E. M. PERFECT.

DELIVERY MECHANISM FOR VENDING MACHINES.

APPLICATION FILED MAY 13, 1916.

1,240,595.

Patented Sept. 18, 1917.

3 SHEETS—SHEET 1.

Fig. 1.

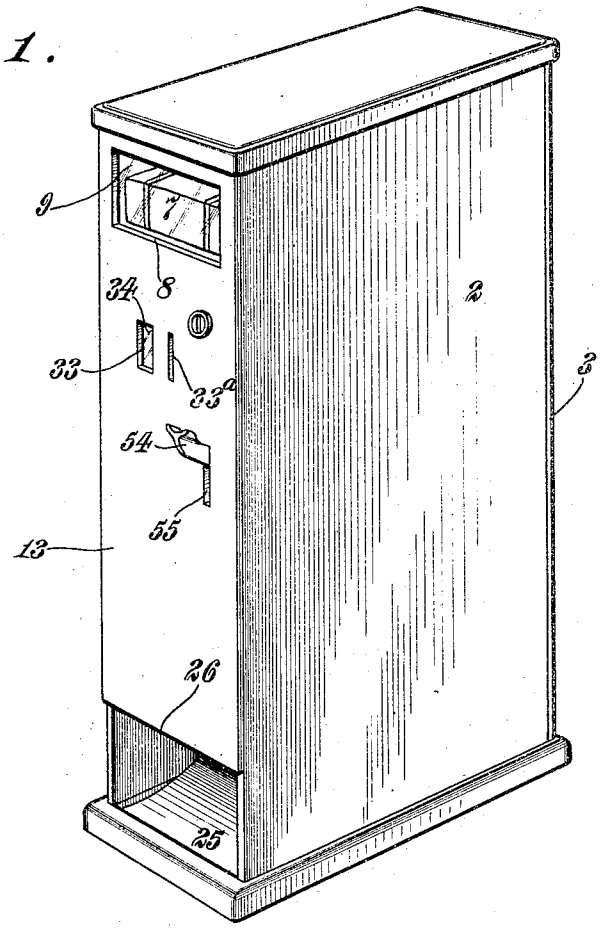
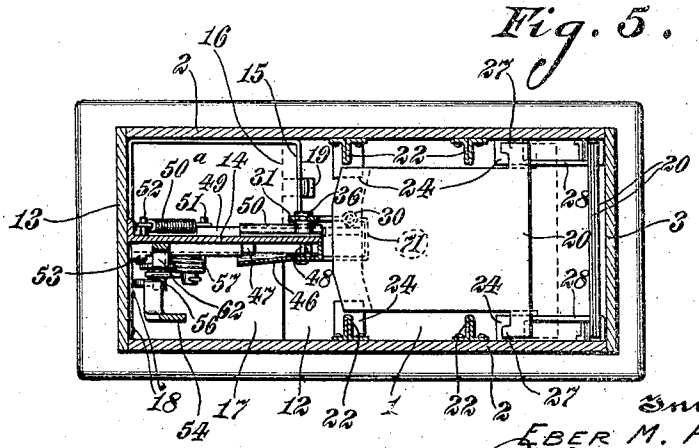


Fig. 5.



Inventor:
EBER M. PERFECT,
By John C. Higdon
His Attorney.

E. M. PERFECT.

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3 SHEETS—SHEET 2.

Fig. 2.

