

April 16, 1929.

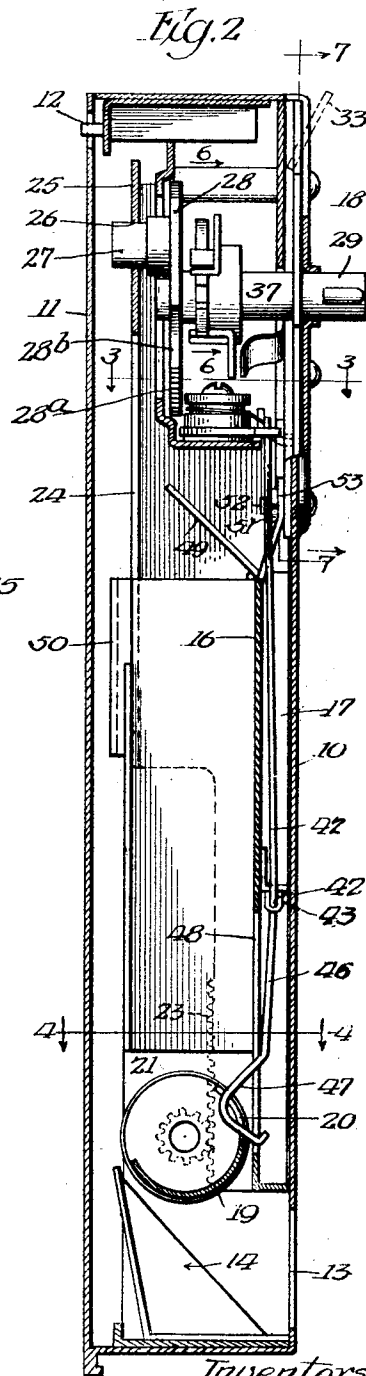
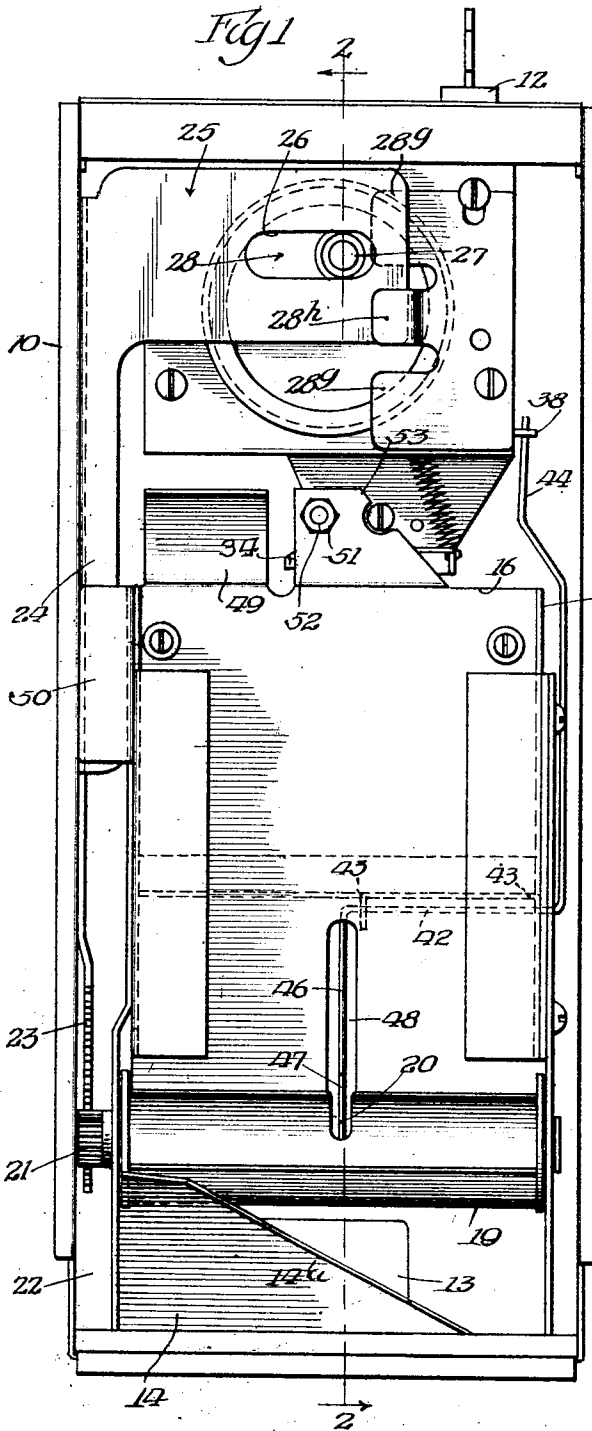
M. H. RICHARDSON ET AL

