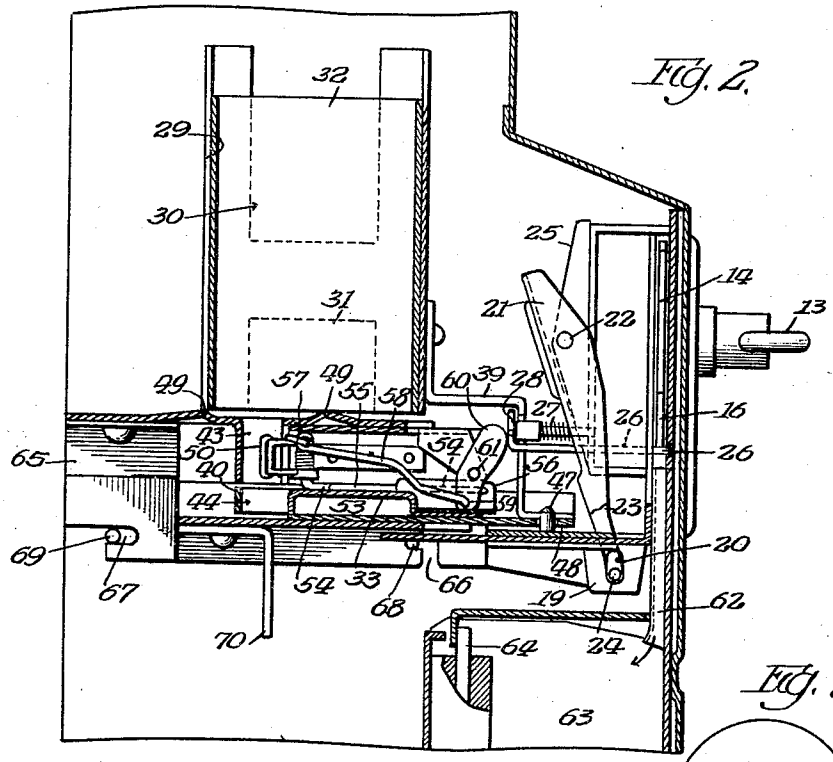


Fig. 7.

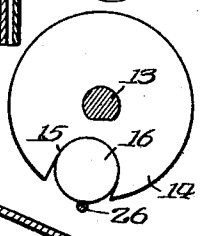


Fig. 3.

