H. GILES.

COIN CONTROLLED VENDING MACHINE.

APPLICATION FILED APR. 24, 1916.

1,196,103.

Patented Aug. 29, 1916.

10 SHEETS—SHEET 1.

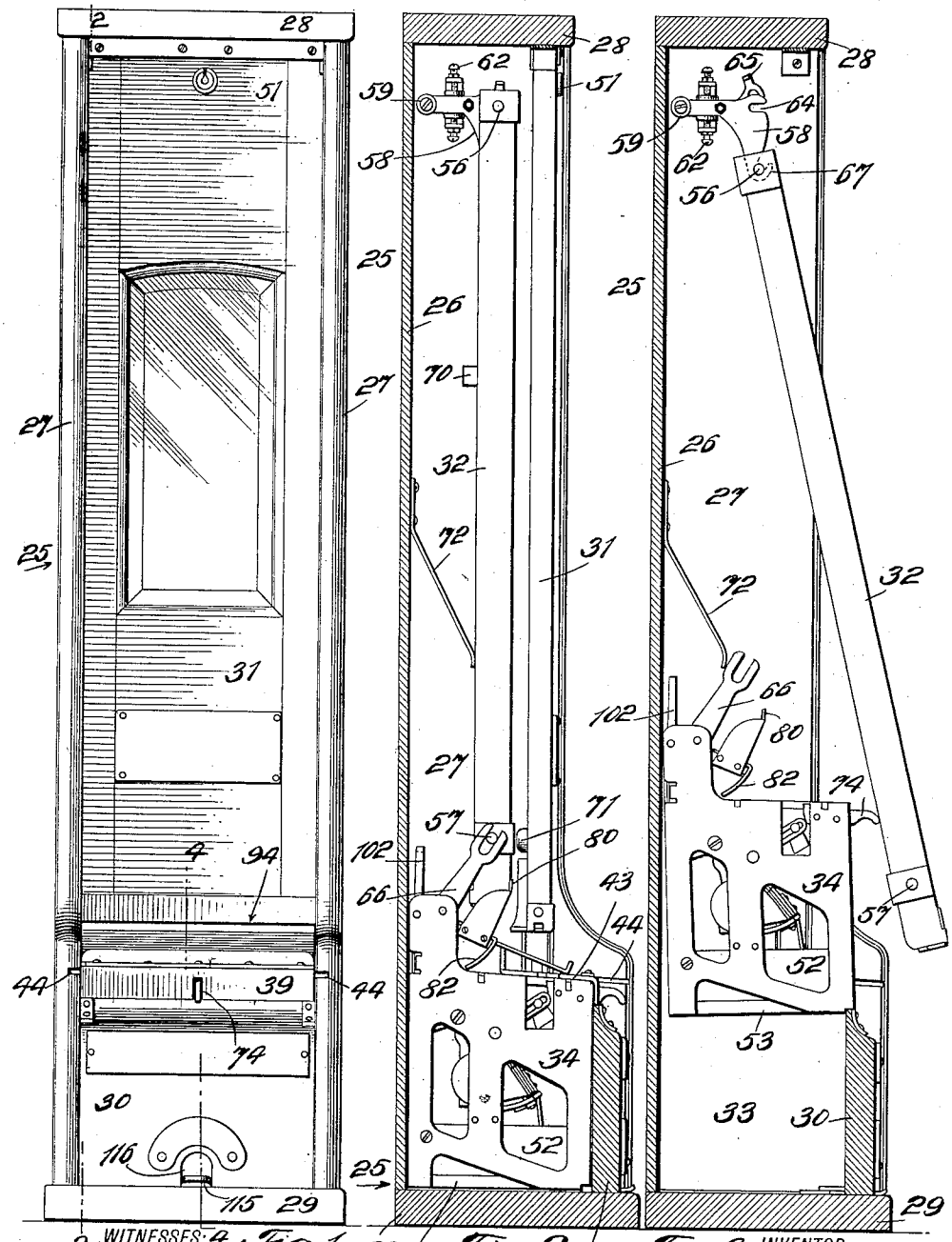


Fig. 1. Fig. 2. Fig. 3.

