H. GILES.

COIN CONTROLLED VENDING MACHINE.

APPLICATION FILED MAR. 20, 1920.

1,420,835. **Patented June 27, 1922.**

5 SHEETS—SHEET 1.

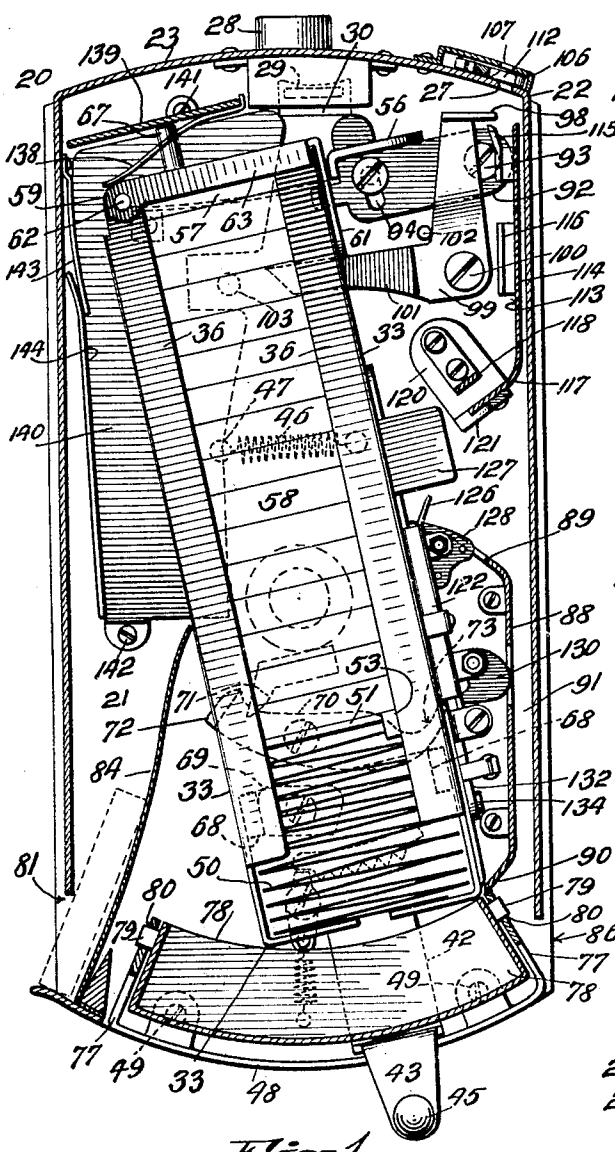


Fig. 1.

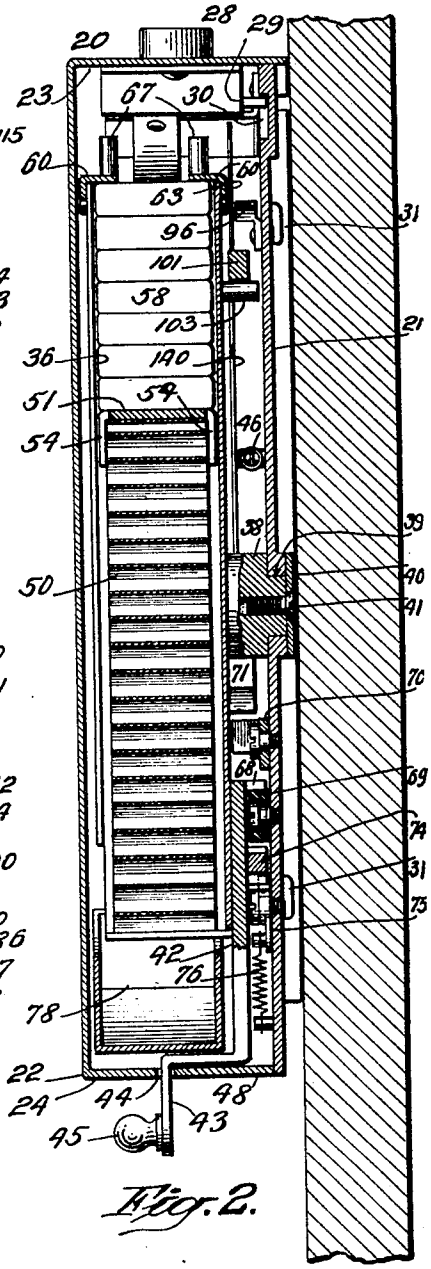


Fig. 2.

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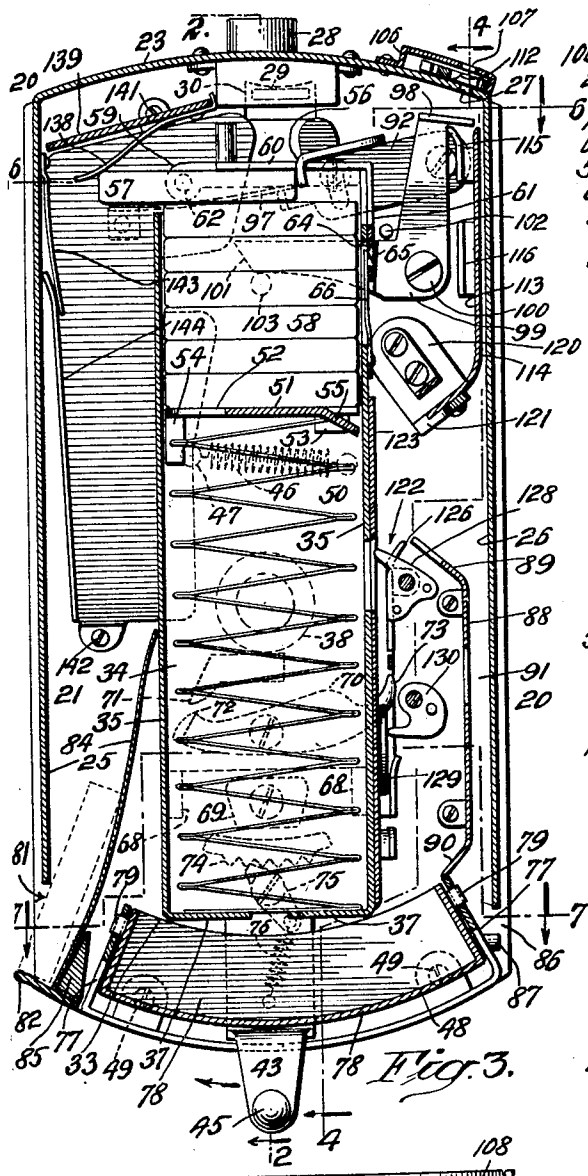


Fig. 3.

