May 10, 1927. 1,627,547

A. D. ANTOINE ET AL

VENDING MACHINE

Filed June 21, 1924 4 Sheets-Sheet 1

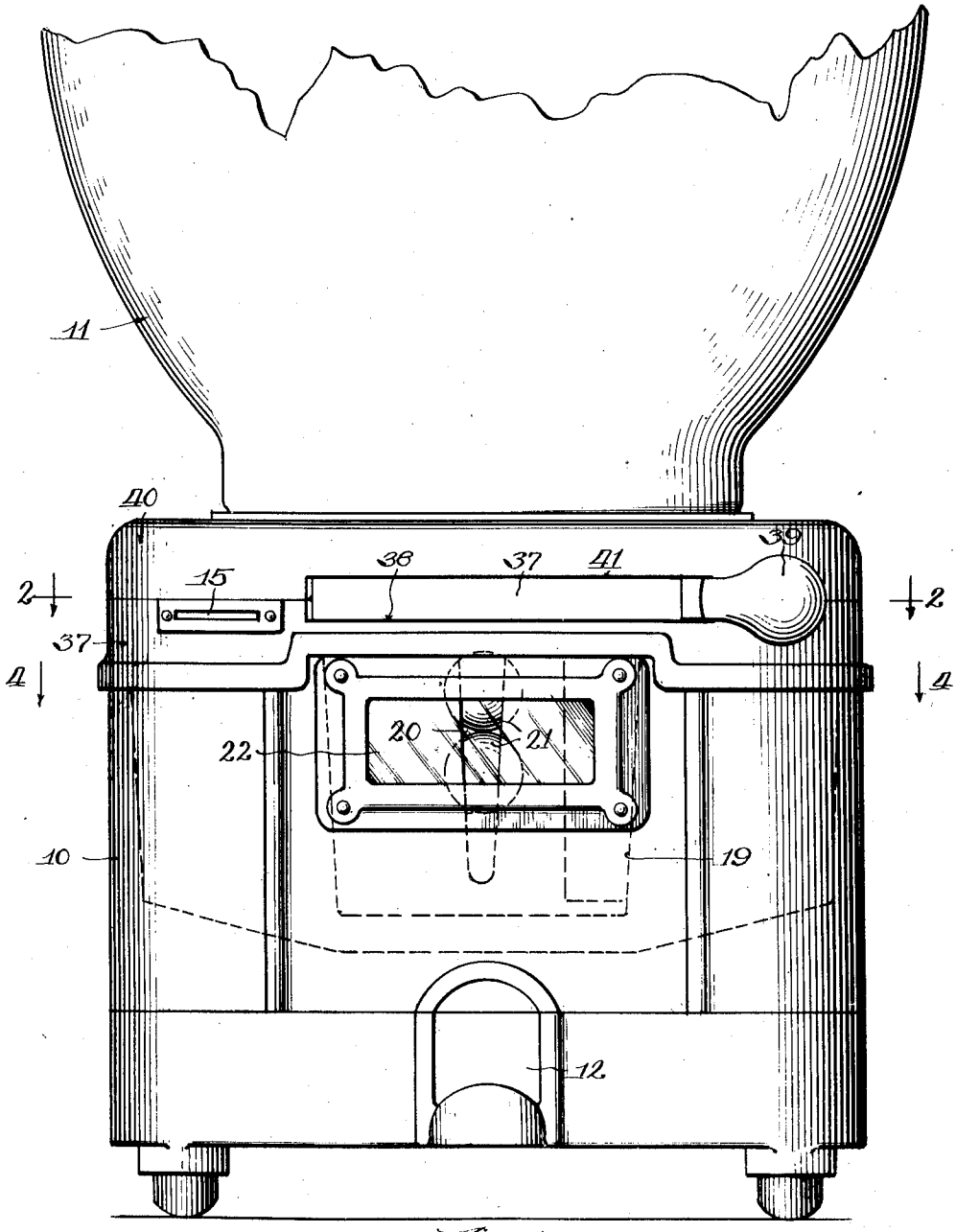


Fig. 1

