June 24, 1930. G. WEISS 1,767,634

VENDING MACHINE

Filed Feb. 6, 1928 4 Sheets-Sheet 1

Fig. 2.

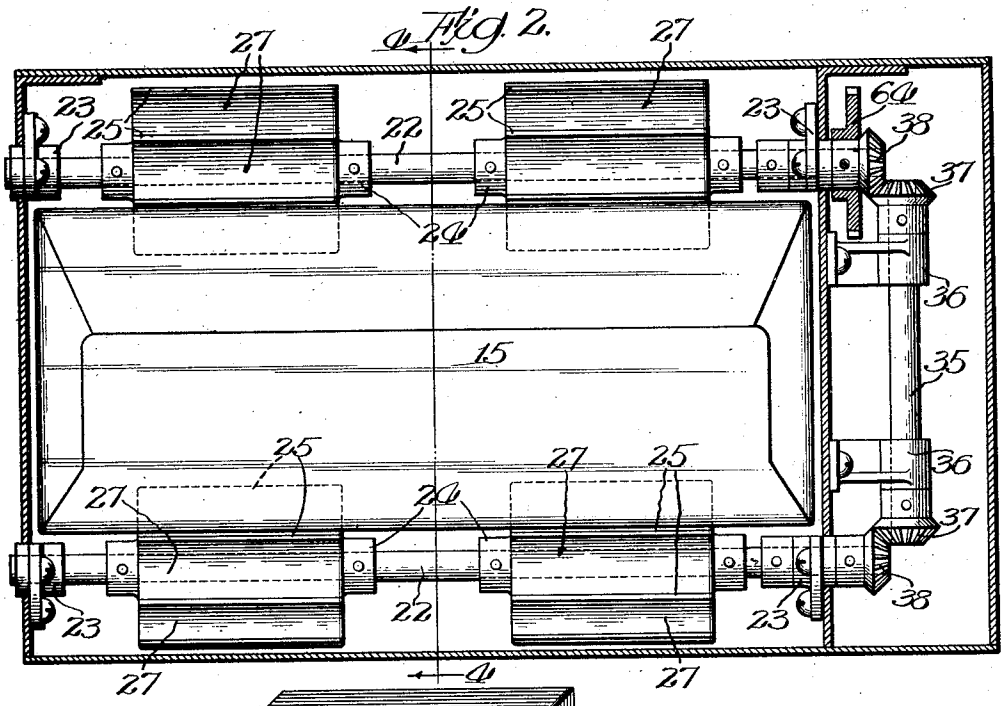
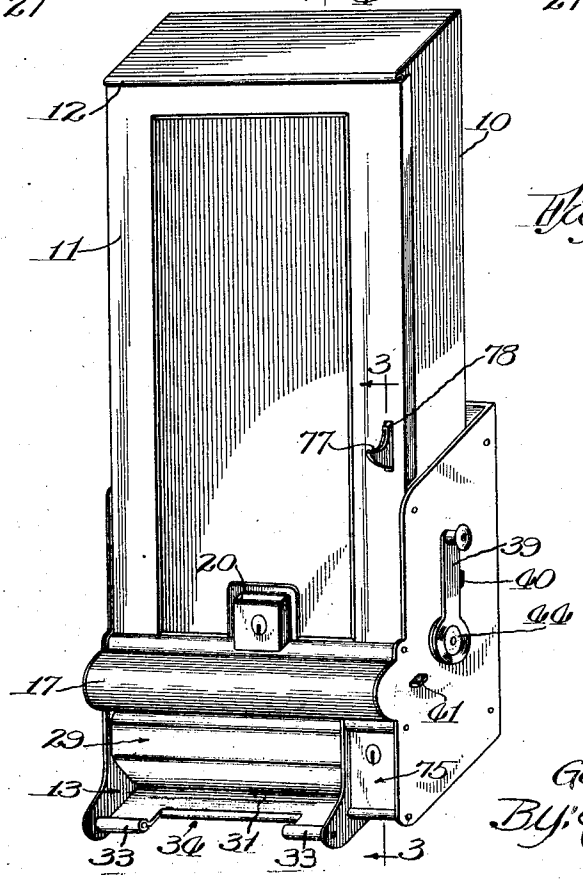


Fig. 1.

