

May 16, 1933.

A. D. ANTOINE ET AL

1,909,036

VENDING MACHINE

Filed Sept. 29, 1930

3 Sheets-Sheet 1

Fig. 1

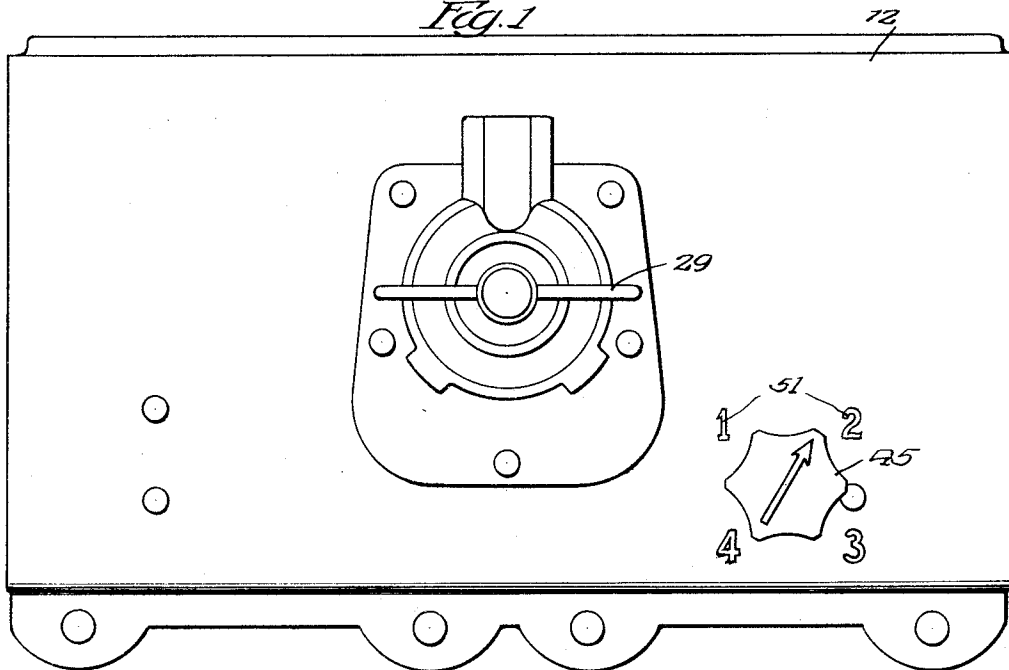
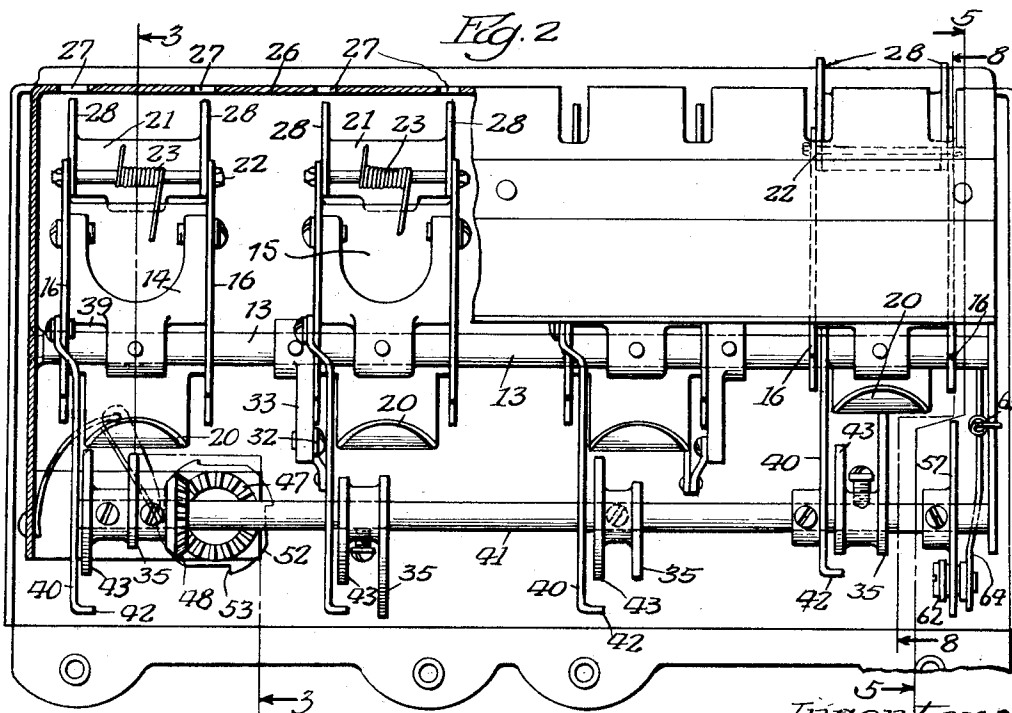