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Fig. 2

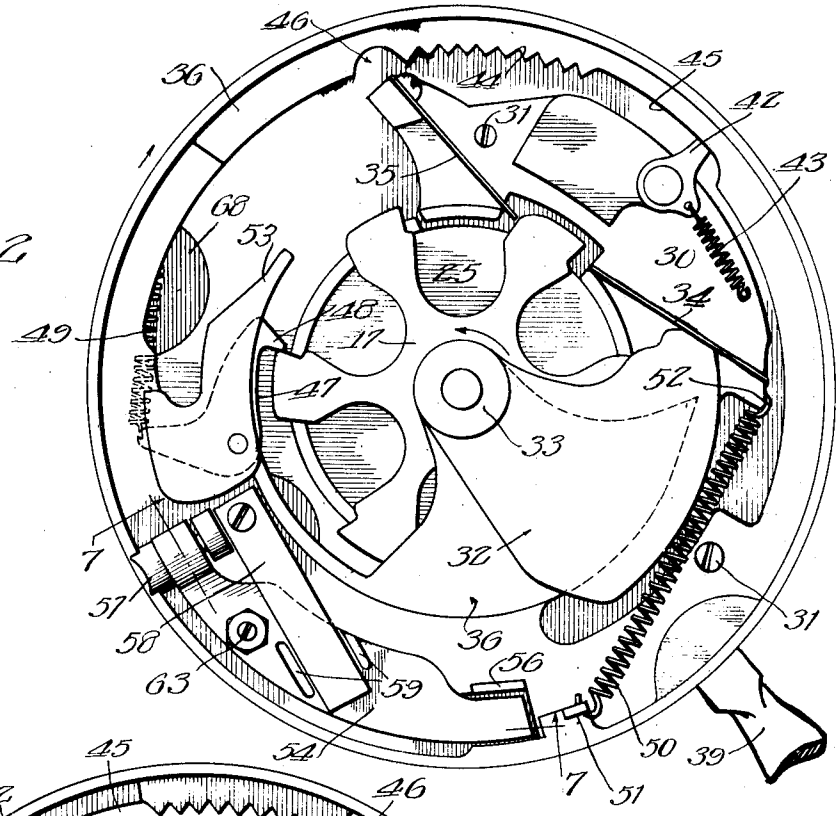
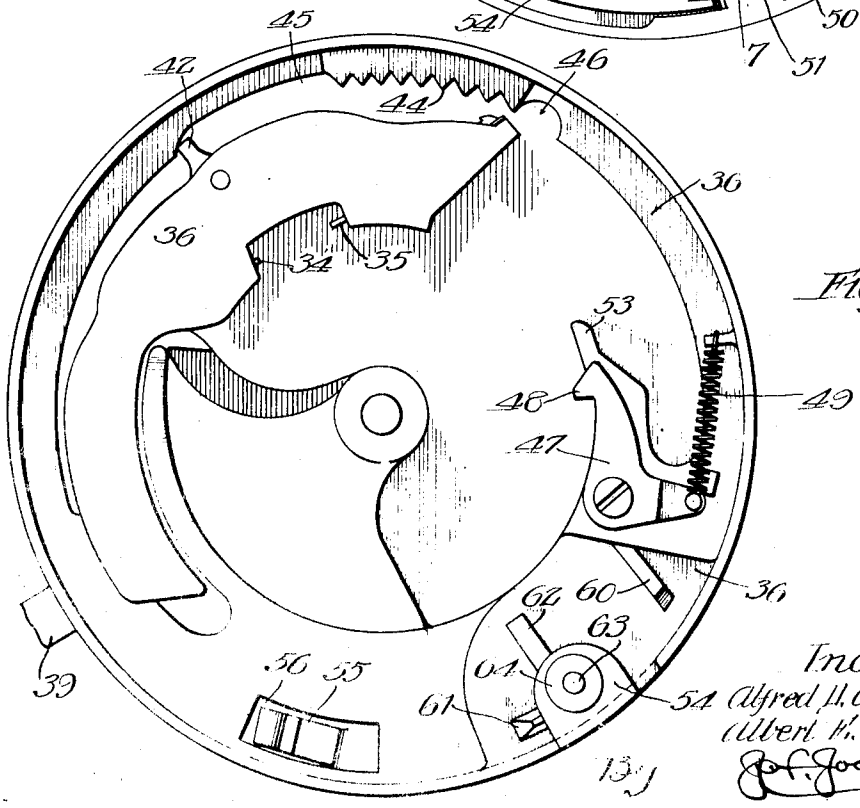