1,709,192

VENDING MACHINE

Filed June 1, 1926

3 Sheets-Sheet 1



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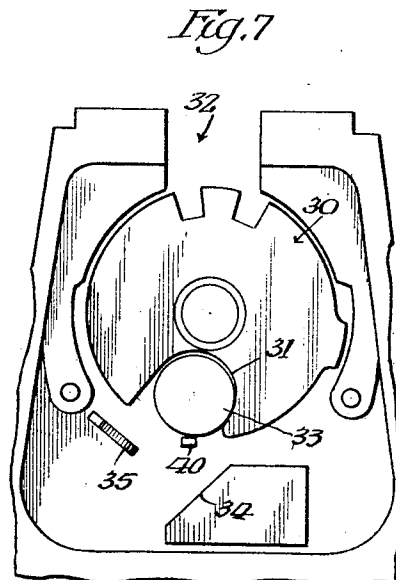
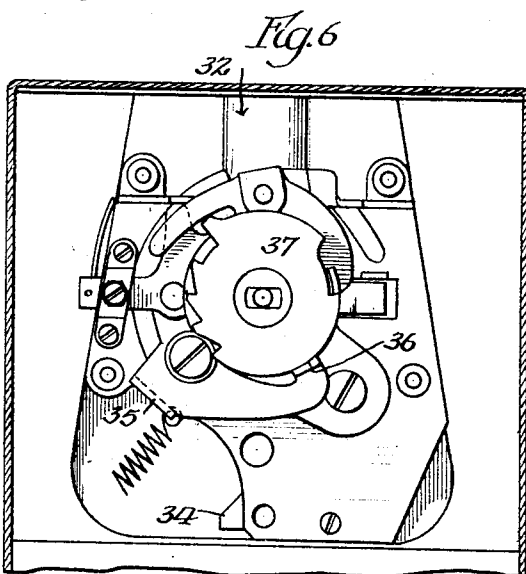
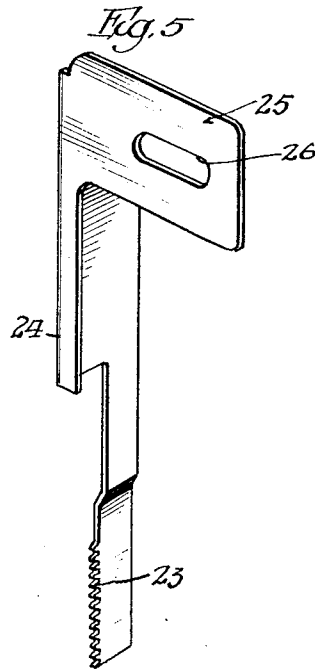
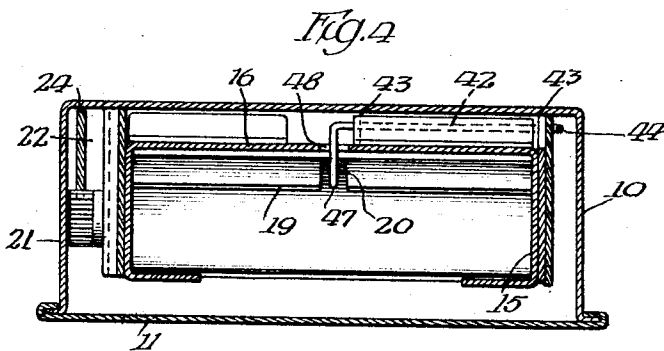
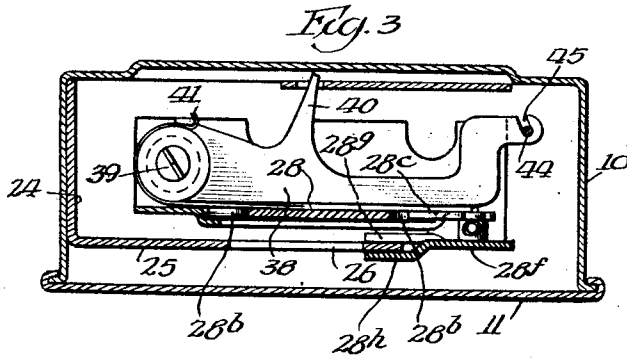
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Figs

