July 10, 1923. 1,461,417

H. GILES

COIN CONTROLLED VENDING MACHINE

Filed March 20, 1920 5 Sheets-Sheet 1

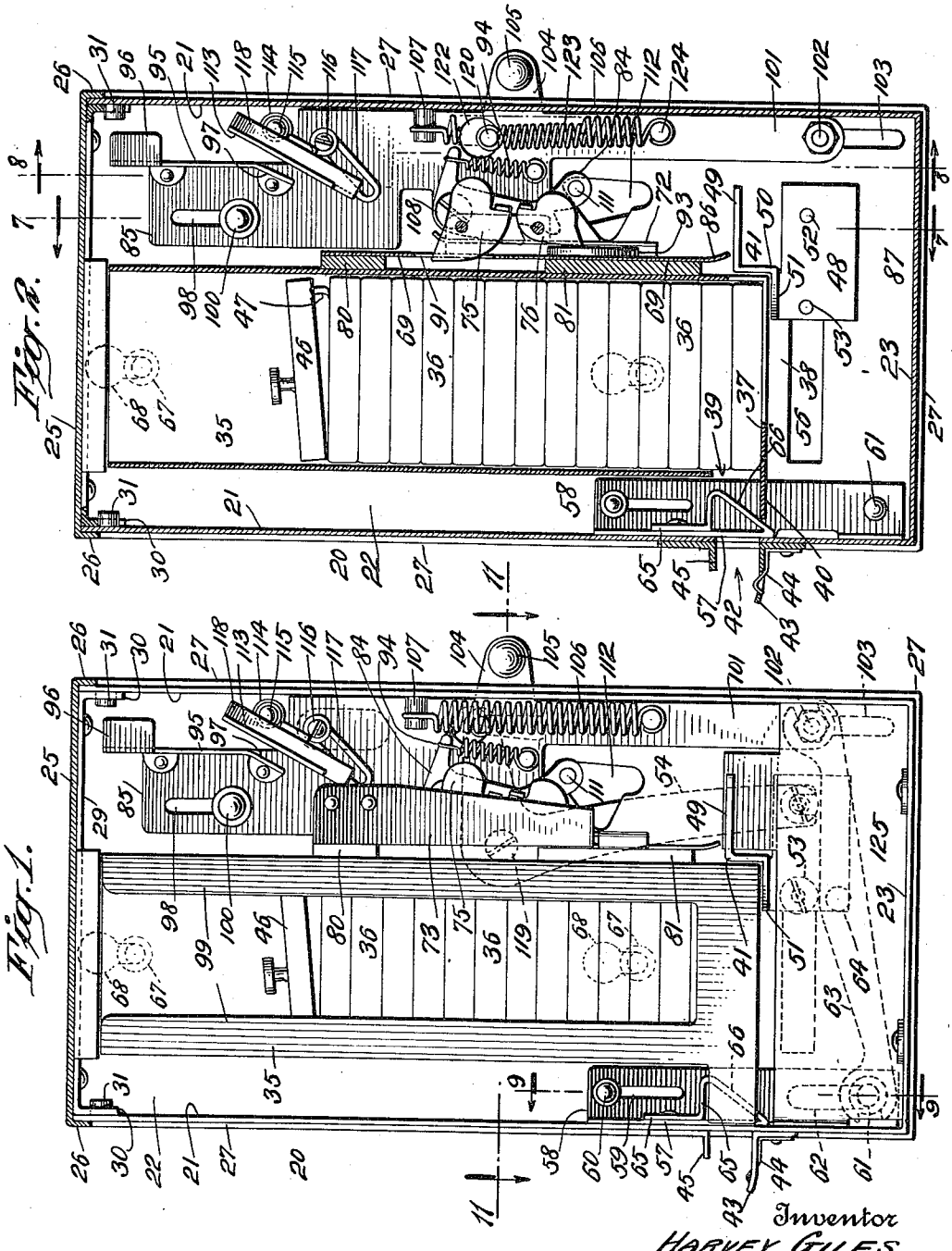


Fig. 2.

Fig. 1.

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Fig. 2.

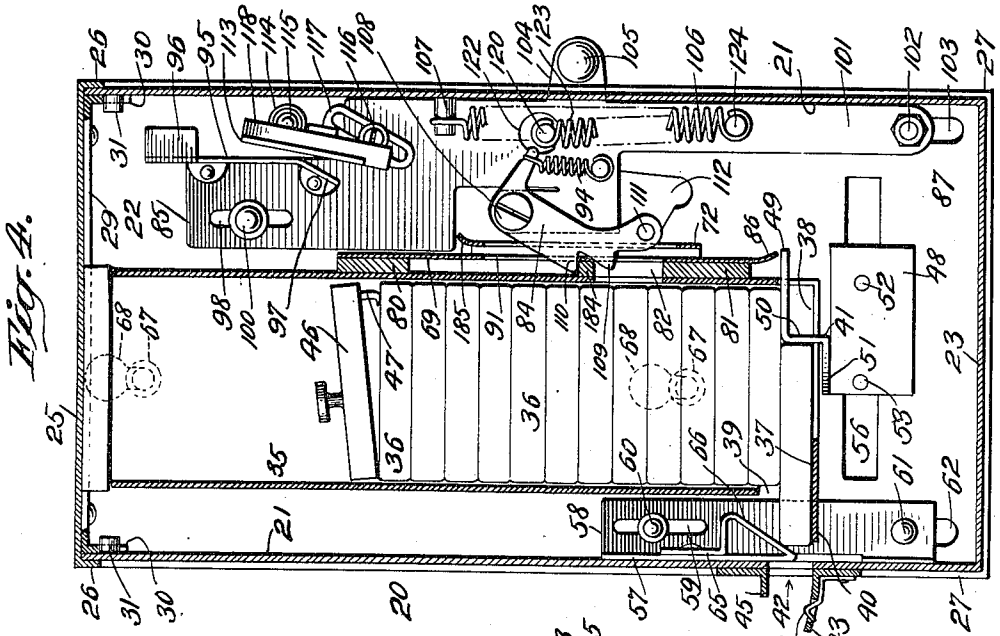
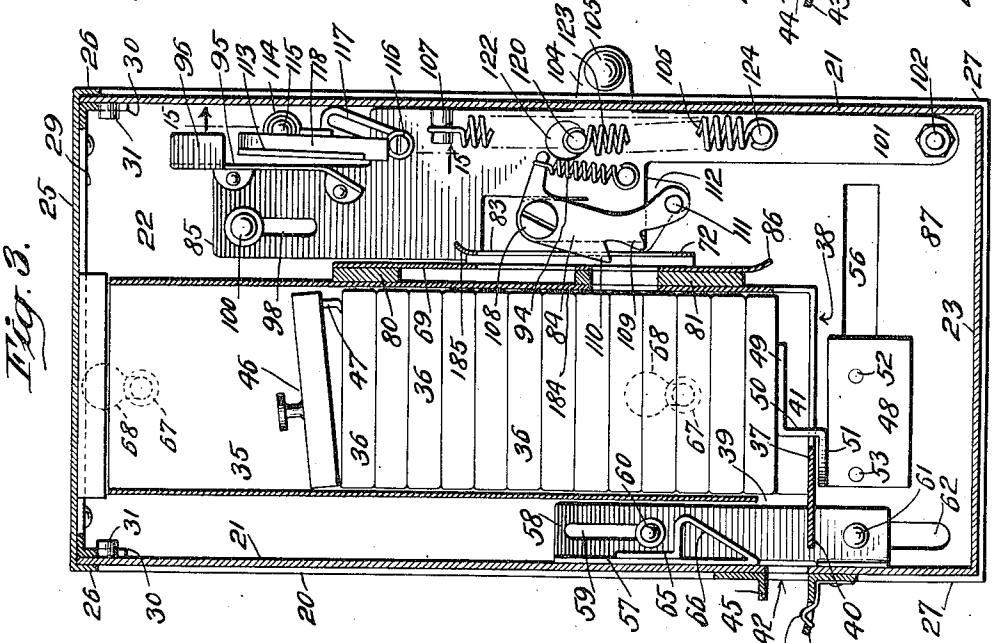