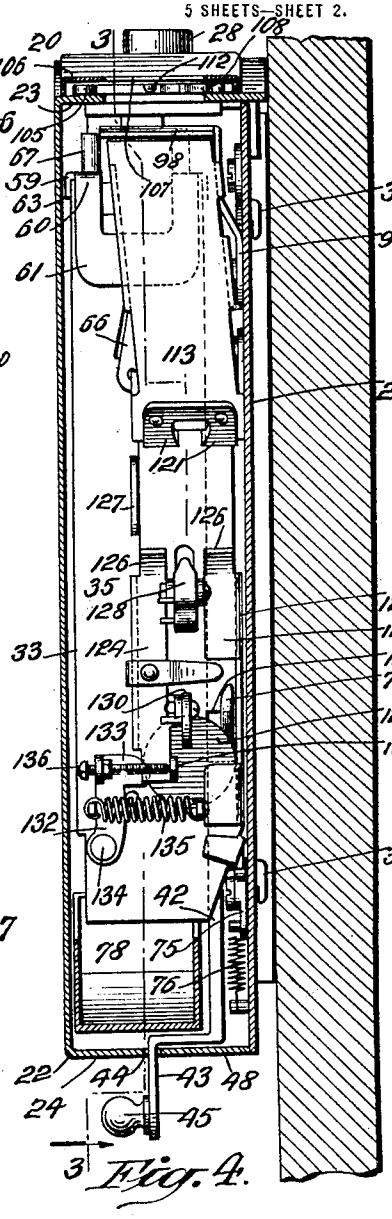


Fig. 4.

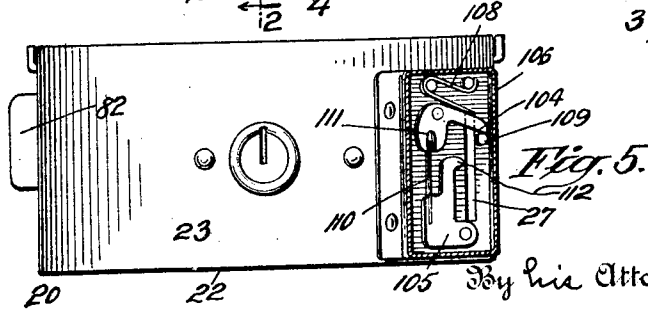


Fig. 5.

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Fig. 6.

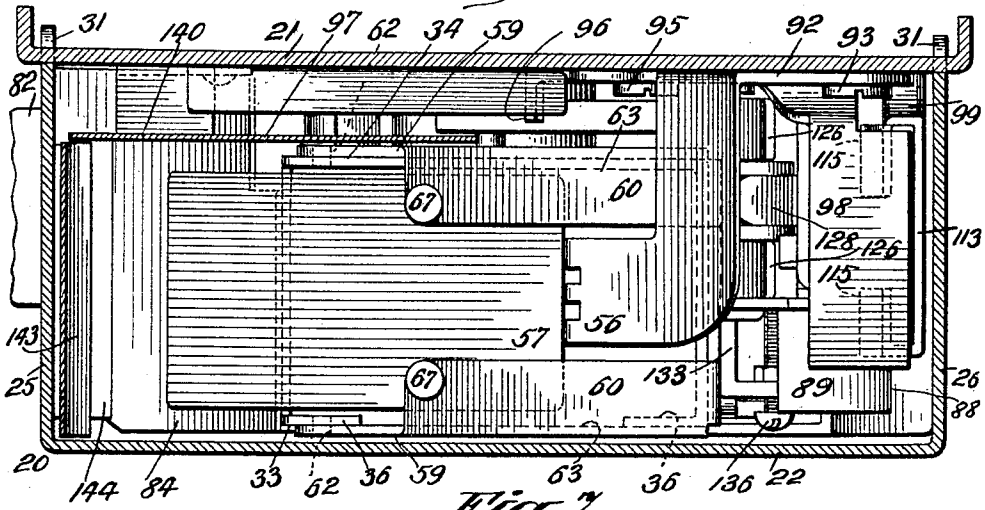


Fig. 7.

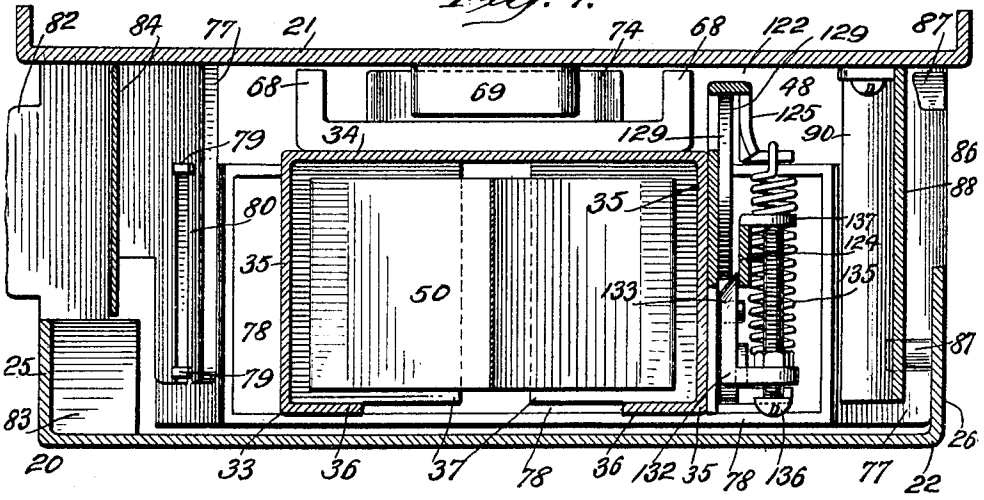
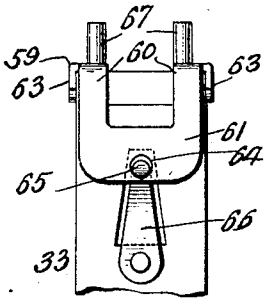


Fig. 8.



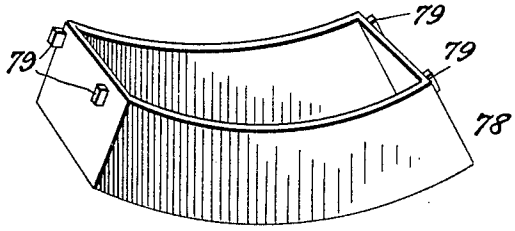


Fig. 9.

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5 SHEETS—SHEET 4.

Fig. 10.