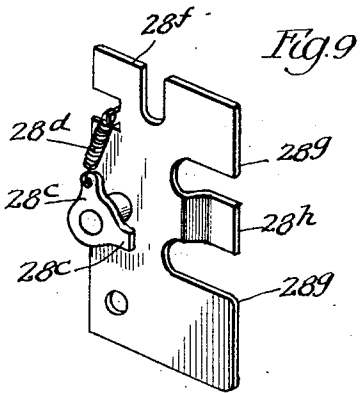
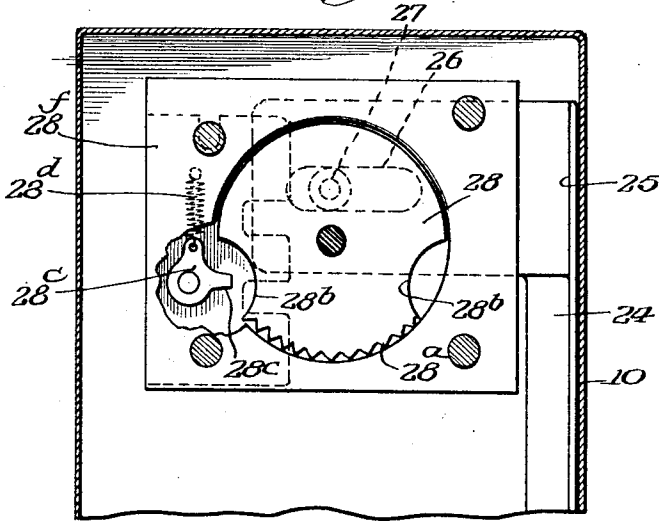


Fig 10

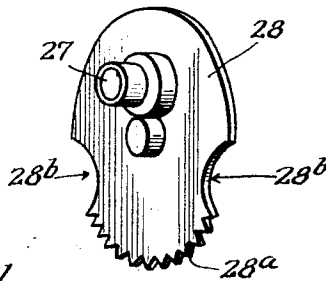
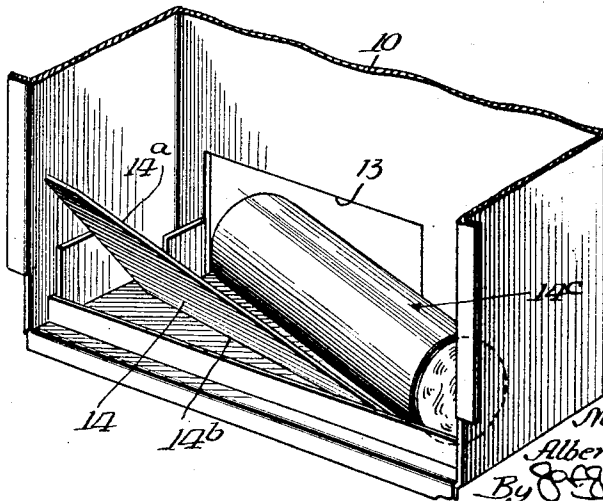


Fig. 11



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UNITED STATES PATENT OFFICE.

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VENDING MACHINE.

Application filed June 1, 1926. Serial No. 112,860.

