W. N. MASON.

VENDING MACHINE.

APPLICATION FILED AUG. 15, 1918.

1,321,382.

Patented Nov. 11, 1919.

3 SHEETS—SHEET 1.

FIG. 1.

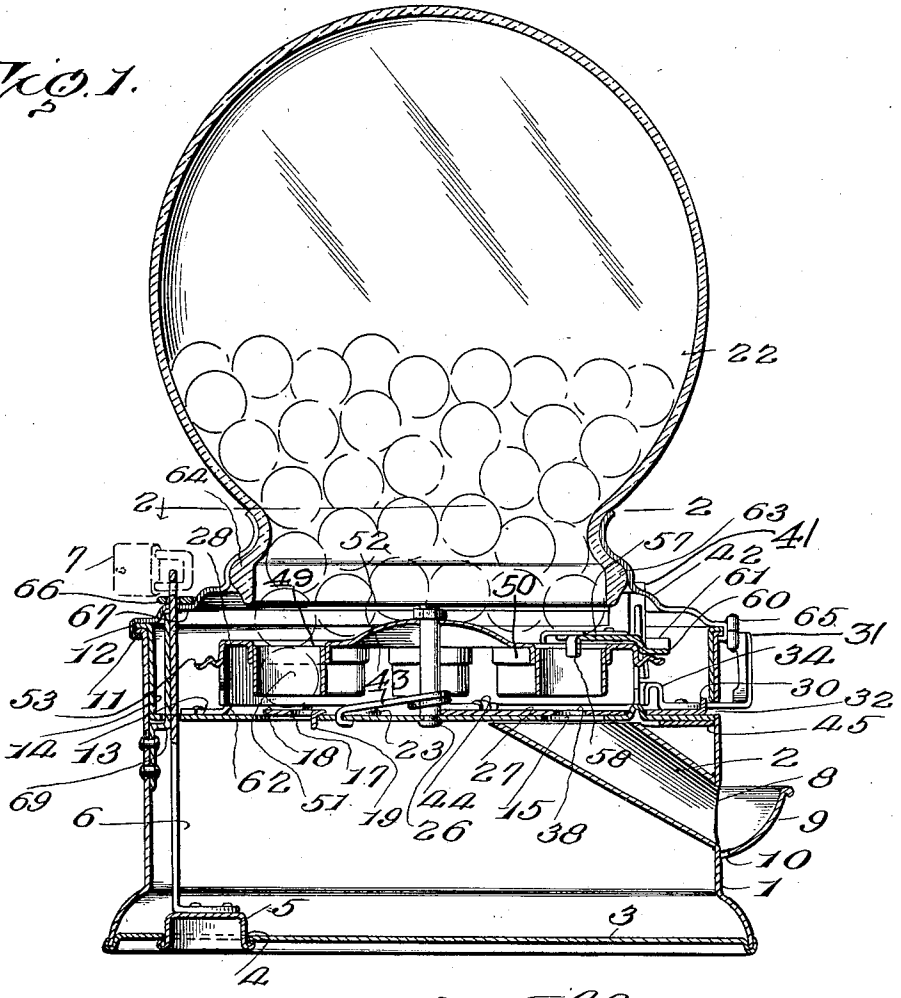
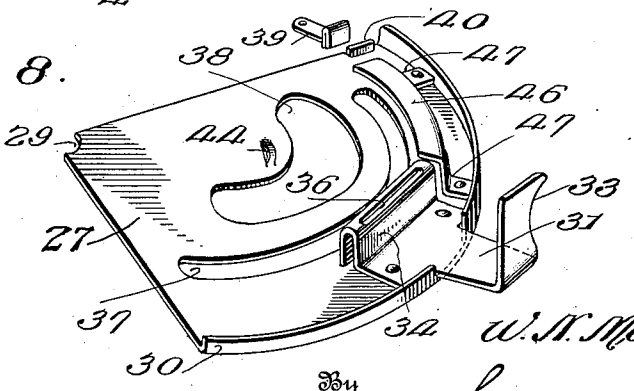


FIG. 8.