Fig. 3



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VENDING MACHINE

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Fig. 4

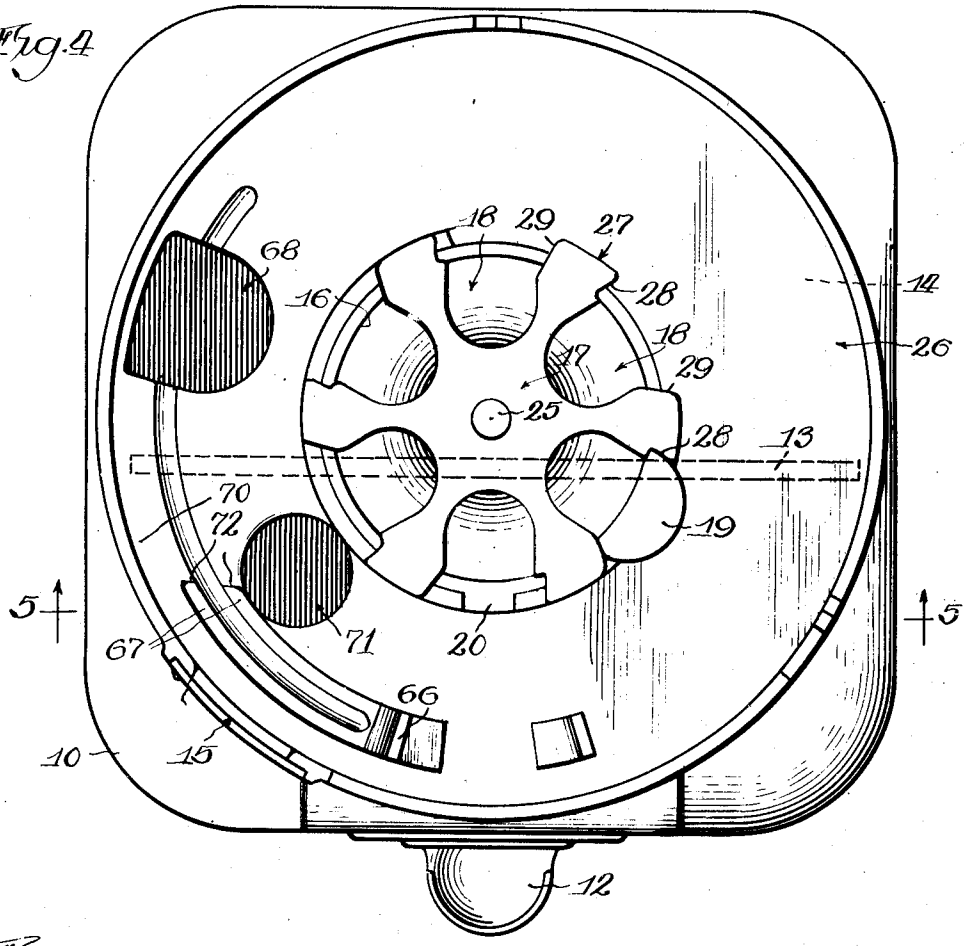
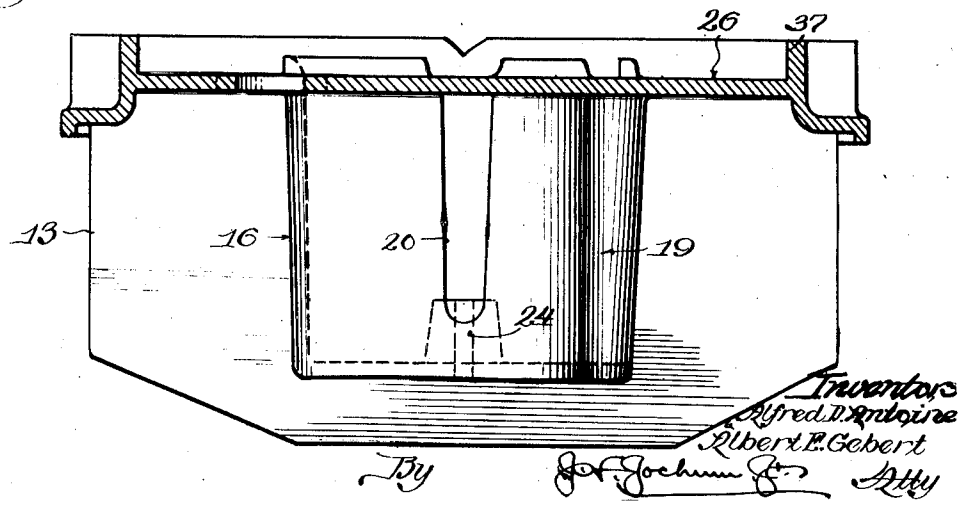