Fig. 2



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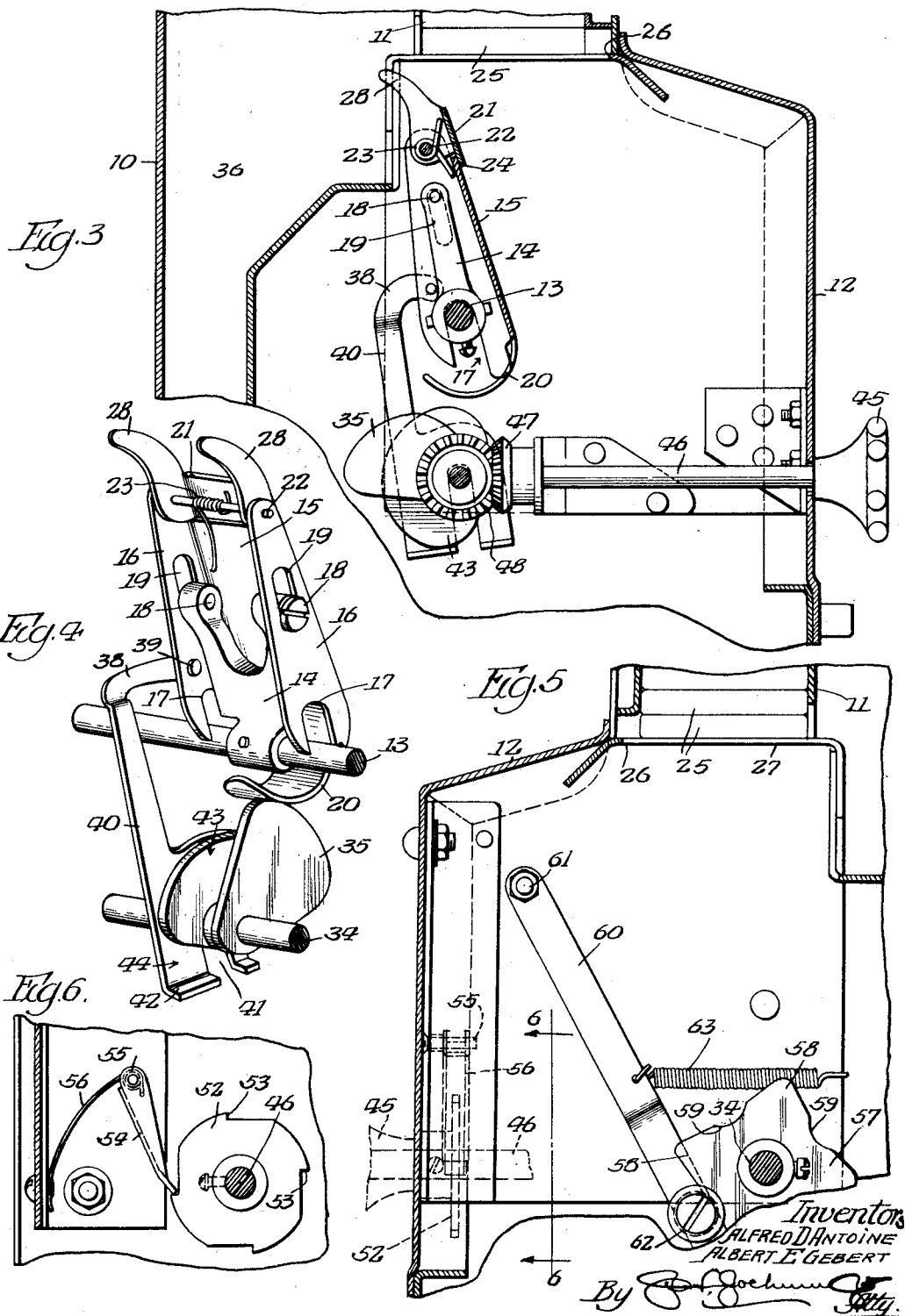
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