Inventor

W. N. Mason

By

Lacy & Lacy, Attorneys

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3 SHEETS—SHEET 2.

FIG. 2.

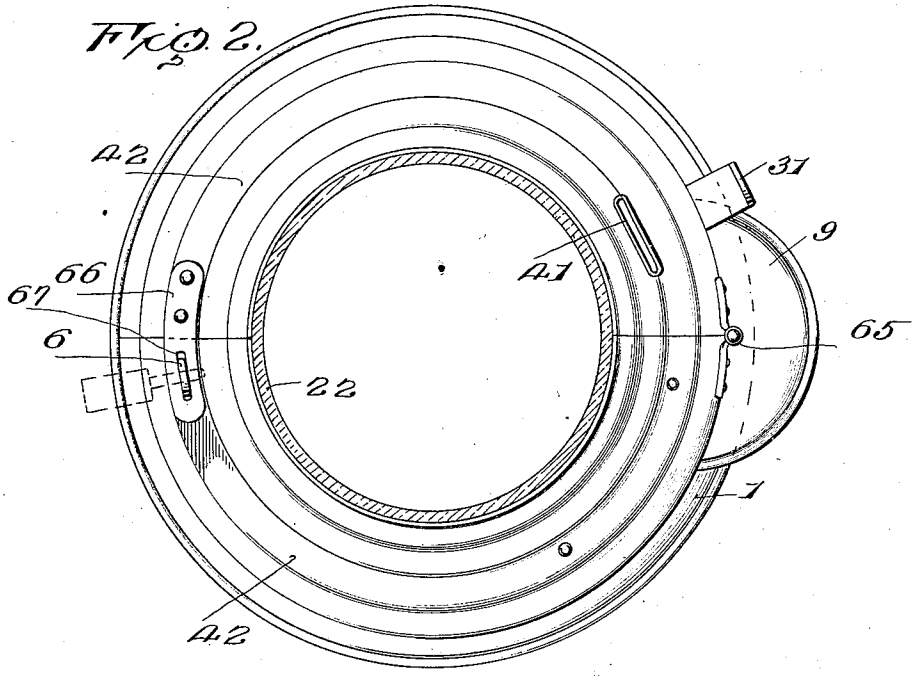
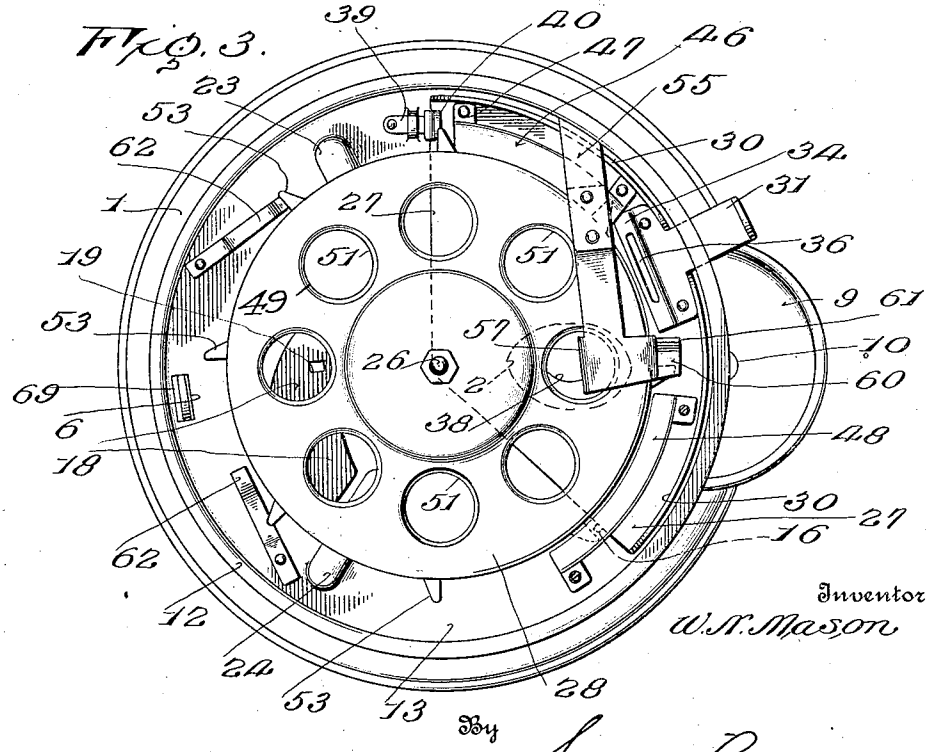


FIG. 3.