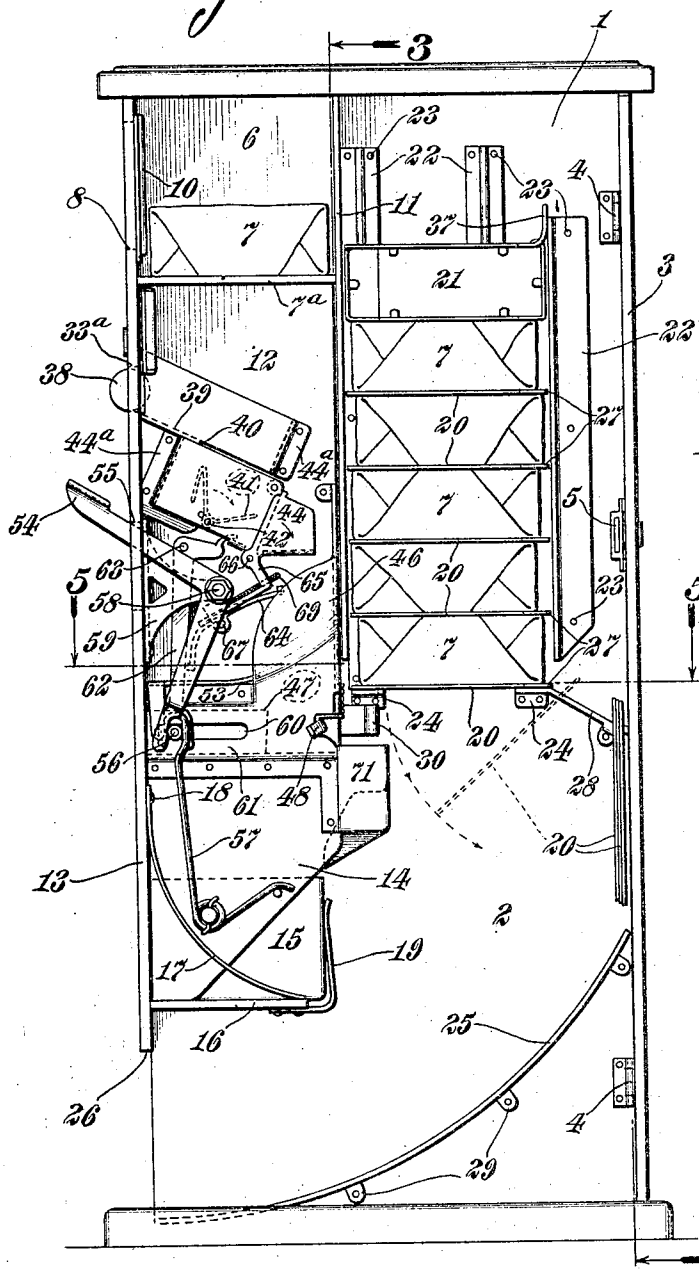
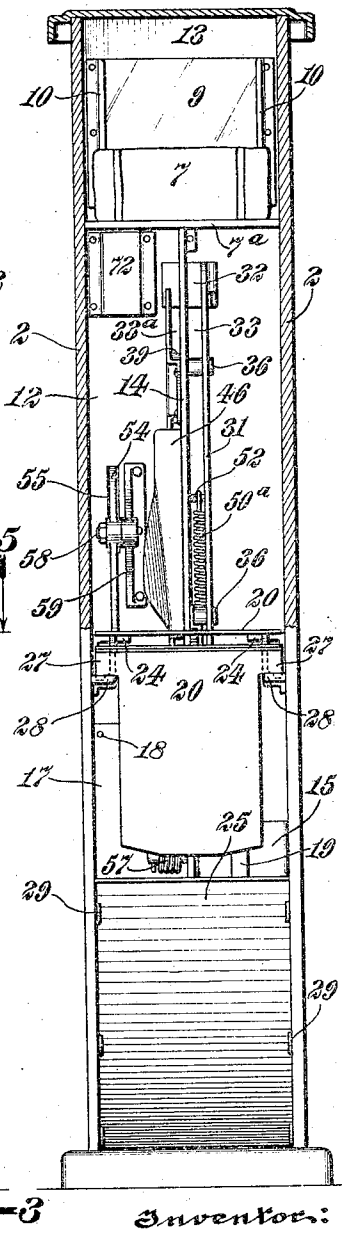


Fig. 3.



Inventor:
EBER M. PERFECT,
By John O. Higdon
His Attorney.

E. M. PERFECT.

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3 SHEETS—SHEET 3.

Fig. 4.