Fig. 3.



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Fig. 6.

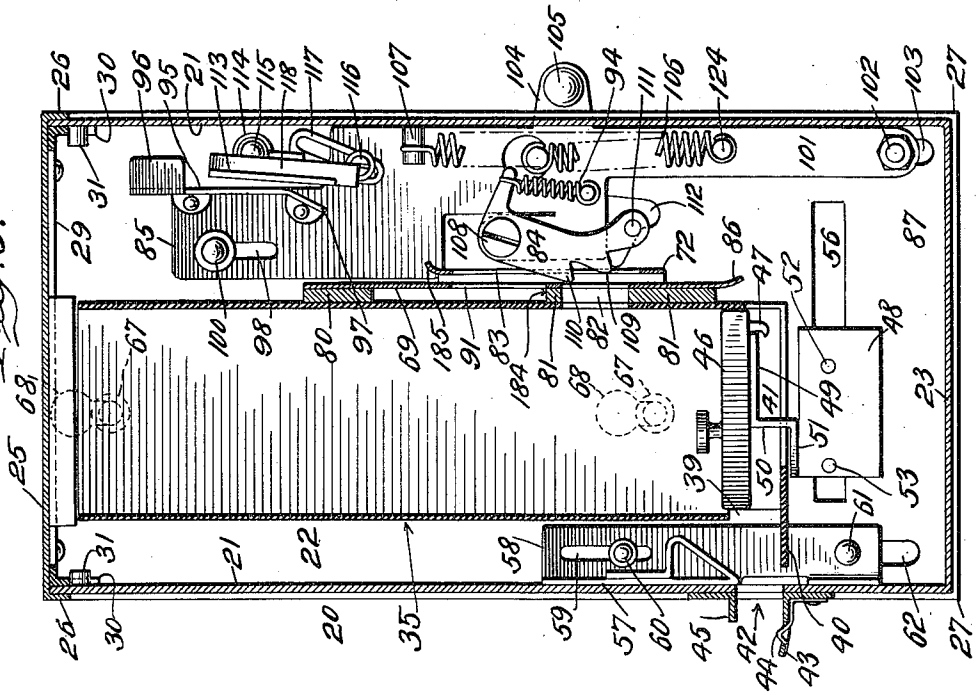
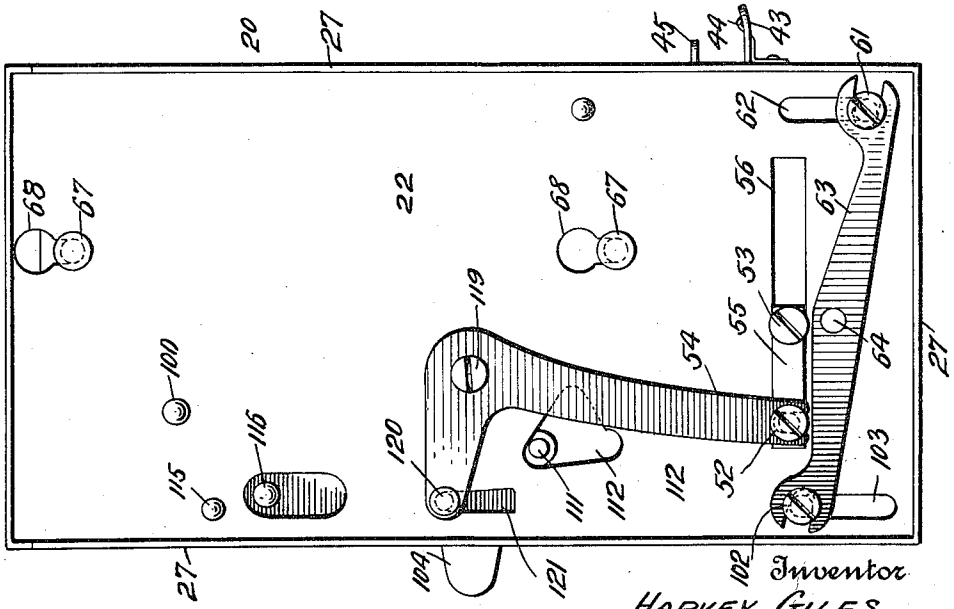


Fig. 5.



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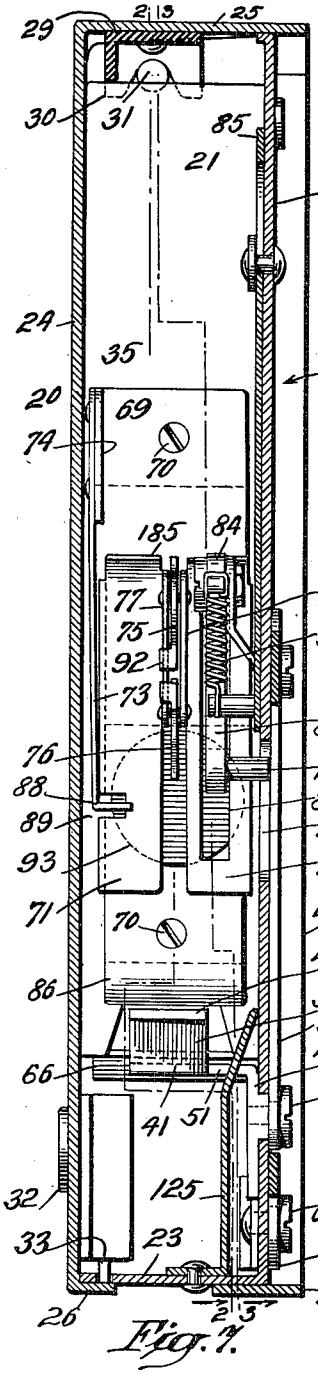


Fig. 7.