Inventor

W. N. Mason

By Lacey & Lacey, Attorneys

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3 SHEETS—SHEET 3.

FIG. 4.

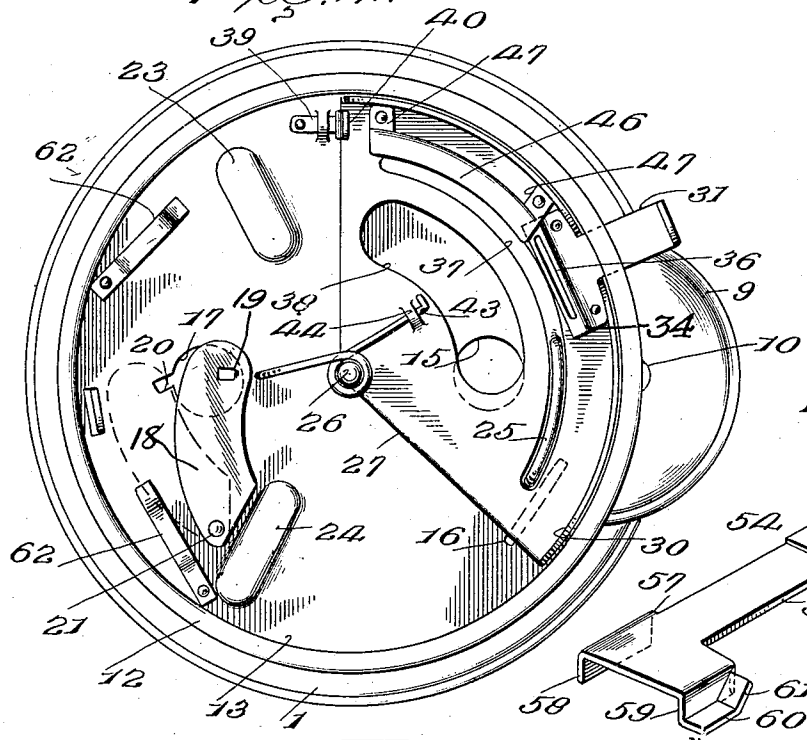


FIG. 7.

FIG. 5.

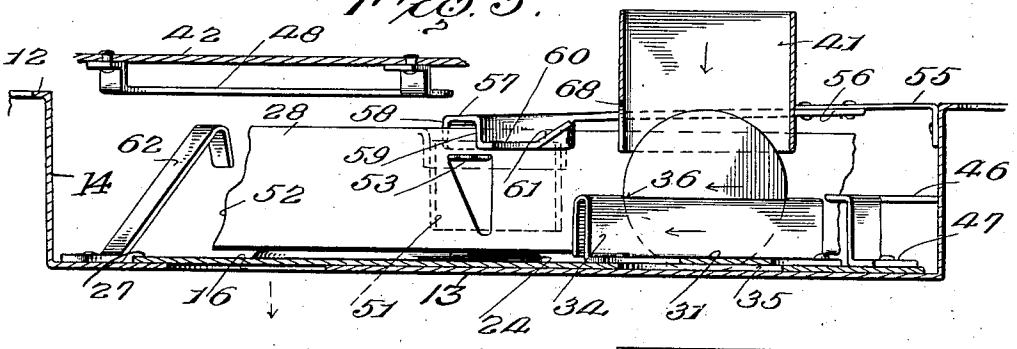
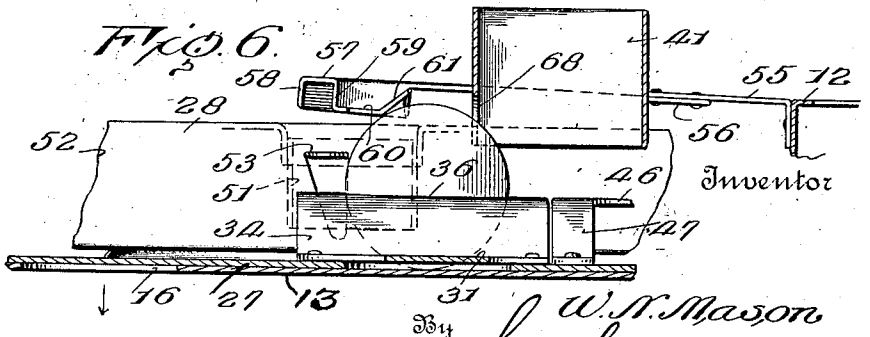