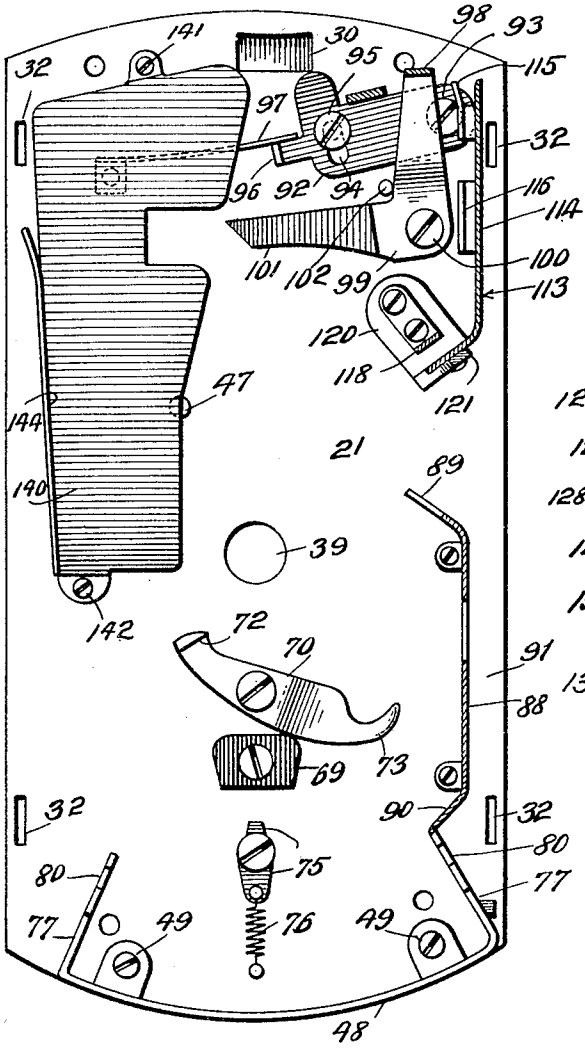
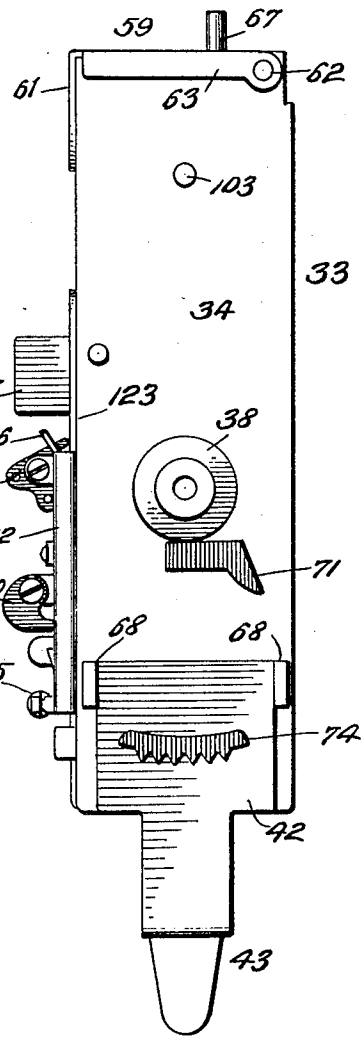


Fig. 11.



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5 SHEETS--SHEET 5.

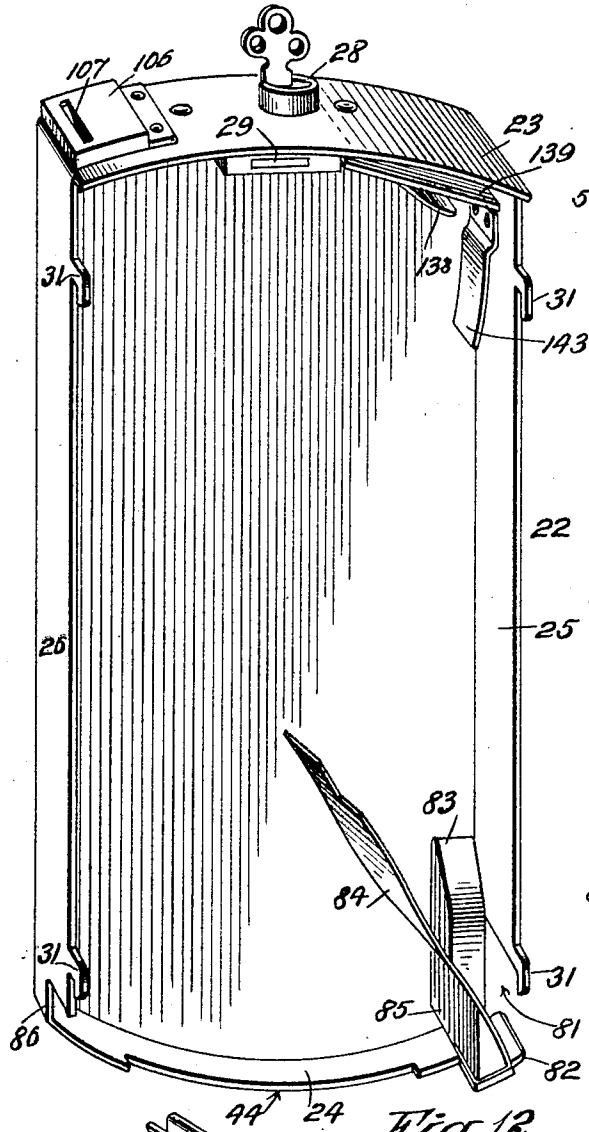


Fig. 12.

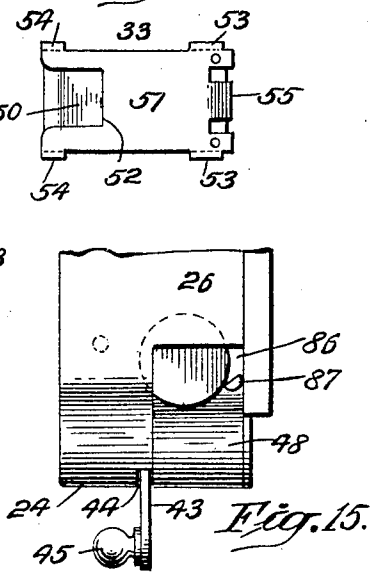


Fig. 14.

Fig. 15.

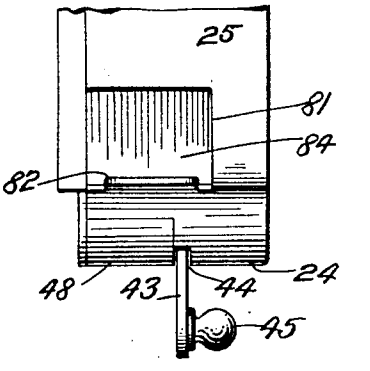


Fig. 16.

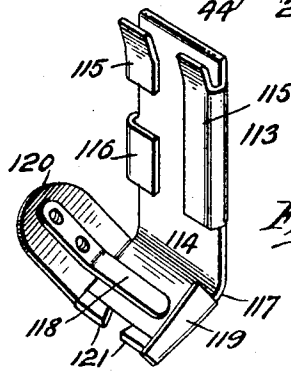


Fig. 13.

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UNITED STATES PATENT OFFICE.

HARVEY GILES, OF BROOKLYN, NEW YORK.

COIN-CONTROLLED VENDING MACHINE.

1,420,835. Specification of Letters Patent. Patented June 27, 1922.

Application filed March 20, 1920. Serial No. 367,533.