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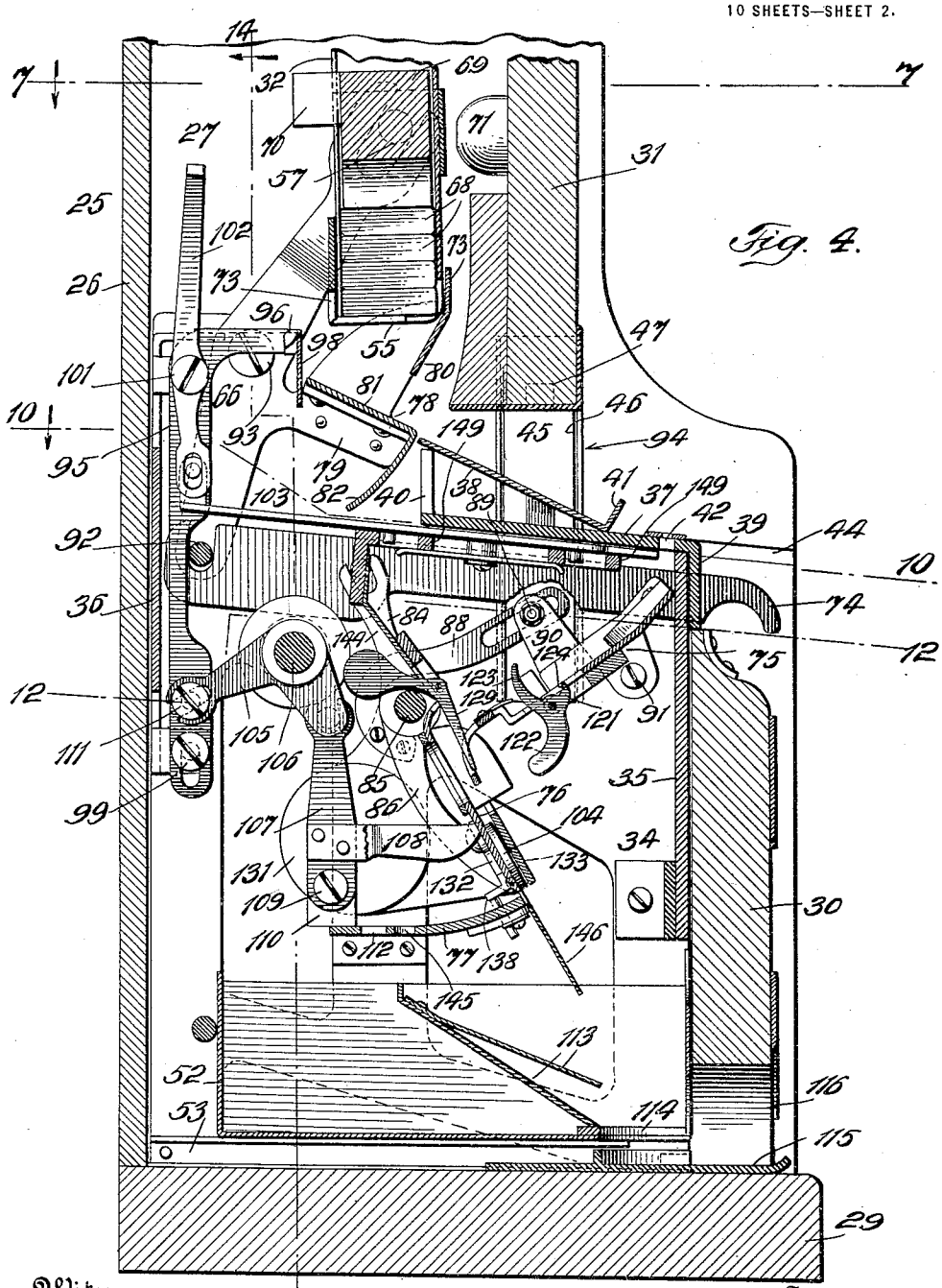


Fig. 4.