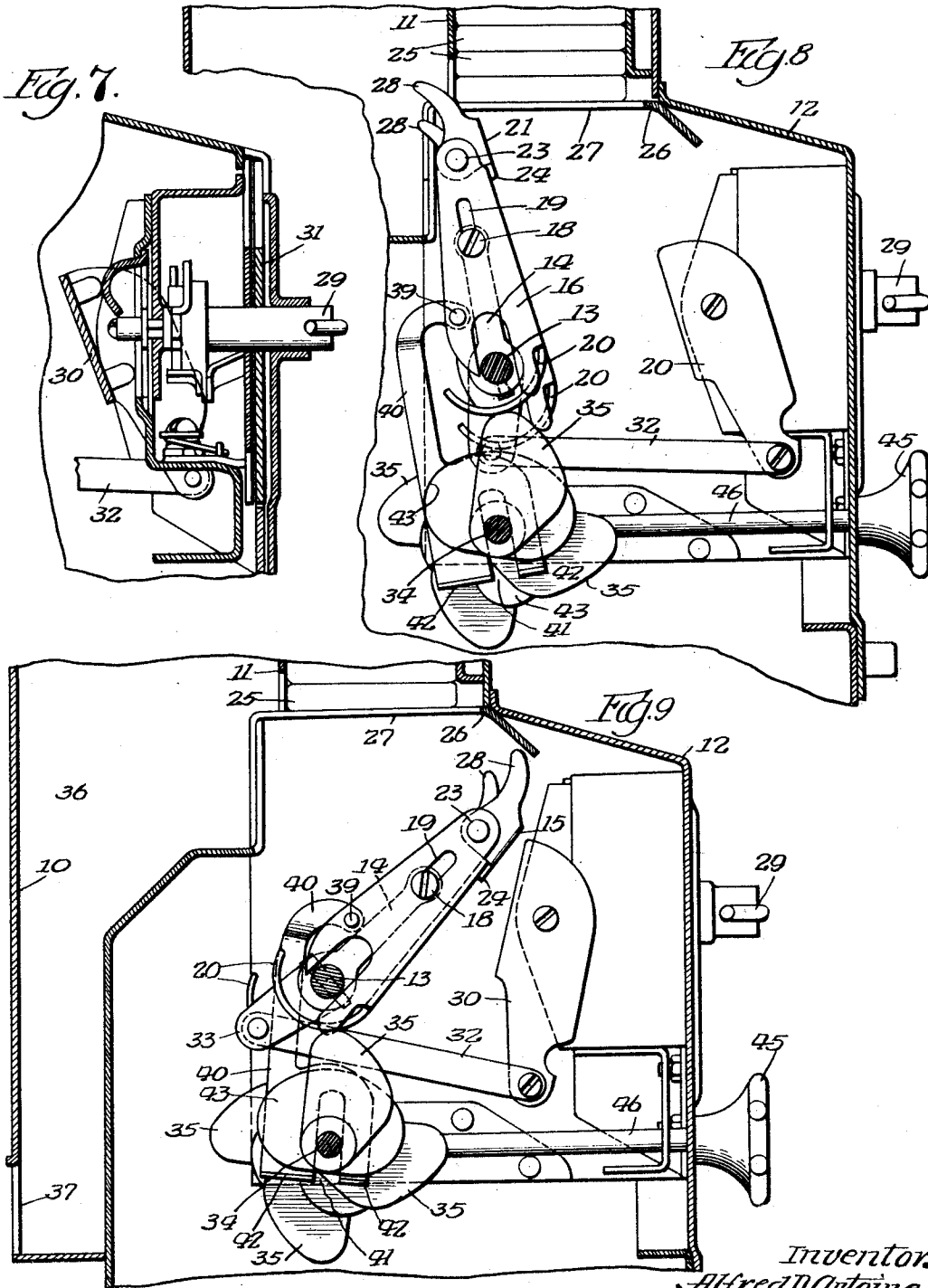
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UNITED STATES PATENT OFFICE