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VENDING MACHINE

Original Filed May 4, 1931 3 Sheets-Sheet 3

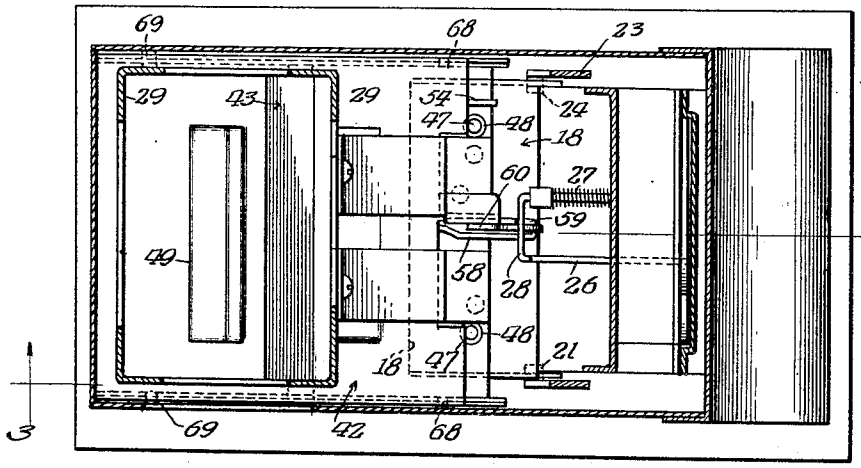


Fig. 4

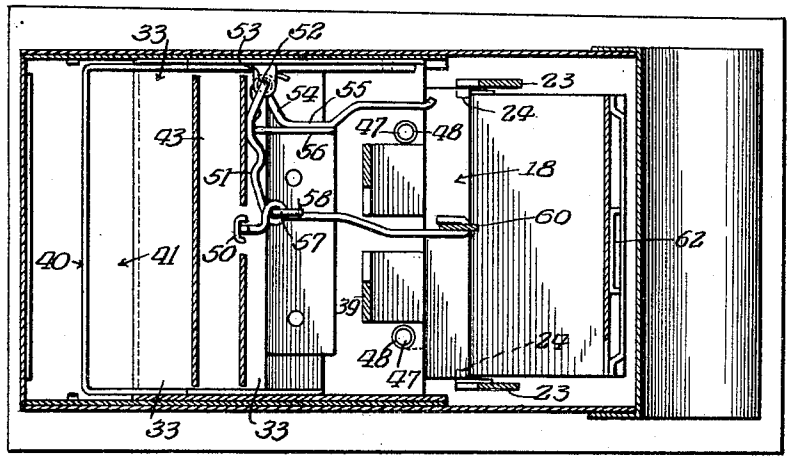


Fig. 5

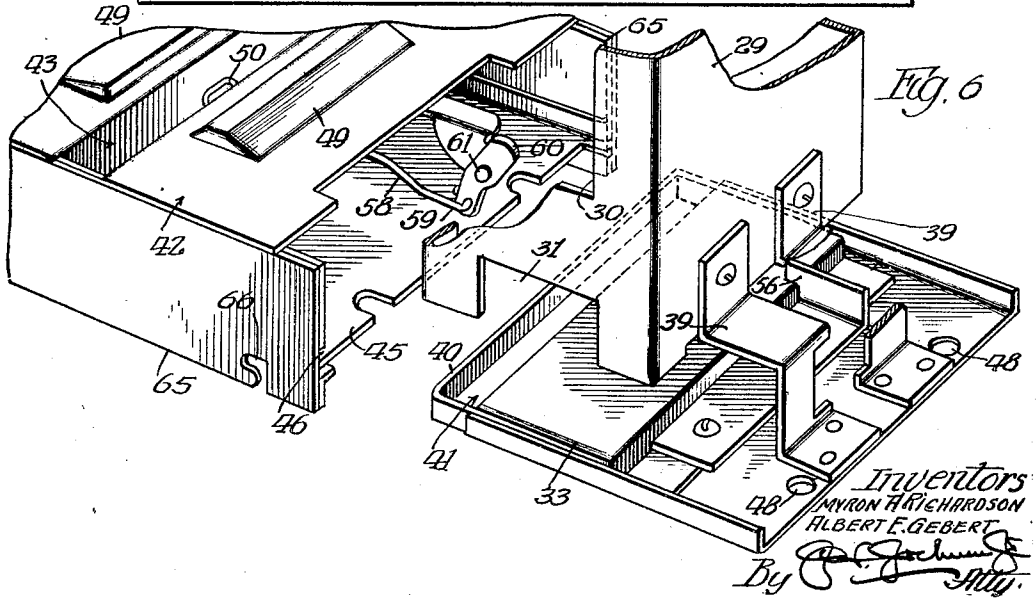


Fig. 6

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UNITED STATES PATENT OFFICE

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VENDING MACHINE

Original application filed May 4, 1931, Serial No 534,894. Divided and this application filed November 20, 1931. Serial No. 576,302.

This application is a division of original application Serial Number 534,894, filed May 4, 1931.

This invention relates to improvements in vending machines of the check controlled type, and one of the objects of the invention is to provide an improved machine of this type for vending articles, such as cigarettes, cigars and similarly shaped articles from an original container.

A further object is to provide improved means for insuring the return of the inserted check to the operator in the absence of articles in the container, the check return mechanism being rendered inoperative by the presence of articles in the container, and operative in the absence of articles in the container.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention, and in which

Figure 1 is a longitudinal, sectional view of a machine of this character constructed in accordance with the principles of this invention.

Figure 2 is a view similar to Figure 1, with parts omitted, with parts in section and with parts broken away, showing the parts in a different position from Figure 1.

Figure 3 is a view taken on line 3—3, Figure 4, showing the manner of removing and inserting the container holder with the ejecting mechanism and of disconnecting the same from the actuating mechanism therefor.