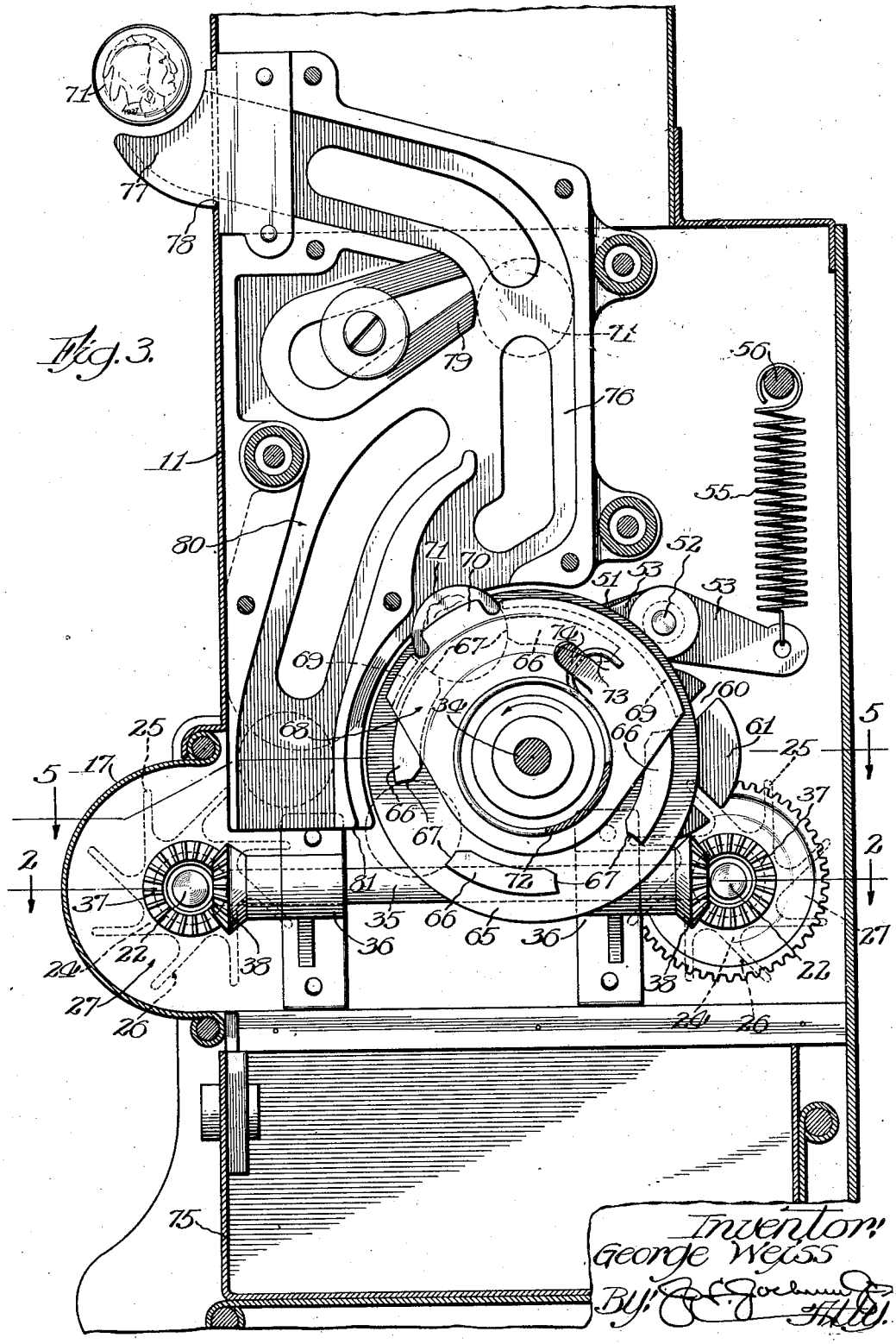


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VENDING MACHINE

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