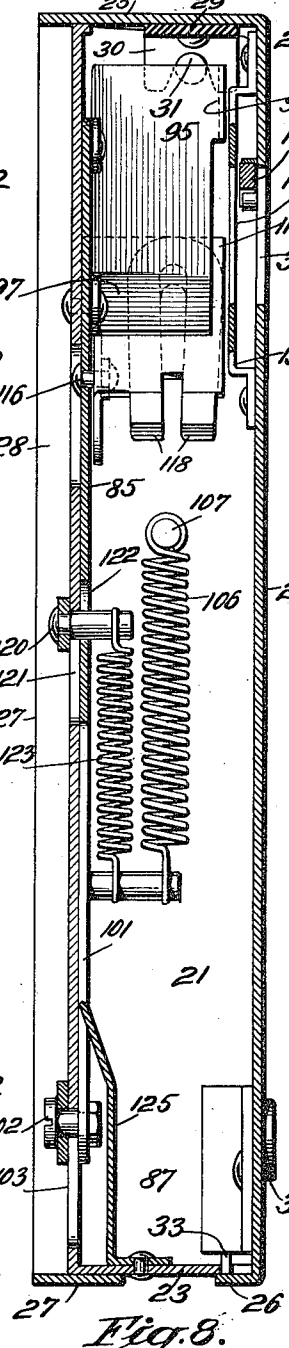


Fig. 8.

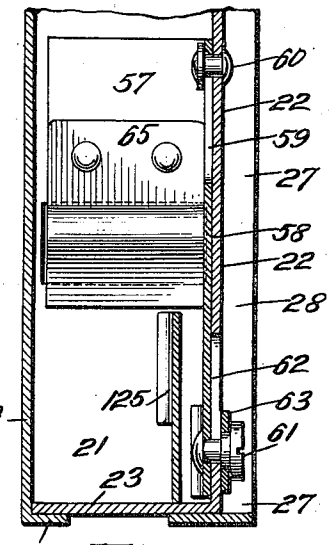


Fig. 9.

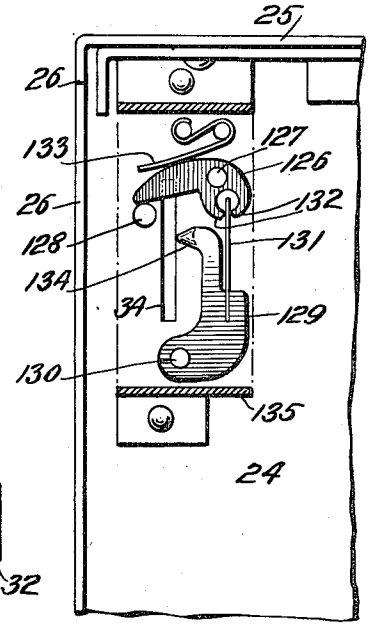


Fig. 10.

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COIN CONTROLLED VENDING MACHINE

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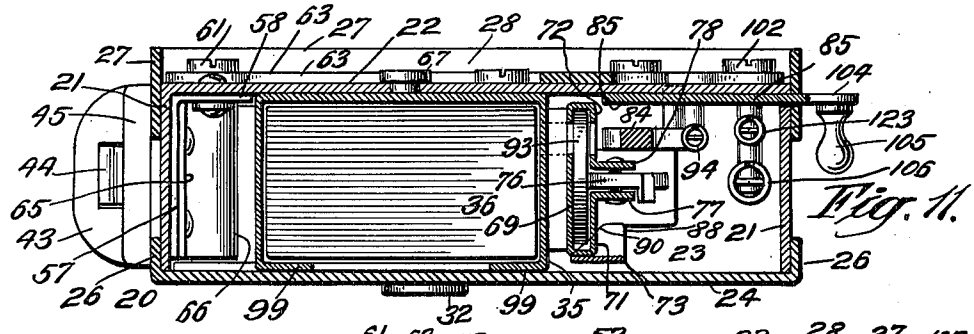


Fig. 11.

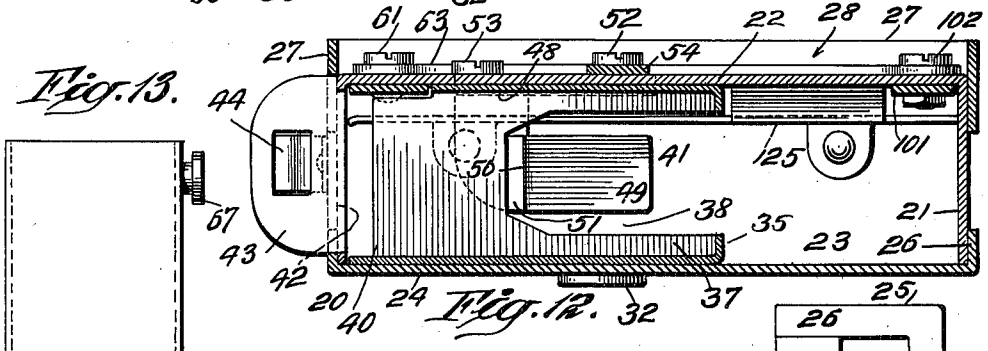


Fig. 13.

Fig. 12.

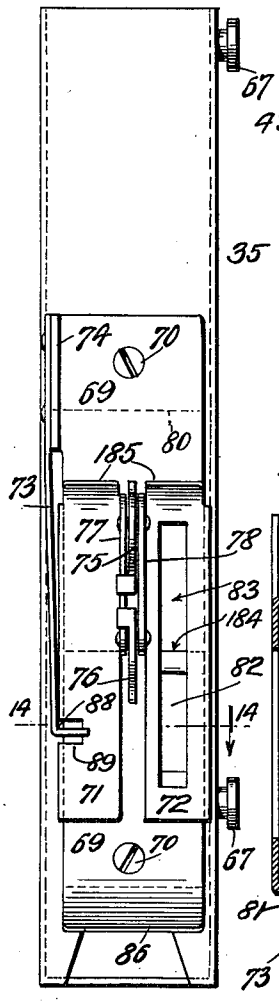


Fig. 14.

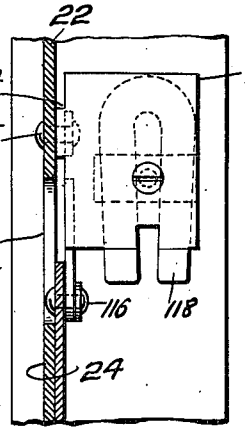


Fig. 15.

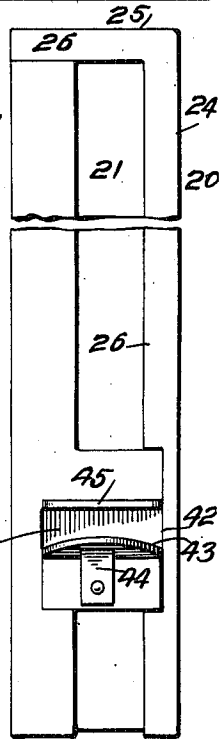


Fig. 16.

