

Aug. 10, 1937.

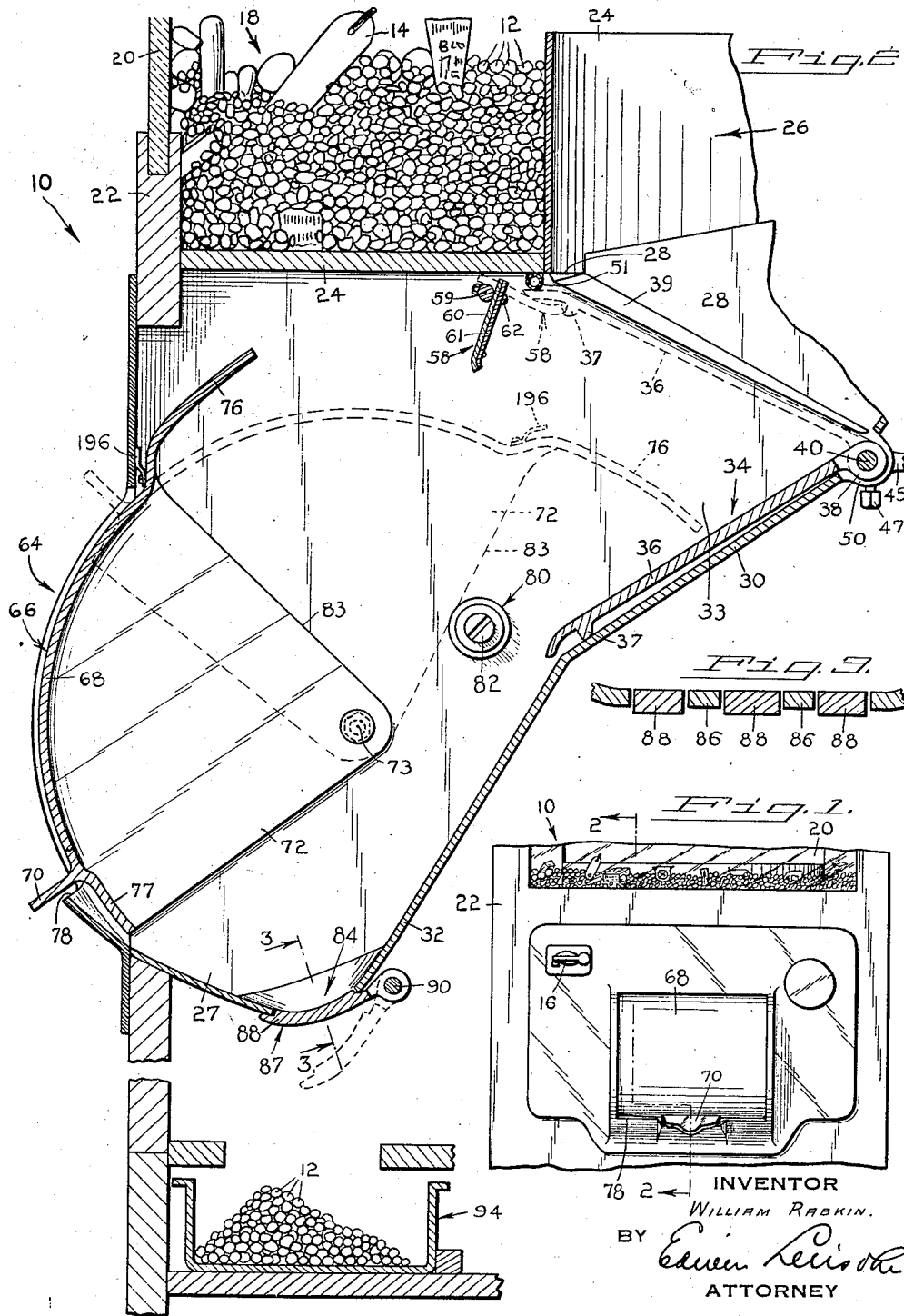
W. RABKIN

2,089,709

DISPENSING CABINET FOR VENDING MACHINES

Filed Dec. 12, 1934

5 Sheets-Sheet 1



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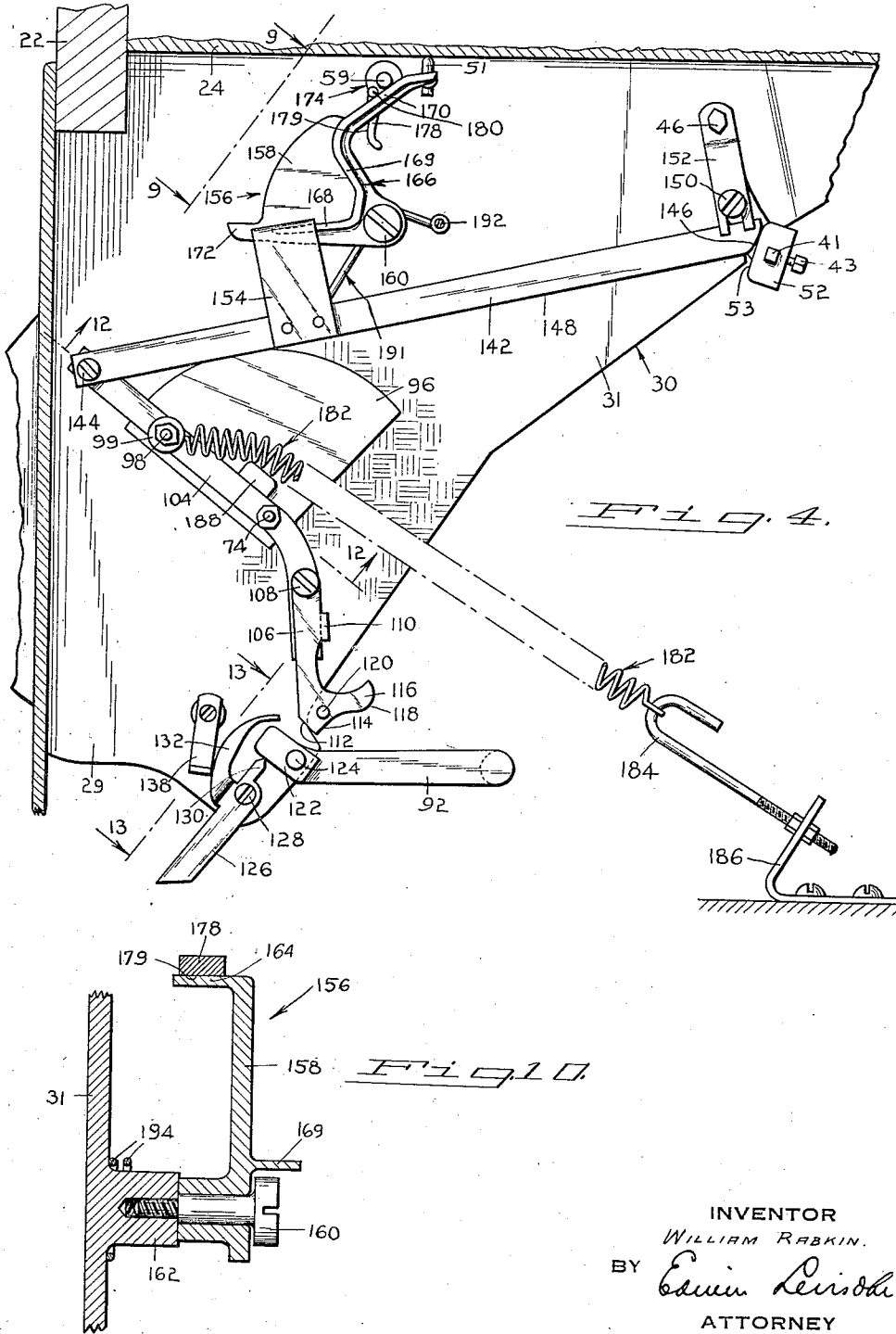
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DISPENSING CABINET FOR VENDING MACHINES