FIG. 6.



Inventor

By W. N. Mason

Lacey & Lacey, Attorneys

UNITED STATES PATENT OFFICE.

WALLACE N. MASON, OF DELEVAN, NEW YORK.

VENDING-MACHINE.

1,321,382. Specification of Letters Patent. Patented Nov. 11, 1919.

Original application filed November 24, 1917, Serial No. 203,822. Divided and this application filed August 15, 1918. Serial No. 250,041.

To all whom it may concern:

Be it known that I, WALLACE N. MASON, a citizen of the United States, residing at Delevan, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

This invention has special reference to that type of vending machines which dispense chewing gum, confectionery or other commodities in the form of balls or spheres, the present application being a division of an application filed by me November 24, 1917, Serial No. 203,822. The invention forming the subject-matter of this application has for its object the provision of a machine for the stated purpose which may be produced at a low cost, may be easily operated to deliver a purchase, may be readily refilled when the supply of goods has been sold, and will effectually prevent tampering with the goods.

The invention is illustrated in the accompanying drawings and consists in certain novel features of construction and arrangement of parts which will be hereinafter fully described, and then particularly pointed out in the claims following the detailed description.

In the drawings:

Figure 1 is a vertical section of a vending machine embodying my improvements;

Fig. 2 is a horizontal section on the line 2—2 of Fig. 1;

Fig. 3 is a plan view of the operating mechanism with the globe or merchandise holder removed;

Fig. 4 is a plan view of the operating mechanism with the pocket wheel and the stop device coöperating therewith removed;

Figs. 5 and 6 are diagrammatic sectional views illustrating the operation of the mechanism upon the insertion of a coin;

Fig. 7 is a detail perspective view of a combined stop device and coin presser finger;

Fig. 8 is a detail perspective view of the coin carrier and slide, by the movement of which an article is delivered from the machine.

In carrying out my invention, I employ a hollow base 1, which is utilized as a coin box and through which the delivery tube 2 passes. This base and coin box will be preferably constructed of sheet metal so that it may be produced in a metal stamping machine and the cost of manufacture thereby minimized. The bottom of the base or coin box is closed by a plate 3 and in the said plate is a filling opening 4 through which articles may be passed if the machine be inverted when it is empty. This filling opening will normally be closed by a plug 5, from which a holding standard 6 rises through slots provided therefor in the upper portion of the machine, and a lock 7 of any desired type is fitted through a slot in the upper extremity of this standard or holding arm at the exterior of the casing, so as to lock the closure 5 in place. Access to the coin box by unauthorized persons is thus prevented.

The discharge tube or chute 2 extends downwardly and outwardly and has its lower end coincident with a discharge opening 8 in the side wall of the base, and upon the outer face of said side wall I provide a cup or receptacle 9, in which the article will be received from the discharge tube so that it will not drop to the ground and be lost. As these machines are generally placed in out-door positions and may be exposed to the weather, I provide an opening 10 in the bottom of the cup or receptacle 9 at the lowest point thereof, so that water and dust cannot collect therein and the cup will always be in a clean condition.