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Patented July 10, 1923. 1,461,417

UNITED STATES PATENT OFFICE.

HARVEY GILES, OF BROOKLYN, NEW YORK.

COIN-CONTROLLED VENDING MACHINE.

Application filed March 20, 1920. Serial No. 367,534.

To all whom it may concern:

Be it known that I, HARVEY GILES, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Coin-Controlled Vending Machines, of which the following is a specification.

The invention relates to improvements in coin-controlled vending machines in general and more specifically to improvements in coin-controlled vending machines of small size adapted to rest on a store counter or be secured to the back of a theatre chair, the mechanism of the invention being operable to deliver the articles of merchandise to be sold upon the introduction of a proper coin to the machine and the movement thereafter of an operating handle whose outer end is preferably exposed at one side of the machine while the delivery aperture for the goods sold is located at the opposite side of the machine, the slot for the entrance of coins to the mechanism being preferably located near the upper right hand corner of the face of the machine.

The machine of my invention comprises a suitable casing having a removable front and within which is located a vertical tray for the pieces of chocolate or other merchandise to be sold, a coin-controlled mechanism disposed at one side of said tray and operable from without the machine on the introduction of said mechanism of a proper coin, and a goods ejector located at the bottom of the tray and slidable laterally to eject the lower piece of goods from the tray and causing the same to project through a delivery slot at the left side of the main casing in position to be taken by the purchaser. The mechanism of my invention also provides means whereby the pieces of merchandise in the tray are, at the lower end of the tray, kept in proper position to ensure the correct operation of the machine, and also means whereby, on the sale of the last piece of confection in the tray, the goods-ejector becomes locked against operation.

One purpose of the invention is to provide a small comparatively inexpensive machine whose operative mechanism is such as to correctly carry out the purposes of the machine and the parts of which are of such nature as to be durable, easily assembled and not likely to get out of order under the usual conditions attending the employment of the machine. The details of the mechanical parts of the machine will be fully described hereinafter, and the invention as a whole will be understood from the following specification, reference being had to the accompanying drawings, in which:

Fig. 1 is a front elevation, partly in section, of the machine of my invention, with the front closing plate removed and the section being through a top member carried by said plate and extending over the upper end of the machine, and the mechanism of the machine being shown in normal inoperated position and without a coin being present therein;

Fig. 2 is a vertical transverse section through the machine, taken on the dotted line 2—2 of Fig. 7, with the parts in normal inoperated position, but with a coin indicated as having been introduced to the machine and passed to correct position for the subsequent operation of the mechanism by the exposed operating knob or handle;

Fig. 3 is a corresponding section, taken on the dotted line 3—3 of Fig. 7 and illustrating the mechanism as having been actuated by the depression or downward movement of the exposed operating handle, whereby the bottom piece of the confection in the tray becomes ejected and the coin descends from the position in which it is shown in Fig. 2 into the coin box or bottom chamber of the casing; in Fig. 3 the operating handle is shown as having reached its lower position, without being released to ascend, and the goods-ejector is shown in its final position having ejected a piece of the confection through the delivery slot at the left hand side of the machine and said piece being absent from said slot, having been removed by the purchaser;

Fig. 4 is a sectional view corresponding substantially with Fig. 3 and illustrating the operation of the mechanism when the exposed handle is moved downwardly to the extent permitted in the absence of a coin, said handle under such condition being arrested by a pivoted locking dog and the goods-ejector having performed a portion of its operation and partly pushed the lower piece of confection from the tray, but not having exposed the same to be taken hold of at the delivery slot; on the release of the operating handle in the conditions shown in Fig. 4, said handle will return to its upper position, the goods-ejector will return to its

initial position toward the right, and means located at the left hand side of the lower end of the tray will return the partly dislodged piece of confection back to its initial position at the bottom of the stack of goods in said tray;

Fig. 5 is a rear face view of the casing of the mechanism, the operative parts positioned thereon being shown in normal position;

Fig. 6 is a vertical transverse section substantially corresponding with Fig. 2 and illustrating the relation of the operative parts of the mechanism after the final piece of confection has been sold from the tray and the goods-ejector is locked against operation;

Fig. 7 is a vertical longitudinal section through the machine, taken on the dotted line 7—7 of Fig. 2;

Fig. 8 is a corresponding section through the machine, taken on the dotted line 8—8 of Fig. 2;

Fig. 9 is a vertical section through a left hand portion of the machine and is taken on the dotted line 9—9 of Fig. 1;

Fig. 10 illustrates the inner face of the upper right hand portion of the front plate of the main casing and shows the coin slot and means provided thereat for catching washers or pieces of metal having a hole therein, the supporting plate for said means being indicated by dotted lines and partly in section;

Fig. 11 is a horizontal section through the machine, taken on the dotted line 11—11 of Fig. 1 and illustrating a coin in position in the machine;

Fig. 12 is a horizontal section through the machine, taken on a line through the goods discharge opening and at the bottom of the tray for holding confections, the goods-ejector being shown in its operated position illustrated in Fig. 3;

Fig. 13 is a view of the operative mechanism, taken from the right hand side of the tray for holding confections;

Fig. 14 is a horizontal section through the same, taken on the dotted line 14—14 of Fig. 13;

Fig. 15 is a vertical section through a portion of the machine, taken adjacent to the coin entrance slot and illustrating more particularly the magnet for arresting iron or steel disks, and

Fig. 16 is a side view, taken from the left, of the supporting frame for the features of my invention, Fig. 16 having been presented more particularly to illustrate the goods delivery slot and the presence of means for normally keeping the same closed.

In the drawings, 20 designates a suitable box or casing to receive the operative mechanism of the machine, said box comprising sides 21, a back plate 22, a bottom 23 and a front plate 24 (Figs. 7 and 8) which has an upper right angular member 25 serving as the top for the box or casing 20 and is formed along its edges, including the side edges of said top, with flanges 26 (Figs. 3 and 4) to lap upon the adjacent bottom and side edges of the box or casing 20 and the upper ends of the sides 21 of said casing. The sides and bottom of the casing 20 have a strip 27 secured to and along the edges of the same, said strip projecting rearwardly from the back plate 22 and creating a chamber 28 at the back of the plate 22 to receive screw heads and any mechanism that may be applied on the rear face of the plate 22 and permit the box or casing to be secured against a wall, counter, back of a theatre seat or the like without said parts being thrown into engagement with the surface thereof. When the box or casing is to be stood upon a counter, it will be secured to a base in any suitable way or it may be secured directly to the counter.

The front plate 24 has secured in its top a bar 29 having depending recessed ears 30 adapted to seat upon pins 31 projecting inwardly from the upper ends of the sides 21, and said ears 30 and pins 31 serve to locate and secure the upper portion of the plate 24 in position. The lower portion of the front plate 24 is provided with a lock 32 of ordinary construction whose bolt 33 may be caused to enter an opening in the bottom 23 of the box 20, as shown in Figs. 7 and 8, and thereby lock the lower portion of the plate 34 in position. When the bolt 33 is freed from the bottom 23 of the box or casing, the lower portion of the front plate 24 may be pulled outwardly to a sufficient extent to permit said plate to be tilted vertically and free the ears 30 from the pins 31, thereby releasing the plate 24 to be entirely removed. The plate 24, near its upper right hand corner, has a slot 34 for the admission of coins to the operative mechanism of the machine.