Filed Dec. 12, 1934

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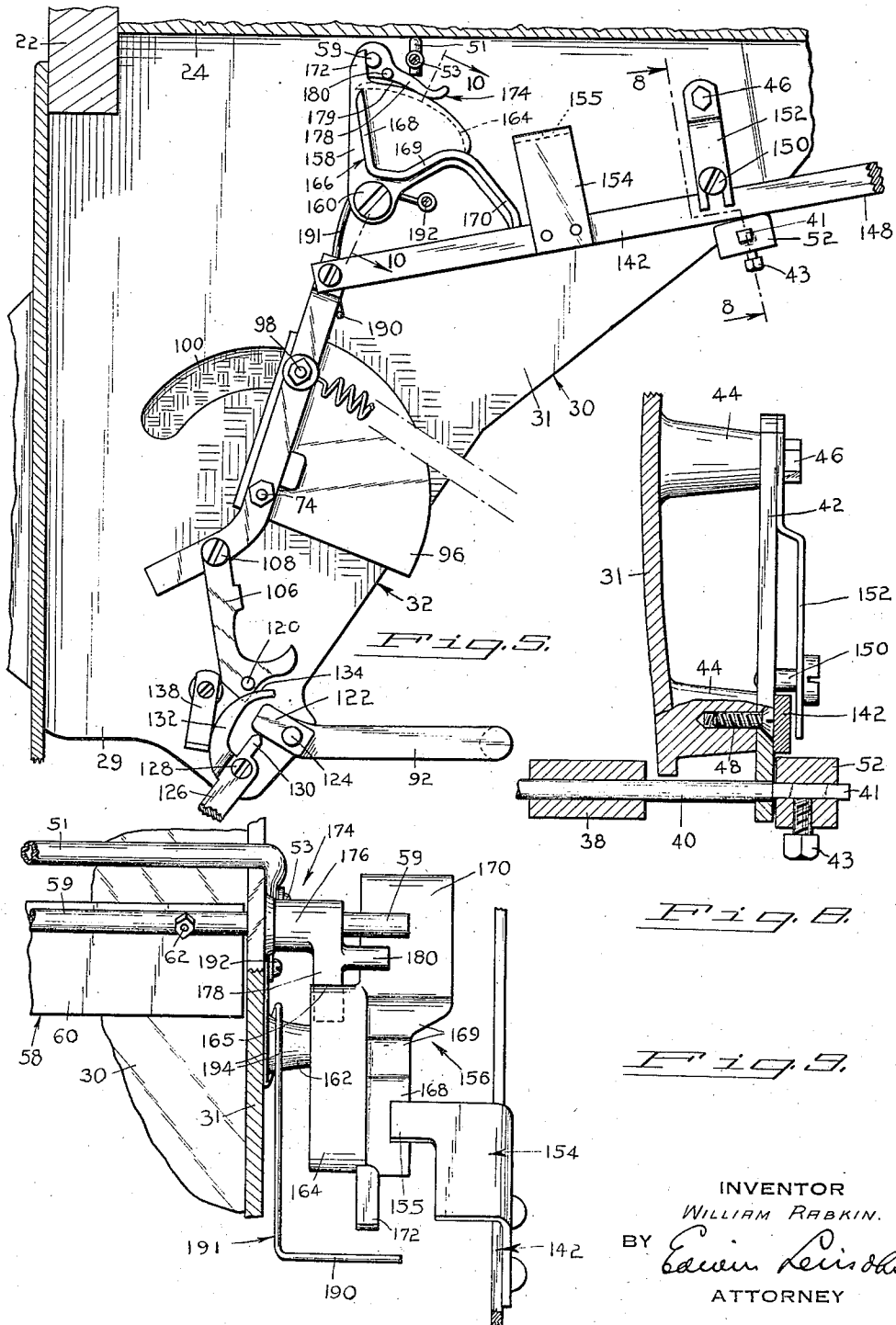
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DISPENSING CABINET FOR VENDING MACHINES