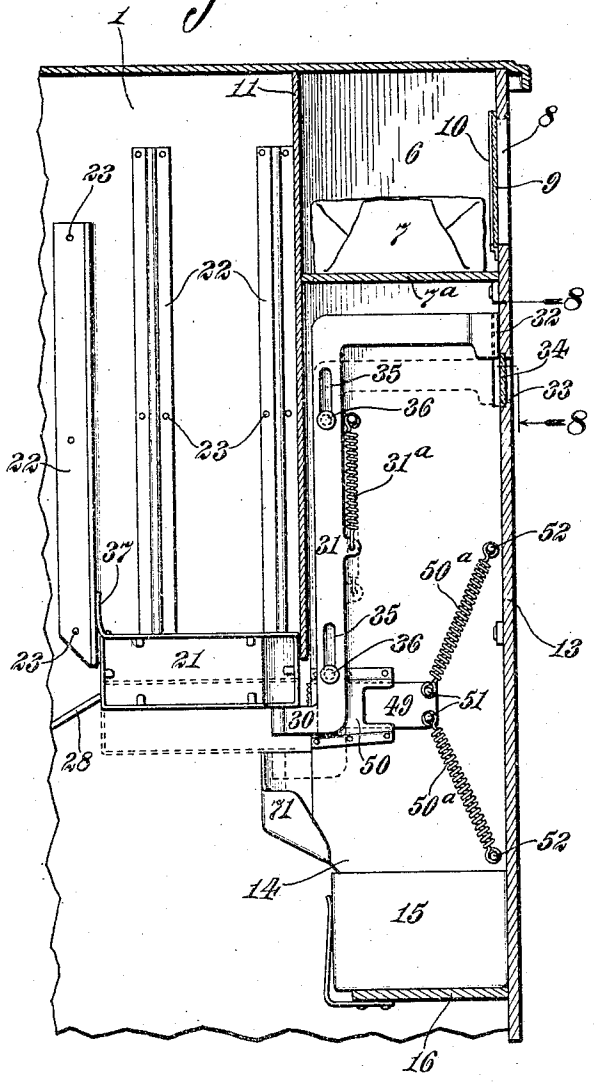


Fig. 6.

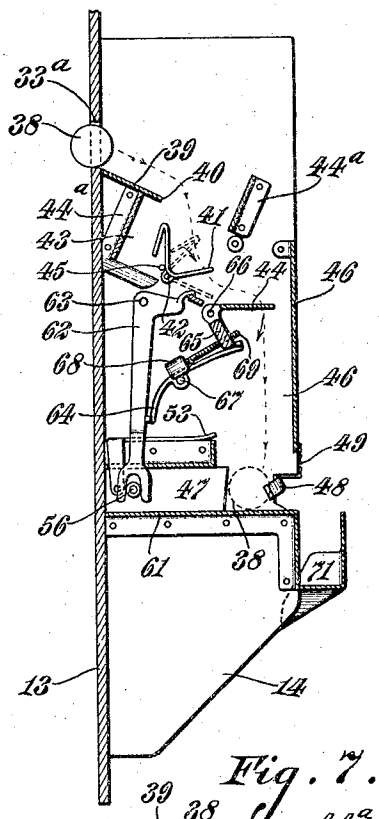


Fig. 7.

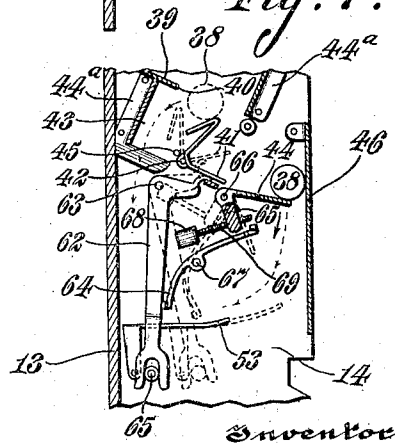
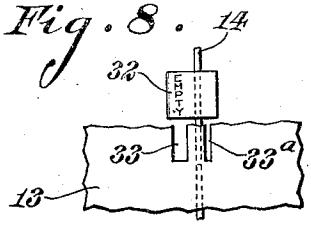


Fig. 8.



Inventor:
EBER M. PERFECT,
By John C. Higdon
His Attorney.

UNITED STATES PATENT OFFICE.

EBER M. PERFECT, OF EVANSVILLE, INDIANA, ASSIGNOR OF ONE-HALF TO FRANCIS W. WINANS, OF EVANSVILLE, INDIANA.

DELIVERY MECHANISM FOR VENDING-MACHINES.