This invention relates to improvements in vending machines of the check controlled type embodying a rotatable article delivery member, and one of the objects of the invention is to provide improved means whereby the presence of an article upon the delivery member will permit the operation of the machine when a proper check is inserted, but when there is no article in the machine or if the article is not in a position to be delivered by the operation of the delivery member, the machine will be locked against operation when the check or token is inserted, and the check or token will then be returned to the operator.

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 an elevation of a machine of this character constructed in accordance with the principles of this invention, and showing the same disposed within a casing with the rear wall of the casing removed.

Figure 2 is a vertical sectional view taken on line 2—2, Figure 1.

Figure 3 is a detail horizontal sectional view taken on line 3—3, Figure 2.

Figure 4 is a detail horizontal sectional view taken on line 4—4, Figure 2.

Figure 5 is a detail perspective view of the actuating member for rotating the article delivery member.

Figure 6 is a detail sectional view taken on line 6—6, Figure 2.

Figure 7 is a detail sectional view taken on line 7—7, Figure 2.

Figure 8 is a detail view in elevation, partly broken away and with parts omitted of a portion of the mechanism for actuating the package delivery member.

Figure 9 is a detail perspective view of the dog supporting and guide member.

Figure 10 is a perspective view of the controlling disc.

Figure 11 is a perspective view of the

lower portion of the casing taken from the rear showing the manner of positioning the article to be removed through the delivery opening.

Referring more particularly to the drawings the numeral 10 designates generally a casing of any desired size and configuration, having a back 11 removably secured in position by means of a fastening device such as a lock 12.

The front of the casing is provided with a delivery opening 13 through which the articles to be vended are dispensed, and within the casing is preferably arranged an incline or chute 14 for directing the article to the opening 13.

The delivery opening 13 of the casing is preferably of a length somewhat shorter than the length of the article to be delivered there-through, and the incline or chute 14 is beveled along its upper edge as at 14^a and also inclines forwardly as at 14^b from the rear wall of the casing 10 toward the front wall of the casing, so that when a package 14^c is delivered from a delivery member, to be hereinafter described, and while the package is substantially parallel with the front wall of the casing 10, the package will, as it drops from the delivery member, be turned in such a manner that one end of the package will be advanced as it falls down the chute or incline 14, so that the package will assume the position as shown in Figure 11. That is, so that one end will be projected forwardly and through the delivery opening 13 so that the operator may remove the package by grasping the projecting end.

This also renders it possible to provide only a comparatively small delivery opening 13 in the front of the casing.

Arranged within the casing thus formed and preferably adjacent the lower part thereof and removably secured in position therein, is an article container 15, the back 16 of which is spaced from one of the walls of the casing to form a chamber 17 into which the checks delivered into the machine, will be deposited.

Within the upper portion of the casing is arranged a suitable check controlled mechanism designated generally by the reference numeral 18. While in the present exemplification

cation of the invention check controlled mechanism of the type shown and described in United States Letters Patent 1,452,721, issued April 24, 1923, is shown, any check controlled mechanism suitable for the purpose may be employed.

Arranged adjacent the bottom of the container 15 to extend thereacross and to form the bottom of the container is a rotatably mounted substantially semi-circular delivery member 19. The ends of the delivery member are preferably journaled in the side walls of the container 15 and the member constitutes the bottom of the container, a portion of the wall of the member 19 being cut away as at 20, for a purpose to be hereinafter set forth.

Carried by the member 19 is a pinion gear 21 which is preferably disposed within a space 22 between one of the walls of the container and the wall of the casing.

Meshing with the pinion 21 is a rack 23, which in turn is formed on a member 24 also located and reciprocable within the space 22.

The upper end 25 of the member 24 is provided with an elongated slot 26, within which a projection 27, preferably in the form of a roller, operates. This projection 27 is connected with a disc like formation 28 that is connected in any suitable manner with the check controlled mechanism 18 and is adapted to be rotated, when the proper check is inserted, by manipulation of the handle 29 of the check controlled mechanism.

When the handle 29 is rotated the disc or member 28 will be correspondingly rotated and the member 24 will then be shifted in one direction according to the direction of rotation of the handle 29 and will be moved in the opposite direction when the handle 29 is thus rotated.