The upper edge of the base is turned outwardly, as shown at 11, and upon the said edge, I support the outturned edge or flange 12 of a diaphragm 13 which is constructed with an annular rim or side wall 14, as shown. The diameter of this diaphragm should be such that the rim 14 at the edge of the diaphragm will fit closely within the base and the flange 12 at the upper edge of the rim will rest directly upon the outturned edge 11 of the base so that the diaphragm will be firmly supported without being permanently secured to the base. The diaphragm is provided with a discharge opening 15 directly over the upper end of the discharge tube or chute 2 so that when an article has been brought into position over said opening by the pocket wheel, presently described, it will at once drop to and through the said chute or tube and be delivered in the cup 9. The diaphragm is also provided with a coin discharge slot 16 disposed beyond and out of alinement with the article

discharge opening 15 and the chute or tube 2 so that when the coin has been brought into alinement with the said slot 16, in the operation of the coin carrier, it will drop through said slot and be caught in the base. The diaphragm is also provided with an additional opening 17, which will preferably be located diametrically opposite the discharge opening 15, but may be located at any other point where it will register with a pocket of the dispensing wheel and be accessible to a funnel inserted through the filling opening 4 in the bottom of the base or coin box. Upon the upper side of the diaphragm is pivotally mounted a cover 18 having one end adapted to extend over the filling opening 17 and upon the under side of said cover and extending through the said opening, is a lug 19 which is adapted to engage a notch 20 formed in the wall of the opening 17 at one side of the same. By reference to Fig. 1, it will be understood that when the plug or closure 5 is withdrawn from the filling opening 4 after the machine is inverted, the standard or holding or locking arm 6 may be caused to engage the end of the lug 19 and then moved so as to carry said lug into engagement with the notch 20 thereby swinging the covering plate 18 about its pivot 21 so that the filling opening 17 will be exposed, as will be readily understood upon reference to the dotted lines in Fig. 4. The locking arm 6 may then be withdrawn and a funnel inserted through the openings 4 and 17 and the balls of gum or other commodities passed through the funnel into the globe or merchandise holder 22. After the said globe has been filled, the plate 18 will, of course, be returned to its normal position so as to cover the filling opening 17 and the closure 5 again put in place. It will be obvious that after the globe has been filled, it is necessary to cover the opening 17 to prevent the balls of candy or other goods dropping through said opening as the pocket wheel is rotated, and this need is met in a very simple and efficient manner by the provision of the covering plate 18. In order that the edge of the pocket wheel may be properly supported and spaced from the diaphragm so as to provide room for the operation of the slide or coin carrier and prevent binding of the said carrier between the pocket wheel and the diaphragm, beads 23, 24 and 25 are struck up or formed in the diaphragm, the beads 23 and 24 being disposed radially and in the rear portion of the diaphragm, while the bead 25 is concentric with the diaphragm and is narrower than the beads 23 and 24.