1,240,595. Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed May 13, 1916. Serial No. 97,397.

To all whom it may concern:

Be it known that I, EBER M. PERFECT, a citizen of the United States, and resident of Evansville, Indiana, have invented certain new and useful Improvements in Delivery Mechanism for Vending-Machines, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved delivery mechanism for vending machines of the class known as "coin-controlled," and my invention consists in the novel construction and arrangement of parts hereinafter described and particularly designated in the claims found at the end of this specification.

The object of my invention is to provide an improved coin-controlled delivery mechanism which shall be adapted to sell and deliver articles of various sizes and weights, and of different materials, all of which may be contained within the machine at the same time, ready for delivery upon the deposit of the proper coin by a purchaser.

A further object of my invention is to provide an improved gravity article stand for a vending-machine.

A further object is to provide an improved reciprocating coin-mover and article-dumping mechanism for vending machines.

A further object is to provide a vending-machine with an improved mechanism for "blocking" the coin-slot, and for simultaneously displaying the word "Empty" alongside of, or near said slot, whenever the last article has been delivered and the machine is empty.

In the drawings:

Figure 1 is a perspective view of a vending-machine embodying my invention.

Fig. 2 is a side-elevation of the machine, with the side of the casing removed, to show the internal mechanism.

Fig. 3 is a vertical section, taken from the rear of the machine, on the line 3—3 of Fig. 2.

Fig. 4 is a detail side-elevation of a portion of the upper part of the mechanism.

Fig. 5 is a horizontal section, taken through the machine, on the line 5—5 of Fig. 2.

Fig. 6 is a detail side elevation of the mechanism in the upper portion of the machine.

Fig. 7 is a similar view with the parts in a different adjustment, and

Fig. 8 is a detail view of the coin-slot blocking-plate, and the "Empty" sign carried thereby.

By reason of the fact that my vending-machine is arranged with a comparatively large article-storage chamber, in which articles of different sizes (large, small, and intermediate) may be stored in readiness for delivery, but a single style or type of machine may be used in vending any of said sizes of article, thereby doing away with the expense of providing many types of machines, and permitting my machine to be used interchangeably with all the various sizes and weights of articles to be sold.

The numeral 1 designates the article-storage chamber or compartment, which is located in the upper rear portion of the casing 2, and access to which is afforded by way of a rear door 3.

Said rear door 3 extends the full height of the casing, and is provided with common hinges 4 and lock 5.

In the upper front corner of said casing is an article exhibiting-chamber 6, in which a sample article, such as 7, is supported upon a floor 7^a.

Formed in the front of said casing 2 is a sight-opening 8, in rear of which is a glass plate 9 supported in suitable holding-devices 10, so that a clear view of the sample article contained in said exhibiting-chamber may be had by a person in front of the machine.

A vertical partition 11 separates the said article storage-chamber from said exhibiting-chamber 6, and said partition extends below the floor 7^a of said exhibiting-chamber a considerable distance, so as to form beneath the latter a mechanism-chamber 12, in which the operative parts of the machine are removably contained during use of the machine.

13 indicates the front of the casing, which is bodily detachable, together with a vertical plate 14, carrying the important parts of the operating-mechanism.

Said vertical plate 14 will be hereinafter called the "frame plate," and it extends downwardly from the floor 7^a of said exhibition-chamber to a point near the base of the casing, where it is cut off at an angle, as shown in Fig. 2.

A suitable money-till 15 is detachably car-

ried upon a supporting-bracket 16 projecting at a right-angle from the internal surface of said front 13, at the lower end of said frame-plate 14, and is removable therewith.

A curved brace-sheet 17 has its outer and upper end secured to the said front wall 13 by means of rivets or screws 18, whence it extends downwardly and rearwardly to the inner edge of said till-bracket 16, to which it is secured, for the double purpose of bracing said bracket, and to form a bad-coin chute.

Said till 15 is yieldingly held in place upon its supporting-bracket 16 by a flat spring 19, so that said till may be quickly detached and "dumped" upon the removal of said front, the upper side of said till being open, of course.

The articles to be sold are designated, in the present instance, by the numeral 7, and are all shown of the same size; but it is obvious that they need not be so, on account of the novel arrangement of the article stand now to be described.