Fig. 5



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VENDING MACHINE

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Fig. 6

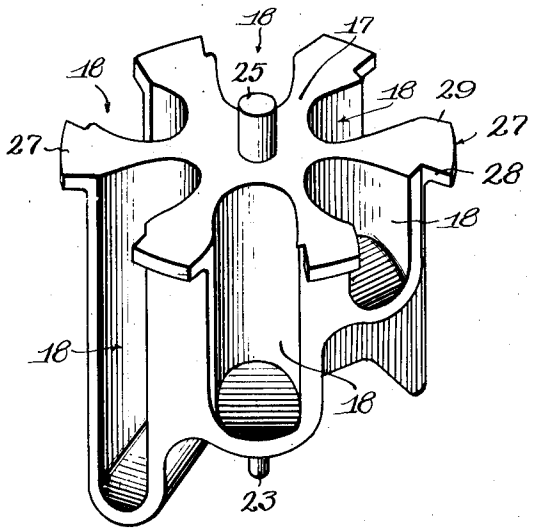


Fig. 9

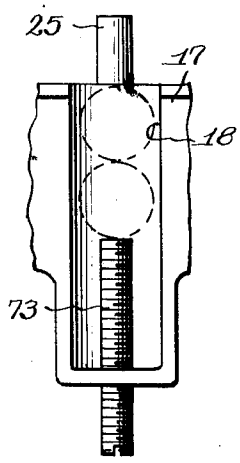


Fig. 7

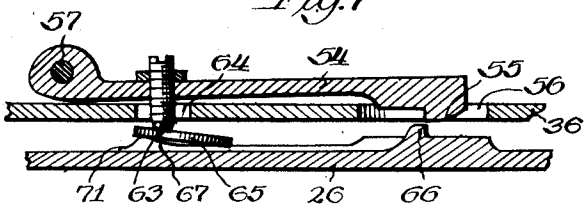
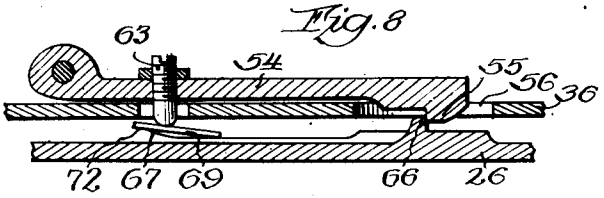


Fig. 8



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UNITED STATES PATENT OFFICE.

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VENDING MACHINE.

Application filed June 21, 1924. Serial No. 721,446.

This invention relates to improvements in vending machines of the check controlled type in which when a check or token of the proper character is inserted the mechanism may be actuated to cause an article or commodity to be delivered or discharged to the operator.

Heretofore in machines of this character it has not been possible for the operator to determine or see in advance of the operation of the mechanism just which article or how many articles will be delivered to him when a check is inserted or to determine whether the machine is empty, in which latter event the check or token will be deposited within the machine and he will receive no return for the same.

It is one of the objects of the present invention to provide an improved machine of this character in which the particular article or articles to be delivered to the operator will be in view of the operator at the time he inserts the check or token, and at the same time the operator will be apprised as to just how many of the articles he will receive when he operates the machine, thereby eliminating the possibility of an unknown chance as to what will be delivered from the machine upon any proper operation thereof.

A further object is to provide improved means for detecting or preventing the operation of the mechanism by the insertion of an improper check or token such as one that is too thin or a washer or the like.

A further object is to provide an improved machine of this character having improved means whereby a predetermined number or quantity of the articles may be delivered upon each operation of the machine.

A further object is to provide a machine of this character having improved means whereby the number of articles to be delivered upon the successive operations of the machine may be varied at will so that when the machine is operated a different number or quantity of the articles may be delivered upon different operations of the mechanism.