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VENDING MACHINE

Application filed September 29, 1930. Serial No. 484,957.

This invention relates to improvements in vending machines of the type in which there is provided a plurality of article or commodity holders from which the articles are independently dispensed by means of ejectors individual to the holders, and an actuating mechanism which is common to all of the ejectors, and one of the objects of the invention is to provide improved means for selectively rendering the ejectors active and inactive with respect to the said actuating mechanism.

A further object is to provide in a machine of this character improved means whereby after one of the ejectors has been set or rendered active with relation to the actuating means, it will not be possible to set or render another ejector active without rendering inactive the ejector that has been previously set or rendered active, thereby rendering it impossible to operate the machine to cause the delivery of the articles by more than one of the ejecting means at the same time, and without depositing an additional coin or token into the machine.

A further object is to provide an improved device of this character which will be of a simple, durable, cheap and compact construction, and which will be effective and efficient in operation.

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 front elevation of a portion of a machine of this character constructed in accordance with the principles of this invention.

Figure 2 is a rear elevation of Figure 1, with parts omitted and with parts broken away, showing some of the ejector mechanisms.

Figure 3 is a detail sectional view taken on line 3—3, Figure 2, with parts omitted.

Figure 4 is a detail perspective view of

one of the ejector mechanisms, showing the actuating means therefor and the means for rendering the same inactive, and as taken from the rear of the ejecting means.

Figure 5 is a detail sectional view taken on line 5—5, Figure 2, with parts omitted.

Figure 6 is a detail sectional view taken on line 6—6, Figure 5.

Figure 7 is a detail sectional view of a portion of the check controlled mechanism.

Figure 8 is a detail sectional view taken on line 8—8, Figure 2, showing the parts in one position.

Figure 9 is a view similar to Figure 8, showing the parts in another position.

Referring more particularly to the drawings the numeral 10 designates generally a portion of a casing in which is arranged the commodity or article holders 11, any number of which may be provided.

The numeral 12 designates a supporting structure upon which the operating mechanism of the machine is arranged and which structure with the operating mechanism thereon is adapted to be removed as a unit from the casing 10.

Mounted upon the supporting structure 12 are a plurality of ejectors for dispensing the articles from the respective holders or containers 10. Any number of these ejectors and containers may be provided, and in the present form of the invention four are illustrated. Suffice it to say, however, that one ejector mechanism is provided for each of the holders or containers 11.

As the construction and operation of each of these ejectors is the same, the specific description of one will apply equally as well to them all.

Mounted upon the supporting structure 12 to extend thereacross is a rock shaft 13 and connected to this shaft are arms 14, which latter constitute means for assisting in supporting and guiding the ejector mechanism, one of the arms being provided for each of the ejectors.

Each of the ejectors consists preferably of a body portion 15 provided with flanged sides 16. Each of the flanges 16 is bifurcated as at 17 (see particularly Figure 4), so as

to stand astride of the shaft 13 and is adapted for a free sliding movement in a direction transverse to the longitudinal axis of the shaft.