At the center of the diaphragm, I provide a post 26 upon which the coin carrier or slide 27 and the pocket wheel 28 are pivotally mounted. The slide or coin carrier is segmental in form and its corner is constructed with a notch 29 whereby it may pivotally engage the lower end of the said post 26, while the outer arcuate edge of the slide is constructed with a rim 30, which is adapted to slidably fit against the inner surface of the rim 14 of the diaphragm. A lever or handle 31 is secured upon the slide and extends therefrom through slots formed in the rim 14 and the base and shown at 32, so that the slide may be manipulated by the purchaser to effect delivery of the goods. The handle or lever 31 may be given any desired configuration and will preferably have a concave rear edge 33 which will accommodate the finger of the purchaser and aid him in turning the slide in the proper direction. The slide, as well as the diaphragm, will preferably be constructed of sheet metal so that they may be formed in a metal stamping machine and the lever 31 will be preferably formed integral with a coin seat 34 which is provided upon the upper side of the slide and registers with the coin slot 35 in the slide. As shown clearly in Figs. 1 and 8, the coin seat is provided by expanding the inner end of the lever and then bending the same into an inverted U-shape, a slot 36 being provided longitudinally in the shoulder or transverse portion of the U. At the inner side of the coin seat and concentric with the pivotal point of the slide, a narrow guide slot 37 is provided to fit over the rib or bead 25 on the diaphragm and thereby aid in guiding the coin carrier in its movement, as will be readily understood by reference to Fig. 4. The ends of this slot 37, by engaging the ends of the bead or rib 25, will serve as stops to limit the movement of the slide. At the inner side of the slot 37, an additional arcuate slot 38 is provided in the slide and this slot should be equal in width to the diameter of the pockets in the dispensing pocket wheel, the purpose of this slot being to afford a passage for the articles from the dispensing wheel into the tube or chute 2. A stop 39 is provided on the upper side of the diaphragm 13 and one edge of the slide or coin carrier is provided with a lug or shoulder 40 which is adapted to impinge against the said stop when the slide is retracted so as to limit the movement of the slide and bring it to rest with the slot 36 directly under the coin tube 41, which leads from the upper casing 42. The slide is held in its normal initial position by a spring 43, which is coiled around the post 26 and has one end secured on or in the diaphragm and its opposite end engaged in a lug or hook 44 on the slide. The spring tends to hold the slide against the stop 39 with the slot 36 directly under the coin tube 41 and the movement of the slide under pressure applied to the handle or lever 31 is against the tension of this spring, so that, when the lever is released, the slide

will be at once returned to its initial position. The ends of the slots in the rim of the diaphragm and the side wall of the base or coin box also serve as stops in the path of the handle or lever 31 to limit the movement of the same in both directions and, to prevent the insertion of a wire or other implement in an attempt to manipulate the machine without inserting a coin, a stop plate 45 is secured upon the under side of the diaphragm at the edge of the same and extends to the wall of the base so as to entirely close the slight space that may be left by forming the slots 32 for the passage of the handle or lever 31. The rim 30 upon the slide is of sufficient height to extend above the upper edge of the said slots 32 and of such extent that the slots will be covered in either extreme position of the slide. The insertion of a wire or other implement by mischievously inclined persons, is thereby positively prevented.

To prevent a second coin passing through the coin tube 41 while the slide is in the delivering position or moving toward said position, I provide a stop plate 46 which is arcuate from end to end and disposed concentric with the pivot post 26. The ends of this plate are provided with integral feet 47 through which rivets or similar fastening devices are inserted into the slide and the parts are of such proportions that the plate will ride directly under the coin tube as the slide is moved. The plate extends from a point immediately adjacent the end of the coin receiver 34 to a point near the stop 40 on the slide so that during the entire movement of the slide, the lower end of the coin tube 41 will be covered and a coin deposited therein, at that time, cannot pass therefrom and jamming of the mechanism will be thereby prevented. It will be readily noted that the construction of this stop plate is such that it may be stamped up in a metal-stamping machine and the cost of production thereby kept down to the lowest possible figure. A second plate 48 is provided on the under side of the upper casing 42 and this second plate 48 is so located that it will be directly over the coin as the slide or coin carrier moves to the discharging position. The coin will thus be prevented from rising from the coin seat 34 and will be caused to positively operate the dispensing wheel and also will be forced to pass through the slot 16 when it reaches the same. The presser plate 48 is identical in construction with the stop plate 46 but is arranged in reverse position so that the use of separate dies is not necessary and a single set of dies may be used in producing both plates.

