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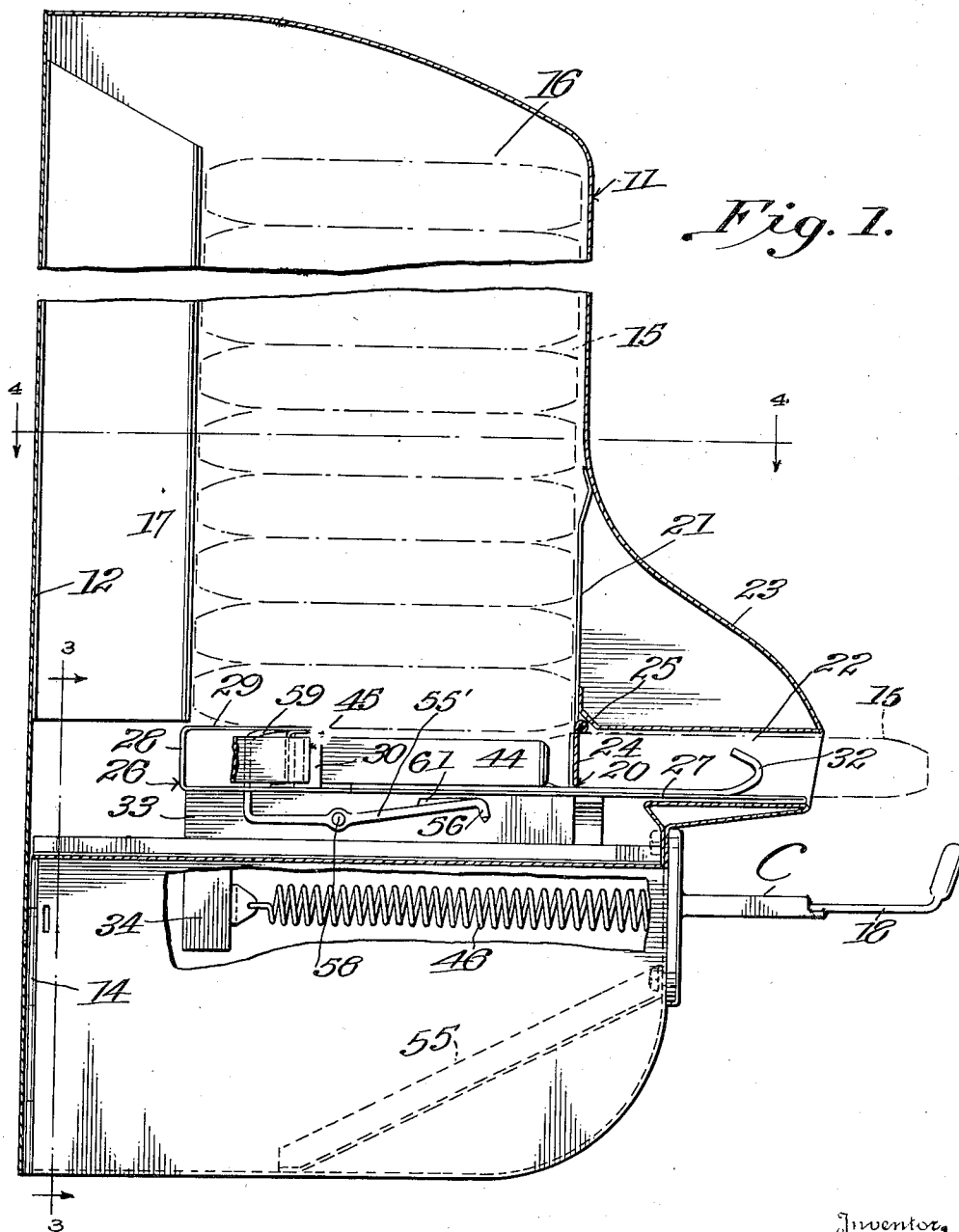
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2,211,799