5 By arranging the arms 14 inside of the respective flanges 16 and by securing the arms to the shaft 13, it will be manifest that the ejectors will be held against movement in directions lengthwise of the shaft.

10 The ejectors are connected with the respective arms 14 by means of fastening devices or screws 18 carried by the arms and which pass through slots 19 in the respective flanges 16. The flanges preferably extend below the
15 body portion 15 and the lower extremity of the ejector is bent or curved under the shaft 13 as at 20, for a purpose to be later described.

The ejector preferably embodies an article
20 engaging section 21 connected to the upper extremity thereof preferably by means of a pivot 22, and a spring 23 is provided which tends normally to maintain a portion 24 of the section 21 against the body portion of the
25 ejector 15, so that the section 21 will be locked or maintained against movement in one direction about its pivot 22 when the parts assume the position as shown in Figures 3 and 4, but the spring 23 will yield to permit the
30 section 21 to move about its pivot upon the return movement of the ejector so as to permit the section 21 to fold with respect to the body portion of the ejector so as to pass under the articles 25 in the container.

35 The weight of the ejector is such that it will normally assume the position shown in Figure 3 with respect to the shaft 13 and the bottom of the container 11. That is, in a retracted or inactive position so that upon oscillation of the shaft 13 the ejector will be
40 inactive with respect to the articles 25 in the container 11.

One of these ejectors is mounted below each of the containers 11 and the containers are
45 arranged above a support 26 upon which the articles 25 rest. The support 26 is provided with slots 27 through which the arms or extensions 28 on the section 21 of the ejector are adapted to move, as shown more clearly in
50 Figure 2.

The shaft 13 is adapted to be rocked in any suitable manner, but preferably through the medium of a coin controlled mechanism, any form of mechanism being suitable for the
55 purpose, one form of such mechanism being shown in Figure 7, but which mechanism constitutes no part of the present invention.

Suffice it to say that the coin controlled mechanism is provided with an operating
60 handle 29 which is adapted, through suitable intermediate mechanisms, to impart a rocking movement to a member 30 upon the insertion of a coin into the coin carrier 31. The rocking member 30 is connected by means
65 of a link 32 to an arm 33 secured to the rock

shaft 13, so that upon each rocking movement of the member 30 the shaft 13 will be rocked forwardly and backwardly and with it the ejectors 15.

Arranged beneath the shaft 13 and jour-
70 naled in suitable supporting bearings is a shaft 34 which is parallel with the shaft 13 and secured to the shaft 34 are a plurality of cam devices 35, one of which is arranged beneath the curved extension 20 of the ejection
75 tors 15.

The cams 35 are arranged at different angles with respect to each other and about the shaft 34, so that when one of the cams
80 35 is positioned by the rotation of the shaft 34 so that the curved extension 20 of the respective ejectors 15 contacts and moves over the cam by the rocking of the shaft 13, that
85 respective ejector will be prevented from maintaining an inactive position with respect to the articles 25, and will be positioned into an active position so that when the shaft 13
90 is moved in one direction the extensions 28 on the section 21 of the ejector will engage behind the lowermost article in the respective container and eject the article from the container and discharge the same into a chute 36
95 to be delivered to the customer through an opening 37.

When the shaft 34 is further rotated to
100 position another cam 35 so as to cause its respective ejector to be rendered active with respect to the articles, the cam of the already active ejector will be positioned so as to allow the ejector to drop by gravity or to be moved
105 into an inoperative position with respect to the articles.

It will therefore be manifest that by adjusting the shaft 34, the ejectors may be selectively rendered active and inactive and the
110 cams 35 may be arranged at any desired angle about the shaft 34 with respect to each other.