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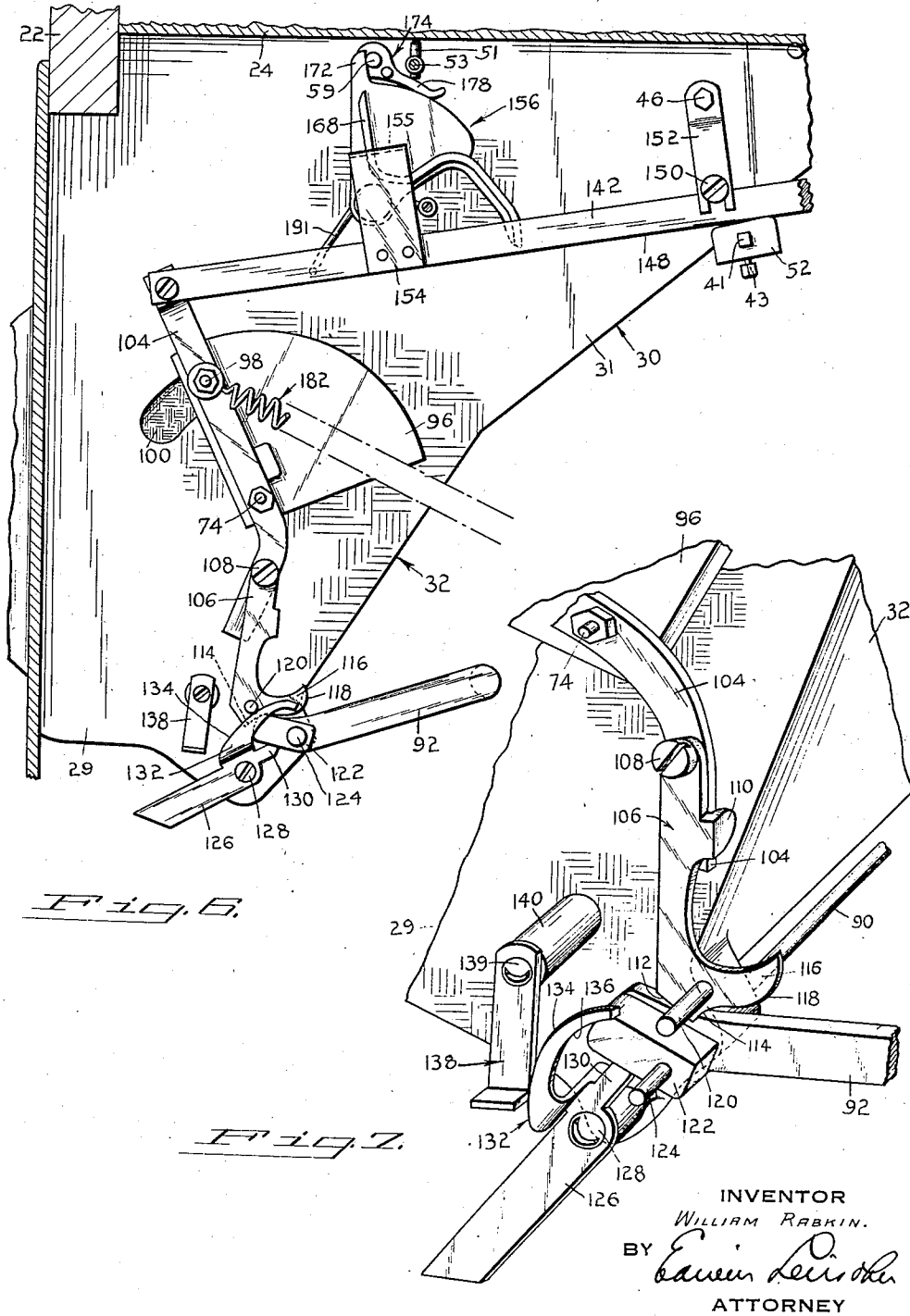
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DISPENSING CABINET FOR VENDING MACHINES

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Fig. 11.

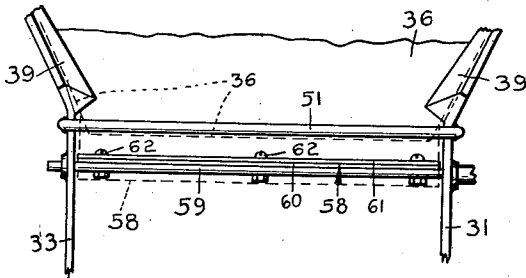


Fig. 14.

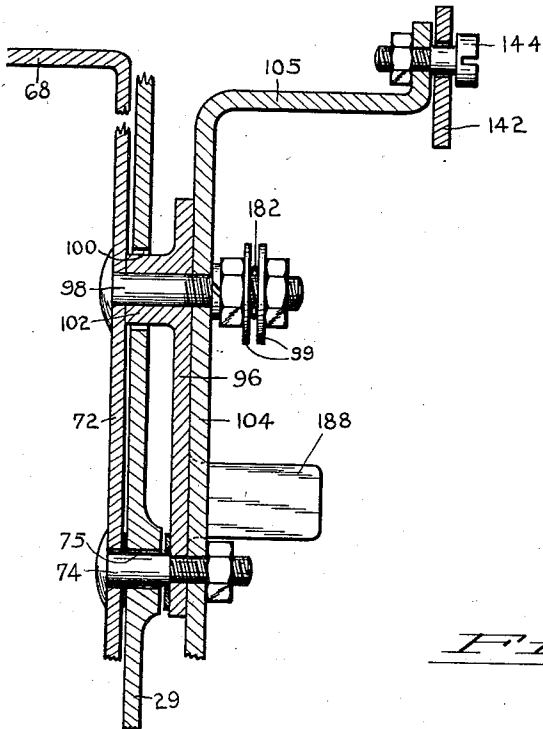
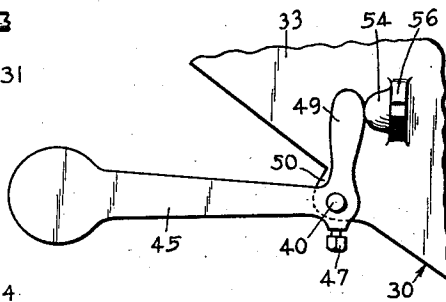


Fig. 18.

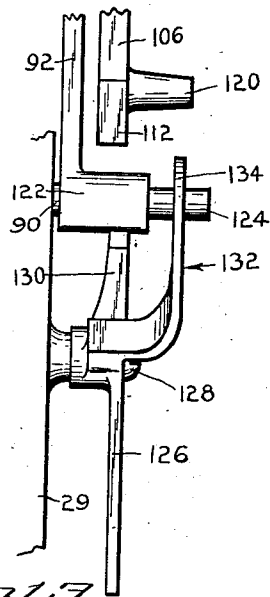


Fig. 17.