Figure 4 is a sectional view taken on line 4—4, Figure 1.

Figure 5 is a sectional view taken on line 5—5, Figure 1.

Figure 6 is a detail perspective view of the vending mechanism and of the container holder and ejector separated from each other.

Figure 7 is a detail view partly in section, partly in elevation and with parts omitted, showing the check carrier in an inverted position.

Referring more particularly to the drawings the numeral 10 designates generally an enclosure casing having a delivery outlet opening 11 at the bottom thereof and a suitable coin or check inlet opening, and 13 designates an operating handle for actuating the check controlled mechanism.

Any suitable check controlled mechanism may be employed in connection with this machine. Suffice it to say that the check controlled mechanism embodies a check carrier 14 in the form of a disc which is provided with a check seat 15, the disc being connected with the handle 13 and adapted to be rotated so as to invert the seat 15 to deliver the check 16 therefrom and into the machine when articles are in the container, but to operate, in a manner to be described, to return the check in the absence of articles in the container. All of these parts are of the ordinary and well known construction.

Arranged within the casing 10 and at a suitable distance above the bottom of the casing is a support 17 upon which a member 18 is adapted to slide and this member 18 is preferably provided with depending ears 19 (see particularly Figures 1 and 3) which engage the edges of the support 17 and are provided with slots 20 therethrough. A rocker member 21 is pivotally mounted as at 22 and is provided with arms 23 which project downwardly on both sides of the support 18 and are provided with inwardly extending projections 24 which enter the slots 20 so as to connect the arms 23 with the member 18. The check controlled mechanism is also provided with a rotatable cam shaped member 25 which engages a portion of the member 21 so as to rock the latter about the pivot 22 upon the rotation of the cam 25 by the handle 13, all as well known in this art. As the member 21 is oscillated about its pivot 22 the member 18 will be moved back and forth upon the support 17, for a purpose to be set forth.

Mounted in a suitable support (see Fig-

ures 2 and 4) is a bar or pin 26, one end of which is adapted to be moved into a position as shown in Figure 4, to extend or project beneath the check 16 in the check seat 15 when the check carrier 14 is inverted so as to prevent the check from dropping out of the seat, but this pin is adapted to be normally retracted or moved into an inoperative position by means of a spring 27, the pin being provided with a branch about which the spring is coiled and a connecting body or portion 28 between the pin and the branch 27.

The container for the articles comprises a holder 29 which is of a size to hold an original container and may be of any desired shape, the holder being provided with cut away portions 30—31 through which the stamps or labels on the carton may be visible through the medium of a transparent portion 32 in the wall of the outer casing 10, or in any other necessary plate. The holder 29 is mounted upon a slide 33 and which slide constitutes the ejector for ejecting the articles from the container and delivering them upon an incline or chute 34 (see particularly Figue 1) to be discharged through the delivery opening 11 and into a trough or receptacle 36 to the operator. A portion of the chute 34 is preferably supported by the back 37 of the casing and the back is removably held in position by means of a suitable lock 38.

The holder 29 for the container is supported by the slide 33 in such a manner that the bottom of the holder will be spaced a short distance above the top of the slide and suitable brackets 39 may be provided for that purpose. Connected to the slide 33 beneath the holder 29 is a member 40 which is spaced from the rear edge of the slide 33 to provide an opening 41 therebetween and through which opening 41 the articles will drop, as shown more clearly in Figure 1. The bottom of the holder 29 is formed by a member 42 which is provided with a recess 43 opening through the top thereof, and into which recess 43 the articles 44 from the container will drop so as to rest upon the top of the slide 33, which latter during a portion of its operation will constitute a bottom or closure for the recess 43 but may be moved to a position that the opening 41 may be placed in register with the recess 43 to receive one of the articles 44 thereinto and to move such article during a subsequent operation of the slide or ejector 33 to the position shown in Figure 3. Connected to the member 42 in any suitable manner and spaced therebelow is a plate or member 45 and upon this member 45 the ejector 33 slides, the ends of the ejector being movable in guide ways 46 (see particularly Figure 6). The holder 29 is spaced a sufficient distance above the ejector or slide 33 so as to permit the member 42 to pass under the holder and constitute a bottom therefor, and this member 42 together with the plate or member 45 is held stationary in any suitable manner, the slide or ejector 33 being reciprocable with respect to the members 42 and 45 by the operation of the check controlled mechanism. The ejector or slide 33 is connected to the check controlled mechanism by means of pins or projections 47 (see also Figures 2 and 3) carried by and projecting above the member 18 and these pins or projections, any number of which may be provided, pass through openings 48 in the slide or ejector 33 so that when the arms 23 are rocked by the actuation of the check controlled mechanism the slide or ejector 33 will also be reciprocated together with the holder 29, with respect to the member 42. The member 42 is provided with upwardly projecting portions 49 preferably in the form of cams or ledges that are arranged on opposite sides of the recess 43, so that when the holder 29 with the article container therein is reciprocated with the ejector 33, the cams or projecting portions 49 will serve to agitate the articles 44 in the container and thereby insure their proper feeding or dropping into the recess 43 in the member 42.