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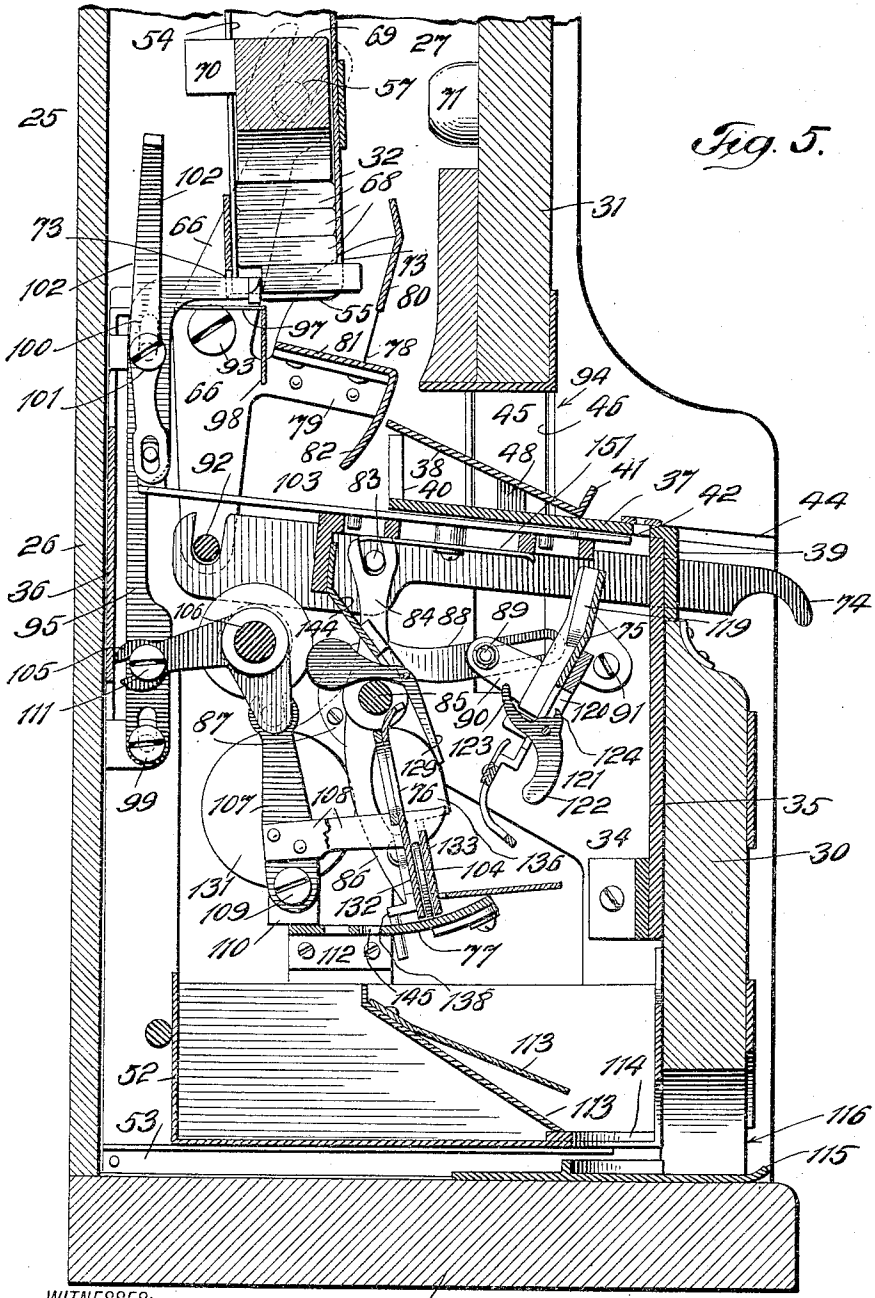


Fig. 5.

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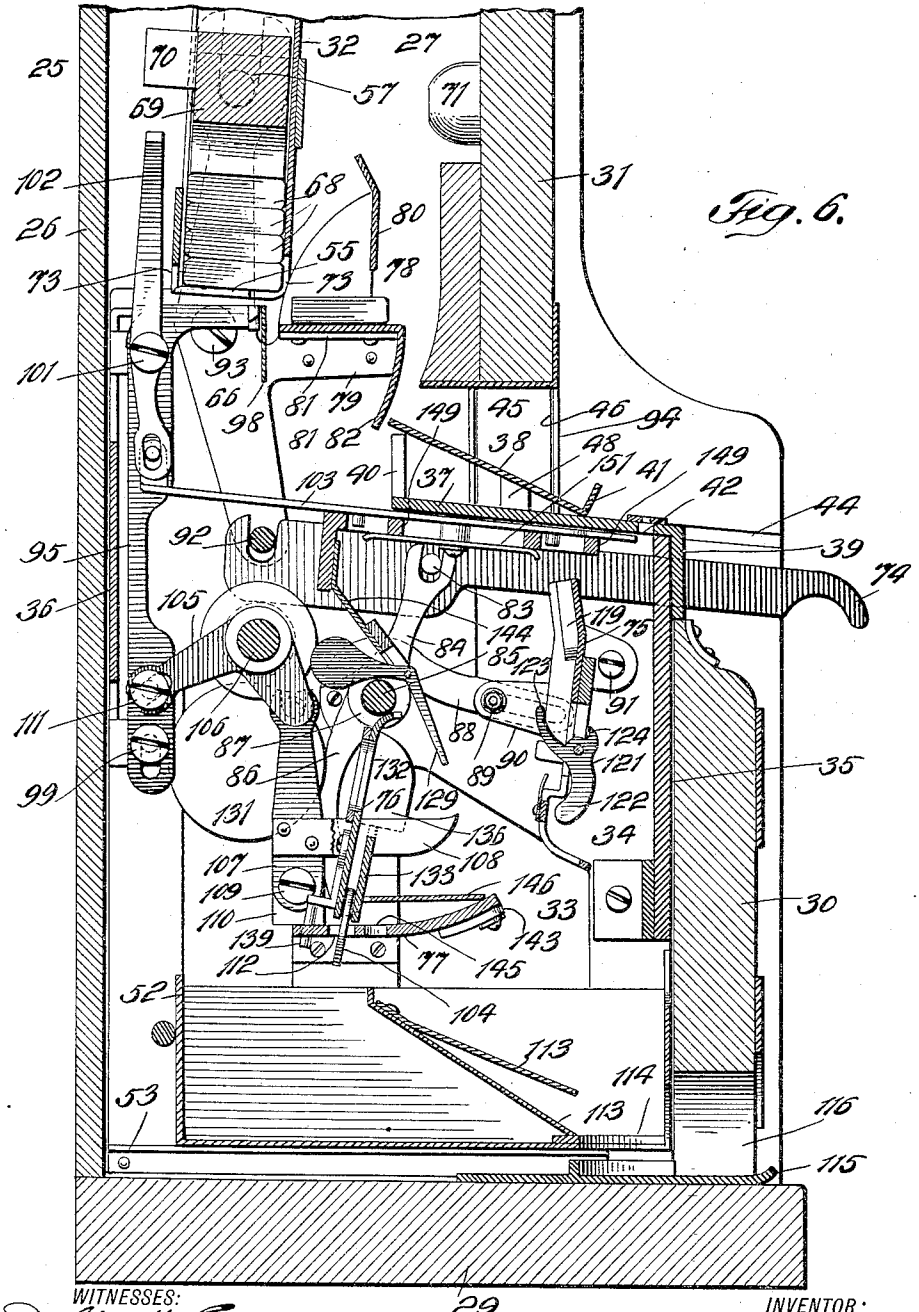