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 machine of this character constructed in accordance with the principles of this invention and with parts broken away.

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

Figure 3 is a bottom plan view of the reciprocating or actuating member, the member being removed from the machine and inverted.

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

Figure 5 is a detail, vertical sectional view taken on line 5—5, Figure 4.

Figure 6 is a detail perspective view of the commodity carrier.

Figure 7 is a detail sectional view as taken on line 7—7, Figure 2, with parts omitted and showing the manner in which a proper check when inserted will release the reciprocating member.

Figure 8 is a view similar to Figure 7 showing the same parts in the positions they will assume when an improper check is inserted.

Figure 9 is a detail view in elevation of one of the compartments or chambers of the commodity carrier, showing the manner in which the article receiving space therein may be varied.

Referring more particularly to the drawings the numeral 10 designates a supporting base of any desired size and configuration having mounted thereupon a hopper or container 11 for holding a supply of articles to be dispensed.

The base 10 is provided with a discharge outlet 12, through which the articles are delivered to the customer.

Within the base 10 is preferably provided a partition 13 for dividing the same to provide a space 14 in the rear thereof adapted to receive the checks or tokens after the operation of the mechanism and which checks or tokens may be inserted through a check receiving slot 15.

Also arranged within the base 10 is a casing 16 within which casing is disposed a rotatable commodity carrier 17 having a

plurality of compartments 18, any number of which may be provided. These compartments 18 are preferably of varying sizes and are adapted to hold different quantities or numbers of the commodity so that during the operation of the mechanism a different number of articles will be delivered, according to the compartment which is to be emptied.

The casing 16 is provided with a discharge outlet opening 19, through which the articles in the respective compartments 18 will be discharged and conveyed in a suitable manner through the outlet opening 12, when the respective compartments 18 are moved into alinement or register with the opening 19. The casing 16 is also provided with an opening 20 in its wall preferably of a width somewhat less than the width of the compartments 18 so that when one of the compartments 18 is moved into register with the discharge outlet opening 19, another of the compartments 18 will be in register or alinement with the opening 20, thereby enabling the operator to view the number of articles in the compartment adjacent the opening 20. This compartment is adapted, upon the next step of operation of the machine to deliver the articles contained in the exposed compartment. In order to facilitate viewing the articles 21 through the opening 20 in the wall of the casing 16, the base 10 is provided with a sight opening 22 in the wall thereof in alinement with the opening 20. If desired a transparent closure such as glass or other material may be provided for the opening 22.

The carrier 17 is preferably provided with a projecting bearing 23 adapted to be seated in a bearing 24 and is also provided with a projecting bearing 25 for holding the upper part of the carrier 17 in position to be rotated.

The base 10 is provided with a top 26 through which the casing 16 opens and above which top 26 the hopper or container 11 is adapted to rest. The upper portion of the carrier 17 is preferably shaped to form projecting flanges 27 adapted to overhang the top 26 as shown more clearly in Figure 4 of the drawings and these overhanging portions are provided with surfaces 28—29 on the opposite faces thereof for a purpose to be hereinafter set forth.

Resting upon the top 26 of the base is a member 30 which may be secured thereto in any suitable manner such as by means of suitable fastening devices 31 in the form of screws or the like. A portion 32 of the member 30 extends over the top of the carrier 17 and is provided with a bearing 33 for the reception of the projecting bearing or trunnion 25 connected with the carrier 17, so that the carrier 17 will be adapted for a free rotation in a manner to be set forth.

Carried by the member 30 are spaced stops 34—35 preferably constructed of suitable yieldable material and between the ends of which stops portions of the carrier 17 successively project when the carrier is rotated, the stop 34 serving to hold the carrier 17 against retrograde movement while the stop 35 locks the carrier against a forward movement. The stop 34 is yieldable so as to permit of a rotation of the carrier 17 when the stop 35 is rendered inactive or is shifted so as to unlock or release the carrier 17 in a manner to be set forth. A reciprocating member 36, the bottom plan view of which is shown in Figure 3, is rotatably mounted upon the top 26 of the base 10 and is held in position in any suitable manner preferably by means of a flange 37 which encompasses the top 26 and the flange is provided with a cut away portion 38 (see particularly Figure 1) to permit of the free operation of the handle 39 which is connected with the member 37 so as to impart a reciprocatory movement to the member 37. A cover 40 is provided for the member 37 and the cover is also provided with a cut away portion 41 registering with the cut away portion 38 to form a slot for the handle 39. The hopper or container 11 is adapted to be supported by this top 40.