Thus it will be seen that when a proper check is deposited into the machine and the handle 13 is actuated the slide or ejector 33 together with the container holder 29 will be reciprocated while the member 42 will remain stationary, with the result that as the articles in the container arranged in the holder 29 pass over the cams or projections 49, they will be agitated and a predetermined number of articles will drop into the recess 43 to rest upon the top of the slide or ejector 33. When the ejector 33 is moved to the right in Figure 1, or into the position shown in Figure 2 (it being understood, however, that in the drawings, Figure 2 illustrates the position of the parts when the machine is empty of articles), a predetermined number (two) of articles will drop into the recess 43, and one of the articles will also drop into the space 41 between the end of the ejector 33 and the member 40, to rest upon the plate or member 45. When the ejector is moved from the position shown in Figure 2 (when articles are in the machine) to the position shown in Figure 1, the article in the space 41 will drop off of the rear of the plate 45 as shown in Figure 1, to be delivered through the delivery outlet.

In this position of the parts (Figure 1) the cam portion 55 of the member 54 will be in contact with the member 56 which will hold the member 50 retracted. When the ejector is moved towards the right in Figure 1, the member 56 is moved out of engagement with the cam portion 55 of the member

54, and the spring 53 will operate to move the member 50 into the recess 43 to press against the articles therein, but the articles in the recess 43 will hold the member 50 from entering further into the recess 43, resulting in the positioning of the member 60 so as to allow the spring 27 to retract the pin or member 26. The member 56 passes out of contact with the cam 55 before the check seat 15 in the disc 14 is inverted, or in a position to cause the check 16 to fall out of the seat, with the result that if no articles are in the recess 43, the pin 26 will not be retracted and the check will be returned to the operator. If, however, there are articles in the recess 43, and even though the member 56 passes out of engagement with the cam 55, the article in the recess 43 engaged by the member 50 will hold the pin 26 retracted so that the check can fall out of the seat.

This operation will continue as long as there are any articles 44 in the container. However, in order to start the machine and when the latter is empty, as shown in Figure 2, it is first necessary to retract the member 50 which may be done in any manner such as with the finger or tool inserted into the recess 43 to push the member 50 back against the stress of the spring 53. Now insert a check in the check controlled mechanism and while the member 50 is still held back, turn the handle 13. This will cause the ejector 33 to be moved from the position shown in Figure 2 to the position shown in Figure 1, thereby allowing articles to drop into the recess 43. The member 50 may then be released but will be held in the position shown in Figure 1 by the articles in the recess 43. The machine is then ready for operation as the check which was originally inserted for the purpose of filling the machine has passed into the coin box 63. When the machine is again empty the parts will assume the position shown in Figure 2.

As a means for insuring the return of the check to the operator in the event that there are no articles 44 in the container, there is provided automatically operating control mechanism, which consists preferably of a member 50 adapted to be projected into the slot 43 so as to restrict the size thereof so that when one of the articles 44 is delivered into the recess 43, the member 50 must be retracted so as to permit the article to enter, and it is through the medium of the co-operation of the articles 44 with the member 50 that the check return mechanism is controlled. To that end there is provided an arm or member 51 (see particularly Figure 5) which is preferably mounted to move about an upright axis or pivot 52, and encompassing the pivot is a spring 53 which operates in a manner to project the member 50 into the recess 43.