Within the box or casing 20 I secure a vertical tray 35 for the pieces of merchandise 36 to be sold, said tray having a back, sides, front vertical flanges 99 and a bottom 37 which is cut out, as at 38, Figs. 12 and 14, enough of the bottom however remaining to support the stack of confections 36 in the usual manner. The tray 35 at one side of its bottom in line with the lower piece of confection 36, is open, as at 39, so as to permit the discharge therethrough of the pieces of confection, in succession, as sold, and the bottom 37 of the tray extends laterally through said opening forming a shelf 40 (Fig. 2) for aiding in the support of the pieces of confection as they are driven laterally by the goods ejector, numbered as a whole, 41. In line with the opening 39 in the tray 35, the adjacent side 21 of the box or casing 20 is formed with an opening 42

through which the pieces of confection as sold are forced. At the base of the opening 42 the box or casing 20 is provided with a shelf 43 upon which the pieces of confection, as sold, are caused to pass, and said shelf 43 is equipped with a light spring 44 to place a tension on the pieces of confection as sold so that they will not likely fall from off the shelf 43, but will rest thereon so that they may be removed by the hand of the purchaser. Above the opening 42 is an angle plate 45 against which the pieces of confection as sold may be tilted by the spring 44 so as to aid in retarding any forcible ejection of the goods sold. The pieces of confection 36 are arranged in the tray 35 in the customary manner, and upon the upper end of the stack of pieces is provided a weight 46, which is of usual character, except that it carries at one end a hook 47 whose purpose is to engage the goods-ejector 41 when the last piece of confection in the tray has been sold and lock said ejector and parts connected therewith in stationary position, as shown in Fig. 6.

The goods-ejector 41 comprises a vertical plate 48 and an upper member formed integrally with said plate and comprising an upper arm 49, a vertical arm 50 and a horizontal arm 51, the latter being bent forwardly from the upper edge of the plate 48. The vertical member 50 of the goods-ejector creates a shoulder to engage the end of the bottom piece of confection, as shown in Fig. 4, and force the same toward the left from below the stack of confections, and the arm 49 of the goods-ejector is adapted to pass below the stack of confections while the arm 50 is performing its work of ejecting one piece thereof, as shown in Fig. 3, and afford support for the pieces of confection above the bottom piece. The plate 48 is a supporting and carrying plate for the goods-ejector 41 and said plate 48 is adapted to have a horizontal sliding movement and is secured by screws 52, 53 with the lower end of a bell-crank lever 54 and the outer end of a link 55, respectively, mounted on the back of the rear plate 22 (Fig. 5). The screw 52 connects the plate 48 with one end of the link 55 and also with the lower end of the bell-crank lever 54, and the screw 53 connects said plate 48 with the other end of said link 55, and the link 55 is adapted to have horizontal sliding movements within and while guided by the edges of a slot 56 formed in the lower portion of said back plate 22, and the bell-crank lever 54 is utilized as means for operating the link 55, plate 48 and goods-ejector 41, in the manner hereinafter described, said bell-crank lever 54 being manually actuated upon the introduction of a proper coin into the machine. The vertical arm 50 of the goods-ejector 41 moves, during the operation of the machine, along the opening 38 formed in the bottom 37 of the tray 35, as may be readily understood on reference to Figs. 3 and 12. During the operation of the machine the goods-ejector 41 has a movement from its initial position, shown in Figs. 1 and 2, to its final outward position, shown in Fig. 3, and then back to its initial position, and said goods-ejector receives its movements through the bell-crank lever 54 and link 55, as will be hereinafter explained, the movement of said goods-ejector to its outer position to the left, shown in Fig. 3, being by the manual act of the purchaser and the return of said goods-ejector to its initial position being automatic and due to the action of a spring.

The opening 42 in the left side of the box or casing 20 is provided with a closing shutter 57 shown in its lower closing position in Fig. 2, and this shutter 57 is a plain flat plate facing the inner surface of the left side 21 of the box or casing and formed integrally with a vertically slidable plate 58 which is against the back 22 of said box or casing and is adapted to have vertical movement against the same. The plate 58 is formed in its upper portion with a vertical slot 59 through which a stationary screw 60 freely passes and the washer on which screw serves to secure the plate 58, at its upper end, in position. The screw 60 also serves, in connection with the slot 59, to permit vertical movement of the plate 58. The lower end of the plate 58 is fastened to a screw 61, Fig. 2, which extends through a slot 62 in the back plate 22 and is engaged by the left hand forked end of a two-armed lever 63 pivotally mounted, as at 64, against the rear surface of said back plate 22. The lever 63 is utilized to impart vertical movement to the sliding plate 58, and said lever is moved manually in one direction and by spring action in the other direction, as hereinafter explained. Upon the plate 57 is secured a plate 65 having a downwardly and outwardly inclined plate member 66 which serves quite an important purpose which may be understood on reference to Fig. 4. When the plate 58 is elevated to free the opening 42 its movement is somewhat slower than the movement of the goods-ejector 41, and hence the bottom piece of confection 36 is caused to move and bind slightly against said plate 66, thus slightly retarding the escape of said piece of confection until the plate 66 has passed upwardly above the level of the same, at which time the piece of confection may be speedily delivered through the opening 42. One of the more important functions of the plate 66 is, when a piece of confection 36 is left in the position shown at the bottom of the stack in Fig. 4 and the goods-ejector is receded toward the right, to, on its de-

scent, force said piece of confection back under the stack to or nearly to its initial position. Should the machine be operated in the absence of a proper coin, the goods-ejector 41 would perform the movement shown in Fig. 4 and the plate 66 would be partly elevated from in line with the opening 42, and then when the goods-ejector 41 returned to the right and the plate 66 descended, said plate would engage the left hand end of the piece of confection and force said piece inwardly below the stack of confections.