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2,089,709

DISPENSING CABINET FOR VENDING MACHINES

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Application December 12, 1934, Serial No. 757,085

32 Claims. (Cl. 312—35)

The present invention relates to dispensing cabinets for vending machines and more particularly to closures and closure controllers therefor.

5 One object of the invention is to prevent articles delivered to the discharge trough from being scattered over the floor and to prevent the waste of such articles.

Another object of the invention is to provide 10 the discharge trough of a vending machine with a main outlet and with an auxiliary outlet which will permit relatively small articles to pass there-through, but which is so constructed that larger articles will be retained in the discharge trough, 15 unless removed through the main outlet.

Another object of the invention is to provide a closure for the auxiliary outlet of the discharge trough operable automatically under the control 20 of the closure for the main outlet of the discharge trough.

Another object of the invention is to prevent unauthorized access to the supply chamber of the vending machine.

A further object of the invention is to provide 25 a closure for the supply chamber of the vending machine automatically operable under the control of the closure for the main outlet of the discharge trough, whereby to prevent access to the supply chamber when the closure for the discharge 30 trough is in open position.

The above objects of the invention and other objects ancillary thereto will best be understood from the following description considered in connection with the accompanying drawings.

35 In the drawings:

Fig. 1 is a fragmentary front elevation of a dispensing cabinet embodying the present invention;

40 Fig. 2 is a sectional view on the line 2—2 of Fig. 1, on an enlarged scale;

Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

45 Fig. 4 is a view in elevation of one side of the delivery chute and discharge trough, showing the positions of the operating mechanism when the closures are in the full line positions shown in Fig. 1;

50 Fig. 5 is a similar view showing the positions of the operating mechanisms when the discharge trough main outlet closure and the supply chamber closure are in the dotted line positions shown in Fig. 1;

55 Fig. 6 is a similar view showing the positions of the operating mechanisms when the closure for

the auxiliary outlet of the discharge trough is in open position;

Fig. 7 is a perspective view of the mechanism for operating the auxiliary outlet closure showing the positions of the parts when said outlet 5 is closed;

Fig. 8 is a sectional view on the line 8—8 of Fig. 5;

Fig. 9 is a fragmentary sectional view on the line 9—9 of Fig. 4;

Fig. 10 is a sectional view on the line 10—10 of Fig. 5;

Fig. 11 is a fragmentary top plan view, on a reduced scale, at the supply chamber outlet;

Fig. 12 is a sectional view on the line 12—12 of 15 Fig. 4;

Fig. 13 is a fragmentary end view on the line 13—13 of Fig. 4; and

Fig. 14 is a fragmentary side view of the delivery chute. 20

Referring to the drawings in detail, the vending machine 10 is here shown as of the bulk dispensing type in which a variable mass of articles, such as small pieces of candy 12, or larger articles, such as a pocket knife 14, may be dispensed 25 upon the insertion of a coin in the coin slot 16. In certain machines of this type, in dispensing the articles, a travelling crane and grappling mechanism are utilized for separating one or more articles from the bulk supply and for dropping 30 said articles through an outlet opening of the supply chamber in communication with an inclined delivery chute which leads to a discharge trough from which the articles may be removed. As the travelling crane and grapple mechanism are well known and are not per se part of the present invention they have not been illustrated, reference being here made, however, to my co-pending application Serial No. 642,814 filed November 15, 1932 which discloses the travelling crane and 40 grapple mechanisms which I prefer to use with the present vending machine. It will be understood however, that the present invention may be applied to other types of vending machines.

The vending machine 10 comprises a supply 45 chamber 18 having one or more windows including a window 20 in the front wall 22 of the machine cabinet. The articles in the supply chamber are supported on a platform 24 between the front and side walls of the cabinet and a curved rear wall 24, the upper edge of which 50 terminates, as in the usual construction, a substantial distance below the top of the supply chamber defining a vertical passage 26 which terminates in an outlet opening 28 for the sup- 55

ply chamber, in communication with an inclined delivery chute 30 by which articles from the supply chamber may be delivered to a discharge trough 32. A closure 34 shown here as a metal plate 36 is pivotally mounted on the delivery chute 30 for movement from the open position to the closed position, shown in full and dotted lines, respectively, in Fig. 2. For this purpose, the plate 36 is provided with apertured ears 38 fixed on a rod 40. One end of said rod is pivotally mounted in the lower end of a strap 42 (Fig. 8) secured to lugs 44, which are integral with a side wall 31 of the delivery chute 30, by a bolt 46 and by a screw 48. The other end of the rod 40 is pivotally mounted in a lug 50 (Fig. 14) integral with the other side wall 33 of the delivery chute 30. The rod 40 is secured against axial displacement by a cam block 52 mounted on a reduced square portion 41 of the rod 40 by a set screw 43 at one end of the rod and by a counterweight lever 45 secured to the other end of the rod by a set screw 47. The cam block 52 has an additional and a more important function as later described. The counterweight lever has an arm 49 which engages a resilient stop member 54 attached to a lug 56 integral with the side wall 33. The relation between the closure plate 36 and the counterweight lever 45 is such that the weight of the former overbalances the weight of the latter, whereby the closure plate is biased to open position and when in open position, as shown in Fig. 2, the counterweight arm 49 engages the stop 54, as shown in Fig. 14.

A closure flap 58, which also constitutes part of a locking device for the closure plate 36, as will be described subsequently, is pivotally mounted on the delivery chute 30 for movement from the closure releasing position to the closure locking or retaining position, shown in full and dotted lines, respectively, in Fig. 2. For this purpose, the closure flap 58 is rigidly secured to a rod 59 pivotally mounted at the ends thereof in the side walls 31 and 33 of the delivery chute 30 (Fig. 11). As shown more clearly in Figs. 2 and 11, the closure flap 58 comprises a metal plate 60 and a covering layer 61 of relatively soft material, such as rubber or leather, secured together and to the rod 59 in any suitable way as by bolts 62. When the closure plate 36 and the closure flap 58 are in closed position, they are disposed in overlapping relation with the free end of the flap 58 positioned close to a rib 37 extending transversely of the plate 36 whereby to prevent the insertion of a wire or other device or tool between the plate 36 and closure flap 58. Inwardly directed flanges 39 integral with the side walls of the delivery chute 30 overlie the plate 36 when the latter is in closed position whereby to prevent access to the supply chamber by way of the outlet opening 28 and passage 26 between the side edges of the plate and the side walls of the delivery chute. When the closure plate 36 is moved to closed position in the manner hereinafter described, its free end engages a resilient strip 51, here shown as a rubber tube of small diameter, positioned adjacent the opening 28 and secured at its ends by screws 53 to the side walls of the delivery chute 30. This strip prevents immediate direct contact of the plate 36 with the flanges 39 and thus substantially eliminates noise that would otherwise occur if the plate 36 were permitted to contact directly with the flanges 39.