VENDING MECHANISM

Filed April 21, 1938

4 Sheets-Sheet 1



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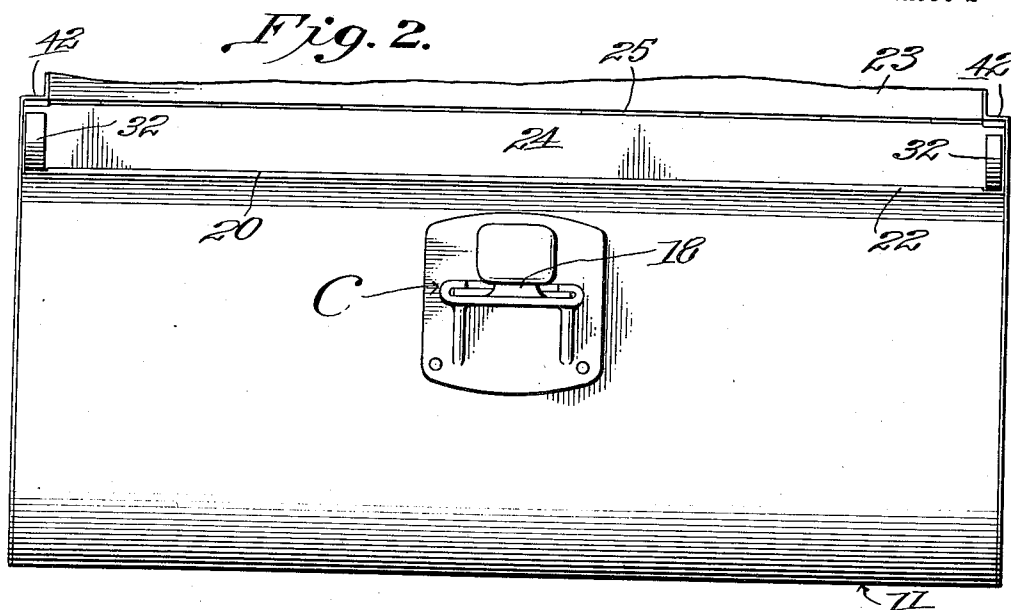
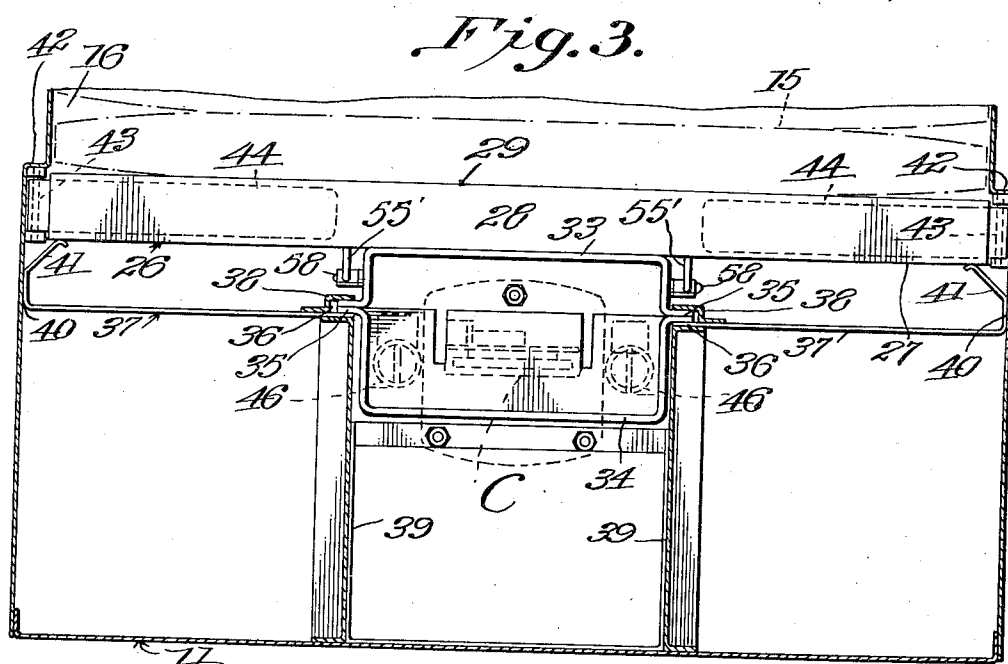
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VENDING MECHANISM

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VENDING MECHANISM

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Fig. 4.