Fig. 6.

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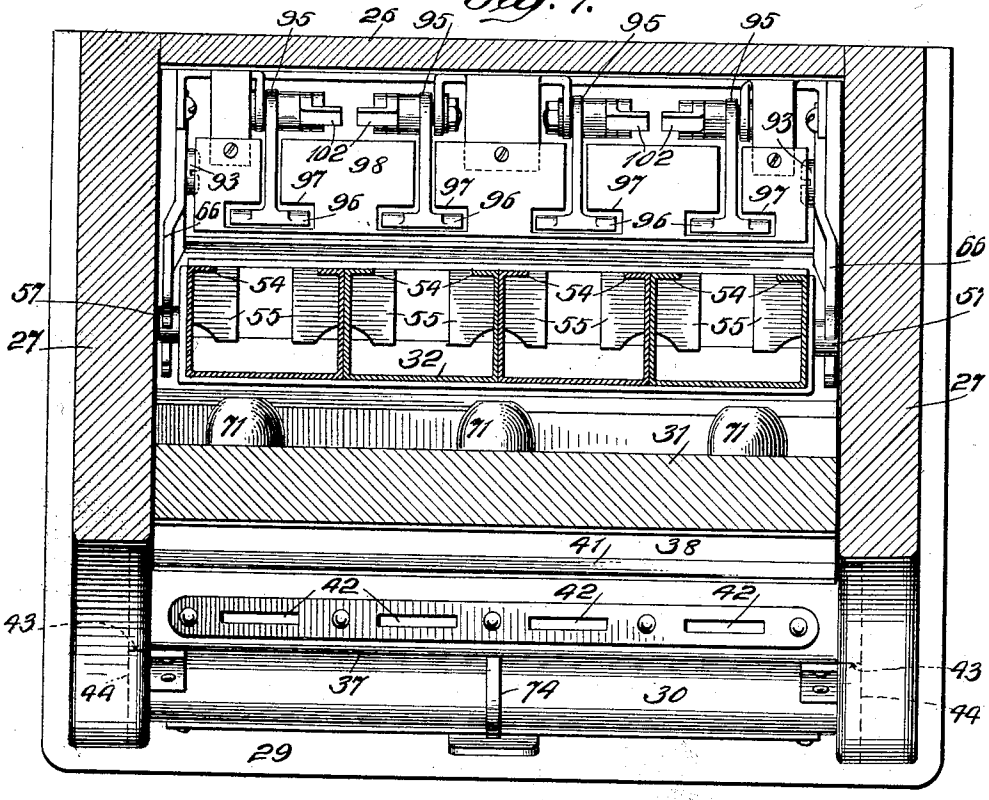
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Fig. 7.



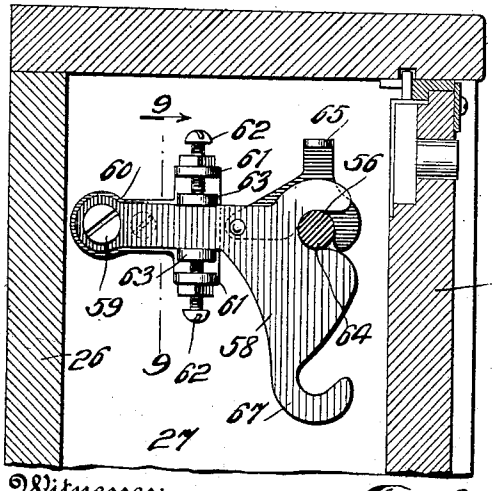


Fig. 8.