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 or other support, the mechanism of the invention being operable to deliver the articles of merchandise 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 the bottom of the machine, while the delivery aperture for the goods sold is located at the lower left hand side of the casing of the machine, and the slot for the entrance of coins to the mechanism being preferably located at the right hand portion of the top 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 to said mechanism of a proper coin, and a goods-ejector located adjacent to the top of the tray for ejecting the top piece of goods from the tray, whence the ejected piece of goods descends along one side of the tray to the discharge opening located, by preference, at the lower left hand side of the casing of the machine. The mechanism of my invention comprises a pivoted or oscillatory tray within which is placed a compressible spring and thereupon the pieces of goods to be sold, said spring keeping the stack of goods pressed upwardly to the upper end of said tray, and a goods-ejector located in fixed position near the upper end of the tray and against which the top piece of goods in the tray is carried by an oscillatory movement of the tray itself in a direction toward said ejector, whereby said top piece of goods becomes dislodged or ejected from the upper end of the stack of confections and is left to descend to the discharge opening for the goods sold, when said piece may be removed by the hand of the purchaser. The mechanism of my invention also provides means for receiving and guiding the introduced coin and finally utilizing the same in connection with a locking member for the tray and which also serves as a coin-ejector or to eject the coin from the coin chute during the movement of the tray to carry the top piece of confection against the goods-ejector, the coin when acted upon by said coin ejector being compelled to pass by a coin gauge, of special character, and finally descend into a coin box located below the tray.

One purpose of the invention is to provide a coin-controlled vending machine having in addition to the necessary mechanical parts for controlling its operation, a swinging or oscillatory tray for holding the stack of confections to be sold and which tray discharges the pieces as sold from the upper end thereof, the stack of pieces resting upon an expansible spring located in the bottom of the tray and which keeps the stack pressed upwardly toward the upper end of the tray.

Another 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 a machine constructed in accordance with and embodying the invention, the parts being shown in normal position ready to receive a coin and be operated, the section being mainly through the front portion of the casing, coin box and certain plates identified hereinafter by reference numerals;

Fig. 2 is a central vertical section through the same, with the parts of the mechanism shown in a partly operated position, the section being on the dotted line 2—2 of Fig. 3;

Fig. 3 is a vertical transverse section through the machine, taken on the dotted

line 3—3 of Fig. 4 and illustrating the merchandise tray as having been moved from the normal position shown in Fig. 1 to a vertical position, this representing about one-half of the stroke or movement of the tray, which normally is from the position in which said tray is shown in Fig. 1 to the reverse of that position along the arc of a circle;

Fig. 4 is a vertical section through the machine, taken on the dotted line 4—4 of Fig. 3;

Fig. 5 is a top view of the machine, with an attachment thereon for arresting washers and the like, shown in section;

Fig. 6 is a horizontal section, on a larger scale, through the machine, taken on the dotted line 6—6 of Fig. 3 and illustrating the mechanism in the position in which the same is represented in Fig. 3;

Fig. 7 is a horizontal section, on an enlarged scale, through the machine, taken on the dotted line 7—7 of Fig. 3;

Fig. 8 is a detached side elevation of the upper end portion of the merchandise tray and is presented to illustrate, more particularly, the means for locking the cover on said tray;

Fig. 9 is a perspective view of the coin box removed from the machine;

Fig. 10 is a front elevation of the back plate of the machine showing the parts connected therewith and with the merchandise tray omitted;

Fig. 11 is a rear view of the tray withdrawn from the machine;

Fig. 12 is a perspective view of the front enclosing casing of the mechanism, taken from the rear thereof;

Fig. 13 is a detached perspective view of the preliminary coin chute for receiving the coins from the coin-slot and directing the same to the operative mechanism of the machine;

Fig. 14 is a detached top view of the spring member located within the tray and below the pieces of merchandise to be placed therein; Fig. 14 shows more particularly the top plate applied on said spring;

Fig. 15 is a side elevation of the lower right hand side of the machine and illustrates the means for permitting the return to the purchaser of an improper coin which may have been fed to the machine, and

Fig. 16 is a like view of the lower left hand side of the main casing and illustrates the discharge opening for the pieces of confection.

In the drawings, 20 designates the general casing of the machine, and this casing is formed by a back plate 21 (Fig. 10) and a front section 22 (Fig. 12) which provides a top 23, a bottom 24 and vertical sides 25, 26, and the top 23 is equipped with a coin entrance slot 27 and a lock 28 of ordinary character whose bolt 29 is adapted to a recess or keeper 30 (Fig. 10) formed near the top of the back plate 21. The front section 22 may be secured to the back section 21 by first inserting the side ears 31 formed on the sides 25, 26 through vertical slots 32 formed in the back plate 21 and then lowering said front section so that the hooks 31 become caught behind the plate 21 at the lower ends of said slots 32, and thereafter when the lock 28 is operated to throw the bolt 29 into the keeper 30 the two sections of the casing become locked together.

Upon the back plate 21 is pivotally mounted the merchandise tray 33, which tray is formed with a back plate 34, sides 35, front facing flanges 36, and bottom plate sections 37, and said tray is mounted at about its middle portion upon the back plate 21, the connection between said tray and said back plate being more clearly illustrated in Fig. 2 in which it may be seen that secured to the back of the tray 33 is a hub 38 having a reduced portion adapted to enter and fit within a circular opening 39 in said plate 21, and that at the rear side of the plate 21 is a disk 40 which is fastened by a screw 41 to the rear end of the hub 38. The hub 38 is rigid with the back of the tray 33 and may rotate in the bearing aperture 39 in the back plate 21, and hence said tray may have an oscillatory movement imparted to it from one side to the other or from the position in which said tray is shown in Fig. 1 to an opposite position and then back to its initial position, shown in Fig. 1. The tray 33 has secured to its back a plate 42 which terminates in a handle 43 extending downwardly through a slot 44 in the bottom 24, as shown in Fig. 2, and provided with a knob 45 for convenience in moving the same and the tray connected therewith toward the left from the position in which said tray is shown in Fig. 1, the return movement of the tray to its normal position being effected by means of a coiled spring 46 which has one end connected with the tray and the other end with a pin 47 rigid with the back plate 21. The slot 44 while formed in the bottom 24, as shown in Fig. 12, is closed at its rear side by the front edge of a curved or segmental plate 48 secured by screws 49 (Fig. 10) against the front face of the back plate 21.

The tray 33 is able, from its being pivotally mounted, to oscillate or swing and otherwise except for certain special details hereinafter explained, is not of unusual construction, and said tray as a feature of novelty contains the compressible and expansible leaf-spring 50 which rests at its lower end upon the bottom sections 37 of the tray and carries on its upper end a top plate 51 which is recessed in one end, as at 52 (Fig. 14),

and is riveted or otherwise secured at its right hand end to the upper leaf of the spring 50. The plate 51 preferably has right hand depending lugs 53 extending downwardly along the edges of the upper leaf of the spring 50 and at its left hand end downwardly depending lugs 54 which extend along the adjacent portions of the two upper leaves of the spring 50, as shown in Fig. 3, so that when the spring 50 is compressed the upper leaves of the spring may close toward the bottom of the plate 51 and between the lugs 53, 53 and 54, 54 without obstruction. At its right hand end the top plate 51 is slit and bent downwardly forming a tongue 55, as shown in Figs. 3 and 14, thus providing a clear entrance for the left hand end of the goods ejector 56 to engage the top piece of confection 57 at the upper end of the stack of confections numbered 58, as hereinafter explained. The spring 50 may be in one continuous piece or made up of sections and it is of accordion formation, the leaves zig-zagging back and forth and being normally separated, except at their ends, so as to be capable of compression, as in Fig. 1, and thereafter of expansion, as shown in Fig. 3, as the pieces of confection are, one after another in succession, dislodged from the upper end of the tray 33.