The dispensing wheel 28 consists of a sheet metal disk provided with circular openings 49 spaced equi-distantly around the center of the disk and the central portion of the disk is pivotally mounted upon the post 26, as clearly shown. This central portion of the disk is slightly raised above the plane of the disk and has its upper surface convex or otherwise inclined downwardly from the post so that the balls of gum or confectionery, dropping thereon, will be directed toward the edge of the disk or wheel and consequently will drop into the openings 49. The openings 49 are formed by striking from the disk, annular lips or tongues 50 and within the said tongues or lips I secure, by brazing or similar means, rings or collars 51 which constitute pockets to receive the goods. The bottoms of the pockets are, of course, open to permit the discharge of the articles, and, until the articles reach the discharge point, they are supported by the diaphragm and the slide or coin carrier. The edge of the disk, constituting the main portion of the dispensing wheel, is bent downwardly to form a rim 52 and from the said rim, stop tongues 53 are struck up and project outwardly, the said tongues being spaced equi-distantly and corresponding in number and location to the article-receiving pockets. In the initial position of the wheel, one of these tongues will be in advance of and adjacent the forward end of the slot 36 in the coin receiver, so that when the coin carrier is actuated, the coin will be brought against the said tongue and will thereupon transmit its movement to the dispensing wheel through the tongue, and to prevent the coin being caused to ride up out of the receiver 34 when it comes in contact with the said tongue, I provide the combined presser and stop arm 54. This combined presser and stop arm comprises a base piece 55 which is secured upon the rim 14 of the diaphragm near the upper edge of the same and projects therefrom over the dispensing wheel at an angle to the radius of the same. To the inner free end of this base piece, I secure a resilient arm or plate 56 having its free end expanded laterally, as shown at 57, and the inner extremity of said expanded portion is turned downwardly to form a stop lip or detent 58 which is adapted to engage in one of the pockets of the dispensing wheel, the relative position and proportions of the parts being such that the detent 58 will be located vertically over the article discharging opening 15. The opposite extremity of the expanded portion 57 of this combined presser and stop device is turned downwardly, as shown at 59, and is then bent outwardly as at 60, into the path of the advancing coin and the end of this portion 60 presented to the coin is turned upwardly, as shown at 61, to present a beveled surface to the coin. As the carrier is moved, the coin will ride under the presser piece 60—61 immediately in advance of its engagement with the projecting tongue 53

of the dispensing wheel, and the resiliency of the plate or arm 56 will permit the same to yield to the coin sufficiently to raise the detent 58 out of the pocket engaged by the same whereupon the wheel will turn with the coin and the coin carrier. The presser device, however, will bear upon the coin with sufficient force to prevent it riding out of the coin receiver 34 and immediately after the coin clears the said presser piece, it will pass under the presser plate 48 and will consequently be prevented, during the entire period of its movement, from leaving the coin receiver 34. It will be understood, of course, that inasmuch as the detent 58 is vertically over the discharge opening 15, the pocket engaged by the said detent will not hold an article. The succeeding pocket, however, will contain an article, inasmuch as the bottom thereof will be covered by the slide or coin carrier. The travel of the coin carrier and the dispensing wheel will bring the said succeeding pocket into position over the discharge opening 15 and under the detent 58, whereupon the article will pass through said opening and the detent will engage the pocket so that the movement of the wheel will be arrested and a third pocket can not be brought to position over the discharge opening. It will also be readily understood that the engagement of the detent with the pocket reaching a position over the discharge opening 15 will cause the detent to bear upon the article and thereby positively eject the same. Simultaneously with the discharge of the article through the opening 15, the coin will drop through the slot 16 and, as the purchaser releases the handle or lever 31, the spring 43 will return the slide or coin carrier to its initial position. The dispensing wheel will, however, be prevented from moving in a retrograde manner with the coin carrier by the engagement of the detent 58 in the pocket from which an article has just been discharged and also by reason of one of the tongues 53 riding over and engaging one of the resilient pawls 62 which are secured upon the diaphragm adjacent the rim of the wheel and project upwardly therefrom into the path of the said tongues.