The tray 35 and parts carried thereby may be detachably secured to the front face of the back 22 by means of headed pins 67 fastened to the back of the tray and key-hole slots 68 formed in the back 22. In applying the tray 35 to position, the heads of the pins 67 will be inserted through the upper larger ends of the slots 68 and said tray will then be pushed downwardly until the pins 67 are caught within the smaller ends of the slots 68, as will be understood on reference to Figs. 1 to 5 inclusive

The mechanism disposed within the box or casing 20 and at the right hand side of the tray 35, looking at Figs. 1 to 4 inclusive, is in two sets, one being carried by the right hand side of the tray and the other being mounted on the back and side of the said casing. The features of the mechanism secured to the side of the tray 35 consist of a back plate 69 secured by upper and lower screws 70 (Fig. 13) to the side of the tray 35, inwardly turned flanges 71, 72 integral with said plate 69, a spring plate 73 secured at its upper end to a right angular flange 74 which is integral with said base plate, a coin weight tester 75 pivotally secured between flanges at the facing edges of said flanges 71, 72, and a dog 76 disposed below the weight tester 75 and pivotally secured between the said flanges at the facing edges of the flanges 71, 72, said flanges at the adjacent inner edges of the flanges 71, 72 being numbered 77, 78, respectively. The flanges 71, 72 form between themselves and the base-plate 69 a chute 79, as shown in Fig. 14, for the coins fed to the machine. The base-plate 69 is secured on spacing blocks 80, 81 and therewith fastened to the side of the tray 35, the spacing block 80 being a small integral block of metal, and the block 81 being longer than the block 80 and behind the flange 72 being slotted, as at 82 (Figs. 13 and 14), in line with a vertical slot 83 formed in the flange 72. The slots 82, 83 are provided for cooperation with a dog 84 (Fig. 3) pivotally mounted on a sliding plate 85 connected with the back 21 of the box or casing 20, as hereinafter explained. The upper edge of the block 81 is exposed through the slot 83 and forms a shoulder 184 which cooperates more particularly with the upper tooth of the dog 84, which dog constitutes a coin-ejector for driving an introduced coin out through the lower end of the chute 79. The upper end of the flanges 71, 72 are flared outwardly toward the right, as at 185, so as to facilitate the entrance of coins to the chute 79, and the lower end of the base-plate 69 is flared outwardly toward the right, as at 86, for the purpose of deflecting discharged coins toward the right so that they may fall into the coin chamber 87 and not interfere with the goods-ejector or other portions of the mechanism. The spring plate 73 has at its lower free end a flange 88 which is horizontal and projects through a recess 89 in the flange 71 and has an inclined edge 90 extending diagonally across one side edge of the coin-chute 79, as shown in Fig. 14. The inclined edge 90 on the flange 88 constitutes a coin-gauge, and by being inclined would permit a thin coin to slip by it without becoming arrested by said flange 88 and the opposite edge of the coin-chute 79, but which, on a proper coin being introduced to the machine, would arrest such coin and yieldingly hold the same to be thereafter ejected by the dog 84, said dog with its upper tooth pressing downwardly on the upper edge of the arrested coin and the lower end of the spring-plate 73 yielding outwardly toward the front of the machine so as to permit such coin to pass and descend through the coin chute 79, said coin finally falling into the coin-chamber 87.

The outline of the weight tester 75 is clearly illustrated in Fig. 2, and this weight tester is heavier at its right hand portion, and at its left hand portion, which is pointed upwardly to a slight extent, projects through the upper portion of the slot 83 in the flange 72 and into a slot 91 formed in the back plate 69, as shown in Fig. 2, being arrested in that position by a small arm 92 (Fig. 7) formed on the weight tester 75 and adapted to engage the outer edge of the flange 77 formed on the flange 71. When a coin descends against the weight tester 75, such coin will, if it is of proper weight, tilt the left hand end of said tester downwardly so as to pass the same and descend into the lower portion of the coin chute 79 or to the position I indicate in Fig. 2 in which 93 denotes a coin as having passed the coin tester and moved to position within the chute 79 and against the inclined edge 90 of the gauge 88. A coin weight tester is not particularly new in this art, and hence I make no claim to the weight tester 75 except in its relation to the other portions of my mechanism described herein.

The pivoted dog 76 is of the outline shown in Fig. 2 and it has a weighted right hand portion and a pointed left hand portion which normally extends across the coin-chute 79 and rests against the back-plate 69.

After a coin 93 has been introduced to the upper end of the coin-chute 79 and passes the weight tester 75, said coin will strike the left hand end of the dog 76 and turn said end downwardly from the path of the coin-chute 79 so that the coin may pass to the position shown in Fig. 2 and also in Fig. 7, the dog under the conditions stated being held outwardly from the coin-chute 79 by its engagement with the face of the coin. After the dog 84 has engaged and moved the coin 93 downwardly from the position shown in Fig. 2, the dog 76 will again automatically cross the coin chute 79 and prevent said coin from, under any conditions, returning upwardly through the coin-chute 79, any upward pressure of the coin against the dog 76 tending to more firmly bind the dog in its position crossing the coin-chute.

The parts of the mechanism mounted on the right hand side of the tray 35 therefore consist of the base-plate 69, blocks 80, 81, spring gauge plate 73, flanges 71, 72 forming the coin-chute, weight tester 75 and dog 76, said dog at all times preventing the coin 93 from having any but a downward movement through the coin-chute.

The mechanism mounted on the front surface of the back plate 22 comprises the vertically slidable plate 85 hereinbefore referred to, the dog 84 pivotally secured to said plate, a light spring 94 connected with said dog and operating to turn the depending portion of the same toward the left, and a coin deflecting plate 95 secured to the upper right hand edge of the plate 85 and having at its upper end a shutter plate 96 for closing the coin-slot 34 when the tray 35 is emptied and also when the plate 85 is moved downwardly in the operation of the machine. The plate 95 has a lower deflected end 97 serving to aid in deflecting a coin to the upper end of the coin chute 79. The plate 85 has a vertical slot 98 in its upper portion, and this slot receives and guides the plate on a pin 100 secured to the back plate 22 of the casing. The lower portion of the plate 85 terminates in a leg 101 which carries a screw or pin 102 which has a vertical movement in a slot 103 in the back plate 22 and is connected at its rear end with the aforesaid double-armed lever 63, as shown by dotted lines in Fig. 1 and solid lines in Fig. 5. The plate 85 is formed with a handle 104, which projects toward the right through a slot in the right hand side of the box or casing and is provided with a knob 105 for convenience in operating the same. The plate 85, during the operation of the machine, has a direct vertical movement and is to be depressed by pressing downwardly on the handle 104, and said plate 85 is restored to its upper position by means of a spring 106 which is connected by a pin with the leg 101 of said plate and with a stationary pin 107 secured to the right hand side of the box or casing 20.