The upper end of the tray 33 has a hinged top 59, shown in side elevation in Fig. 11 and in right hand end view in Fig. 8. The top 59 is formed of two side arms 60 and a right hand end depending member 61 which normally extends downwardly along the right hand side of the upper end of the tray 33, as shown in Fig. 8, said member 61 being open in its upper portion in line with the spacing between the arms 60 so as to expose the top piece of confection 57 to the action of the goods ejector. The side arms 60 of the cover 59 are pivotally secured, at 62, to the left hand side edges of the tray 33, and said side arms 60 have at their outer edges depending flanges 63 to lap over the upper front and back edges of the top of the tray. At its right hand side the upper end of the tray is cut away, as indicated in Fig. 3, in line with the opening in the depending member 61 of the cover 59 and the spacing between the side arms 60, this being for the purpose of permitting the goods-ejector to perform its proper action. The depending member 61 of the cover 59 is formed with a recess or aperture 64 to receive a stud 65 on the upper end of a leaf-spring 66 which is fastened to the side of the tray 33 and constitutes a spring latch to engage the depending member 61 when the cover 59 is moved to closed position and lock said cover in such position. The stud 65 may be released from the aperture 64 of the cover by pressure applied against the spring 66, which, the tray being slotted behind said spring, may be pressed inwardly to carry the stud 65 from engagement with said cover. Upon the upper sides of the arms 60 of the cover 59 are vertical pins 67 which may be utilized, when necessary, to assure the complete dislodgement from the upper end of the casing of an ejected piece of the confection so that said piece shall assuredly descend to the discharge opening therefor. The cover 59 extends, at the facing edges of its arms 60 over the side edges of the upper piece of confection, and hence said cover when in its closed position receives the pressure exerted on the stack of confections by the spring 50, and the cover 59 may be opened at any necessary time to replenish the tray with pieces of confection, said pieces then being placed on the top plate 51 and pressed downwardly so as to compress the spring 50, as shown in Fig. 1. The spring 50 may be of varied construction, but I prefer to form the same from a strip of phosphor bronze died-up to give the same the accordion outline shown in Fig. 3. The spring 50 automatically expands as the top pieces of confection are in succession ejected from the upper end of the stack of confections, and hence the pieces of confection in the stack are always kept together and pressed against the top 59. In constructing the spring 50 from phosphor bronze I first, by means of dies, impart to the strip of metal the zig-zag formation shown to create the several corresponding leaves, and thereafter the meeting edges of said leaves are firmly pinched together, this leaving each leaf of the structure possessing spring action.

The oscillatory tray 33 is provided on its back with stop lugs 68, and these lugs alternately engage a rigid stop 69 secured on the front face of the back plate 21 (Figs. 10 and 11.) The lugs 68 and stop 69 serve to limit the movements of the tray 33, said tray when in its normal position, shown in Fig. 1, having its left hand lug 68 against the left hand edge of the stop 69, as shown by dotted lines in Fig. 1, and when the tray 33 is moved to its opposite position, in the regular operation of the machine, the right hand stop lug 68, indicated by dotted lines in Fig. 1, will move against the right hand edge of the stop 69 and arrest said tray. The complete movement of the tray 33 is therefore from the position shown in Fig. 1 to its opposite position or until the right hand lug 68 strikes the right hand edge of the lug 69.

The tray 33 is normally locked in its initial position, with slight freedom of movement, toward the left from the position shown in Fig. 1 by means of a pivoted arm 70 secured to the back plate 21 and a dog 71 secured on the back of the tray and adapted to move against a shoulder 72 on the left hand end of said arm 70, these parts being indicated by dotted lines in Fig. 1 and

solid lines in Figs. 10 and 11. The tray may be swung at its lower end toward the left, in the absence of a coin in the machine, until the lower end of the dog 71 strikes the shoulder 72, and thereupon the tray will become held against further movement tending to operate the machine. When a coin is present in the machine and the tray 31 is turned at its lower end toward the left, the right hand curved end 73 of the arm 70 will ride against the edge of the coin, and at this time the coin being resisted in its downward movement, will cause the arm 70 to turn upwardly at its right hand end and downwardly at its left hand end, and thus the shoulder 72 will be carried below the dog 71 and the tray 33 may be continued in its movement. The cooperation of the coin with the right hand end of the arm 70 will be explained hereinafter.

The tray 33 when moved in the operation of the machine, should be compelled to make a complete movement both from its normal position shown in Fig. 1 and back to said position, and as means for compelling this full movement of the tray I provide on the back of the tray a segmental ratchet plate 74 (Fig. 11) and on the front of the back plate 21 a pivoted dog 75 which normally stands vertically and is connected at its lower end with a coiled spring 76. When the tray 33 is in its normal position the dog 75 will stand substantially vertically, as shown in Fig. 1, and as the lower end of the tray is swung to the left, said dog will turn angularly and slide along the teeth of the ratchet 74 as indicated by dotted lines in Fig. 3, in which position said dog, while permitting the continued movement of the lower end of the tray toward the left, will resist any movement of said portion of the tray toward the right, but when the tray has performed its full movement, the dog 75 will again stand vertically and then permit the tray to be swung at its lower end toward the right, said dog then turning angularly and, while permitting the tray to be swung toward the right, resisting any attempt that might be made to swing the lower end of the tray toward the left before it has completed its full movement toward the right.

The curved plate 48 hereinbefore referred to secured to the lower front edge of the back plate 21, has upwardly and inwardly inclined end plates 77, which receive and support the coin box 78, said coin box being of segmental outline and having ears 79 on its ends adapted to slide into slots 80 formed in said plates 77.

The casing section 22 is formed in the lower end of its left hand side 25 with an outlet opening 81 for the confections sold, and at the opening 81 the bottom 24 of said casing section has a projecting lip 82 upon which the pieces of confection rest in an inclined position until removed by the hand of the purchaser. At the inner face of the casing section 22 is secured a block 83 having a rearwardly inclined upper end, as shown in Fig. 12, and which serves to deflect the pieces of confection as sold to the opening 81 and lip 82, and within the casing section 22 I secure a thin plate 84 of spring metal which inclines inwardly and upwardly from a block 85 supporting it to the side of the tray 33, as shown in Figs. 1 and 3, and which plate 84 serves to direct the sold pieces of confection downwardly to the outlet opening 81 therefor. The plate 84 constitutes a yielding or spring chute which always, at its upper end, follows the tray 33 and serves to guide the sold pieces of confection to their point of discharge.

At the lower end of the side 26 of the casing section 22 is formed a discharge opening 86 for the return of improper coins to the purchaser. If a ten cent piece should be introduced to the machine, when a one cent piece should have been introduced, the ten cent piece will be returned to the purchaser at the opening 86. At the front of the upper portion of the opening 86 the side 26 of the casing is provided with a small pin 87 which aids in directing an improper coin or a paper disk or the like to the discharge opening 86, and as further means for directing an improper token to the opening 86 I secure to the front of the back plate 21 a plate 88 which has a downwardly and outwardly deflected upper end 89 and an inwardly and downwardly deflected lower end 90 which engages the upper edge of the right hand plate 77 formed on one end of the aforesaid plate 48. Between the plate 88 and the side 26 of the front casing section is formed a channel 91 through which the improper coins may descend to the opening 86.