When the respective ejectors are set, and when they are partially advanced, it will be
115 manifest that the extensions 28 will engage behind the lowermost article 25 in the respective container 11 and as the articles to be vended are the bottom articles of the pile, the end 28 of the ejector which has been set will contact with the edge of the article. It has
120 been found that by a skillful manipulation of the machine any one of the ejectors when moved to this position, may be made to retain such position while another ejector is selected and rendered active so that upon a further operation of the machine or rotation of the
125 shaft 13, both of the ejectors will deliver an article from the machine, thereby causing two articles to be delivered instead of one.

This is objectionable, and therefore in order to overcome this objection and to provide a means for rendering inactive the ejector which has been previously set, by rendering active another ejector, means are
130

provided for positively withdrawing the set ejector.

This may be accomplished in any desired or suitable manner, but a simple and efficient means embodies an arm 38 (see particularly Figure 4), which is secured to the body portion 15 of the ejector. This arm is secured as at 39 to the body of the ejector and is provided with a portion 40 which depends below the shaft 13 and is bifurcated as at 41 so as to stand astride of the shaft 34, to which the cams 35 are secured. This arm 40 is provided with a laterally projecting portion 42, preferably at the lower end thereof, and on each side of the bifurcation. A cam 43 is secured with the cam 35 for rotation therewith, and this cam 43 is so positioned that it will engage the lateral projection 42 on the arm 40, a portion of the cam 43 being removed or flattened as at 44.

The cam 43 is so positioned with respect to the cam 35 that the flat portion 44 of the flange 43 will be disposed in proximity to the flange 42 when the cam 35 is positioned to be active, that is, is moved to a position that when the portion 20 of the ejector 15 rides thereover the ejector will be projected or moved into operative or set position so that the portions 28 will pass through the slots 27 in the support 26 and engage behind the lowermost article in the supply.

When, however, the shaft 34 is rotated so as to move one of the cams 35 into a position that the respective ejector will thereby be rendered inactive, the high portion of the cam 43 will commence to act upon the flange 42 of the arm 40 and thereby draw the arm 40 and the member 15 downwardly or into an inactive position.

In other words, the cams 43 and 35 are so arranged with respect to each other that when one is in an active position to act upon its corresponding part, the other will be in a position to render its corresponding mechanism inactive.

In order to select the container from which the article is to be vended, it is only necessary to actuate the shaft 34 to position the respective cams 35.

Any suitable means may be provided for this purpose. A simple and efficient means embodies an operating handle 45 which is arranged in a convenient position for the operator, preferably to project through the front of the machine and in proximity to the handle 29 of the actuating mechanism for the shaft 13.

Connected with the handle 45 is a shaft 46 and connected with the shaft 46 is a gear 47, preferably of the beveled type which meshes with a gear 48 which in turn is secured to the shaft 34 for rotation therewith. Thus by rotating the handle 45 the shaft 46 will be rotated and this will in turn rotate the shaft 34.

As a means for assisting in the selective operation of the ejectors any suitable indicating device may be provided, such as numerals 49 and an indicator 50 on the handle 45, and which indicator co-operates with suitable graduations or indicator marks 51.

As a means for assisting in positioning the shaft 46 against retrograde movement, there may be provided a disc 52 secured to the shaft and which is provided with shoulders 53, with which shoulders a pawl 54 pivotally mounted as at 55 cooperates, and a spring 56 tends normally to move the pawl 54 into a position to be engaged by the shoulders 53.

It is thought that the operation of the mechanism will be clearly understood from the foregoing, but briefly stated, it is as follows.

The handle 45 is first operated to select the container from which it is desired to dispense the article, and this is accomplished by rotating the handle to position one of the cams 35 to render its respective ejector active. As soon as the shaft 34 is rotated, any ejector which has been previously set or which has remained active will be rendered inactive by reason of the fact that one of the cams 43 will operate upon the arm 40 of that ejector which has been previously set, so as to withdraw or move the latter into an inactive position. At the same time the flat portion 44 of the cam 33 of the ejector which it is desired to render active will have assumed a position with respect to the flange 42 so as to permit the respective cam 35 to raise the body portion 15 of the ejector that it is desired to set, with respect to the shaft 13 and the arm 14.