The articles 7 are temporarily supported in the article storage-chamber 1, each upon a dumping-plate 20, one above the other, and surmounted by a weighted follower 21, which latter is preferably made of sheet-metal and rectangular in form, and supplied upon its interior with any suitable form of weight, such as sand, a piece of iron, or buck-shot.

Said follower 21 and said dumping-plates 20 are of course located in a horizontal position when in use, as shown. (See Fig. 2).

Said dumping-plates 20, carrying the articles 7, as well as the said follower 21, are guided freely by suitable vertical guide-bars 22, secured to the inner walls of said article storage-chamber 1 by means of nails or the like, 23.

24 designates fixed supporting-brackets, secured to the walls of said article storage-chamber 1, at a point beneath the lowermost one of the series of dumping-plates carrying the articles 7. so that whenever said lowermost plate is shoved horizontally until one of its ends passes beyond the adjacent supporting-brackets 24, the said plate and the article immediately above (and lying upon it) will be "dumped", as indicated by dotted lines in Fig. 2, and said dumped article will drop down onto the delivery chute 25, from whence it can be readily removed by the purchaser inserting his hand through the article-delivery opening 26 at the base of the machine.

Said supporting-brackets 24 are located upon the opposite walls of the casing, as shown more clearly in Fig. 3, but they do not project so far as to obstruct the fall of said dumping-plates or the dumped article.

After a plate carrying an article has been "dumped". as just described, said dumped plate is caught at its rear edge, by its oppositely-projecting integral ears 27 riding upon the rearwardly-inclined tracks 28, and slides thereon rearwardly until it comes to rest in a vertical position, ready to be used over again in refilling the machine. (See Fig. 2).

After one of said plates 20 has been dumped with its supported article, the "stack" of articles 7 and the plates 20 interposed between them, gravitate toward said supporting-brackets 24, until the lowermost plate comes in contact with and is arrested in its downward movement by the said brackets, when the machine is ready to deliver again, and so on until all the superposed articles 7 and plates 20 are disposed of in the manner described, when the machine should be refilled.

The numeral 29 designates perforated integral ears on the opposite edges of said delivery-chute 25, by means of which said chute is secured to the walls of the casing.

As soon as the uppermost (and last) one of the superposed dumping-plates of the arranged series has been dumped, as described, there is nothing to prevent the weighted follower 21 from passing to a plane below that of the said supporting-brackets 24, and it does so until it rests upon and depresses the underlying horizontal arm 30 of the vertical sliding bar 31, which latter carries at its upper end the coin-slot "blocking" plate 32.

Said sliding bar 31 is thereupon moved downwardly a corresponding distance, and said coin-slot blocking-plate is carried with it until said plate rests behind, and covers, the coin-slot 33ª, and prevents the entrance of any coin through said slot, and also displays the word "Empty" at the sight-opening 33 through the glass plate 34, as long as the machine remains unfilled, and until the said follower 21 is elevated out of contact with the said horizontal-arm 30, by spring 31ª.

The said vertical bar 31 is provided with guide-slots 35 which are engaged by screws or pins 36, fixed in the said frame-plate 14, on the side thereof which is opposite that which carries most of the mechanism. (See Fig. 4).

Said spring 31ª normally holds said coin-slot blocking and "Empty" sign mechanism elevated such a distance that said coin-slot blocking mechanism and said "Empty" sign are elevated to a plane above said coin-slot and said "Empty" sight opening, thereby permitting coins to be inserted through said coin-slot and allowing an observer to use the machine in purchasing as many articles as desired, as long as any articles remain in the article storage-chamber.

37 indicates a guide-flange on the upper rear corner of said follower 21, to engage the rear guide-bars, as shown in Fig. 4, and

form a stop to prevent the rearward movement, and dumping of said follower when same is depressed below the lower ends of said rear guide-bars.

When a proper coin, or check, 38, is inserted in the said coin-slot 33ª it rolls edgewise down the inclined coin-chute 39 until it reaches and drops into the exit-slot 40 in the lower edge of said chute, when it falls upon the rear arm of a V-shaped rocking "blocking device" 41 and depresses said arm to a downwardly-inclined position, and thence rolls into the weight and size testing device, which will now be described in detail.