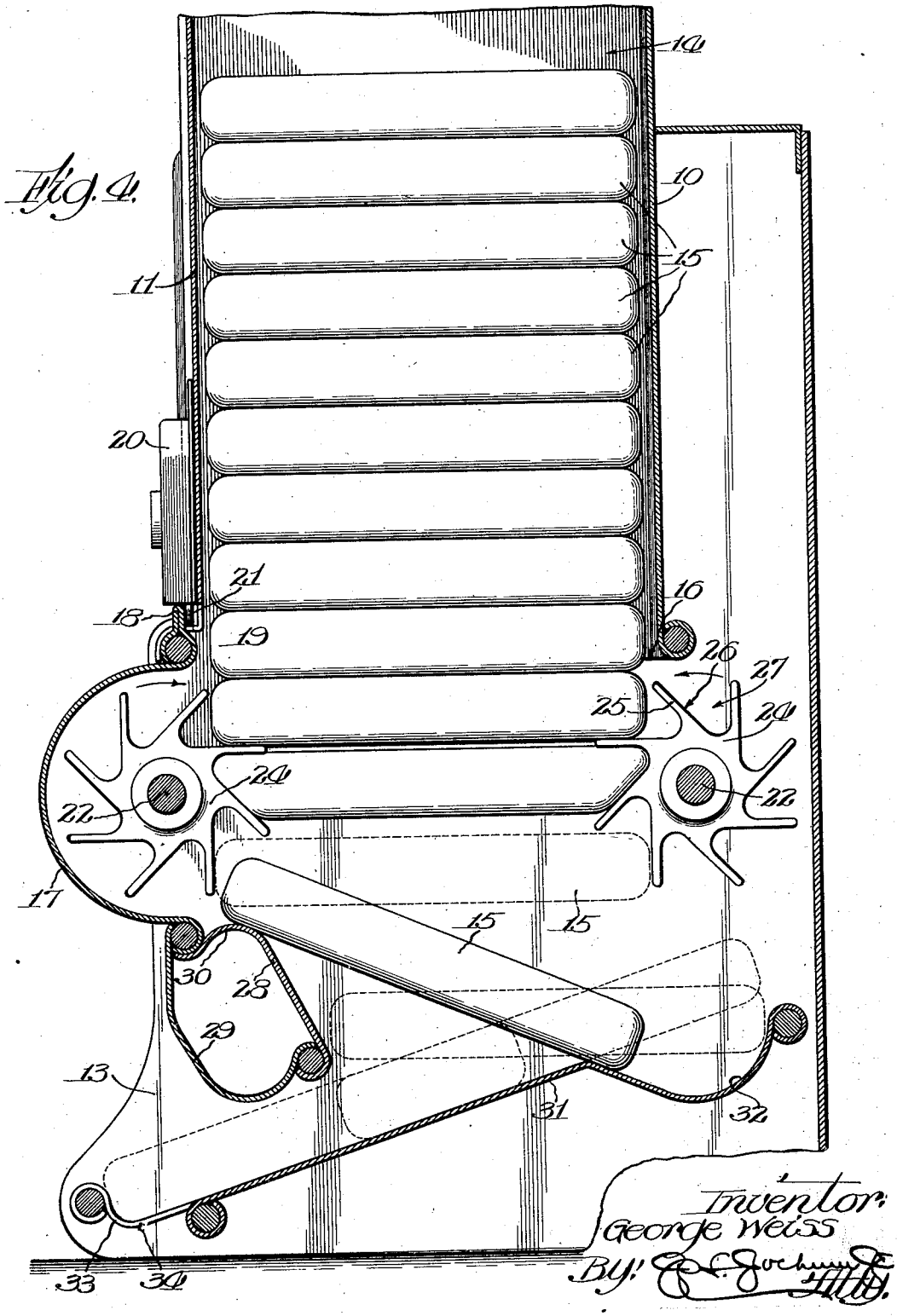


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VENDING MACHINE

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Fig. 4.