The discharge trough 32 has a main outlet 64 provided with a closure 66. Said closure com-

prises a front curved wall 68, provided with a lifting lug or handle 70, and sector shaped side walls 72 pivotally mounted on the side walls 27 and 29 of the discharge trough 32 by means of bolts 73 and 74. The bolts 73 and 74 are rotatably engaged by the companion side walls 72, and the bolt 74 extends through an opening 75 in the side wall 29. It will be noticed that the front wall 68 of the closure has an integral extension 76 projecting beyond the side walls 72 and that the portion 77 of the front wall, below the handle 70, extends a substantial distance below the bottom edge 78 of the discharge trough outlet 64. Thus, when the outlet closure 66 is in open position, as shown in dotted lines, the extension 76 forms a barrier to prevent access to the supply chamber outlet closure 34 and to the closure flap 58. A resilient stop member 89 is secured to the side wall 27 of the discharge trough by a screw 82 and is disposed in the path of the adjacent edge 83 of one of the plates 72 in position to limit the opening movement of the discharge trough outlet closure.

As shown in Fig. 2, the discharge trough 32 is provided with an auxiliary outlet 84 in the bottom portion of the trough disposed within the cabinet of the machine. Said opening 84 is spanned by a plurality of spaced plates 86 (Fig. 3) integral with the bottom wall of the discharge trough, thus providing a plurality of relatively small openings through which the smaller articles such as the pieces of candy can pass, but which will prevent the passage of the larger articles. The auxiliary outlet 84 is normally closed by a closure 87, constituted by a plurality of spaced plates 88 (Fig. 3) fixed to a rod 90 which is pivotally mounted in the side walls 27 and 29 of the discharge trough 32. Said plates 88 are biased to closing position by a weighted lever 92 (Fig. 4) fixed at one end of the rod 90. A receptacle 94 is positioned within the cabinet below the auxiliary outlet 84 for collecting the articles which pass through said outlet.

The auxiliary outlet closure may be arranged to open when the weight of accumulated articles is sufficient to overcome the effect of weighted lever 92 but preferably said closure is operated automatically under the control of the main outlet closure of the discharge trough. The mechanism provided for this purpose, comprises a sector shaped plate 96 secured in fixed relation to a side wall 72 of the main outlet closure 66 by the bolts 74 and 98 (Figs. 4 and 12), whereby said plate 96 moves in unison with said outlet closure 66 about the pivot provided by the bolts 73 and 74. To permit this movement, the said wall 29 is provided with an arcuate slot 100 (Figs. 5 and 6) through which there extends a lug 102 (Fig. 12) integral with the plate 96 and provided with an opening through which the bolt 98 is projected. A bracket 104 is secured to the plate 96 in fixed relation thereto by the bolts 74 and 98. An operating member 106 is mounted at its upper end on the bracket 104 for free pivotal movement on the shank of a screw 108 secured to the bracket 104. Said member 106 is free to move in one direction but is restrained from movement in the opposite direction by a stop 110 which engages an edge of the bracket 104, as shown more clearly in Fig. 7. The lower end of the operating member 106 is provided with converging edges 112 and 114 and with a laterally projecting cam portion 116, having a lower curved cam edge 118 which merges with the edge 114. A pin 120 integral with the operating member 106 projects

laterally from the lower end thereof. A cam block 122 here shown as integral with the counterweight 92, is fixed to the rod 90 of the closure 87, an end portion 124 of said rod projecting beyond cam block 122 and constituting a pin which projects laterally beyond said cam block. A lever 126 is pivotally mounted on the shank of a screw 128 secured to the side wall 29 of the discharge trough. This lever includes a portion 130 arranged to engage the lower side of the cam block 122 and an upwardly and laterally disposed portion 132, having a curved upper edge 134 adapted to be engaged by the pin 120 on the operating member 106, and a curved lower edge 136 adapted to engage the pin 124. A stop member 138 is arranged in the path of the lever portion 132 and thereby limits the movement of the lever 126 in a counterclockwise direction, the pin 124 limiting the movement of the lever in the opposite direction. As here shown, the stop member is secured by a screw 139 to a lug 140 which is integral with the side wall 29 and projects laterally therefrom.

The operation of the auxiliary outlet closure automatically under the control of the main outlet closure of the discharge trough takes place in the following manner: After the main outlet closure has been raised and at the start of its return movement to closed position, the cam edges 114 and 118 of the operating member 106 engage the upper left corner edge portion of the cam block 122, as shown more clearly in Fig. 6, and by the lever action of said cam block on the closure rod 90 move said rod against the action of the counterweight 92, whereby to move the closure member 87 to open position. As the closing movement of the main outlet closure continues, the lower edge of the operating member 106 slides over the upper surface of the cam block 122 out of engagement therewith, as shown in Figs. 4 and 5, whereby the counterweight 92 is free to move the closure 87 to closed position. When the operating member 106 is out of engagement with the cam block 122, the lower side thereof is engaged by the portion 130 of the lever 126 whereby the closure 87 is locked against opening. This lock, however, is released during the engagement of the operating member 106 with the cam block 122 when the latter is actuated to move closure 87 to open position. This is accomplished by the engagement of the pin 120 with the curved surface 134 of the lever 132 just prior to and during the time the operating member 106 is in effective engagement with the cam block 122. Thus, the pin 120 engages the curved edge 134 just before the edge 114 engages the cam block 122 and thereby releases the latter from its locking engagement with the lever 126, and after the operating member 106 has moved out of engagement with the cam block, as shown in Figs. 4 and 5, the portion 132 of the locking lever 126 is released by the pin 120 and the lever is thereupon effective to engage the cam block 122 in order to lock the closure 87 in position.