The goods-ejector 56 consists of an arm of sheet metal having a downwardly bent and preferably slotted left hand end, as shown in Fig. 6, to engage the successive pieces of confection pressed to the upper end of the tray 33. The goods-ejector 56 is of right angular formation, as shown in Fig. 6, and is integral with a sheet metal plate 92 (Fig. 10) pivotally secured by a screw or the like 93 against the front face of the back-plate 21. The plate 92 is formed with a slot 94 which receives a fixed screw or pin 95 on which said plate 92 may have an oscillatory movement or yielding action. The plate 92 is formed with a small arm 96 extending toward the left and upon which a leaf-spring 97 is flexed. The spring 97 tends to press the plate 92 downwardly to the extent limited by the slot 94 and screw 95 and also permits said plate to yield upwardly

during the operation of the machine and especially when the downwardly bent end of the ejector 56 moves against the tongue 55 of the top-plate 51 on the spring 50. The spring 97 is also important in that when the last piece of confection has been sold from the top of the tray, said spring will depress the downwardly bent left hand end of the goods-ejector 56 into the recess 52 formed in said top plate 51 and by engaging the edge thereof said end will lock the tray 33 stationary. The goods-ejector 56 is supported from and moved with the plate 92.

The goods-ejector 56 while being permitted to have an oscillatory motion on the pivot 93 is otherwise in fixed position and it operates to push the top piece of confection 57 from the tray 33 by said tray, at its upper end, being moved toward said ejector, said movement of the tray serving to press the top piece of confection against the downwardly bent end of the ejector 56 to such extent that said piece is slid from over the top of the tray, as partly represented in Fig. 2. When the upper end of the tray 33 has moved to its full extent toward the right or until the right hand lug 68 on said tray strikes the right hand edge of the stop 69, the top piece of confection 57 will be tilted from off the tray 33 and descend along the side thereof and against the spring plate 84 and finally rest upon its end at the lip 82 at the base of the discharge opening 81 in the casing 20, whence said piece will be removed by the hand of the purchaser. After the upper end of the tray 33 has been swung to its full stroke toward the right and ejected the top piece of confection, pressure on the knob 45 will be released, and then the spring 46 will restore the tray to its normal position, shown in Fig. 1. The tray is not permitted to be operated however in the absence of a proper coin in the machine, as hereinafter explained.

The coin-slot 27 is open to receive a coin at all times except when the tray 33 is being moved in the regular operation of the machine or when the last piece of confection in the tray has been sold, and during such periods the coin-slot 27 is closed sufficiently to prevent the ingress of the coin by means of a shutter-plate 98 which is a right angular member on the upper end of a bell-crank lever 99 secured to the back-plate 21 by a pivot screw 100 and having an arm 101 extending toward the left and curved on the arc of a circle at its lower edge and inclined downwardly and toward the right at its left hand end. The bell crank lever 99 is weighted at its left hand portion and its right hand vertical arm engages a stop pin 102 which serves to normally hold the shutter plate 98 in what may be said to be open position, as shown in Fig. 1, so that a coin may be entered through the slot 27. After a coin has been introduced through the slot 27 and the tray is turned on its pivot by pressure applied to the knob 45, said tray carries a pin 103 fastened upon its back against the left hand end of the arm 101 of the lever 99 and turns said arm upwardly and thereby causes the shutter plate 98 to move toward the right and directly below the coin-slot 27, thereby excluding coins from the machine. The shutter 98 remains in its closure position until the tray 33 has completed its movement toward the right for the ejection of the top piece of confection and is then turned at its upper portion toward the left, under the action of the spring 46, the tray then carrying the pin 103 from engagement with the bell-crank lever 99 and allowing said lever to carry the shutter plate 98 to its open position.

Upon the top 23 of the front casing section 22 is provided means for arresting a washer which might be used in an attempt to operate the machine, and said means comprise a pivoted arm 104 and a pivoted dog 105 (Fig. 5) concealed within a casing 106 having in its top a coin-slot 107. The arm 104 is spring-pressed by means of a spring 108 against a stop-pin 109 and at such time extends across one end of the coin-slot 27, as shown in Fig. 5. The dog 105 has a small leaf spring 110 connected with it and the free end of this spring engages a slot 111 in the arm 104. When a washer, or even a proper coin, is introduced through the coin slot 107 to be entered through the slot 27, it will move against the arm 104 and turn the same outwardly from the slot 27, and this action causes the pointed end 112 of the dog 105 to turn inwardly against said washer or coin. If a coin is being introduced in the machine, the pointed end 112 of the dog 105 will merely pass against the face of the same without interfering with the passage of the coin into the machine, but if a washer is fed to the machine, said pointed end 112 of said dog 105 will enter the hole in the washer and arrest the washer against further movement through the coin-slots. The top face of the end 112 is flat, as shown in Fig. 5, and the lower face of said end 112 is beveled, as shown in Fig. 3, and hence when a washer is fed to the machine said washer will be held against complete entry into the machine by the upper flat face of the end 112 of the dog 105, but since the lower face of said end 112 is beveled, said washer may be withdrawn from the coin slot 107.

A coin introduced through the coin-slots 107 and 27 will descend against a coin-slide 113 shown in detail in Fig. 13, this coin-slide comprising a back plate 114 and side flanges 115, 116 turned inwardly to confine a coin which may be sliding down the plate 114. The upper ends of the flanges 115 are flared

toward the left, as shown in Figs. 1 and 13 and terminate slightly below the upper right hand edge of the shutter-plate 98. The plate 114 extends downwardly a suitable distance and then curves downwardly and toward the left, as at 117 (Fig. 1), and this lower portion of the plate 114 is suitably spaced below a guard finger 118 which serves to prevent a descending coin from leaving the lower portion of the plate 114, except by sliding along and over the same. At its forward edge the lower portion of the plate 114 is formed with an upturned flange 119 which also serves to guide a descending coin along said plate. The guard finger 118 is secured to a bracket 120 which is fastened to the back plate 21, as shown in Fig. 10, and by preference is formed integrally with the lower end of the plate 114, is being bent upwardly from the inner edge of the lower portion of said plate. Upon the bottom of the lower portion of the plate 114 is secured a magnet 121 of horse-shoe or other suitable type for arresting a steel disk or the like which might be introduced into the machine in lieu of a proper coin.

A coin upon sliding down the plate 114 will descend into the upper end of a coin-chute 122 which comprises a back plate 123 fastened against the right hand side of the tray 33 and integral folded over flanges extending toward each other and numbered 124, 125 (Fig. 4). The flanges 124, 125, together with the back plate 123 carrying them, constitute a run-way into which a coin introduced to the machine will pass and be temporarily confined until ejected by the curved portion 73 of the pivoted lever arm 70 hereinbefore described. The upper ends of the flanges 124, 125 are flared toward the right, as at 126, so as to direct a descending coin into the run-way between said flanges and the plate 123. As an assistance to a coin reaching the said run-way on leaving the plate 114, I provide on one side edge of the plate 123 a flange 127 (Figs. 4 and 11), this flange serving to prevent the coin from passing toward the front and not reaching the inwardly flaring ends 126 of the flanges 124, 125. Between ears extending toward the right from the upper portions of the flanges 124, 125 I pivotally mount a weighted coin tester 128 whose outline is shown in Fig. 3.