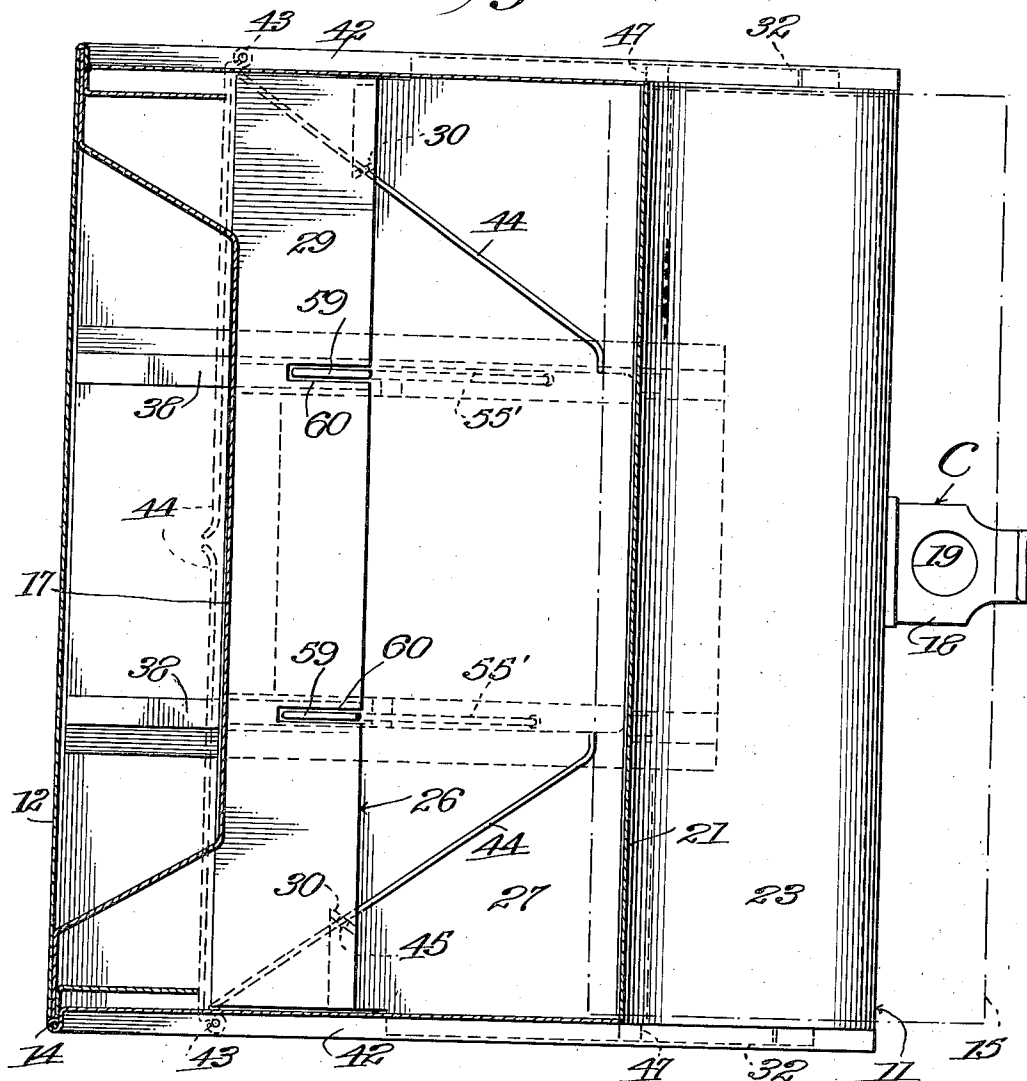
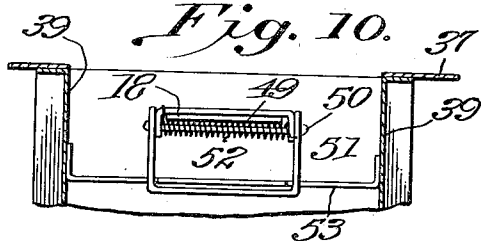