The dog 84 is secured on a pivot screw 108 extending into the plate 85, and said dog at its left hand edge is formed with a lower tooth 109 and an upper tooth 110, and these teeth are normally pressed toward the tray 35 by means of the spring 94 hereinbefore referred to. The left hand edge of the dog 84, especially at the teeth 109, 110, is in horizontal line with and close to the slot 83 formed in the flange 72 of the coin-chute 79. The lower end of the dog 84 is provided with a transverse pin 111 which extends through an opening 112 formed in the back plate 22, and the outline of which is clearly shown in Fig. 5. When the sliding plate 85 is moved downwardly, it carries the dog 84 with it, and the lower end of said dog, at the pin 111, is permitted to guide downwardly and inwardly along the upper edge of the opening 112 in the back plate 22, the movement of said dog being effected by the spring 94 which is normally under tension and which may retract and pull downwardly on the upper arm of said dog with which it is connected when, during the downward movement of the plate 85, the pin 111 has freedom to move laterally by reason of the opening 112. When a coin passes down through the coin-chute 79, it will move by the dog 84 and thereafter, on the downward movement of the plate 85, the tooth 109 of said dog will ride against the face of the coin 93 until the tooth 110 of the dog reaches the upper edge of the coin 93 and at that time on the continued downward movement of the plate 85 said tooth 110 will force the coin downwardly by the coin-gauge 90 and out through the bottom of the coin-chute 79. The presence of the tooth 109 on the dog 84 is important, since while it engages the coin 93, the tooth 110 is prevented from passing toward the left through or into the slot 91 formed in the plate 69, the tooth 110 being thus held in position to engage the upper edge of the coin when said dog has traveled downwardly far enough to reach said edge. In the absence of a coin 93 to be engaged by the tooth 109, the tooth 110 of the dog 84 will, on the descent of the plate 85, enter the aforesaid slot 91 and engage the upper edge of the block 81 (at the shoulder 184) and thereby arrest the plate 85 against complete downward movement, this position of the mechanism being illustrated in Fig. 4. In the condition of the parts illustrated in Fig. 4, the handle 104 has been moved downwardly without any coin having been introduced to the machine, and under these circumstances the handle will move downwardly and cause the plate 85 to move downwardly until the

tooth 110 engages the said shoulder 184 at which time the movement of the said handle and said plate will cease. The opening 112 in the plate 22 is to permit the lower end of the dog 84 to have freedom for movement and also by its outline to restrain or confine such movement.

Partly below and partly to the right of the plate 95 fixed on the plate 85 is a normally downwardly and inwardly inclined plate 113 (Fig. 2) which cooperate with the deflected lower end of the plate 95 in directing an introduced coin to the upper end of the coin-chute 79. The plate 113 is pivotally secured to the back plate 22 by means of an ear 114 and pin 115, and said plate 113 is connected with the vertically sliding plate 85 by means of a pin 116 on said plate engaged within a slot 117 formed in a side extension of said plate 113, as shown in Fig. 2. The normal position of the plate 113 is illustrated in Figs. 1 and 2, and it will be seen that a coin fed through the coin-slot 34 and passing between the plates 95 and 113 will be directed downwardly and inwardly so as to land into the upper end of the coin-chute 79 and against the upper left hand end of the weight tester 75. When the plate 85 is slid downwardly, the pin 116 will ride along the slot 117 and move the plate 113 toward a vertical position, as shown in Figs. 3 and 4, and thereby cause said plate to discharge anything that might be thereon, either a paper disk or other matter, so that the same may fall down through the space at the right hand side of the box or casing 20 and finally enter the coin chamber 87. I preferably apply to the plate 113 a magnet 118 so that said plate may be enabled to arrest steel and iron disks which might be fed to the machine, such disks being arrested by the magnet 118 and jarred therefrom when the plate 113 is turned vertically, so that said disks may descend to the coin-receptacle 87 without entering the coin-chute 79.

I have explained that the lower end of the leg 101 of the plate 85 is connected by a pin 102 with one end of the two-armed lever 63. The downward movement of the plate 85 stretches the spring 106, and through the pin 102 depresses the right hand end of the lever 63, and this movement of said lever has the effect of elevating the closure or shutter plate 57 and parts connected therewith so as to expose the discharge opening 42 for the ejection of the bottom piece of confection 36. When downward pressure on the handle 104 is released, the spring 106 will reverse the action of the lever 63 and move the closure plate 57 downwardly so as to close the opening 42. The closure plate or shutter 57 at its lower portion passes above the aforesaid discharge opening 42 when the plate 57 is moved upwardly, and when the plate 57 is slid downwardly by the action of the lever 63, its lower portion passes below the discharge opening 42 in the side of the box or casing 20.

The downward movement of the handle 104 also acts through the bell-crank lever 54 and link 55 to operate the goods-ejector 41, causing said ejector to force the bottom piece of confection through the discharge opening 42. The bell-crank lever 54 is secured by a pivot screw 119 on the back of the back plate 22 and it is connected at the right hand end of its short arm by a pin 120 with the slidable plate 85, and hence when the plate 85 is moved downwardly, the bell-crank lever will be turned on its pivot pin or screw 119 and operate the link 55. The back-plate 22 is formed with a slot 121 (Fig. 5) to permit of the movement of the pin 120. Since the plate 85 is returned to its upper position by the spring 106, the bell-crank lever 54 and link 55, with the goods-ejector connected therewith, will be restored to their initial position by said spring.

The pin 120 has a loose connection with the plate 85, said pin being passed through a hole 122 in said plate 85 and being held against the lower edge of said hole by a spring 123 which stands back of the spring 106 and is connected at its upper end with said pin 120 and at its lower end with the pin 124 which receives the lower end of the spring 106, as shown in Figs. 8 and 11. During the downward movement of the plate 85 the spring 123 and pin 120 move together, and said spring is not placed under any increased tension, except when a resistance is offered by the pressure of the goods-ejector 41 moving the lower piece of confection against the inclined surface of the member 66 connected with the shutter plate 57, and since as hereinbefore explained it is desired to create such resistance by having the member 66 moved vertically a little slower than the goods-ejector 41 moves laterally toward it, the spring 123 becomes by such retardation stretched or extended to the extent permitted by the vertical diameter of the hole 122 in the plate 85. The retardation of the goods-ejector just referred to does not affect the movement of the sliding plate 85, but due to the hole 122 retards the action of the bell-crank lever 54 slightly, while the spring 123 is being placed under its increased tension, and then as the aforesaid member 66 passes from the path of the bottom piece of confection, the spring 123 will, being then free to do so, contract and pull the pin 120 to the bottom of the hole 122 in the plate 85 and thereby exert a certain impetus against the bell-crank lever 54 and goods-ejector 41 sufficient to assure the quick ejection of the bottom piece of confection through the discharge opening 42, this extra impetus given to the goods-

ejector 41 serving to overcome any tendency which might otherwise exist of the bottom piece of confection adhering to the surfaces about it.

The downward movement of the plate 85 causes the tilting of the plate 113 towards a vertical position, the discharge of the coin from the coin chute by means of the dog 84, the opening of the discharge 42 for sold goods and the movement of the goods-ejector against the bottom piece of confection so as to drive the same laterally to discharge position, said downward movement of the plate 85 being effected manually from the handle 104, and the springs 94, 106 and 123 restoring all of the parts of the mechanism to their initial position.

Within the base portion of the box or casing 20 I provide a guard plate 125 which is at the rear of the coin chamber 87 and serves to prevent the coins which may enter said chamber from interfering with the operation of the sliding plate 48 carrying the goods-ejector 41. The guard plate 125 also shields the slot 56 within which the link 55 has its traveling movement, and said plate 125 also shields the lower end of the leg 101 of the plate 85, all as shown in Fig. 1 and not requiring special description, since said plate is not specifically claimed herein.