During the reciprocation of the member 24 the delivery member 19 will be rotated about its axis through the medium of the rack 23 and the pinion 21 so as to first invert the delivery member 19 to discharge one of the articles from the container. Upon the return movement of the member 24 the delivery member 19 will be correspondingly rotated so that another article from the container 15 will be delivered into the member 19 to be ejected therefrom when the latter is again inverted.

The member 19 constitutes the bottom of the container and when it is rotated to discharge an article therefrom the body portion of the delivery member will pass beneath the next adjacent article in the container and will serve as a support for the remaining articles.

Means are provided for locking the disc 28 against retrograde movement from either direction in which it is being rotated. That is to say, should the disc be moved in one direction to lower the element 25 it will be locked against retrograde movement or if

the disc is rotated in the opposite direction to raise the element 25 it will also be locked against retrograde movement.

This means is provided in order to prevent the operation of the delivery member 19 by the insertion of the hand or an implement into the delivery opening 13 of the casing.

This locking may be accomplished in any suitable manner but preferably by means of teeth 28^a on a portion of the periphery of the disc 28, the periphery of the disc adjacent the ends of these teeth being cut away as at 28^b.

Mounted adjacent the disc is a dog 28^c which is controlled by a spring 28^d, the teeth 28^e of the dog co-operating with the teeth 28^a on the disc 28.

A member 28^f is mounted upon any suitable support and is provided with offset portions 28^g and 28^h to form a guide for the end of the upper portion 25 of the reciprocable element 24.

The spring 28^d tends normally to move the end 28^b of the dog 28^c against the periphery of the disc 28 so that when the disc is rotated the dog will ratchet over the teeth 28^a to permit a movement of the disc in one direction but to lock it against return movement.

With this construction it will be manifest that the disc 28 must be rotated in one direction after it is started to rotate and after the tooth 28^e of the dog 28^c has engaged the teeth 28^a, until the end of the dog passes into one or the other of the notches or cut away portions 28^b of the disc, at which time the disc 28 may be operated in the opposite direction, the dog 28^c turning on its pivot to permit such operation, and when the dog is in the reverse position the disc may be rotated in one direction and will be locked against rotation in the opposite direction by means of the teeth 28^a.

Thus it will be seen that after the disc 28 starts to move through the medium of the handle 29, it must continue its movement in the same direction for a predetermined number of degrees before it can be reversed.

The check controlled mechanism embodies a check carrying member 30 having a check seat 31 adapted to be brought into alignment with the check receiving opening 32.

The check carrier 30 is connected with the handle 29 and when the check carrier is rotated to invert the check seat 31 the check 33 carried thereby will be delivered from the check seat on to a support 34, and will be held upon the support by means of a spring controlled member 35.

The member 35 is provided with a dog 36 for controlling the rotation of the member 37 of the check controlled mechanism. When the check is delivered from the check carrier upon the support 34, upon the movement of the check carrier 30 in one direction, it will be maintained between the support 34 and the member 35. When the check carrier is rotated in the opposite

direction one edge of the wall of the check seat 31 will engage the check and force it against the member 35 to release the dog 36 and thereby permit the member 28 to be rotated, thereby actuating the operating member 24 to rotate the article delivery member 19.

A member 38 is pivotally mounted by one end as at 39 and is provided with a finger 40 that is adapted to be projected to stand adjacent the path of movement of the check 33 in the check carrier 30 so as to prevent the check from being delivered from the seat 31 when the seat is inverted.

A spring 41 is provided which tends normally to move the member 38 in a direction that the finger 40 will stand adjacent the path of movement of the check 33, as shown in Figure 7, so as to prevent the delivery of the check into the machine and to cause the check to be returned to the operator when the check carrier 30 moves backwardly.

This mechanism is provided so as to insure the return of the check to the operator when the machine is empty or when there are no articles in the container to be delivered.

The operation of the member 38 and the withdrawal of the finger 40 is controlled by the articles in the container and as they pass from the container into the delivery member 19.