Said coin "blocking" device 41 is pivoted at 42 upon a pivot-pin or screw located at the lower edge of a coin "blocking" chamber 43 which is directly below the said coin-chute 39, the inner and lower end of said chamber opening directly into a combined coin-hopper and size testing-device 44.

Said coin-chute and blocking-chamber are provided with suitable perforated flanges 44ª, by means of which they are riveted, or otherwise secured in position upon one face of the said frame-plate 14.

A stop-pin 45 limits the forward movement of the said blocking device 41.

Said coin 38, upon engaging said blocking-device 41, rocks the same from its normal position, as shown by solid lines in Fig. 6, to the position in which it is shown by dotted lines, and then said coin rolls into said coin-hopper 44, as before described, and depresses same if said coin is sufficiently heavy, and if said coin is of sufficient (or the proper) weight said coin will pass off the inner end of said hopper, and drop into the underlying chute 46, and land in the coin-space between the inner end of the pusher-bolt 47 and a laterally-projecting lug 48 on the horizontal sliding dumping-plate pusher-bolt 49, both of said pusher-bolts being mounted to slide in suitable horizontal guides 50 secured to said frame-plate 14 by means of rivets or screws.

Said pusher-bolt 47 is mounted on one side of said frame-plate 14, as shown in Fig. 6, and said other pusher-bolt 49 is mounted upon the opposite side of said plate.

Suitable coil-springs (preferably two of them arranged at an angle to each other as shown in Fig. 4) 50ª, have their converging inner ends connected to said dumping-plate pusher-bolt 49 by means of screws or pins 51, and their opposite ends attached to said frame-plate 14 at a point near the front edge of the latter, by means of suitable pins 52, whereby said pusher-bolt will be normally retracted, as shown.

But the said coin 38 will be shunted before it falls into said "coin space" by a coin blocking-arm 53, which is caused to slide beneath and catch said falling coin whenever the delivery-lever is partially depressed by a careless person, before a coin is placed through said coin-slot 33ª, and even if another coin already occupies said coin-space, and the "shunted" coins will fall upon said blocking arm in said chute 46, and be thereby caused to fall directly to the said delivery-chute 25, and be returned to the owner.

The action of the rejected coin, just described, takes place upon the side of the said frame-plate which is shown in Fig. 2, so that said rejected coin misses the till 15, which is located upon the opposite side of said frame-plate.

If said delivery-lever 54 is fully depressed, after a coin has reached the said coin-space between the inner end of said coin pusher-bolt 47 and said lateral lug 48 on the said dumping-plate pusher-bolt 49, then said pusher-bolt 47 will push said coin inwardly against said lug, and carry coin and lug (and of course) the dumping-plate pusher-bolt inwardly, and said last named bolt will engage the lowermost one of said horizontally-placed dumping-plates 20, and shove it off the adjacent supporting-brackets, when it will fall and "dump" its article into the delivery-chute 25, where said article can be reached by the purchaser.

Said delivery-lever 54 extends upon the exterior of the vending-machine through a slot 55 formed in said front 13.

Said delivery-lever is preferably, as shown, in the form of a bell-crank lever, with its inner arm passing downward upon the interior of the mechanism-chamber 12, and thereat engaging a pin 56 projecting from one side of the said coin pusher-bolt 47, to operate said bolt, as described above.

A suitable coin pusher-bolt spring 57 is fixed as shown to one side of said frame-plate 14, and arranged to engage said pin 56, to normally retain said bolt in a retracted position.

Said bell-crank delivery-lever 54 is pivoted at 58 to a suitable bracket 59 fixed upon one side of said frame-plate 14.

A slot 60 is formed in the side-wall of the guide 61 in which said coin pusher-bolt operates, for the necessary movement of said pin 56.

62 indicates another bell-crank lever, which is forked at its lower end and pivoted at 63 to said frame-plate, so that its shorter (horizontal) arm will engage beneath the said inner arm of said V-shaped "coin blocking" device, whenever said delivery-lever 54 is depressed and said bushe-bolt 47 is projected, and rock said blocking-device back to its normal position in contact with said stop-pin 45.