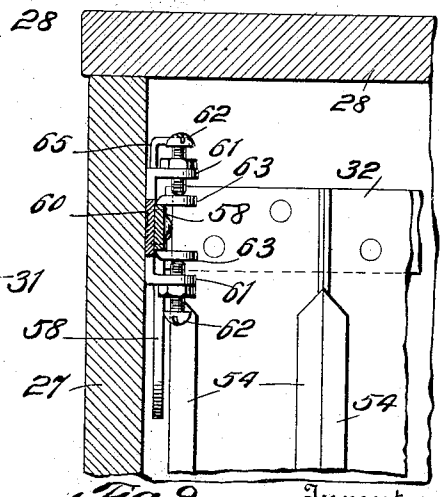


Fig. 9.

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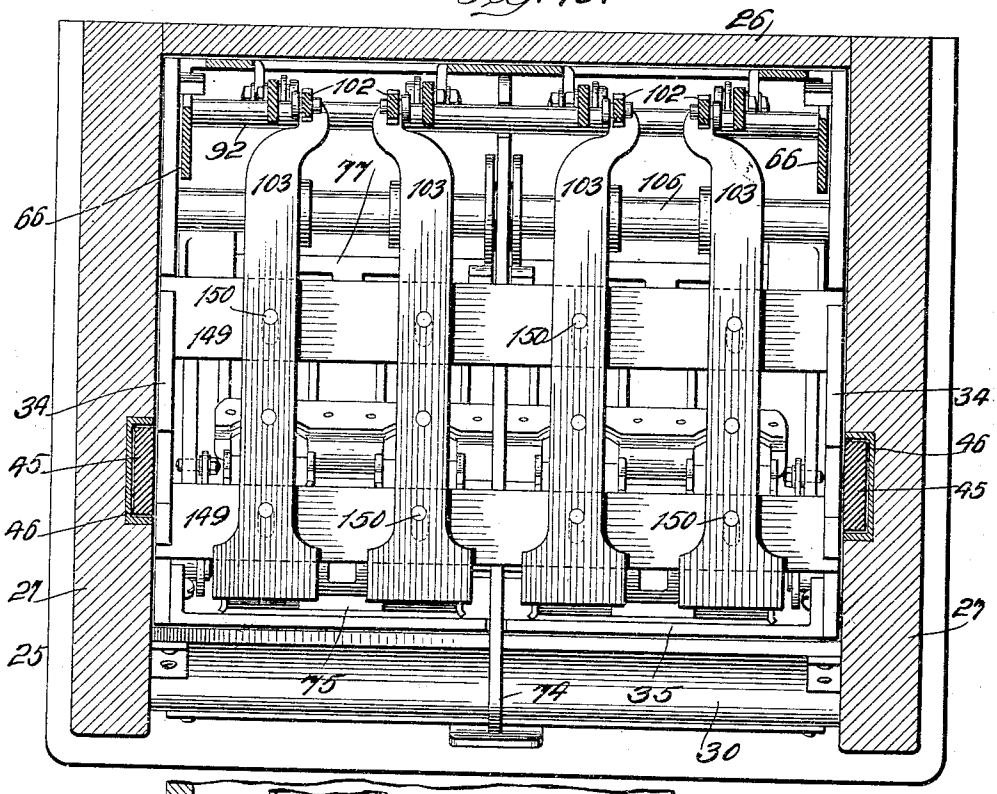
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Fig. 10.



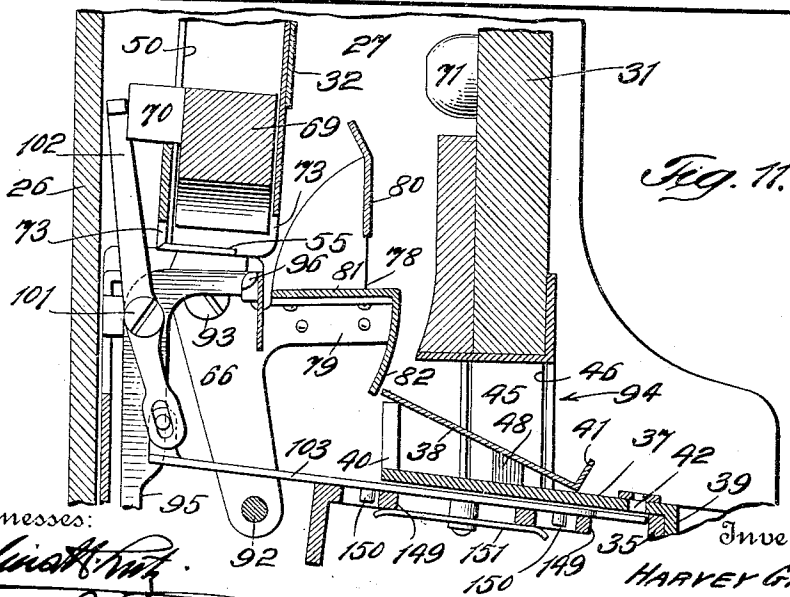


Fig. 11.

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Fig. 12.