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VENDING MACHINE

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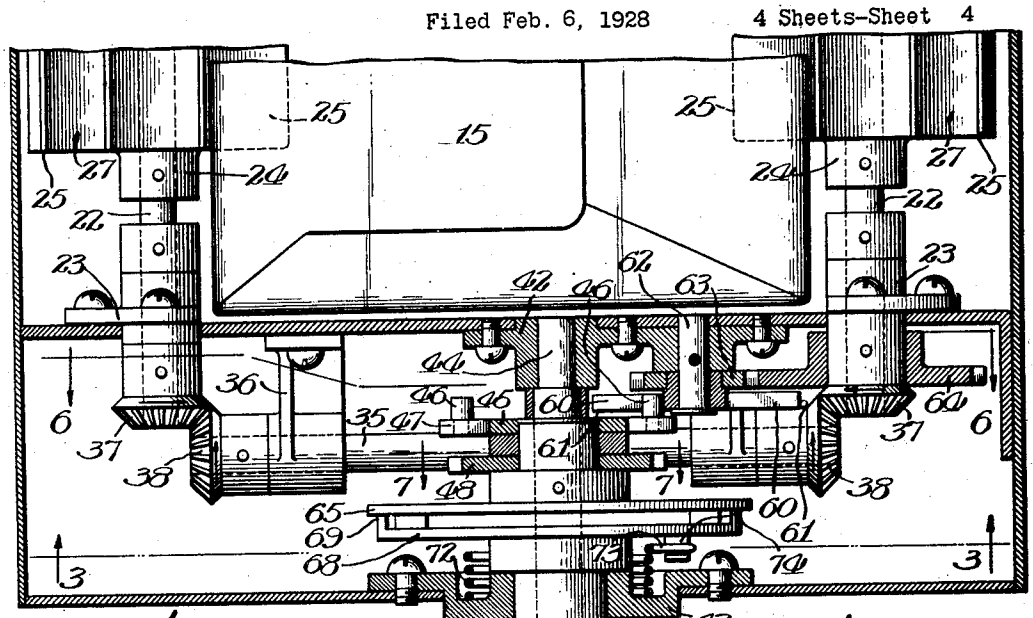


Fig. 5.

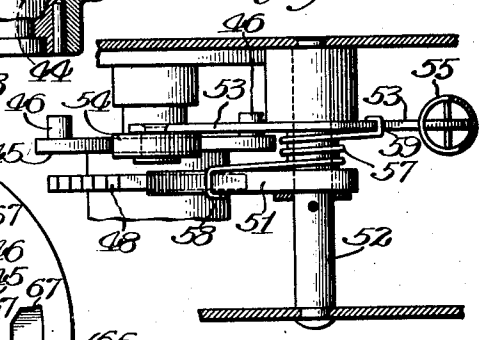


Fig. 8.

Fig. 6.

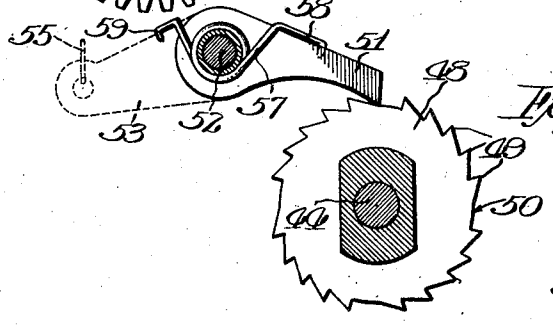


Fig. 7.

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Patented June 24, 1930 1,767,634

UNITED STATES PATENT OFFICE

GEORGE WEISS, OF CHICAGO, ILLINOIS

VENDING MACHINE

Application filed February 6, 1928. Serial No. 252,059.