The upper casing comprises a metallic rim or collar 42 and a globe 22, which will be of glass or other transparent material so that purchasers can observe the goods offered for sale and the owner of the machine may, at any time, note the quantity of the goods unsold and will be informed when refilling is necessary. The globe 22 will preferably be spherical and provided with a collar 63 defining a mouth through which the goods may pass. This collar will preferably be formed externally with a bead 64 and the rim 42 will be properly shaped to fit closely around the collar and the body and thereby firmly support the globe. The rim 42 will preferably be formed in two sections, connected by a hinge 65 at the front of the machine and held together at the rear of the machine by a hasp 66 secured to one section and having its free end projecting over the other section and provided with a slot 67 through which the upper end of the standard 6 projects, the lock 7 being engaged with the said standard above the said hasp. The lower edges of the sections will be so shaped as to inclose and conceal the flanges 11 and 12, as shown clearly in Fig. 1. The coin tube 41 is secured in and depends from one of the sections of the rim, and the upper end of the tube will be located at the exterior of the bead 64 so that the coin may be readily inserted. As shown most clearly in Fig. 5, the lower end of the coin tube will be provided with a notch in its front wall or that wall toward which the coin is supposed to travel, as shown at 68, while the rear wall extends to the lower extremity of the tube which will be below the highest point on the edge of the coin, as clearly shown in Figs. 5 and 6. Movement of the coin and coin carrier or slide in an improper direction is thus prevented.

It is thought the operation and advantages of my improved machine will be readily understood from the foregoing description, taken in connection with the accompanying drawings. It may be added, that when all of the goods originally placed in the globe or article holder has been sold, the lock 7 is removed and the upper portion of the machine including the globe, the upper rim or collar 42, the diaphragm and the parts supported on the diaphragm, are removed so that the coins deposited in the base of the machine may be taken out. The upper portion of the machine is then returned to its position on the base and the machine is inverted so that the globe may be again filled by means of a funnel, as previously stated. The holding arm or standard 6 serves as a gage or guide for centering the mechanism upon the base by its engagement with the slot in the upper casing, and it will be a very simple matter to thread the operating handle through the slots 32 so that no particular skill is required in restoring the machine to its operative condition after the coins have been extracted. To aid in holding the locking arm 6 properly engaged with the slot provided therefor in the upper casing, a spring finger 69 is secured within the case and passes upwardly through the diaphragm and the upper casing so as to aid in properly positioning the parts. With the exception of the lock, which may be bought in the open market, and the globe which may be molded of glass, all the parts of the machine are of sheet

metal and may be produced in stamping machines very rapidly and at a low cost. As all the parts of the working mechanism are simple in their construction and compactly arranged and are all completely inclosed so that tampering therewith is prevented, the machine will operate positively and easily at all times and is not apt to get out of order, so that it will be found exceedingly durable.

Having thus described the invention, what is claimed as new is:

1. In a vending machine, the combination of a base having a filling opening in its bottom, a diaphragm secured within the base and having an opening therein, and a covering plate pivoted upon the diaphragm and adapted to extend over the said opening and provided with a projection depending through the opening whereby the opening may be uncovered by a tool inserted through the filling opening in the bottom of the base and engaged with said depending projection.

2. In a vending machine, the combination of a hollow base having its upper edge turned outwardly, a diaphragm fitted within the base and having an annular rim engaging closely within the base, the upper edge of said rim being turned outwardly to rest upon the upper outturned edge of the base, an upper casing secured around and inclosing the outturned edges of the base and the said rim, a centering finger secured within the base and extending upwardly through the diaphragm to be engaged by a slot in the upper casing, and a locking device engaged on the upper end of said finger above the upper casing.

3. In a vending machine, the combination of a casing, a discharge chute therein, a dispensing wheel mounted in the casing and provided with a plurality of pockets arranged to successively register with the discharge chute, and a yieldable arm secured to the casing and extending over the dispensing wheel and having its free end provided with a detent adapted to engage the pocket which registers with the discharge chute.

4. In a vending machine, the combination of a base having a filling opening in its bottom, an open-bottom article holder supported by and secured on the base, a diaphragm within the base having a filling opening therein, and a dispensing wheel mounted for movement upon the diaphragm below the article holder and provided with a plurality of open-bottom pockets adapted to register with the filling opening in the diaphragm whereby the article holder may be filled upon inversion of the base and the article holder.

In testimony whereof I affix my signature.

WALLACE N. MASON. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."