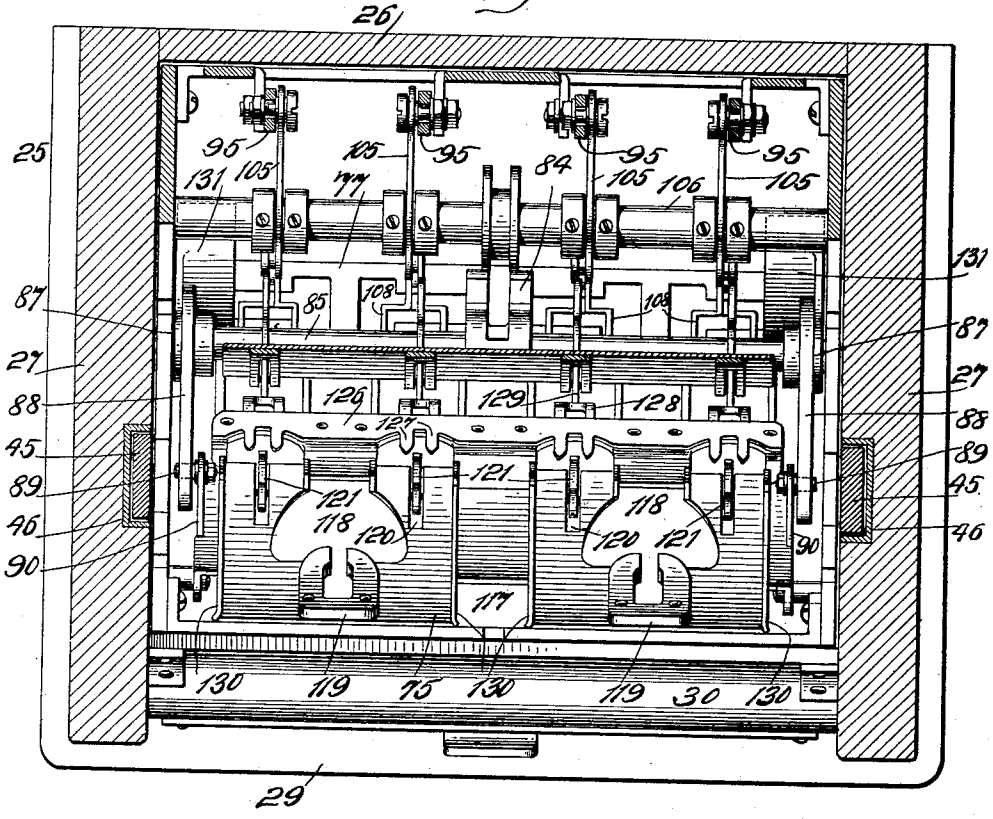
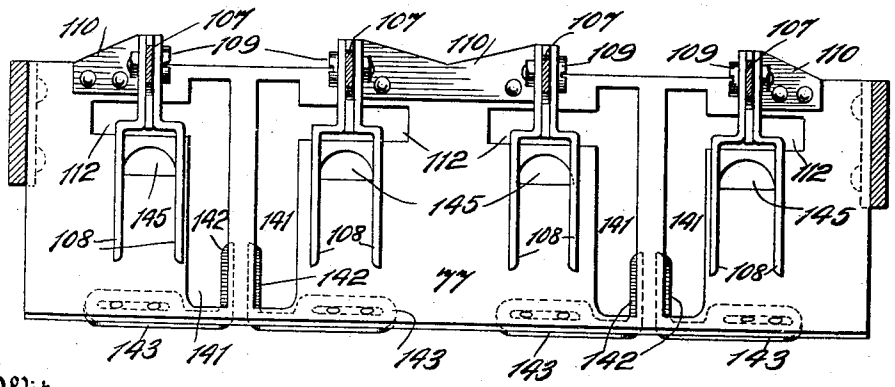


Fig. 13.