The arm 51 has connected with it another arm 54 which is provided with a cam portion 55 adapted to be engaged by an upwardly projecting member 56 carried by the ejector or slide 33 (see Figures 5 and 6). When the member 56 engages the cam shaped portion 55 of the arm 54, the arm 51 will be rocked about its pivot 52 and will withdraw the member 50 so as to permit the articles 44 to drop into the recess 43. The co-operation of the cam 55 on the arm 54 and the upright 56 is of sufficient duration to allow the article to drop in the recess and when articles are in the recess 43, as shown in Figure 1, and when the member 56 passes out of engagement with the cam 55, the natural tendency of the spring 53 is to project the member 50 into the recess 43, but as there will be articles in the recess 43, the member 50 will be prevented from being so projected by the spring 53. Connected with the arm 51 as at 57 and by one end is a link 58, the other end of the link being connected as at 59 with the member 60 pivotally mounted as at 61, and this member 61 is so positioned that when the container holder 29 is in position in the casing 10 a portion of the member 60 will be disposed in proximity to the head or connecting member 28 between the pin 26 and the leg which is connected to the pin and about which the spring 27 is coiled. The spring 27 is weaker than the spring 53 so as not to interfere with the operation of the latter. The link 58 is connected to the member 60 in such a manner that when the member 50 is retracted or moved into position by the engagement of the cam 55 on the arm 54 with the member 56 and held in this position by the presence of articles 44 in the recess 43, the portion of the member 60 adjacent the head 28 will be moved to the position shown in Figure 1, or out of engagement with the head 28, thereby allowing the spring 27 to retract the pin 26 so that upon the operation of the machine by the insertion of the proper check, the check will be delivered out of the check seat 15 in the check carrier 14 through a spout 62 and into a coin receptacle 63, which latter is arranged within the machine and is secured in position by a suitable lock 64. So long as articles 44 are delivered into the recess 43 the member 50 will be retracted by the member 56 engaging the cam 55 and will be held retracted by the presence of the articles in the recess 43.

When, however, the container is empty of articles as shown in Figure 2, even though the member 50 should be temporarily retracted by the member 56 engaging the cam 55, as soon as the member 56 passes out of engagement with the cam 55 the spring 53 will project the member 50 into the recess 43 and at the same time the movement of the arm 51 under the influence of the spring

53 will pull upon the link 58 and rock the member 60 about its pivot 61 to the position shown in Figure 2. The stress of the spring 53 being greater than the stress of the spring 27, the latter will be overcome and the pin 26 will be projected or moved to the position shown in Figure 2, to extend under the check 16 in the check carrier 14 to prevent the latter from being delivered from the check seat 15 when the check carrier 14 is inverted, thereby insuring a return of the check to the operator.

It will therefore be manifest that the check return mechanism will be responsive in its operation to the articles in the container. That is when there are articles in the container the check return mechanism will be rendered inactive so that the check will be delivered into the machine, but in the absence of articles in the container the check return mechanism will be rendered active and the check will be returned to the operator.

The ejector or slide 33 and the container holder 29 together with the members 42 and 45 as well as the mechanism supported thereby while being formed of separable elements are adapted to be removed from and inserted into the casing 10 as a single unit so as to facilitate access to the parts when desired.

To that end the members 42 and 45 are connected together by means of uprights or side members 65 (see particularly Figures 3 and 6) which also hold the members 42 and 45 spaced, and in which space the mechanism for controlling the actuation of the check return mechanism is arranged.