Fig. 10.



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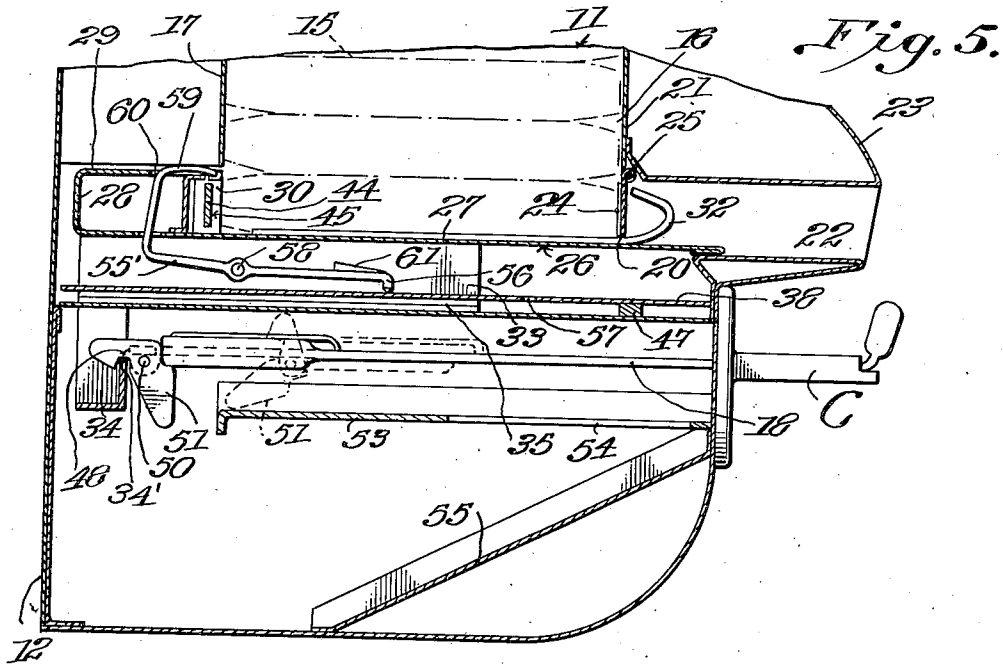
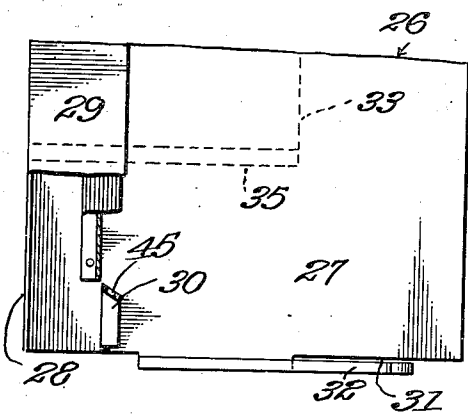
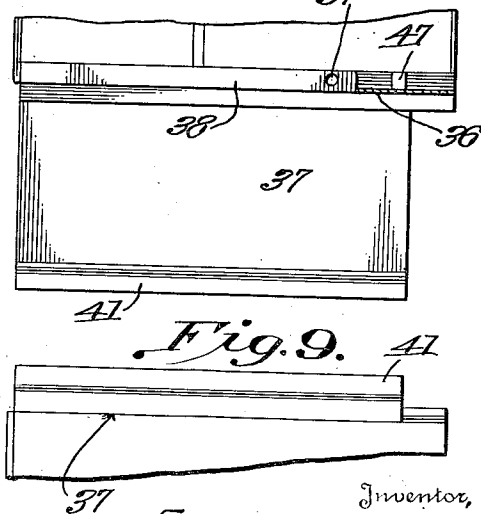
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VENDING MECHANISM