At the entrance to the coin-slot 34 I provide at the upper right hand portion of the front plate 24 means for arresting washers and the like which might be inserted into said slot, and these means are shown more clearly in Fig. 9, and they consist of a pivoted arm 126 mounted on a pin 127 extending backwardly from the front plate 24, a pin 128 serving as a stop for the free end of said arm 126, a dog 129 mounted on a pin 130 and normally standing vertically along one side of the coin-slot 34, and a leaf spring 131 which is fastened at its lower end to the dog 129 and at its upper end is held in a pair of jaws 132 formed integrally with the arm 126. The arm 126 is spring pressed, by a spring 133 against the stop pin 128, and said arm normally crosses the upper end of the coin-slot 34. The upper end of the dog 129 is flat on its outer face where it lies against the front plate 24, and is beveled on its rear face, as at 134. When a washer or perforated disk is forced into the coin slot 34, it will, on its inward movement, elevate the free end of the arm 126, and this will act through the spring 131 to press the upper end of the dog 129 against the face of the washer or disk, as the case may be, and then when the hole in the washer or disk is opposite to the upper free end of the dog 129, said end will pass into said hole and prevent the further inward movement of the washer or disk, the dog continuing to act because of the continued elevation of the free end of the arm 126 and the pressure of the spring 131 acting to keep the dog 129 in its then operating position with the upper end thereof within the hole in the washer or disk. I bevel the rear face of the upper end of the dog 124, as indicated at 134, so that the washer or perforated disk may be withdrawn frontwardly from the coin-slot 34, this not being possible if the rear face of the upper end of the dog 129 were flat. The front face of the upper end of the dog 129 is flat so as to prevent the complete entrance of a washer or perforated disk through the coin slot 34. A washer or perforated disk would thus be held in the coin-slot 34, but may be withdrawn frontwardly therefrom, but not pushed inwardly therethrough. When a proper coin is introduced through the coin-slot 34 it also will elevate the lever arm 126, but not being perforated, such coin will slide against the end of the dog 129 without becoming arrested thereby. The arm 126 and dog 129 are protected behind a sheet metal plate 135 riveted to the back of the front plate 24, as sufficiently indicated in Figs. 8 and 9, said plate being slotted, as at 136, to permit the passage of a coin applied to the coin-slot 34 to pass through it. The arm 126 and dog 129, it not being permissible to claim the same herein, will be made the subject of a separate application for Letters Patent.

The operation of the several features of the mechanism hereinbefore specified having been explained in connection with the description of the construction thereof, it is thought that the operation of the machine will be fully understood without further detailed description.

What I claim as my invention and desire to secure by Letters Patent, is:

1. In a coin-controlled vending machine, an exterior casing having a coin-entrance-slot and a discharge opening for sold merchandise, and a vertical tray mounted within said casing adapted to hold a stack of pieces of merchandise and permit the discharge of said pieces one at a time in a lateral direction from the lower end of said tray into said opening, in combination, a horizontally slidable goods ejector at the lower end of said tray and adapted to be slid against the lower piece of merchandise therein and move the same into said opening, a vertically slidable shutter normally closing said opening, an exposed operating handle capable of movement on the introduction of a coin into the machine, means including a sliding plate intermediate said handle and said shutter for operating therefrom said shutter, means intermediate said plate and said goods ejector for actuating therefrom said ejector, a spring for automatically restoring said ejector, shutter and handle to their respective normal positions, and a supplemental spring secured at one end to said plate and

at its other end to said ejector operating means at a part thereof having a free bearing against said plate and normally acting under its initial tension to ensure the movement of said ejector operating means with said plate, said spring being adapted on a given resistance to the movement of the ejector and the continuance in movement of said plate to become extended and on the opening of said shutter to expend its stored up force against the said ejector whereby to exert a sudden impetus against the piece of merchandise then in process of being discharged.

2. In a coin-controlled vending-machine, an exterior casing having a coin-entrance-slot and a discharge opening in one side for sold merchandise, and a vertical tray mounted within said casing adapted to hold a stack of pieces of merchandise and permit the discharge of said pieces endwise one at a time, in a lateral direction from the lower end of said tray into said opening, in combination, a horizontally slidable transverse goods ejector at the lower end of said tray and adapted to be slid against the end of the lower piece of merchandise therein and move the same into said opening, a vertically slidable shutter normally closing said opening, an exposed operating handle capable of movement on the introduction of a coin into the machine, means intermediate said handle and said goods ejector and shutter for operating therefrom said ejector and opening said shutter, and means at said discharge opening and independent of said shutter for supporting the piece of merchandise when partially dislodged and frictionally engaging the same to prevent the piece from being wholly discharged from the machine by the goods ejector.

3. In a coin-controlled vending machine, an exterior casing having a coin-entrance-slot and a discharge opening for sold merchandise, and a vertical tray mounted within said casing adapted to hold a stack of pieces of merchandise and permit the discharge of said pieces, one at a time, from the lower end of said tray into said opening, in combination, a horizontally slidable goods ejector at the lower end of said tray adapted to be slid against the lower piece of merchandise therein and move the same into said opening, a vertically slidable shutter normally closing said opening and having a downwardly and outwardly inclined inner face member against which the discharging pieces of merchandise are pressed while said shutter is on its opening movement, the shutter thus offering a certain resistance to said pieces and therethrough to the movements of the goods ejector, an exposed operating handle capable of movement on the introduction of a coin into the machine, means including a sliding member intermediate said handle and said shutter for operating therefrom said shutter, means intermediate said member and said goods ejector for actuating therefrom said ejector, a spring for automatically restoring said ejector, shutter and handle to their respective normal positions, and a supplemental spring secured at one end to said member and at its other end to said ejector operating means at a part thereof having a free bearing against said member and normally acting under its initial tension to ensure the movement of said ejector operating means with said member, said spring being adapted on a given resistance to the movement of the jector by the engagement of a discharging piece of merchandise with the said shutter and the continuance in movement of said member to become extended and on the further opening of said shutter to expend its stored up force against the said ejector whereby to exert a sudden impetus against the piece of merchandise then in process of being discharged.

4. In a coin-controlled vending-machine, an exterior casing having a coin-entrance-slot and a discharge opening in one side for sold merchandise, and a vertical tray mounted within said casing adapted to hold a stack of pieces of merchandise and permit the discharge of said pieces from the lower end of said tray into said opening, in combination, a horizontally slidable transverse goods ejector at the lower end of said tray and adapted to be slid against the end of the lower piece of merchandise therein and move the same into said opening, an exposed operating handle capable of movement on the introduction of a coin into the machine, means intermediate said handle and said goods ejector for operating therefrom said ejector and means at said discharge opening for supporting the piece of merchandise when partially dislodged and frictionally engaging the same to prevent the piece from being wholly discharged from the machine by the goods ejector, said means comprising a support for the piece both within and without the casing at the lower edge of said side opening, an outwardly projecting plate at the upper edge of said opening and means on said support for tilting the piece upwardly against said plate.

Signed at New York city, in the county of New York and State of New York, this 19th day of March, A. D. 1920.

HARVEY GILES.