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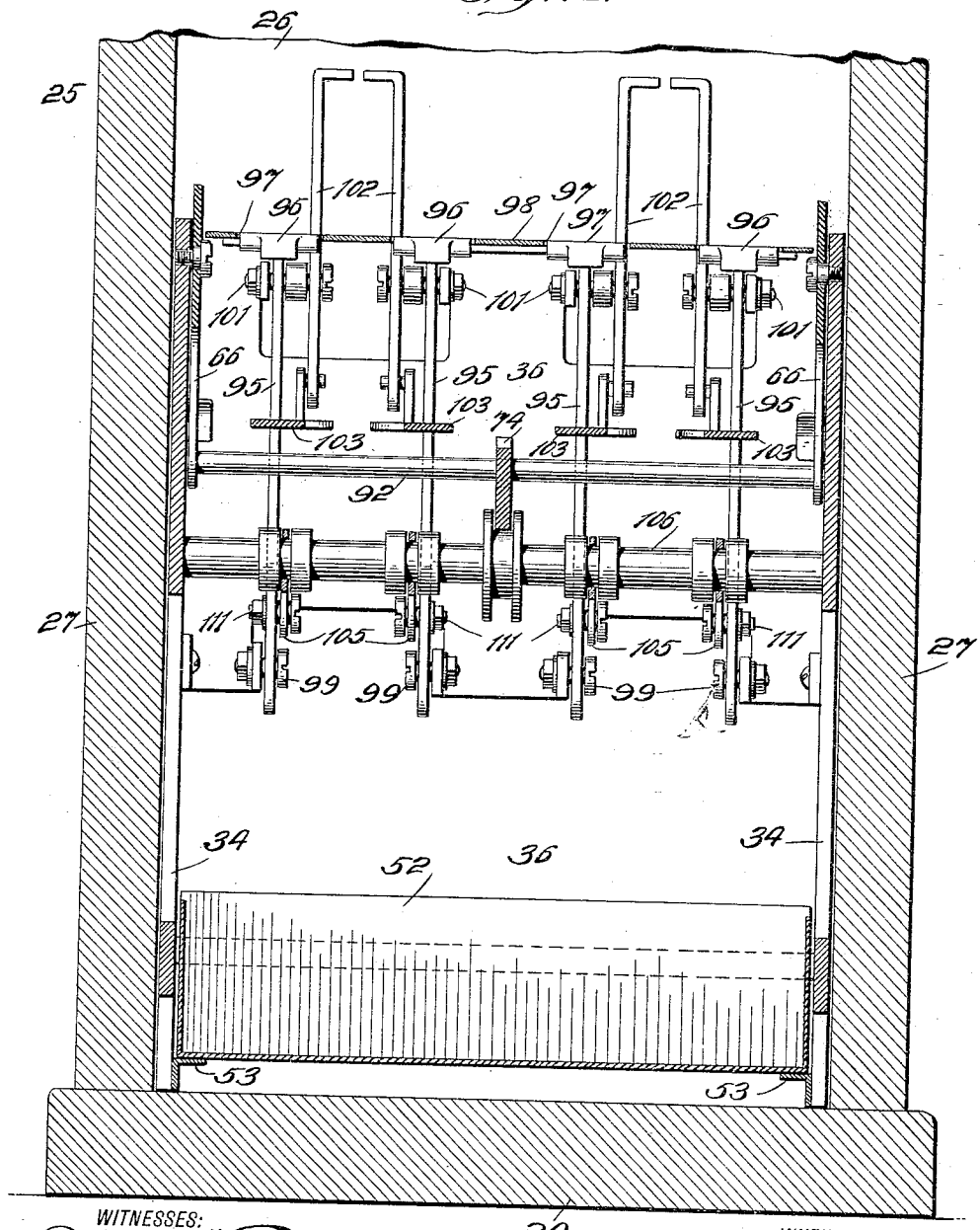
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10 SHEETS—SHEET 8.

Fig. 14.



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Fig. 15.

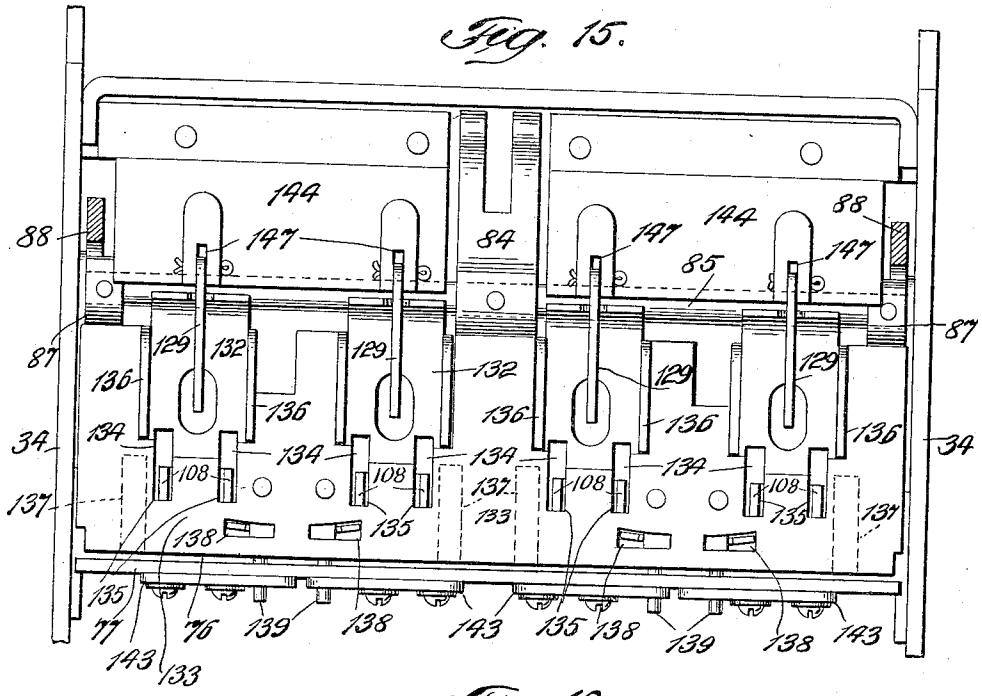
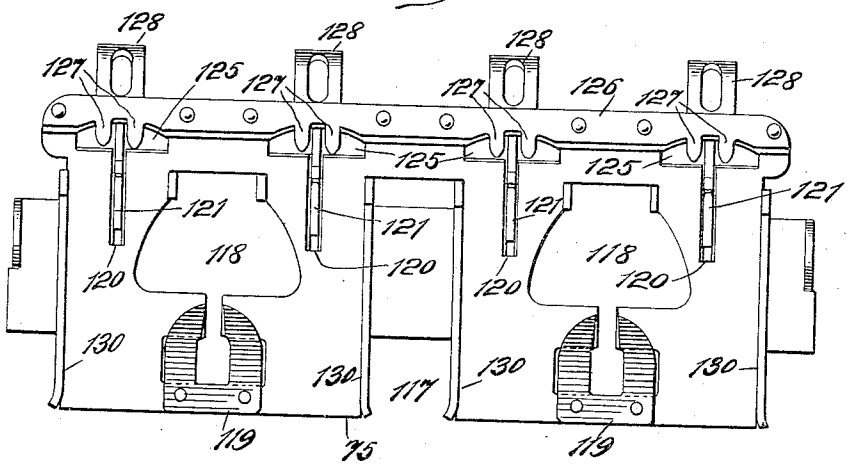