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4 Sheets-Sheet 4



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VENDING MECHANISM

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14 Claims. (Cl. 312-47)

This invention relates to a machine adaptable in different sizes to vend or dispense various articles, packages, commodities or the like and more particularly concerns the dispensing or dis-

charging mechanism thereof.
An important object is to provide such a mechanism with novel means for increasing the effect of movement of a manually operable part, usually under coin control, so that the machine may be built of minimum size with the vended article at each vending operation, projected a sufficient distance for ready grasping or removal from the machine.

A second object is to provide such a discharging mechanism with ejecting arm means normally preventing premature descent of the lowermost vendible article and which is retractile to permit such descent and then further operates to discharge or eject the article.

A third object is to provide a novel means on the discharging or ejecting device which coacts with the cover plate at the discharge opening to prevent successful tampering or removal of articles from the machine through said opening without the deposit of the proper coin.

A fourth object is to provide a novel discharge or ejecting slide and mounting therefor.

A fifth object is to provide such a discharge mechanism as may be operated without employing springs if desired, and so that in the event a spring breaks, operation will not be impaired.

A further object is to provide a novel means to automatically lock the discharging mechanism against operation when the machine is empty.

Various additional objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings illustrating one operative embodiment.

In said drawings:

Figure 1 is a view partly in side elevation but primarily in central vertical section, illustrating my machine;

Figure 2 is a fragmentary front elevation of the lower portion of the machine;

Figure 3 is a section taken substantially on the plane of line 3-3 of Figure 1;

Figure 4 is a section taken substantially on the plane of line 4-4 of Figure 1;

Figure 5 is a fragmentary vertical sectional view taken substantially on the same plane as Figure 1, but with the discharge or dispensing mechanism in rearmost position;

Figure 6 is a fragmentary plan of the discharge plate;

Figure 7 is a side elevation of the discharging or dispensing device;

Figure 8 is a fragmentary plan of the discharging or dispensing mounting means;

Figure 9 is a fragmentary side elevation of one of the vertical mounting parts for the dispensing or discharging device, and

Figure 10 is a fragmentary vertical section detailing the latching connection between the coin-operable mechanism and the dispensing or discharging device.

Referring specifically to the drawings wherein like reference characters designate like or corresponding parts throughout the different views, 11 designates a cabinet or casing of suitable size, shape and ornamentation, most of the parts of which I preferably make of sheet metal, usually connecting them together by welds where the joints are to be rigid. The back of such cabinet or casing 12 is hinged in place on a vertical axis 14 so that it may be opened at times to supply articles 15 to a magazine or space 16 within the casing, for dispensing or vending. Obviously, said back or closure 12 may be locked if desired, the details concerning which are not shown as they constitute no part of the instant invention. The machine will accommodate articles 15 of any character and for instance enveloped or wrapped sanitary pads. Said articles 15 are maintained in spaced relation to the back or closure 12 by reason of an offset spacer wall 17 carried by said back or closure 12.

Said articles 15 are dispensed or vended one at a time through operation of any desired coin control mechanism and since the latter specifically forms no part of the present invention, it is but fragmentarily shown at C. It has an operating slide 18 normally extended as in Figure 1 and adapted to be pushed inwardly as in Figure 5 following deposit of the proper coin in a slot 19, to initiate a dispensing or vending operation.