This is accomplished by means of a member 42 which is pivotally mounted in suitable bearings 43. One end of the member extends upwardly as at 44 and enters a notch or opening 45 in the end of the member 38. The other end 46 of the member 42 extends downwardly and is provided with a bent or projecting portion 47 preferably adjacent its lower extremity. The projection 47 passes through a slot or opening 48 in the rear wall 16 of the container 15 and is also adapted to enter the slot or cut away portion 20 in the wall of the delivery member 19 to be in a position to be engaged by an article from the container when the member 19 is positioned to receive the article.

When one of the articles passes into the member 19 it will engage and deflect the projection 47 of the member 42, causing the member 42 to rock in the bearings 43. This will shift the upper end 44 of the member 42, causing the member 38 to rock about its pivot 39, with the result that the finger 40 will be withdrawn from the path of movement of the check 33 in the check carrier 30.

The check will then fall from the seat 31 and will be forced between the support 34 and the member 35 to render the check controlled mechanism active. The check will then fall upon a deflector 49 to be directed into the chamber 17.

After the article has been delivered from the member 19 and the latter is returned, the spring 41 will cause the member 38 to move

in the opposite direction, thereby rocking the member 42 to cause the projecting portion 47 thereof to enter the slot or cut away portion 20 in the wall of the delivery member 19.

Should the machine be empty of articles, the member 38 will remain in the last recited position and the finger 40 will prevent the delivery of the check 33 from the check carrier 30, with the result that the check will be returned to the operator.

The container is provided with a flange 50, which cooperates with the front wall of the casing 10 to guide the member 24 in its movement, and the container together with the member 19 and the member 42 supported by the wall of the container, may be removed as a unit from the casing 10 by removing a single nut 51 on a stud 52 which passes through an ear or projecting portion 53 on the rear wall 16 of the container. Thus by removing the nut 51 after the closure 11 has been removed from the casing 10 and by detaching the extremity 44 of the member 42 from the member 38, the container and delivery member together with the member 42 may also be removed as a unit from the casing.

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 including a container for the articles to be vended, a member rotatably mounted adjacent the lower end of the container and forming the bottom thereof, said member operating when rotated upon its axis to deliver an article, operating mechanism located above the container and embodying a crank, a vertical rack reciprocable by the crank, said rack extending to a point adjacent said rotatable member, a gear on the rotatable member engaged by the rack, and means controlled by the articles in the container for rendering the said member inoperative by the first said operating mechanism.

2. A vending machine including a container for the articles to be vended, a rotatable trough like member mounted adjacent the lower end of the container for rotation on a horizontal axis and forming the bottom of the container, said member operating when rotated on its axis to deliver an article, means located above the container for rotating the member, the last said means embodying a vertical depending rack, a pinion connected with said member and engaged by the rack, a member adapted to project into said trough to be engaged by the article therein for rendering the said member inoperative by the said rack and pinion, and a casing containing all of said parts, the said container and

member and the said rack and pinion being removable as a unit from said casing.

3. A vending machine including a casing, a container therein for the articles to be vended, a delivery member extending across the container adjacent the bottom thereof, said member being rotatable on a horizontal axis to successively deliver the articles and to support the remaining articles in the container, a pinion gear connected with said member for rotating the latter, a rack engaging the pinion, said rack extending to the top of the casing, a crank also at the top of the casing for imparting reciprocation to the rack, and means controlled by the articles in the container for controlling the operation of the said rack.

4. A vending machine including a container for the articles to be vended, a substantially semi-cylindrical member rotatably mounted adjacent and extending across the container to form the bottom thereof, means for rotating the member to deliver an article and to support the articles in the container, means adapted to project into the said member in the absence of an article therein to maintain the member against operation, the last said means adapted to be engaged by an article carried by the said member to permit the said member to be rotated to deliver the last said article, and means controlled by the last said means for controlling the said member rotating means.

5. A vending machine including a container for the articles to be vended, means mounted adjacent the container for delivering the articles therefrom, there being a delivery opening for the articles through which the articles are delivered by gravity, and means for turning the article in a direction transverse to the length thereof and during its travel by gravity from the delivery mechanism to the said delivery opening, to project one end of the article through the delivery opening.