The ejector or slide 33 is supported by and moves upon the plate 45 and the link 58 which is connected with the member 60 extends between the brackets 39 which support the container holder 29. The uprights 65 are provided at their forward ends with bayonet slots 66 and at their other ends with open slots 67. Carried by the walls of the casing 10 are inwardly projecting lugs 68 and 69, and these lugs are so placed that when the unit constituting the ejector 33 and the upright 65 and the structure supported thereby, is placed into the machine through the open back by engaging the slots 67 over the lugs 69, the entire unit may be rocked about the lugs 69 as a pivot, through the medium of a depending projection or handle 70 until the entrance end of the bayonet slots 66 pass over the lugs 68. Previous to the insertion of this unit into the casing as shown in Figure 3, the member 18 must be positioned so that the lugs 47 will be in a position to enter the openings 48 in the ejector or slide 33 so that when the lugs 47 are seated in the respective openings 48, the unit may be given a bodily movement forwardly so as to lock the unit with respect to the lugs 68 and so as to position the end of the member 60 against the head 28 of the pin 26 and thereby move the pin 26 to the position shown in Figure 2, to render the check return mechanism active.

When the article container is placed in the holder 29 and as the member 50 will be projected into the recess 43, it will be manifest that the articles cannot enter the recess and therefore the check return mechanism will be held active. When, however, upon the insertion of a check into the check controlled mechanism and the handle 13 is operated, the check will be returned to the operator, but during the movement of the handle 13 the member 21 will be rocked and this will cause the member 18 to be moved backwardly to the position shown in Figures 1 and 3 and with it the ejector 33 so as to cause the member 56 to engage the cam 55 on the arm 54, with the result that the arm 55 will be rocked about its pivot 52 and the member 50 will be withdrawn to allow an article to drop into the recess 43 and thereby prevent the member 50 from being projected into the recess when the member 56 passes out of engagement with the cam 55 on the arm 54. It will therefore be manifest that if the member 50 cannot be projected into the recess, the member 60 will be held in the position shown in Figure 1, that is, it will be moved out of engagement with the head 28 on the pin 26 and the spring 27 will retract the pin 26, thereby allowing the check to fall out of the check seat upon the next operation of the machine.

The member 60 will be held in the position shown in Figure 1 until the container is empty of articles, at which time the member 60 will assume the position shown in Figure 2 and the check return mechanism will be rendered active, thereby insuring the return of the check to the operator.

In order to remove the unit constituting the ejector and the article container holder as shown in Figure 3, it is first necessary to bodily shift the unit upon the pins or lugs 68 and 69 so as to position the inlet opening of the bayonet slot 66 adjacent the pin 68 to allow the unit to be rocked upon the pins 69 as a pivot, to the position shown in Figure 3.

While the preferred form of the invention has been herein shown and described, it is to be understood that the recess 43 may be of a depth to accommodate the desired number of articles to be dispensed, and that the member 50 and opening 41 will in such instances be of a corresponding size and that various other changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. In a vending machine, a holder for the articles to be vended, an ejector, check controlled mechanism for reciprocating the ejector, means for returning the check to the operator in the absence of articles in the container, means intermediate the container and the ejector for rendering the check returning means inactive by the presence of articles to be vended, and means responsive to the reciprocation of the ejector to initially render the check returning means inactive and to position the part of the check return mechanism to be acted upon by the articles for maintaining the check return means inactive.

2. In a vending machine, means for holding a supply of articles to be vended, a reciprocating ejector, check controlled mechanism for actuating the ejector, check return mechanism, mechanism for rendering the check return mechanism inactive in the presence of articles to be vended, the last said mechanism embodying means adapted to be positioned by the actuation of the ejector, whereby an article from the supply will be permitted to assume a position with respect to the last said means to maintain the check return mechanism inactive, and means operating to render the check return mechanism active.

3. In a vending machine, means for holding a supply of articles to be vended, a reciprocating ejector, check controlled mechanism for actuating the ejector, check return mechanism, mechanism for rendering the check return mechanism inactive in the presence of articles to be vended, the last said mechanism embodying means adapted to be positioned by the actuation of the ejector, whereby an article from the supply will be permitted to assume a position with respect to the last said means to maintain the check return mechanism inactive, and means operating to render the check return mechanism active, and means adapting the vending mechanism and article holder to be disconnected from the check controlled mechanism and bodily removed from the machine as a unit.