Said bell-crank lever 62 also engages a rocking-lever 64 at such times, and moves the upper end of said rocking lever upwardly until a lateral-projection at said upper end of said rocking-lever contacts with

a depending-projection 65 on the under side of said coin-hopper 44, and tilts said hopper on its pivot 66 and causes the latter to discharge any coin that may have been allowed to reach it inadvertently.

Said discharged coin will, as previously described, be intercepted by the said blocking-arm 53, which at such moment underlies the said discharged coin and shunts it down into the said delivery-chute, as previously described.

Said rocking-lever is pivoted at 67 to the said frame-plate 14.

The numeral 68 designates an adjustable balancing-weight for the said coin-hopper 44, said weight being provided (in the present case) with a screw 69 which is threaded into a perforation formed in the said depending projection 65 of the said hopper, so that by turning said weight it will be moved nearer to or farther from the pivot 66 of said hopper, and thereby balance the same until the proper space is normally permitted (or arranged for) between the free delivery-end of the hopper and the adjacent partition 11, to allow a coin of the proper weight and diameter to pass in said space into said chute 46, or to fall upon the said shunt or blocking arm 53 when the latter is interposed, as previously described.

After an article has been delivered, as previously described, by the full depression of the said delivery-lever 54, the coin which caused said delivery-action will be dropped into the till-chute 71 and gravitate to the said till 15, whence it will be removed by the attendant, as is usual in machines of this class.

As the inward movement of the said coin pusher-bolt continues the delivery movement above-described, the lateral lug 48 extending to a plane above that of the center of said pushing coin, and being inclined to fit the inclination of the periphery of said coin, causes said coin to run off the inner end of said bolt-guide 61, and be forced downwardly into the underlying till-chute 71.

I do not limit myself to the exact form and arrangement of the parts herein shown, as it is evident that the same may be changed by skilled mechanics, as they see fit, to operate by substantially the same means in substantially the same way, without departing from the scope of my invention.

Further description of the operation of my machine is deemed unnecessary, as that already recited will be ample for all who are skilled in the art.

Said front 13 is provided, of course, with a suitable lock 72, whereby it may be removably secured in position, and the till be protected from thieves.

I do not herein claim the fraud preventive device, as I have made that the subject-matter of a divisional application, filed December 4th, 1916, Serial No. 135,014.

I claim the following as my invention:

1. An improved vending-machine, comprising: a casing; a series of article-supporting plates mounted to be shoved endwise upon fixed brackets; the fixed brackets upon which the lowermost one of said plates is mounted; ears on the opposite edge of each plate, at one end thereof; opposite inclined tracks which said ears slide upon after they have been shoved off of the fixed brackets; and a coin-operated bolt which engages the said lowermost plate and shoves the same bodily off of said fixed brackets toward and onto said inclined tracks.

2. An improved vending-machine, comprising: a casing; fixed brackets in said casing; a series of horizontal article-supporting plates superposed upon said fixed brackets, to support articles, and to be consecutively first moved bodily in a horizontal plane until one end is shoved off of its fixed brackets; a pusher-bolt for pushing the lowermost one of said plates off of its fixed brackets at one end; ears on said plates, extending beyond the edges of the plates in opposite directions, at the end of said plates which is opposite the end which is engaged by said pusher-bolt; and opposite tracks which are downwardly-inclined, and onto which said ears are pushed whenever said plates are shoved by said pusher-bolt.

3. An improved vending-machine, comprising a suitable casing, a series of horizontal article supporting-plates supported in said casing to slide edgewise and to be dumped after having been slid edgewise, downwardly-inclined tracks onto which said plates are delivered after having been slid edgewise and dumped with the articles carried by them, whereby the dumped plates are carried automatically out of the path of the next plate and article to be dumped, a weighted-follower resting upon the uppermost one of said supporting-plates before it has been dumped, and a flange on the uppermost rear corner of said weighted-follower, forming a stop, to prevent the said follower from being slid edgewise, and means actuated by a coin, for bodily sliding said plates edgewise and causing them to be delivered onto said inclined tracks after having been dumped.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

EBER M. PERFECT.

Witnesses:

FRANCIS W. WINANS,

JOHN J. NOLAN.

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