This invention relates to improvements in vending machines of the type particularly adapted, though not necessarily limited in its use, for vending packages, and one of the objects of the invention is to provide improved delivery mechanism for the packages and which mechanism embodies co-operating rotatable drum like elements arranged adjacent opposite edges of the package, the drums being provided with blades between which the adjacent edges of the packages engage to be advanced by the blades when the drum is rotated.

The blades are provided with faces that are tangential to the axis of rotation of the drum so that when the co-operating blades are in position to deliver the package, the faces of the blades will be in vertical positions, with the result that the package will drop freely from the drum, while at the same time others of the blades will pass between the two lowermost packages in the supply to position one of the packages for delivery and to act as a support for the supply while the delivery is being made.

A further object is to provide an improved means for causing the package to be turned when it is dropped by the drums so as to position it to slide down an incline or chute to present one edge of the package to the customer, improved means being also provided to prevent pilfering of the machine.

A further object is to provide improved actuating mechanism for the drums and improved means for locking the drums against actuation.

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 acompanying drawings illustrating this invention, and in which

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

Figure 2 is a horizontal view taken on line 2—2, Figure 3, with parts omitted and showing a package in position with respect to the delivery drums.

Figure 3 is a vertical sectional view taken on line 3—3, Figure 1, with parts omitted.

Figure 4 is an enlarged detail sectional view taken on line 4—4, Figure 2, with parts omitted.

Figure 5 is a horizontal sectional view taken on line 5—5, Figure 3, with parts omitted.

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

Figure 7 is a detail sectional view taken on line 7—7, Figure 5.

Figure 8 is a view taken on line 8—8, Figure 6, with parts omitted.

Referring more particularly to the drawings the numeral 10 designates generally a casing of any desired size and configuration within which the mechanism is arranged the casing being provided with a front 11 swingingly supported by means of a hinge 12 at the top thereof so as to permit access to the interior of the casing. The casing is provided adjacent its base with a delivery opening 13 through which the packages are deliverd.

The casing is shaped to form a container 14 within which packages 15 are superposed, the packages being of a size and shape to substantially fill the container, the bottom of the container being open as at 16 to permit the packages to pass therefrom.

At the front of the casing and above the delivery opening 13 is a chambered portion 17 and projecting above the top of this portion 17 adjacent the lower end of the closure 11, is a projection 18 that passes into a slot or opening 19 in the lower end of the closure 11 so as to permit the closure 11 to be swung about its hinge to an open or closed position.

A lock 20 is carried by the closure 11 and the bolt 21 of the lock, when the closure 11 is closed, is adapted to be projected behind the portion 18 so as to lock the closure against opening. By retracting the bolt 21 the closure 11 may be opened.

Arranged adjacent the bottom of the container 14 and adjacent opposite walls thereof are shafts 22 that are parallel with each other

and these shafts are journaled in suitable bearings 23.

Mounted upon these shafts 22 are drums 24, any number of which may be provided and these drums are secured to the shafts for rotation therewith.

In the present exemplification of this invention two of these drums are mounted on each of the shafts 22 and the drums are disposed adjacent the longitudinal edges of the package, the co-operating drums on the respective shafts 22 being disposed opposite to each other.

Each of these drums is provided with blades or wings 25, the faces of which are arranged at a tangent to the axis of rotation of the respective drums as indicated by the numeral 26 so that pockets 27 will be formed between adjacent blades and the sides of the pockets will converge from the periphery of the drum inwardly.

This particular form of drum is especially adapted for dispensing packages which are of a soft nature and the co-operating drums are so spaced with respect to each other that when the drums are rotated to remove a package from the bottom of the supply to deliver the same the portions of the edges of the package adjacent the respective drums will be distorted as shown more clearly in Figure 4, so that the edges of the package will be forced into the pockets 27 to be firmly gripped or held by the adjacent blades.

The tangential faces 26 of the blades, when one of the blades passes between the two lowermost packages of the supply, will form a flat support for the remainder of the supply. These tangential faces 26 will assume vertical positions when the package is being delivered from the drums to the customer, so that the package will drop freely from the drum as indicated in dotted lines in Figure 4.