The coin is then deposited in the coin carrier 31 and the handle 29 is rotated in one direction so as to position the ejectors 15 as shown in Figure 9. This will invert the check carrier 31 and the check will be delivered into the machine, causing the member 30 to be rocked when the handle 29 is rotated in the opposite direction. By rocking the member 30 from the position shown in Figure 9, to the position shown in Figure 8, the shaft 13 will be rocked, as will also the ejectors 15.

When the parts are moved from the position shown in Figure 9 to the position shown in Figure 6, the cam 35 which is individual to the ejector of the selected container will be rendered active by reason of the curved portion 20 of the ejector engaging and riding over the respective cam 35, thereby causing the ejector to be bodily moved with respect to the shaft 13 and with it the arm 40, positioning the extensions 28 of the section 29 of the ejector back of the lowermost article 25. The ejector will be held in this position until the parts are moved to the position shown in Figure 8, that is the ejector

will be held elevated with respect to the shaft 13 by the respective cam 35.

When the shaft 13 is rotated in the opposite direction so as to move the parts from the position shown in Figure 8 back to the position shown in Figure 9, the section 21 of the elevated or active ejector will contact with the lowermost article 25 in the container 11 and will yield during the return movement of the ejector, about its pivot 22 against the stress of the spring 23 so as to permit the extension 28 to pass under the article. As soon as the ejector has assumed a position that the extensions 28 will be positioned in front of the lowermost article, the spring 23 will cause the section 21 to assume its normal position as shown in Figures 3 and 4.

Thus it will be manifest that the device may be selectively controlled by operating the handle 38.

It will also be manifest that when one of the cams 35 is positioned to render its ejector active the cams 43 of the other ejectors will be actuated so as to operate upon its respective arm 40 and thereby withdraw or remove to an inoperative position any ejector which has been previously set.

As a means for assisting in positioning the shaft 34 and the cams 35 as well as the cams 43 by the adjustment of the handle 45, a resiliently yielding locking device may be provided on the shaft 34.

Any suitable means may be provided for this purpose, but a simple and efficient means embodies a disc 57 provided with cam portions 58 having recesses 59 in its periphery. A lever 60 is pivotally mounted as at 61 and is provided with an anti-friction roller or projection 62 adapted to enter the recesses 59, and a spring 63 tends normally to move the lever 47 in a direction that the projection or anti-friction roller will engage the periphery of the disc 57.

Thus by rotating the handle 45 the lever 60 will yield to permit the shaft 34 to be rotated and the anti-friction roller or projection 62 will, under the influence of the spring 63 enter one of the seats 59 as the latter approaches the projection or roller.

While the preferred form of the invention has been herein shown and described, it is to be understood that various 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. A vending machine embodying a rock shaft, a plurality of ejectors connected with the shaft for rocking movement therewith and for movement with respect thereto, means for rocking the shaft, a second shaft, cams connected with the second shaft and individual to the ejectors, means for rotating

the said second shaft to cause the respective ejectors to be selectively rendered active at will with respect to the delivery of articles thereby, means for actuating the said second shaft, and means individual to the ejectors for rendering inactive an ejector which has been previously rendered active with respect to the delivery of articles, when a cam is set to subsequently render another ejector active to deliver articles.

2. A vending machine embodying a plurality of ejectors, means common to the ejectors for actuating them, said means embodying a rock shaft, means for actuating the shaft, cam devices individual to the ejectors for rendering the ejectors active with respect to the delivery of articles thereby, means for selectively positioning said cams at will, to respectively cause one of said ejectors to be rendered active with relation to the article to be dispensed upon the next operation of said actuating means, and means for positively withdrawing or rendering inactive an ejector which has been previously set or rendered active to deliver articles, upon the subsequent setting of a cam to render another ejector active to deliver articles.