4. In a vending machine, means for holding a supply of articles, an ejector for the articles, check controlled mechanism for actuating the ejector, check return mechanism, a passageway for the articles intermediate the said holder and the ejector, an element projectible into said passageway to render the latter of a size less than the diameter of the article, means for moving said element into said passageway, means for temporarily retracting said element to permit an article to enter the passageway to subsequently hold the said element retracted, and means whereby the presence of an article in said passageway will render the said check return mechanism inactive and the absence of an article in the passageway will render the said check return mechanism active.

5. In a vending machine, means for holding a supply of articles, an ejector for the articles, check controlled mechanism for actuating the ejector, check return mechanism, means tending normally to render the check return mechanism active, a passageway for the articles intermediate the said holder and the ejector, an element projectible into the passageway to render the latter of a size less than the diameter of the article, means for projecting the element into the passageway, means for retracting said element to permit the positioning of an article to hold the element retracted, and means responsive in its operation to the actuation of said element for rendering said check return mechanism active in the absence of articles to be vended and inactive by the presence of articles to be vended.

6. In a vending machine, means for holding a supply of articles, an ejector for the articles, check controlled mechanism for actuating the ejector, check return mechanism, means tending normally to render the check return mechanism active, a passageway for the articles intermediate the said holder and the ejector, an element projectible into the passageway to render the latter of a size less than the diameter of the article, means for projecting the element into the passageway, means responsive in its operation to the actuation of the ejector for temporarily retracting said element to permit the positioning of an article to hold the element retracted, and means responsive in its operation to the actuation of said element for rendering said check return mechanism active in the absence of articles to be vended and inactive by the presence of articles to be vended.

7. In a vending machine, means for holding a supply of articles, an ejector for the articles, check controlled mechanism for actuating the ejector, check return mechanism, means tending normally to render the check return mechanism active, a passageway for the articles intermediate the said holder and the ejector, an element projectible into the passageway to render the latter of a size less than the diameter of the article, means for projecting the element into the passageway, means embodying cam mechanism rendered active and inactive at predetermined times in the cycle of operation of the ejecting mechanism for retracting said element to permit the positioning of an article to hold the element retracted, and means responsive in its operation to the actuation of said element for rendering said check return mechanism active in the absence of articles to be vended and inactive by the presence of articles to be vended.

8. In a vending machine, means for holding a supply of articles, an ejector for the articles, check controlled mechanism for actuating the ejector, check return mechanism, means tending normally to render the check return mechanism active, a passageway for the articles intermediate the said holder and the ejector, an element projectible into the passageway to render the latter of a size less than the diameter of the article, means for projecting the element into the passageway, means for retracting said element to permit the positioning of an article to hold the element retracted, and means adapted to be positioned by the said retracting means and by the maintaining of said element retracted, for rendering said check return mechanism inactive and to be positioned to render the check return mechanism active when said element is projected into said passageway.

9. In a vending machine, means for holding a supply of articles, an ejector for the articles, check controlled mechanism for actuating the ejector, check return mechanism, means tending normally to render the check return mechanism active, a passageway for the articles intermediate said holder and ejector, an element projectible into the passageway to render the latter of a size less than the diameter of the article, means for projecting the element into the passageway, means for retracting said element against the stress of the last recited means, to permit the positioning of an article to hold the element retracted, and means independent of said check return mechanism and controlled in its movement by the positioning of the said element to render the check return mechanism inactive against the stress of the second recited means.

10. In a vending machine, means for holding a supply of articles, an ejector for the articles, check controlled mechanism for actuating the ejector, check return mechanism, means tending normally to render the check return mechanism active, a passageway for the articles intermediate said holder and ejector, an element projectible into the passageway to render the latter of a size less than the diameter of the article, means for projecting the element into the passageway, means for retracting said element against the stress of the last recited means to permit the positioning of an article to hold the element retracted, said check return mechanism embodying a check control element normally rendered inactive by spring pressure, means embodying a pivotally mounted member separate from and movable into engagement with said coin return element to shift the latter against the stress of said spring pressure and thereby render said coin return element active, and means operatively connecting said member with the first said element whereby the former will be responsive in its movement to the movements of the first said element.

In testimony whereof we have signed our names to this specification, on this 17th day of November, A. D. 1931.

MYRON H. RICHARDSON.
ALBERT E. GEBERT.