The coin tester has a finger extending inwardly between the flanges 124, 125 and a coin sliding down at the inner side of the upper ends of said flanges will strike said finger and if of proper weight will tilt the same downwardly and pass the finger and enter the lower portion of the run-way between said flanges 124, 125 and the plate 123, and if the coin should not be of proper weight it will not tilt the weight tester 128 and will finally fall down along the right hand side of the main casing and escape through the channel 91 to the outlet opening 86 for improper coins. In Fig. 3 I indicate a coin at 129 as having descended below the automatically acting weight tester 128. The weight tester 128 is weighted at its right hand portion and therefore automatically turns to initial position after a coin has passed below its left hand finger. The coin-tester 128 is not separately claimed herein being a known feature for testing the weight of a coin so that only a coin of proper weight may pass below it and enter the operative mechanism located below said tester.

Below the weight tester 128 I pivotally mount on an ear extending from the inner edge of the flange 124 a dog 130. The dog 130 is weighted at its right hand portion, as shown in Fig. 3, and has a lower finger projecting toward the left and normally extending in between the flanges 124, 125 of the coin-chute. When a coin passes downwardly through the coin-chute it tilts the dog 130 outwardly or toward the right and takes the position of the coin 129, shown in Fig. 3, the finger 230 on the dog then resting against the face of the coin. Thereafter, when the coin is forced downwardly from the position shown in Fig. 3, the lower finger on the dog 130 swings inwardly between the said flanges 124, 125 and closes any upward passage for the coin through the coin-chute. The purpose of the dog 130 is to permit the coin to freely pass downwardly when impelled in that direction, but to prevent, after the coin has passed below the dog, any upward movement of the coin, the dog thus assuring the proper downward movement of the coin and avoiding under any circumstances any upward sliding of the coin after the coin has descended below said dog.

The means for moving the coin downwardly through the coin chute from the position in which it is shown in Fig. 3, is the curved end 73 of the lever arm 70, and this end 73, as shown in Fig. 1, is in position, when the lower end of the tray 33 is turned toward the left, to pass above the coin 129, as shown in Fig. 3, and during the continued movement of the lower end of the tray toward the left, force said coin downwardly from the coin-chute, so that it may fall into the coin-box 78. When the tray 33 is turned, at its lower end, toward the left, said tray carries the coin against the lever-arm 70 and the first function performed is that the coin will turn the left hand end of said arm 70 downwardly from the dog 71 so as to completely free the tray 33 to be operated, and following this the continued movement of the lower end of the tray 33 toward the left will result in the coin being continued in its movement against said lever arm 70 and in said arm acting as a cam to force the coin downwardly from the coin-chute. The curved end of the lever-arm 70 projects into

an opening 131 formed in the back-plate 123, as shown in Fig. 4, and when the lower portion of the tray 33 is turned toward the left, said end of said lever arm 70 becomes exposed through said opening, as shown in Fig. 3, so as to reach and press downwardly on the upper side edge of the coin 129. The pressure of the coin 129 against the lever arm 70 is prevented from tilting the curved end 73 of said lever arm upwardly, because during this operation of the machine the metal of the plate 123 at the upper edge of the aforesaid opening 131 serves as a stop to prevent upward movement of the right hand end of the arm 70. The upper edge of the curved end 73 of the lever arm 70 is recessed out so that during the movement of the tray 33 the upper edge of the opening 131 may travel along the upper edge of said arm 70 without undue binding action, while at the same time acting to keep the arm 70 stationary during the ejection of the coin 129.

The coin 129 becomes pocketed in the lower end of the coin-chute represented by the plate 123 and flanges 124, 125 by its engagement with the right hand edge of said chute, as shown in Fig. 4, and with a pivoted gauge-arm 132 which has, at its upper end, a gauge-member or finger 133 projecting into the front edge of the coin-chute in position to arrest the coin 129. The arm 132 is mounted on a pivot 134 and is given a spring pressure toward the coin-chute by means of a coiled spring 135. The gauge arm 132 may be adjusted toward and from the coin-chute in accordance with the diameter of the coin by means of a set-screw 136 (Fig. 4) which extends through an ear formed on the front end of said arm and at its pointed end engages an ear 137 formed on the rear edge of the front flange 124. By means of the screw 136 the gauge arm may be given its proper initial adjustment in accordance with the diameter of the coin, it being intended that a coin of insufficient diameter will slide by the coin-gauge finger 133 and that a coin of proper diameter will be arrested by said coin gauge. The coin 129 is arrested within the lower end of the coin-chute because said coin is used as the means for unlocking the tray 33 so that said tray may be operated for the disposal of a piece of confection from its upper end, and hence it is important that the coin 129 be temporarily arrested in the position in which the coin is shown in Figs. 3 and 4 so as to assure the proper operation of the machine.

All of the features of the machine have been hereinbefore described with the exception of certain means located at the upper left hand portion of the main casing for assuring the proper descent of the pieces of confection as sold from the upper end of the tray 33, said means residing in a spring arm 138 extending downwardly and toward the left from a bracket plate 139 which is carried by the front casing section 22 (Fig. 12). The spring 138 stands in the path of a piece of confection being sold, as shown in Fig. 3, and tilts the left hand end of the piece downwardly so that the same may descend along a chute plate 140, which is secured at its upper end at 141 and at its lower end at 142 to the back-plate 21, as shown in Fig. 10. A spring plate 143 is secured to the side of the front member of the casing, as shown in Fig. 12, and the lower end of this spring laps inwardly over the upper end of the side 144 of the chute 140, as shown in Figs. 1 and 3, and thereby aids in compelling the descent of the sold pieces of confection along said chute, whence said pieces descend against the spring-plate 84 and finally land on end against the lip 82, from which the pieces are removed by hand through the opening 81.

The operation of the several parts of the machine has been quite fully explained hereinbefore in connection with the description of said parts, and hence only limited further explanation of such operation seems to be necessary. When the machine is in its normal position, shown in Fig. 1, a coin may be passed downwardly through the coin-slots 27 and 107 and pass down the coin-slide 114 and enter the upper end of the coin-chute represented by the plate 123 and flanges 124, 125, said coin descending by the weight tester 128 and dog 130 and becoming arrested by the gauge finger 133. Thereupon the operator will move the handle 43 toward the left from the position shown in Fig. 1, thereby turning the tray 33 on its pivot and swinging the lower end of said tray toward the left and the upper end thereof toward the right, whereby the upper piece of confection 57 in the tray is carried against the goods ejector 56 and becomes dislodged from the upper end of the tray, said piece falling down to the outlet opening 81. After a piece of confection has been dislodged, pressure on the handle 43 is released and the spring 46 restores the tray to its normal position. The spring 50 and plate 51 keep the pieces of confection pressed upwardly against the top or hinged cover of the tray. The tray is compelled to have a complete movement in one direction and then in the reverse direction by reason of the dog 75 and ratchet 74. When the tray 33 is away from its initial position, the shutter 98 prevents the entrance of coins into the machine, and when the tray is moving to its initial position, the arm 99 carrying said shutter will tilt downwardly at its left hand end to remove the shutter 98 from the path of the coin introduced through the coin-slots 107, 27. The tray 33 is locked against operation, in the