Connected with the member 36 is a double acting pawl 42 which is preferably controlled by means of a spring 43 and co-operates with ratchet teeth 44 carried by the member 36. The member 36 is provided with an elongated recess 45 at one end of the rack or teeth 44 and a recess 46 at the other end of the teeth or rack 44. When the member 37 is moved in the direction indicated by the arrow in Figure 2, the rack teeth 44 will engage the pawl 42 which will lock the member 36 against retrograde movement until the member has been moved to the full extent, at which time the end of the pawl 42 will enter the recess 46. During the movement of the member 36 the teeth 44 will ratchet across the pawl 42 and will place the elastic member 43 under tension so that when the pawl projects into the recess 46 the tension of the spring 43 will shift the pawl about its pivot so that the member 37 may be moved in the opposite direction. When the teeth 44 pass out of engagement with the end of the pawl 42 on the retrograde movement, the end of the pawl will enter the recess 45 and the tension of the spring 43 will reverse the pawl. The limit of the movement of the member 36 may be controlled in any manner but is preferably controlled by stops formed by the ends of the slot formed by the cut away portions 37–38 on the cover 40 and in the flange 37. Pivotally mounted upon the member 36 is a pawl 47 having a shouldered portion 48 and being preferably controlled by a spring 49. This pawl 47 is

so arranged that when the member 36 about reaches the limit of its movement in the direction of the arrow shown in Figure 2, the pawl 47 will be shifted through the medium of the spring 49 so that the shoulder 48 will assume a position to engage over the edge of a portion of the carrier 17 so that when the member 36 is released or moved backwardly the shoulder 48 engaging over a portion of the carrier 17 will rotate the latter. A spring 50 is preferably provided for returning the member 36. One end of the spring is anchored as at 51 to the member 36 and the other end is anchored as at 52 to the member 30.

In order to permit the carrier 17 to be rotated in the manner as just described it is necessary to first release the stop or locking device 35. This is accomplished preferably by means of a projection 53 carried by the member 36 and so arranged as to extend in advance of the shoulder 48 a sufficient distance that before the shoulder 48 passes over the shoulder 28 on the portion 27 of the carrier 17, the projection 53 will engage the stop or member 35 and deflect the same so as to move the edge thereof out of the path of movement of the shoulder or surface 29 of the portion 27 of the carrier 17. During this movement of the member 36 the spring 50 will be placed under tension so that when the handle 39 is released the stress of the spring 50 will return the member 36 and thereby rotate the carrier 17 one step of movement. When the projection 53 passes out of engagement with the element 35 the elasticity of the latter will cause it to return and during the rotation of the carrier 17 the member 34 will engage the periphery of the portion 27 of the carrier until the shoulder or portion 28 has passed the edge of the member 34 when the latter will assume a position in the path of the retrograde movement of a portion of the carrier 17.

Carried also by the member 36 is a dog 54 having a shouldered or hooked end 55 (see particularly Figures 7 and 8) and which portion projects through a suitable opening 56 in the member 36. The dog 54 is preferably pivotally mounted as at 57 and is held in a position that the hooked or shouldered portion 55 will be normally projected through the opening 56 and below the lower face of the member 36 by means of a suitable spring 58 such as a leaf spring or the like. The spring is preferably held against accidental displacement by means of shoulders or projections 59 on the dog 54. Carried by the lower face of the member 36 are projections 60, 61 and 62 which, when the member 36 is in its normal position are adapted to assume positions adjacent the check receiving slot 15 and the dog 54 is provided with an adjustable projection 63 preferably in the form of a screw which extends through an opening 64 in the member 36 so as to engage a check or token 65 which is inserted in the check reciving slot 15 and when the member 36 is moved in the direction of the arrow shown in Figure 2.