Such vending, dispensing or discharging of the lowermost article 15 is effected through an opening 20 in the front wall 21 of the casing into a horizontal chute 22 (Figures 1 and 5) formed by an enlargement 23 extending forwardly from said front wall. In said opening 20 depends a guard or cover plate 24 of substantially the same area as the opening, being hinged at the top to the casing on a horizontal axis 25 so as to be capable of being pushed outwardly by the discharging movement of the lowermost article 15 and then fall back to vertical position. Said

hinge means 25 mounts the guard 24 so as to be incapable of swinging inwardly past the vertical to minimize danger of tampering with the contents and parts of the machine with the aid of hair pins, stick needles, wires and the like.

Operable at the base of the space or magazine 16 is a laterally slidable dispensing or discharging device designated 26 as a whole, best shown in Figs. 3 and 4, but important parts of which are illustrated detached as in Figures 6 and 7.

Said dispensing or discharging mechanism comprises an upper or metal plate portion 27 which is bent upwardly at the rear end as at 28 and then forwardly as a shelf 29, then returned beneath the shelf 29 and downwardly into inclined guides 30 which are terminally welded or otherwise fastened to the plate or portion 27 proper.

Each end portion of the plate 27 is doubled over as shown and at the forward half is separated at 31 from the remainder of portion 27 and formed into upwardly and inwardly returned hook-shaped guards 32. Plate 27 in all positions rests adjacent its forward end on the bottom wall of chute 22 and the guards 32 are always in said chute forwardly of the guard 24. Guards 32 function especially in the innermost position of the discharge device 26, as shown in Fig. 5, because they are extremely close to depending guard 24 to prevent outward movement of the latter in an attempt to tamper with the mechanism or articles 15 through opening 20 if an unauthorized person succeeds in placing the parts in the condition shown in Fig. 5 without having deposited the proper coin.

Fastened to the plate or portion 27 by welding or otherwise is a slidable bracket 33 and similarly fastened to the underside of bracket 33 at the rear thereof, is a dependent 34, the said bracket and dependent having outwardly extending flanges 35 at their junction, forming rails which are slidably mounted in U-shaped tracks 36 provided by the junction of horizontal wings or plates 37 and strips 38 welded thereto.

Risers or uprights 39 support the inner ends of wings 37 from the bottom of the casing 10, being welded to both and at the outer portions, said wings are welded as at 40 to the side walls of the casing. Said wings terminate in upwardly and inwardly inclined supporting portions or rails 41 being somewhat resilient and in supporting contact with the under surface of the end portions of plate 27.

The side walls of the casing or cabinet 10 have offset portions 42 from which bolts or pivot members 43 are vertically mounted. Pivoted on each member 43 is an article-ejecting arm 44 which passes loosely through an opening 45 in the adjacent inclined guide 30. Said ejecting arms are relatively high and in the normal condition of the parts as shown in Figure 4, the pair of arms 44 converge in a forward direction. In this normal position (see Fig. 1) the lowermost article 15 is not aligned with chute 22, as a guard against successful tampering, but is supported by the shelf 29 in combination with the portions of arms 44 extending forwardly thereof as in Figures 1 and 4. Such arms 44 thus function dually as ejectors and as supports for the articles 15.

A pair of contractile coil springs 46 are connected to the dependent 34 and to the front wall of the casing or an adjacent part so as to urge the discharging device 26 forwardly to the normal position of Figs. 1 and 4 in which it is

stopped by the contact of flanges or rails 35 with abutment means 47 on the wings 37.

In order to operate the present machine, it is necessary to push slide 18 to its innermost limit and the coin control mechanism C is generally of that construction which cannot be pushed in or operated successfully without deposit of the proper coin in slot 19, and such mechanism furthermore is of that character where the slide 18 after having been pushed inwardly to any extent cannot be pulled back without completing the inward movement, although the coin control mechanism generally constitutes no part of the invention.