6. A vending machine including a container for the articles to be vended, means mounted adjacent the container for delivering the articles therefrom, there being a delivery opening for the articles through which the articles are delivered by gravity, and means for turning the article in a direction transverse to the length thereof and during its travel by gravity from the delivery mechanism to the said delivery opening, to project one end of the article through the delivery opening, the said delivery opening being of a length less than the length of the article to be delivered therethrough.

7. A vending machine including a container for the articles to be vended, there being a delivery opening through which the articles are dispensed by gravity, means for discharging the articles sidewise from the supply to the said delivery opening, and

means for turning the article sidewise on its passage by gravity to the said delivery opening to advance one end of the article as it is delivered to such opening.

8. A vending machine including a container for the articles to be vended, a member rotatably mounted on a horizontal axis adjacent the lower end of the container and forming the bottom thereof, said member operating when rotated upon its axis to deliver an article, means embodying a rack and pinion for rotating the said member, a crank for actuating the rack, means for locking the said crank against retrograde movement during predetermined portions of the cycle of operation thereof, and means controlled by the articles in the container for rendering the said member inoperative by the said rack means.

9. A vending machine including a container for the articles, a delivery opening through which the articles are delivered by gravity, means for delivering the articles from the supply in a position that its longitudinal axis will be substantially parallel with said opening, and means other than the said delivery means for turning the article in a direction transverse to its longitudinal axis while the article is traveling by gravity to the said delivery opening for projecting one end of the article through said opening.

10. A vending machine including a container for the articles, a delivery opening through which the article is delivered by gravity, means for delivering the articles from the supply in a position that its longitudinal axis will be substantially parallel with said opening, and means other than the last said means and adapted to be engaged by the article as it travels by gravity to the said delivery opening for turning the article in a direction transverse to its longitudinal axis to project one end of the article through said opening, the length of said opening being less than the length of the said article.

11. A vending machine including a container for the articles, a delivery opening through which the article is delivered by gravity, means for delivering the articles from the supply in a position that its longitudinal axis will be substantially parallel with said opening, and means other than the last said means for turning the article in a direction transverse to its longitudinal axis while the article is traveling by gravity to the said delivery opening for projecting one end of the article through said opening, one end of the said delivery opening operating as a stop for maintaining within the container the end of the article which is opposite to the projected end.

12. A vending machine including a container for the articles to be vended, a delivery opening, means for delivering the articles from the container to the delivery opening,

and a deflector extending in a direction across the container and therebelow, the body of the said deflector inclining downwardly and forwardly, the top of the deflector inclining downwardly in a direction lengthwise of the deflector from a point adjacent one end of the deflector toward the other end thereof, the article delivered from the supply engaging the deflector to be bodily turned thereby in a direction transverse to the longitudinal axis of the article to project one end of the article through the said delivery opening.

13. A vending machine including a casing, a container therein for the articles to be vend- ed, a member rotatable on a horizontal axis and forming the bottom of the container, a pinion connected with said member and disposed between the casing and the container wall, means disposed above the container for actuating the said rotatable member, a rack extending from the last said means, between the container and casing walls, and engaging the said pinion, and an element adapted to engage a portion of the said rotatable member to lock the latter against operation, said element being engaged by the article carried

by the element for controlling the reciprocation of the said rack.

14. A vending machine including a casing, a container therein for the articles to be vended, a member rotatable on a horizontal axis and forming the bottom of the container, a pinion connected with said member and disposed between the casing and the container wall, means disposed above the container for actuating the said rotatable member, a rack depending from the last said means, between the container and casing walls, and engaging the said pinion, and an element adapted to engage a portion of the said rotatable member to lock the latter against operation, said element being engaged by the article carried by the element for controlling the reciprocation of the said rack, the said container and the said rotatable member being removable as a unit from the casing.

In testimony whereof we have signed our names to this specification, on this 24th day of May, A. D. 1926.

MYRON H. RICHARDSON.
ALBERT E. GEBERT.