Carried by the top 26 of the base is a projection or shoulder 66 which is of a height that when the member 36 is in its normal position, will stand within the path of movement of the hook shaped portion 55 of the dog 54 and these two parts co-operate to lock the member 36 against a forward movement in the absence of a proper check. The top 26 is also preferably provided with a cam or projecting surface 67 adjacent the check receiving slot 15 and over which projection 57 the check is adapted to be moved by the shoulder 60 of the member 36 when the latter is moved forwardly. During this movement the projection 61 will engage the edge of the check and cause it to rise over the projecting or cam surface 67. If the check is of a proper size or denomination the end of the projection or screw 63 will be engaged by the check as it passes over the inclined portion 67 and the hooked extremity 55 will be elevated to the position shown in Figure 7, that is so that it will clear the projection or shoulder 66. This will release the member 36 and permit it to be moved to the full extent of its movement At the same time the projection 61 will continue to advance the check 65 until the check is moved into a position that it will fall through an opening 68 (see Figure 4) in the top 26 of the base 10 so that the check will be delivered into the check receiving portion of the base. If, however, an improper check such as the check 69 is placed within the check receiving opening 15 the check will engage the end of the projection or screw 63 when the check is moved over the inclined portion or projection 67 but will not raise the dog 54 sufficiently to cause the shouldered portions 55 to clear the shoulder or projection 66, with the result that the member 36 will be locked against movement. As soon as the handle 39 and the member 36 are released the spring 50 will return the member 36 and the projection 60 co-operating with the projection 62 will cause the check 69 to be returned with the member 36 and the check will be deflected by a shoulder 70 so as to cause the check to fall through an opening 71 in the top 26 of the base, in advance of the partition 13 so that the check will then be delivered through the delivery outlet 12 of the base to be returned to the operator. The end of the inclined portion 67 terminates in the shoulder 72 for the purpose of assisting in deflecting the check 69.

Obviously the projection 63 may be adjusted with respect to the dog 54 so as to compensate varying sizes of checks 65

so that the device will operate with a thicker or thinner check.

It will therefore be seen that the carrier 17 will be given a step by step movement when proper checks are inserted and as the carrier is advanced one of the compartments 18 will be brought into register with the discharge outlet 19 to permit the articles to be delivered from the compartment. The sides of the compartments are open and the wall of the casing 16 serves as a closure for the compartments with the exception of the compartment which is adjacent the outlet 19. The slot 20 is so arranged in the wall of the casing 16 that one of the compartments 18 is in a position that the articles will be discharged therefrom, the next compartment which will be moved adjacent the opening 19 on the next operation of the machine being in alinement with the opening 20 so that the articles therein may be viewed through the window or closure 22 in the base 10.

If desired and as a means for varying the size of the compartments 18 there may be provided an adjustable member 73 extending through the bottom of the compartment so that by adjusting the member 73 with respect to the bottom of the compartment the article containing space may be increased or decreased according to the number of articles that it is desired to dispense upon each operation of the carrier 17.

It is thought that the operation of the apparatus will be clearly understood from the foregoing but briefly stated it is as follows. Assuming the parts to be in the position shown in Figure 2, which is the position they will assume after the apparatus has been once operated, a check or token is inserted in the slot 15 so as to be disposed in the path of movement of the projection 63 on the dog 54. When the check is inserted and if it is a proper check the handle 39 is grasped and the member 36 is moved in the direction indicated by the arrow in Figure 2. The projection 61 will engage the check and advance it with the member 36 until the check rides up the inclined portion 67. As the check moves up this inclined portion it will raise the dog 54 through the medium of the projection 63 so as to hold the hooked end 55 thereof in a position that it will not engage the shoulder 66 (see Figure 7). This will permit the member 36 to be moved further in the direction indicated by the arrow in Figure 2, until the check is discharged through the opening 68 and until the projection 53 engages the flexible member 35 to deflect it and release the carrier 17. At this time the shoulder 48 of the pawl 47 will engage over the edge of the portion 28 of the carrier 17 so that when the handle 39 is released the stress of the spring 50 which has been created by the movement of the member 36 in the direction of the arrow, will return the member 36 and will advance the carrier 17 one step of rotation through the medium of the member 36 being locked with the carrier 17 by the pawl 47. The articles in the compartment 18 which are in register with the opening 19 will then be discharged through the delivery opening 12 while the next adjacent compartment will be moved in alinement with the opening 20.