The springs 46 are employed usually when articles of light weight are to be dispensed. Optionally and especially when heavier articles are to be dispensed, means is provided in lieu of said springs so that the slide 18 must be positively pulled back to complete a dispensing or vending operation. To this end, a dog or pawl generally of U-shape 51 (Figs. 5 and 10) has its sides provided with hooks or notches 48. The rear end of slide 18 has a cross member 49 and a pintle 50 pivotally connects the dog 51 to the cross member 49. A coil spring 52 surrounds pintle 50 and is connected at one end to the dog 51 and at the other end to cross member 49 normally tending to rock the dog counterclockwise into contact with said cross member.

In the normal position of the parts when springs 46 are not employed, the lower ends of the dog 51 rest on a plate 53 which has an opening 54 therethrough to enable a deposited coin to fall on to a guide 55 leading it to the rear of the casing. In this position the dog is rocked against the tension of its spring 52 so that the hooks or notches 48 are above the plane of engagement with the dependent 34. When the slide 18 under coin control is pushed inward, the lower portion of the dog 51 first slides on plate 53 and then falls off the rear end thereof, with the notches engaging the dependent 34 at an opening 34' thereof so that further inward pushing of slide 18 moves the discharging or dispensing device 26 inward from the position of Fig. 1 to that of Fig. 5 and to dispense or vend the lowermost article 15, it is thereupon necessary to pull out on the slide 18, which restores the parts to normal position.

Briefly describing the operation, the parts are normally in the position of Figs. 1 and 4 where the lowermost article 15 is supported by the shelf 29 and forward ends of the ejector arms 44. To vend or dispense the lowermost article, slide 18 is pushed inward under coin control as heretofore specifically traced, tensioning springs 46 or resulting in dog 51, whichever is employed, engaging dependent 34, gripping the same and moving the discharge or ejecting device 26 to rearmost position, that is from the position of Fig. 1 to that of Fig. 5. It will be noted that during such inward movement of discharging device 26, the guides 30 cause the pivoted ejecting arms 44 to retract from the full line position of Fig. 4 to the dotted or aligned position in the same figure, the ejecting arms 44 and shelf 29 moving out of alignment with the magazine 16, permitting the lowermost article 15 to fall onto the plate 27. The slide 18 is then returned through the tension of springs 46, if employed, or pulled toward the operator positively moving the device 26 therewith, with the guides 30 spreading the ejecting arms back to the position of Fig. 4 and against the adjacent article 15 ejecting it

through the opening 20, displacing the guard 24, and passing into the chute 22 between the hook guards 32, the dog 51 near the end of the dispensing operation striking the end of plate 53, releasing dependent 34 and moving to the dotted line position of Fig. 5.

Particular attention is directed to the fact that the ejector mechanism disclosed when set into operation ejects the article automatically at an increased speed and with a throw-out in excess of its overall movement either way.

Obviously the strength and gauge of the ejector springs 46 will be determined or varied according to the weight resting on the ejecting arms or levers.

When the casing or cabinet becomes empty, that is as the last article 15 is discharged, lock or latch levers 55' at depending forward ends 56 will enter openings 57 in strips 38. Said latch levers 55' are pivoted to bracket 33 at 58. Such levers have upwardly extending portions 59 movable in slots 60 in the plate 27 and its shelf 29 being normally depressed by articles 15 thereon and by the bottom wall of spacer 17 when in rear-most position. Such levers are preferably weighted at 61. When the articles 15 no longer rest on portions 59, the portions 56 descend and when they register with openings 57 fall into the latter, thus arresting any attempted discharge until the supply of articles 15 is replenished.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

What I claim as my invention is:

1. In a machine of the class described, an article-discharging mechanism comprising a displaceable part, article-ejector means, said displaceable part and ejector means being constructed and arranged and normally disposed to support an article and intercept discharge of the article, means mounting said ejector means, and means operable to simultaneously displace said part and retract the ejector means to enable an article to move in the path of the ejector means for discharge through subsequent movement of the ejector means.