3. A vending machine embodying a plurality of ejectors, means common to the ejector for actuating them, said means embodying a rock shaft, means for actuating the shaft, cam devices individual to the ejectors for rendering the ejectors active with respect to the delivery of articles thereby, means for selectively positioning said cams at will, to respectively cause one of said ejectors to be rendered active with relation to the article to be dispensed upon the next operation of said actuating means, and means for positively withdrawing or rendering inactive an ejector which has been previously set or rendered active to deliver articles, upon the subsequent setting of a cam to render another ejector active to deliver articles, the last recited means embodying cam devices individual to the ejectors.

4. A vending machine embodying means for holding a plurality of supplies of articles to be vended, a rock shaft, means for rocking the shaft, ejectors common to the supplies connected with the shaft for rocking movement therewith and for movement with respect thereto, a second shaft, cams connected with the second shaft and individual to the ejectors, means for actuating the second said shaft to selectively set the said cams, additional cams connected with the second shaft and individual to the ejectors, and means whereby the said additional cams will respectively render inactive with respect to the delivery of articles a previously set ejector, when another of the first recited cams is subsequently set to render another of the ejectors active to deliver articles.

5. A vending machine embodying a rock

shaft, an ejector, means connecting the ejector with the shaft for rocking movement therewith and for free sliding movement with respect thereto in directions transverse to the axis of the shaft, a cam device, means for positioning the cam device to be engaged by the ejector during rocking movement of the shaft to control the said transverse movement of the ejector and to cause the ejector to be rendered active with respect to the delivery of articles when the said shaft is rocked, a second cam device, and means whereby when the first cam device is moved to render the ejector inactive to the delivery of articles, the said second cam will positively shift the ejector in said transverse direction to insure the ejector being inactive.

6. A vending machine embodying a plurality of article holders, a rock shaft, ejectors, individual to the holders, means connecting the ejectors with the shaft for rocking movement therewith and bodily movement with respect thereto in direction transverse to the axis of the shaft, means for selectively causing the ejectors to bodily move transversely with respect to the shaft to cause certain of the ejectors to be rendered active and others to be rendered inactive by an operation of the shaft, and additional means rendered active by the operation of said shaft to bodily move certain of said ejectors to insure their movement into inoperative position.

7. A vending machine embodying a rock shaft, an ejector connected with the shaft for rocking movement therewith and for movement with respect thereto, means for rocking the shaft, a second shaft, a cam connected with the second shaft, means for rotating said second shaft to cause said ejector to be rendered active or inactive at will with respect to the delivery of articles thereby, and additional means responsive to the rotation of said second shaft for positively and bodily moving of said second shaft to insure a positioning of the ejector in an inactive position.

8. A vending machine embodying a rock shaft, an ejector, means connecting the ejector with the shaft for rocking movements therewith and for free sliding movement with respect thereto in directions transverse to the axis of the shaft, a cam, means for positioning the cam to be engaged by the ejector during rocking movement of the shaft, to control the said transverse movement of the ejector and to cause the ejector to be rendered active with respect to delivery of the articles when the shaft is rocked, and additional means responsive in its operation to the actuating of the said cam positioning means for imparting a movement to the ejector in a direction transverse of the action of the said shaft to insure movement of said ejector into an inactive position.

9. A vending machine embodying a rock

shaft, an ejector, means connecting the ejector with the shaft for rocking movements therewith and for free sliding movement with respect thereto in directions transverse to the axis of the shaft, a cam, means for positioning the cam to be engaged by the ejector during rocking movement of the shaft, to control the said transverse movement of the ejector and to cause the ejector to be rendered active with respect to delivery of the articles when the shaft is rocked, and additional means responsive in its operation to the actuation of the said cam positioning means for imparting a movement to the ejector in a direction transverse of the axis of the said shaft to insure movement of said ejector into an inactive position, the last recited means embodying a cam, and means connected with the ejector to be engaged by the last recited cam.

In testimony whereof we have signed our names to this specification on this 25th day of September, A. D. 1930.

ALFRED D. ANTOINE.

ALBERT E. GEBERT.