absence of a proper coin, by means of the lever arm 70 and dog 71, and said tray is rendered operable when a coin is in the machine by the engagement of said lever arm 70 against the coin. The tray 33 has an oscillatory movement on its pivotal support, and this movement is limited by the engagement of the respective stop-lugs 68 against the opposite sides of the stationary stop 69. When the last piece of confection in the tray 33 has been sold, the goods-ejector 56, at its downwardly turned or hooked left hand end, engages the recess 52 in the top plate 51 of the tray 33 and locks the tray 33 stationary, the shutter-plate 98 at this time remaining stationary in its position to exclude the entrance of coins into the machine. The coin-gauge finger 133 has a beveled inner or left hand face at its end, as shown in Fig. 7, and this beveled end of the finger 133 serves to arrest the coin 129, as shown in Fig. 3, preparatory to the operation of the tray 33, upon whose operation the coin 129 is forced downwardly by the lever-arm 70. The inner end of the coin-gauge finger 133 is beveled, as shown in Fig. 7, so that it may arrest a proper coin 129, but permit a coin of proper diameter but deficient in thickness to slip by it without becomnig arrested. The coin-gauge finger 133 also permits a coin which might be deficient in diameter to slip by it. When a coin is not arrested at the coin-gauge 133, the tray 33 is kept locked against operation, sufficient to eject a piece of confection, by means of the lever-arm 70 and dog 71.

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

1. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising a tray for holding a stack of pieces of merchandise mounted for lateral swinging movement within said casing, an exposed handle connected with said tray for operating the same and an ejector against which, on the movement of the tray, a piece of merchandise held thereby is pressed and becomes thereby discharged, said tray also having means to receive and carry the coin against said releasing means.

2. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising a tray for holding a stack of pieces of merchandise mounted for lateral swinging movement within said casing, an exposed handle connected with said tray for operating the same in one direction, a spring for automatically moving said tray in the return direction, means for compelling said tray to have complete movements in both directions and an ejector against which, on the movement of the tray, a piece of merchandise held thereby is pressed and becomes thereby discharged, said tray also having means to receive and carry the coin against said releasing means.

3. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising an oscillatory tray for holding a stack of pieces of merchandise and adapted to permit of the discharge of said pieces, one at a time, from the upper end of the tray, means below said stack for pressing the same to the top of the tray, an exposed handle for operating the tray and an ejector against which, on the movement of the tray, a piece of merchandise held thereby is pressed and becomes thereby discharged, said tray also having means to receive and carry the coin against said releasing means.

4. In coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising an oscillatory tray for holding a stack of pieces of merchandise and adapted to permit of the discharge of the same, one at a time, from the upper end of the tray, a compressible spring within the lower portion of the tray and below said stack for pressing the stack toward the top of the tray, an exposed handle for operating the tray and an ejector against which, on the movement of the tray, a piece of merchandise held thereby is pressed and becomes thereby discharged, said tray also having means to receive and carry the coin against said releasing means.

5. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing struc-

ture comprising an oscillatory tray for holding a stack of pieces of merchandise and adapted to permit of the discharge of the same, one at a time, from the upper end of the tray, a compressible spring having thereon a top plate within the lower portion of the tray and below said stack for pressing the stack to the top of the tray, a removable top on said tray for permitting the replenishing of the tray with merchandise, an exposed handle for operating the tray and an ejector against which, on the movement of the tray, a piece of merchandise held thereby is pressed and becomes thereby discharged, said tray also having means to receive and carry the coin against said releasing means.

6. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising an oscillatory tray for holding a stack of pieces of merchandise and adapted to permit of the discharge of said pieces one at a time from the upper end of the tray, a compressible zig-zag leaf-spring within the lower portion of the tray and below said stack for pressing the stack toward the top of the tray, a handle for operating the tray and an ejector against which on the movement of the tray a piece of merchandise held thereby is pressed and becomes thereby discharged.

7. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising an oscillatory tray for holding a stack of pieces of merchandise mounted for lateral swinging movement, said tray being pivotally mounted a considerable distance below its upper end and adapted at its upper end to permit the discharge of said pieces, one at a time, an exposed handle connected with said tray for operating the same, means constantly pressing said stack toward the top of the tray and an ejector against which on the movement of the tray a piece of the merchandise is pressed and becomes thereby discharged.

8. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising an oscillatory tray for holding a stack of pieces of merchandise mounted for lateral swinging movement, said tray being pivotally mounted a considerable distance below its upper end and adapted at its upper end to permit the discharge of said pieces, one at a time, an exposed handle connected with said tray for operating the same, means constantly pressing said stack toward the top of the tray and an ejector against which on the movement of the tray a piece of the merchandise is pressed and becomes thereby discharged, said tray also having means to receive and carry the coin against said releasing means.

9. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise, means for locking the dispensing structure inoperative in the absence of an introduced coin and coin-controlled mechanism for releasing said structure through the medium of an introduced coin, a dispensing structure comprising a tray for holding a stack of pieces of merchandise mounted for lateral swinging movement within said casing, an exposed handle connected with said tray for operating the same and an ejector against which, on the movement of the tray, a piece of merchandise held thereby is pressed and becomes thereby discharged, said tray also having means to receive and carry the coin against said releasing means, and said ejector having a hook shaped end to engage the pieces of merchandise aligned with it and also to lock the tray in its inoperative position when the last piece of merchandise has been discharged therefrom.

10. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise and coin controlled mechanism operable by an exposed handle for, through the medium of a coin, dislodging the pieces of merchandise, one at a time, a tray for holding a stack of the pieces of merchandise and adapted to permit the dislodgment of said pieces, one at a time, from one side of its upper end, a displaceable stop cover for the upper end of said tray and means below said stack constantly pressing against the stack in a direction toward the top of the tray.

11. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise and coin-controlled mechanism operable by an exposed handle for, through the medium of a coin, dislodging the pieces of merchandise, one at a time, a tray for holding a stack of the pieces of merchandise and adapted to permit the dislodgment of said pieces, one at a time, from one side of its upper end, a displaceable stop cover for the upper end of said tray, a zig-zag compressible plate

spring below said stack and having a top plate constantly pressed against the bottom of the stack in a direction to press the stack toward the top of the tray.

12. In a coin-controlled vending machine having an exterior casing, a coin entrance slot, a discharge for the sold merchandise and coin-controlled mechanism operable by an exposed handle for, through the medium of a coin, dislodging the pieces of merchandise, one at a time, a tray for holding a stack of the pieces of merchandise and adapted to permit the dislodgement of said pieces, one at a time, from one side of its upper end, a displaceable stop cover for the upper end of said tray, a spring below said stack having a top plate engaging the stack and constantly pressing against the stack in a direction toward the top of the tray.

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.