Thus, when the machine has been operated to dispense articles and to deliver them to the discharge trough and the operator has not removed them from the trough the smaller articles such as the pieces of candy will pass through the auxiliary outlet 87 while the larger articles will be retained in the trough. Therefore, such articles which, if permitted to accumulate in the discharge trough, might be scattered over the floor during the repeated operation of the machine, are automatically removed from the discharge

trough and the scattering thereof is prevented. It will be observed that when the main outlet closure 66 is in closed position and during the opening movement thereof, the operating member 106 is ineffective to operate the auxiliary closure 87. It will be noticed also that the operating member 106 becomes disengaged from the cam block 122 just prior to the complete closing of the main closure 66. As the member 106, moving in the same direction, is effective first to engage and then to release the cam block 22, which may thereupon move independently of the member 106, said operating member 106 thus constitutes a trip-free lever and the cam block 122 in combination with the member 106 constitute a trip-free operating mechanism for the closure 87. It will be understood, of course, that when the closure 87 is designed to operate due to the weight of the articles permitted to accumulate in the trough, the locking lever 126 and the operating mechanism including the member 106 and cam block 122 may be eliminated but, as hereinbefore indicated, this mechanism is preferred as the positive actuation of the closure is considered desirable.

The closure 34 for the outlet of the supply chamber is also operated automatically under the control of the closure for the main outlet of the discharge trough. The mechanism provided for this purpose, comprises a rod 142 pivoted at one end to an upper lateral extension 105 of the bracket 104 by a bolt 144. The other end of the rod 142 has an inclined edge 146 in position to engage one side 53 of the cam block 52 so that as the plate 96 is turned in a clockwise direction, the cam block is engaged by said inclined edge 146, as shown in Fig. 4 and is thereby turned in a clockwise direction, and is subsequently engaged by the lower edge 148 of the rod 142, as shown in Figs. 5 and 6. The rod 142 is restrained against upward movement during this operative engagement with the cam block by an abutment provided by the shank of a screw 150 secured to the strap 42. Lateral movement of the rod 142 at the end thereof, which engages the cam block 52, is prevented by the strap 152 secured in fixed position by the bolt 46.

The movement of the rod 142 is also effective to operate the closure flap 58 and for this purpose the rod 142 is provided with a cam-actuator plate 154 riveted thereto in position to engage certain portions of a pivoted cam member 156, as will more fully hereinafter be described. The cam 156 comprises a sector plate 158 pivoted at its lower end on the shank of the screw 160 fixed to a post 162 projecting laterally from the upper part of the side wall 31 of the delivery chute 30. The cam 156 comprises an inwardly directed arcuate flange 164 located at the upper end of the sector plate 158 and a V-shaped flange 166, having downwardly converging sides 168 and 169, the side 169 merging with a wider flange extension 170. The cam 156 is also provided with a projecting stop member 172 which is arranged to engage the rod 59 to limit the movement of the cam in one direction, as shown in Figs. 5 and 6, the movement of the cam in the opposite direction being limited by the engagement of the extension 170 with the rod 59, as shown in Fig. 4. The rod 59 is actuated by the cam 156 by the engagement of the latter with the cam actuated member 174, illustrated more clearly in Figs. 5, 9, and 10. The cam actuated member 174 comprises a sleeve 176 fixed to the shaft 59, a projecting finger 178 having a lower surface

179 which is somewhat arcuate for engagement with the arcuate surface of the inturned flange 164 of the cam member 156. A pin 180 integral with the finger 178 projects from the latter in position to be engaged by the extension 170 on the cam 156.

The operation of the closure for the outlet opening of the supply chamber by the above described mechanism takes place automatically under the control of the closure 66 for the main outlet of the discharge trough in the following manner: As soon as the opening movement of the closure 66 is started, the inclined edge 146 engages the cam block 52 and operates to rotate the rod 40 a sufficient amount to move the plate 36 to closed position, the arrangement of the parts being such that the plate 36 is moved to closed position by a relatively small opening movement of the closure 66 and, in fact, before the portion 77 of the closure 66 has passed beyond the edge 78 of the main outlet opening of the discharge trough. At about the time the plate 36 is moved to closed position, the cam actuator 154 engages the flange 163 and thereby rotates the cam 156 in a clockwise direction from the position shown in Fig. 4 to the positions shown in Figs. 5 and 6. In moving from the position shown in Fig. 4 to the position shown in Figs. 5 and 6, the finger 178 of the cam actuated member 174 is first engaged by the adjacent edge 165 of the arcuate cam portion 164 whereby to rotate the rod 59 in a counter-clockwise direction thereby moving the closure flap 58 in the same direction from the position shown in full lines to the position shown in dotted lines in Fig. 2. During this movement of the cam actuated member 174, the finger 178 is raised into engagement with the arcuate surface of the cam portion 164 and the rod 59 is thereby held against turning movement in a counter-clockwise direction. When the finger 178 is in engagement with the arcuate surface of the cam 164 in the position shown in Fig. 5, which represents the fully closed position of the closure for the outlet opening of the supply chamber, the cam actuated member 174 cannot be released from the cam 156 because the finger 178 remains in engagement with the arcuate portion 164 by reason of the fact that a movement of the cam 156 in a counter-clockwise direction sufficient to free the finger 178 is prevented by engagement of the cam extension 170 with the inturned portion 155 of the cam actuator plate 154. When the closure 66 is lowered or moved to outlet closing position, the cam actuator plate 154 engages the flange 163 thereby moving the cam 156 in a counter-clockwise direction to free the finger 178 from engagement with the arcuate portion 164 and to permit the cam extension 170 to engage the pin 180 of the cam actuated member 174 thereby rotating the rod 59 in a clockwise direction and moving the closure flap 58 from the position shown in dotted lines to the position shown in full lines in Fig. 2.