2. In a machine of the class described, an article-discharging mechanism comprising a displaceable part, article-ejector means, said displaceable part and ejector means being constructed and arranged to normally support an article above the line of discharge, means mounting said ejector means, and means operable through movement of said part to retract the ejector means to enable an article to fall into said line for discharge through subsequent movement of the ejector means.

3. In a machine according to claim 2, said subsequent movement of the ejector means being in the direction opposite to that of retraction.

4. In a machine of the class described, an article-discharging mechanism comprising an article-discharge plate, a raised portion on said plate, ejector means secured to the plate and normally extending beyond said raised portion, a magazine beneath which said raised portion and ejector means are normally disposed to support an article above the line of discharge, means to move said plate to retract the raised portion from alignment with the magazine, means operable through movement of the plate to retract the ejector means from alignment with the magazine so that the article may engage the plate forwardly of the raised portion for ejection by the ejector

means through movement in the opposite direction.

5. In a machine of the class described, an article-discharging mechanism comprising a slidable member having a raised shelf, means mounting the member, a magazine beneath which the shelf is normally disposed, ejector means pivoted to said mounting means, guide means on the slidable member through which the ejector means projects, the free end of the ejector means and shelf normally supporting an article above the line of discharge, and said guide means serving to swing the ejector means through movement of the slidable member to enable the article to move into said line and to then be discharged.

6. A machine according to claim 5 having a delivery chute in the line of discharge, said slidable member extending into and being supported by said chute.

7. A machine according to claim 5 having an outwardly movable guard in said line of discharge, and means on said slidable member outwardly of the guard coacting with the latter in the innermost position of the slidable member to prevent outward movement of said guard.

8. A machine according to claim 5 having a delivery chute in the line of discharge, said slidable member extending into and being supported by said chute, means forming a depending guard in said line adjacent the rear of the chute so that an ejected article will be supported by the chute forwardly of the guard, and guard members on the slidable member adjacent opposite ends of the latter outwardly of the guard and extending upwardly to coact with the guard in the innermost position of the slidable member to prevent tampering with said guard.

9. In a machine of the class described, a movable article-discharging part, article-ejector means, means movably mounting the latter, said article-ejector means being interconnected with said part and having a greater movement than said part to effect article throw-out, and means to impart said movement to the article-ejector means through the movement of the discharging part.

10. A machine of the class described having an article supporting and discharging slide, and means movable interconnected with the slide operable through movement of the slide to impart an ejecting movement relatively to the slide to an article supported on the slide.

11. A machine of the class described having an article supporting and discharging plate, and means operable during and through movement of the plate to advance an article carried by the plate a greater distance relatively to the plate than the extent of movement of the plate to facilitate ejection.

12. A machine of the class described having a discharge means, slidable operating means having a latch device pivoted thereon, a spring urging the latch device to a position to snap into engagement with the discharge means through movement of the operating means in one direction, and a plate fixed relatively to the operating means serving as an abutment and support for the latch device to rock the latter against the tension of its spring to disengage the latch device from the discharge means through limited movement of the operating means in the opposite direction.

13. A machine of the class described having a discharging mechanism including an article-delivery slide, means depending therefrom having

rails, mounting means having wings provided with tracks engaged by said rails, said wings extending laterally and having upwardly extending outer end portions in supporting contact with the slide.

5 14. A machine according to claim 4 wherein said ejector means consists of a pair of arms, offsets on the machine to which the arms are

pivoted, depending means on the plate having rails, mounting means for the rails including laterally extending wings, the outer ends of said wings extending upwardly and inwardly beyond the pivotal connections of the arms to the offsets and being in supporting engagement with the plate. 5.

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