In the event that an improper check is inserted the check will not raise the dog 54 high enough so that the hooked end 55 thereof will pass the projection 66, with the result that the member 36 will be locked against operation. When the handle 39 is then released the projection 60 on the member 36 will engage the check and move it backwardly with the member 36 and it will be deflected by the projection 70 and the shoulders 72 (see Figure 4) to be delivered through the opening 71 and will be discharged through the commodity delivery opening 12 to be returned to the operator.

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 rotatable commodity carrier for vending machines and the like including a body having a compartment therein having an open top and an open side, a casing in which the carrier rotates, the wall of the casing standing in close proximity to the periphery of the carrier and operating to maintain the commodity in the carrier against discharge through the open side of the carrier, said casing having a discharge opening through which the article may be delivered from the compartment at a predetermined time in the rotation of the carrier, there being an additional opening in the casing wall into register with which the compartment is movable, said opening being of a height substantially equal to the height of the compartment and of a width considerably less than the width of the compartment, and means for arresting the movement of the carrier when the said compartment is in alinement with the last recited opening.

2. A rotatable commodity carrier for vending machines and the like including a body having a compartment therein having an open top and an open side, a casing in which the carrier rotates, the wall of the casing standing in close proximity to the periphery of the carrier and operating to maintain the commodity in the carrier against discharge through the open side of the carrier, said casing having a discharge

opening through which the article may be delivered from the compartment at a predetermined time in the rotation of the carrier, there being an additional opening in the casing wall into register with which the compartment is adapted to be moved, said additional opening being of a height substantially equal to the height of the compartment and of a width less than the width of the compartment, means for holding the carrier against retrograde movement, and means having a forward and backward movement for rotating the carrier.

3. A rotatable commodity carrier for vending machines and the like including a body having a compartment therein having an open top and an open side, a casing in which the carrier rotates, said casing having a discharge opening through which the article may be delivered from the compartment at a predetermined time in the rotation of the carrier, there being an additional opening in the casing wall into register with which the compartment is adapted to be moved, said additional opening being of a height substantially equal to the height of the compartment and of a width less than the width of the compartment, means for locking the carrier against forward movement, means having a forward and backward movement for rotating the carrier forwardly, and means carried with the last recited means for rendering the said locking means inactive.

4. A vending machine including a magazine for the articles to be vended, a commodity carrier rotatable about an upright axis and having a series of laterally opening pockets therein, an upright wall arranged adjacent the periphery of said carrier and constituting means for holding the articles within the pockets, said wall having an opening therethrough with which the pockets are adapted to be successively brought into register, said opening being of a length substantially co-extensive with the height of the pocket and of a width considerably less than the width of the pocket, said wall being shaped to permit the articles to be laterally discharged from the pockets, means adapted to engage the carrier at different points about its circumference for rotating the carrier, and means for intermittently arresting the rotation of the carrier.

5. A vending machine including a magazine for the articles to be vended, a commodity carrier rotatable about an upright axis and having a series of laterally opening pockets therein, an upright wall arranged adjacent the periphery of said carrier and constituting means for holding the articles within the pockets, said wall having an opening therethrough with which the pockets are adapted to be successively brought into register, said opening being of a length substantially co-extensive with the height of the pocket and of a width considerably less than the width of the pocket, said wall being shaped to permit the articles to be laterally discharged from the pockets, means adapted to engage the carrier at different points about its circumference for rotating the carrier, spaced resilient stops, and formations carried by said carrier and adapted to be positioned between the stops for arresting the movement of the carrier.

6. A vending machine including a magazine for the articles to be vended, a commodity carrier rotatable about an upright axis and having a series of laterally opening pockets therein, an upright wall arranged adjacent the periphery of said carrier and constituting means for holding the articles within the pockets, said wall having an opening therethrough with which the pockets are adapted to be successively brought into register, said opening being of a length substantially co-extensive with the height of the pocket and of a width considerably less than the width of the pocket, said wall being shaped to permit the articles to be laterally discharged from the pockets, means adapted to engage the carrier at different points about its circumference for rotating the carrier, spaced resilient stops, formations carried by the carrier and adapted to be positioned between the stops for arresting the movement of the carrier, and means for shifting one of said stops to permit the carrier to be rotated.

In testimony whereof we have signed our names to this specification, on this 13th day of June, A. D. 1924.

ALFRED D. ANTOINE.
ALBERT E. GEBERT.