The opening movement of the discharge trough closure is assisted by a tension spring 182 held at one end by a hook 184 adjustably secured to a bracket 186 fixed to a part of the machine cabinet, the other end of the spring being secured to the bolt 98 between washers 99 provided for this purpose, as shown more clearly in Fig. 12. Near the end of the closing movement of the closure 66 the spring 182 engages an abutment 188 integral with the sector plate 95 thereby offering increased resistance to the closing

movement of the closure 66 to prevent a too rapid movement thereof to closed position. Near the end of the opening movement of the closure 66, the bracket 104 engages a laterally projected portion 190 of a spring wire 191 secured at one end to the side wall 31 by a screw 192 and provided with an intermediate coiled portion 194 wound around the lug 162. Thus, while the opening movement of the closure 66 is assisted by the spring 182 which is provided principally for overcoming the force of the weight of the parts, a too rapid movement of the closure to open position is prevented by the spring 190. One or more springs 196 secured to the wall 68 of the closure 66 serves to cushion the impact of said closure against the cabinet wall when the closure is moved to closed position.

From the foregoing description it is apparent that the present construction is well adapted to accomplish the several objects of the invention. It will be understood, however, that certain changes in the construction and arrangement of parts may be made and certain parts may be used without others. Therefore, I do not wish to be limited to the precise construction shown except as may be required by the appended claims and the prior art.

What I now claim and desire to secure by Letters Patent is:

1. In a dispensing cabinet, a discharge trough comprising a single compartment having an inlet, a side outlet and a bottom outlet, a movable closure for each of said outlets, and means for operating said closures, said means being inoperative to open said bottom outlet during the movement of said side outlet closure from closed to open position and operative to open said bottom outlet during movement of said side outlet closure to closed position.

2. In a dispensing cabinet, a supply chamber therein, a discharge trough in communication with said supply chamber having an inlet, a main outlet and an auxiliary outlet, a closure for said main outlet movable between open and closed positions, a closure for said auxiliary outlet movable between open and closed positions, and means under the control of said main outlet closure for operating said auxiliary outlet closure first to open and then to close said auxiliary outlet during a single movement of said main outlet closure from open position to closed position.

3. In a dispensing cabinet, a supply chamber therein, a discharge trough in communication with said supply chamber having an inlet, a main outlet and an auxiliary outlet, a closure for said main outlet movable between open and closed positions, a closure for said auxiliary outlet movable between open and closed positions, means for releasably locking said auxiliary outlet closure in closed position, and means under the control of said main outlet closure for releasing said locking means.

4. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a closure therefor movable from closed to open position, a closure for said supply chamber outlet movable from open to closed position under the control of said trough outlet closure, and a movable member adapted to overlap said supply chamber closure when the latter is in closed position.

5. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery

chute leading from said outlet to said trough, said trough having an outlet, a pivotally mounted closure for said trough outlet, a pivotally mounted closure for said chamber outlet, a movable member adapted to overlap said supply chamber closure when the latter is in closed position, and means under the control of said trough outlet closure for operating said chamber outlet closure and for moving said movable member into said overlapping relation.

6. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a closure therefor movable from closed to open position, and a closure for said supply chamber outlet movable from open to closed position under the control of said trough outlet closure, and a releasable locking mechanism for said chamber outlet closure also operable under the control of said trough outlet closure.

7. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet, a pivotally mounted closure for said trough outlet, a pivotally mounted closure for said chamber outlet, means under the control of said trough-outlet closure for operating said chamber outlet closure, and a releasable locking mechanism for said chamber outlet closure operable under the control of said trough outlet closure.

8. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said discharge trough, said discharge trough having a main outlet and an auxiliary outlet, a movable closure for each of said outlets, and means operable under the control of said trough main outlet closure first to close said supply chamber outlet closure before the trough main outlet closure is fully opened and then to open said trough auxiliary outlet closure.

9. In a dispensing cabinet, a supply chamber having an outlet and a movable closure therefor, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a movable closure therefor, a cam device for operating said chamber outlet closure, a locking mechanism for said chamber outlet closure including a cam device, and means operable under the control of said trough outlet closure for first actuating said first mentioned cam device and then actuating said second mentioned cam device.

10. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said discharge trough, said discharge trough having a main outlet and an auxiliary outlet, a movable closure for each of said outlets, means operable under the control of the main outlet closure of said trough for operating the closure of said chamber outlet, and a trip-free mechanism operable under the control of the main outlet closure of said trough for operating the closure for said auxiliary outlet whereby the closure for the chamber outlet can be opened without opening the closure for the auxiliary outlet of said discharge trough.

11. In a dispensing cabinet, a supply chamber having an outlet and a movable closure therefor, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a movable closure therefor, a cam device for operating said chamber outlet closure,

and means operable under the control of said trough outlet closure for actuating said cam device comprising a rod pivotally connected at one end to said trough outlet closure and slidably engaging said cam at its other end.

12. In a dispensing cabinet, a supply chamber having an outlet and a movable closure therefor, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a movable closure therefor, a cam device for operating said chamber outlet closure, and means operable under the control of said trough outlet closure for actuating said cam device comprising a rod pivotally connected at one end to said trough closure and terminating at its opposite end in an inclined edge in releasable engagement with said cam.

13. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet, a pivotally mounted closure for said trough outlet, a pivotally mounted closure for said chamber outlet, a cam device for operating said chamber outlet closure, and means under the control of said trough outlet closure for operating said chamber outlet closure, comprising a rod pivotally connected at one end to said trough outlet closure and slidably engaging said cam at its other end.

14. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet, a pivotally mounted closure for said trough outlet, a pivotally mounted closure for said chamber outlet, a cam device for operating said chamber outlet closure, and means under the control of said trough outlet closure for operating said chamber outlet closure, comprising a rod pivotally connected at one end to said trough closure and terminating at its opposite end in an inclined edge in releasable engagement with said cam.

15. In a dispensing cabinet, a supply chamber having an outlet and a movable closure therefor, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a movable closure therefor, a cam device for operating said chamber outlet closure, and means operable under the control of said trough outlet closure for actuating said cam device, comprising a rod having one of its ends pivotally connected to said outlet closure and its other end disposed for movement first to engage said cam to move said chamber closure to closed position and then to ride over and beyond said cam without further movement of the latter.