When the package falls from the drums one edge of the package will strike a member 28 that forms a portion of a shield 29, and the member 28 is preferably provided with a rounded portion 30 disposed adjacent the path of movement of one edge of the package 15 so that the other edge of the package will fall in advance of the edge which strikes the portion 30 of the member 28. The edge of the package opposite to that which engages the member 28 will fall upon an incline or chute 31, as shown in full lines in Figure 4, and arranged adjacent the incline 31 is a cup shaped portion 32 into which the adjacent edge of the package 15 will move as the package drops from the member 28, with the result that the package will be turned on its axis into the various positions shown in dotted lines in Figure 4, until the package is in a position that it will slide down the incline or chute 31 and to project through the delivery opening 13 beneath the member 29, this movement of the package being arrested by means of its engagement with the portions 33 of the incline 31 and between which portions 33 is arranged an opening 34 to facilitate in the removal of the package by the operator.

The guard 29 and a portion of the member 28 also serves as a means to prevent pilfering of the machine, as the lower edges of the members 28 and 29 are so arranged with respect to the incline or chute 31 that an implement cannot be inserted through the delivery opening to engage the lowermost package to extract the latter from the machine.

The shafts 19 are rotated simultaneously and in directions towards each other preferably through the medium of a shaft 35 journaled in suitable bearings 36, and on the ends of which shaft beveled gears 37 are secured which mesh respectively with beveled gears 38 secured to the shafts 22 for rotation therewith.

The shaft 35 is rotated from the outside of the machine preferably by means of a handle or lever 39 that operates between two stops 40 and 41 for limiting the movement of the handle.

Journaled in suitable bearings 42—43 is a shaft 44 that is arranged transverse to the shaft 35 and one end of the shaft 44 projects through the side of the casing 10, and to the end of this shaft 44 the handle or lever 39 is secured in any suitable manner.

Secured to the shaft 44 in any suitable manner and for rotation therewith is a disc 45 provided with a plurality of pins 46 projecting laterally therefrom, and this disc 45 is provided with a plurality of recesses 47 opening through the periphery thereof and intermediate the pins 46. Connected with the disc 45 in any suitable manner, so as to rotate therewith, is a ratchet wheel 48 provided with teeth 49, and arranged about the periphery of the ratchet wheel are spaces 50 which are of a greater length than the space between adjacent ratchets, for a purpose to be set forth.

Co-operating with the ratchet wheel 48 is a pawl 51 which is pivotally mounted upon a shaft 52 and a lever 53 is pivotally mounted intermediate its ends upon the same shaft 52, a roller 54 being carried by one end of the lever to enter the recesses 47 in the disc or member 45 at predetermined times in the cycle of operation of the member 45 to arrest the movement of the member 45 and also the ratchet wheel 48.

A spring 55 is connected by one end to the other end of the lever 53 and is also anchored as at 56, the spring 55 tending normally to hold the roller 54 against the periphery of the disc or member 45.

A spring 57 is provided which tends normally to hold the end of the pawl 51 against the periphery of the ratchet wheel 48. This

spring 57 encompasses the shaft 52 preferably between the pawl 51 and the lever 53, and one end of the spring 58 engages over the pawl, while the other end 59 of the spring engages over the lever 53.

The pins 46 on the disc or member 45 are adapted to successively engage in slots 60 provided in a disc 61 and open through the periphery of the disc so that the disc will assume the shape of what might be termed a star wheel, which is rotatably mounted upon a shaft or trunnion 62. The pins 46 on the member 45 and the slots 60 in the member 61 are so arranged with respect to each other that when the motion of the member 45 is arrested by the roller 54 on the lever 53, two of the pins 46 will enter two of the slots 60 and thereby serve as a lock for preventing unauthorized actuation of the mechanism.