16. In a dispensing cabinet, a supply chamber having an outlet and a movable closure therefor, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a movable closure therefor, a cam device for operating said chamber outlet closure, and means operable under the control of said trough outlet closure for actuating said cam device, comprising a rod having one of its ends pivotally connected to said outlet closure and its other end disposed for movement first to engage said cam to move said chamber closure to closed position and then to ride over and beyond said cam without further movement of the latter, and means to guide said rod in its movement with respect to said cam.

17. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough,

said trough having an outlet and a closure therefor movable from closed to open position, and a closure for said supply chamber outlet movable from open to closed position under the control of
 5 said trough outlet closure, said supply chamber closure having a free edge portion, and a member movable from a retracted position when said supply chamber is in open position to a position in overlapping relation to said free edge portion
 10 when said supply chamber closure is in closed position.

18. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough,
 15 said trough having an outlet and a closure therefor movable from closed to open position, and a closure for said supply chamber outlet movable from open to closed position under the control of said trough outlet closure, and a pivotally-mounted
 20 member adapted to overlap said supply chamber closure when the latter is in closed position.

19. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough,
 25 said trough having an outlet and a closure therefor movable from closed to open position, and a closure for said supply chamber outlet movable from open to closed position under the control of said trough outlet closure, and a pivotally-mounted
 30 member adapted to overlap said supply chamber closure when the latter is in closed position, and means for moving said supply chamber closure to closed position and said movable member in overlapping relation thereto.

35 20. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a closure therefor movable from closed to open position, and a
 40 closure for said supply chamber outlet movable from open to closed position under the control of said trough outlet closure, and a pivotally-mounted member adapted to overlap said supply chamber closure when the latter is in closed
 45 position, a cam for moving said supply chamber closure to closed position, a cam for operating said pivotally mounted member, and means for actuating said cams.

21. In a dispensing cabinet, a supply chamber
 50 having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet and a closure therefor movable from closed to open position, and a closure for said supply chamber outlet movable
 55 from open to closed position under the control of said trough outlet closure, and a pivotally-mounted member adapted to overlap said supply chamber closure when the latter is in closed position, a cam for moving said supply chamber
 60 closure to closed position, a cam for operating said movable member, and means operable first to actuate said first cam to move said supply chamber closure to closed position and then to actuate said second cam to move said pivotally
 65 mounted member into said overlapping relation.

22. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough having an outlet, a closure for said
 70 trough outlet mounted for movement on a horizontal pivot, a closure for said supply chamber mounted for pivotal movement on an axis extending longitudinally thereof, and means operable under the control of said trough outlet
 75 closure for moving said supply chamber closure

to fully closed position before said trough outlet closure is moved to fully opened position, said last means comprising a cam block connected to said supply chamber closure and a rod disposed transversely of the pivotal axis of the latter
 5 connected at one end to said trough closure and operatively connected at its other end to said cam.

23. In a dispensing cabinet, having an outlet, a closure for said outlet movable between open
 10 and closed positions, means for moving said closure to closed position, and means movable in one direction first to move said closure to open position and then to release said closure for movement thereof to closed position by said
 15 closing means, said opening means comprising two members pivotally connected to each other for relative movement in one direction and having interengaging portions which limit relative movement of said members in the opposite direction.
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24. In a dispensing cabinet, having an outlet, a closure for said outlet movable between open
 25 and closed positions, means for moving said closure to closed position, and means movable in one direction first to open said closure and then to release said closure for movement thereof to closed position by said closing means, said
 30 opening means comprising two members pivotally connected to each other for relative movement in one direction and having interengaging portions which limit relative movement of said members in the opposite direction, one if said
 35 members comprising a cam, and means releasably engaged by said cam connected to said closure.

25. In a dispensing cabinet, having an outlet, a closure for said outlet movable between open
 40 and closed positions, means for moving said closure to closed position, and means movable in one direction first to open said closure and then to release said closure for movement thereof to closed position by said closing means, said
 45 opening means comprising two members pivotally connected to each other for relative movement in one direction and having interengaging portions which limit relative movement of said members in the opposite direction, one of said
 50 members comprising a cam, and a cam block connected to said closure and releasably engaged by said cam.

26. In a dispensing cabinet, having an outlet, a closure for said outlet movable between open
 55 and closed positions, means for moving said closure to closed position, and means movable in one direction first to open said closure and then to release said closure for movement thereof to closed position by said closing means, said opening
 60 means comprising two members pivotally connected to each other for relative movement in one direction and having interengaging portions which limit relative movement of said members in the opposite direction, one of said members comprising a cam, and a cam block
 65 connected to said closure and releasably engaged by said cam, a pivoted locking member adapted to engage said block to releasably lock said closure in closed position, and means on one of said members engageable with said locking member to disengage the latter from said block to permit
 70 opening of said closure.

27. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough comprising a single compartment
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having a main outlet and an auxiliary outlet, a movable closure for each of said outlets, and interlocking means for operating said closures.

28. In a dispensing cabinet, a supply chamber 5
having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough comprising a single compartment having a main outlet and an auxiliary outlet, a movable closure for each of said outlets, and means under 10
the control of said main outlet closure for operating said auxiliary closure to open said auxiliary outlet during the movement of said main outlet closure to closed position.

29. In a dispensing cabinet, a supply chamber 15
having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough comprising a single compartment having a main outlet and an auxiliary outlet, a movable closure for each of said outlets, and 20
means for operating said closures, said means being inoperative to open said auxiliary outlet during the movement of said main outlet closure from closed to open position and operative to open said auxiliary outlet during movement 25
of said main outlet closure from open position to closed position.

30. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough,

said trough having a main outlet and an auxiliary outlet, a closure for said main outlet movable between open and closed positions, a closure for said auxiliary outlet movable between open and closed positions, and means under the control of said main outlet closure for operating said auxiliary outlet closure first to open and then to close said auxiliary outlet during the movement of said main outlet closure from open position to closed position. 5 10

31. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough comprising a single compartment having a main outlet and an auxiliary outlet 15
movable between open and closed positions, and means for releasably locking said auxiliary outlet in closed position.

32. In a dispensing cabinet, a supply chamber having an outlet, a discharge trough, a delivery chute leading from said outlet to said trough, said trough comprising a single compartment having a main outlet and an auxiliary outlet, a movable closure for each of said outlets, and a trip-free mechanism operable under the control 20 25
of the main outlet closure for operating said auxiliary outlet closure.

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