Connected with the disc or member 61 for rotation therewith is a gear 63 which meshes with a gear 64 secured to one of the shafts 22 for rotation therewith so that when the member 45 is rotated by the handle or lever 39 the pins 46 will enter the slots 60 in the disc or member 61 to rotate the latter and as this member 61 is rotated the gear 63 carried thereby and which meshes with the gear 64 will also be rotated, thereby imparting motion to one of the shafts 22 and this motion of the shaft 22 will, through the medium of the intermeshing gears 37—38, rotate the shaft 35, and this motion will be communicated through the other intermeshing gears 38—37 to the other shaft 22, with the result that the shafts 22 will be rotated simultaneously and towards each other to rotate the drums 24 and thereby deliver one of the packages from the machine.

The space 50 between the teeth 49 on the ratchet wheel 48 is provided so as to insure a proper arresting movement of the shaft 44 so as to position the check controlled mechanism to receive the check, which mechanism forms the connection between the handle or lever 39 and the shaft 44 for rotating the latter to actuate the drums.

Any suitable check controlled mechanism may be provided but a simple and efficient check mechanism will be now described. It is to be understood, however, that this specific check mechanism constitutes the subject matter of a separate application, Serial Number 252,060, filed of even date herewith but is shown and described herein for the purpose of conveying a full and clear understanding of the operation of this mechanism.

Secured to the shaft 44 for rotation therewith is a disc like member 65 of any desired diameter. Portions of the body of the disc preferably remote from its periphery, are cut out or upstruck as at 66, the spaces formed by the proximate ends 67 of adjacent upstruck portions 66 being spaced from each other a distance less than the largest diameter of the check or token to be employed, with the result that when a check is inserted into the space between the adjacent ends of these portions 66, the check will be held in position and will rest in what might be termed a pocket, the edges 67 of the portions 66 being slightly curved to conform to the contour of the periphery of the check.

Loosely mounted upon the shaft 44 and in close proximity to the face of the disc or member 65 beyond which the portions 66 project, is a member 68 which is preferably in the form of a segment and is spaced from the member 65 a distance slightly greater than the thickness of the check or token so that the check may be dropped between the members 65 and 68 into the seat or pocket formed between the end 67 of the portions 66 on the disc 65. The edge of the member 68 is deflected as at 69 toward the disc 65 to form a flange, a portion of the deflected portion or flange 69 of the member 68 is cut away as shown more clearly in Figure 3, and the body portion of the member 68 is continued beyond the deflected portion 69 as at 70, which is adjacent the cut away portion and so as to project beyond the periphery of the member 68. The cut away portion in the flange 69 is of a length slightly greater than the largest diameter of the check 71 so as to permit the check to drop freely through the opening in the flange 69 and into the seat formed by the adjacent edges 67 of the portions 66 of the disc 65 and also for the purpose of preventing the check from becoming wedged, thereby insuring that it will readily drop out of its seat when the seat is inverted.

A coil spring 72 is secured by one end as at 73 to a projection 74 on the member 68 and the other end of the coil spring is anchored to a fixed support, preferably the bearing 43, and this spring 72 is for the purpose of returning the handle or lever 39 to its normal or original position when released by the operator.

With this construction it will be manifest that until the check 71 is inserted in the seat between the members 65 and 68, the handle 39 may be freely oscillated between the stops 40 and 41 and with it the member 68, but the disc or member 65 will not be affected until the check is in its seat, as shown in Figure 3, thereby locking the members 68 and 65 together to cause the shaft 44 to be rocked when the lever 39 is operated.

When the check falls from its seat as shown in dotted lines in Figure 3, it will drop into a coin receptacle 75, the latter being removable through the front of the machine.

The check is delivered to the check carrier through a chute 76 having a receiving opening 77 at the front of the machine and which receiver projects through an opening 78 in the closure 11 so as not to interfere with the opening and closing of the latter. The usual

magnet 79 is provided adjacent the check chute 77 so as to attract improper checks and deliver them into a branch chute 80, thereby preventing the check from reaching the check carrier.

The portion 81 of the casting in which the check chutes are arranged is cut away or rounded so as not to interfere with the delivery of the check from the check seat.

With this improved construction it will be manifest that inasmuch as the shaft 35 which controls the operation of the shafts 22 and drums 24 is actuated, when a proper check is inserted, through the medium of the member 45, pins 46 and slots 60 in the disc or member 61, and inasmuch as two of these pins 46 will engage in two of the slots 60 when the drums are in their normal position, it will be impossible to actuate the drums only through the medium of the insertion of the proper check as it will not be possible to rotate the shafts in any other manner, owing to the fact that the two pins 46 engaging in the slots 60 will constitute a lock for locking the parts against movement. At the same time the pawl 51 and ratchet teeth 49 will lock the handle or lever 39 against retrograde movement until the handle has been moved to the full extent of its forward movement.

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 casing including means for holding a supply of articles, revoluble article delivery drums adjacent the bottom of said supply, said drums being provided with spaced blades, the active faces of said blade being arranged tangential to the axis of the respective drums, the spaces between adjacent blades of the respective drums receiving opposite edges of the lowermost article to remove the article from the supply and thus support the article, the walls of said spaces converging from the periphery of the drum inwardly toward the axis of the drum, and means for rotating the drums in directions towards each other to advance the article while thus supported, the supported article being delivered from the drums by gravity when the said active tangential faces of the blades assume vertical parallel positions.

2. A vending machine embodying a casing including means for holding a supply of articles, revoluble article delivery drums adjacent the bottom of said supply, said drums being provided with spaced blades, the active faces of said blades being arranged tangential to the axis of the respective drums, to form spaces between adjacent blades of the respective drums receiving opposite edges of the lowermost article to remove the article from the supply and thus support the article, the walls of the said spaces converging from the periphery of the drum inwardly toward the axis of the drum and into which spaces the edges of the articles are wedged, and means for rotating the drums in directions towards each other to advance the article while thus supported, the supported article being delivered from the drums by gravity when the said active tangential faces of the blades assume vertical parallel positions, the said blades successively operating to support the remainder of the supply of articles.

3. A vending machine embodying a casing including means for holding a supply of articles, article delivery devices disposed adjacent the bottom of the supply and positioned to engage opposite edges of the lowermost article to remove the article from the supply, a support beneath said devices, means for actuating the said delivery devices to carry the article while supported thereby and by its edges to a position that the article will drop from and between said devices upon the said support, and means adapted to be engaged by one edge of the article as it is dropped by said devices, to cause the opposite edge of the article to move toward the said support in advance of the obstructed edge.

4. A vending machine embodying a casing including means for holding a supply of articles, article delivery devices disposed adjacent the bottom of the supply and positioned to engage opposite edges of the lowermost article to remove the article from the supply, a support beneath said devices, means for actuating the said delivery devices to carry the article while supported thereby and by its edges to a position that the article will drop from and between said devices upon the said support, said support being inclined, and a depression forming a continuation of said support for receiving one edge of the article to turn the article as the last said edge engages said support.

5. A vending machine embodying a casing including means for holding a supply of articles, article delivery devices disposed adjacent the bottom of the supply and positioned to engage opposite edges of the lowermost article to remove the article from the supply, a support beneath said devices, means for actuating the said delivery devices to carry the article while supported thereby and by its edges to a position that the article will drop from and between said devices upon the said support, a depression forming a continuation of said support beneath one of said article delivery devices, and means adapted to be engaged by one edge of the article as the article is delivered from the said devices, to cause the opposite edge of the article to

move towards the said support in advance of the obstructed edge.

6. A vending machine embodying a casing including a container for the articles, delivery means for the articles, a fill opening in the casing, a closure for the opening, a projection on said casing extending over said opening, an opening in the closure through which said projection is adapted to pass to permit the closure to be actuated, and a locking device on the closure adapted to engage behind said projection to lock the closure.

7. A vending machine embodying a casing including means for holding a supply of articles, a support beneath said holding means, means for delivering the articles on to the said support, said support being inclined, and a depression forming a continuation of said support for receiving one edge of the article to turn the article as the last said edge engages the support.

In testimony whereof I have signed my name to this specification, on the 4th day of February, A. D. 1928.

GEORGE WEISS.