Fig. 16.



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Fig. 17.

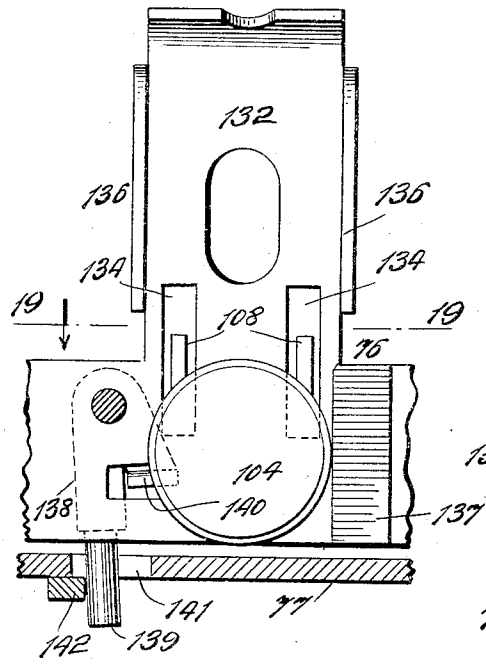


Fig. 18.

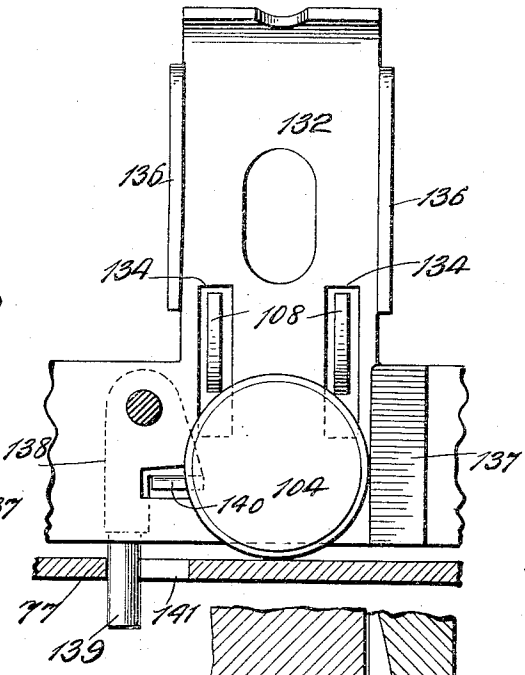


Fig. 19.

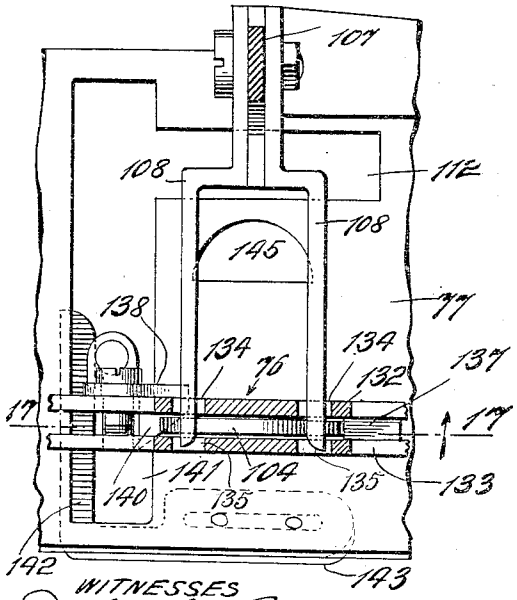
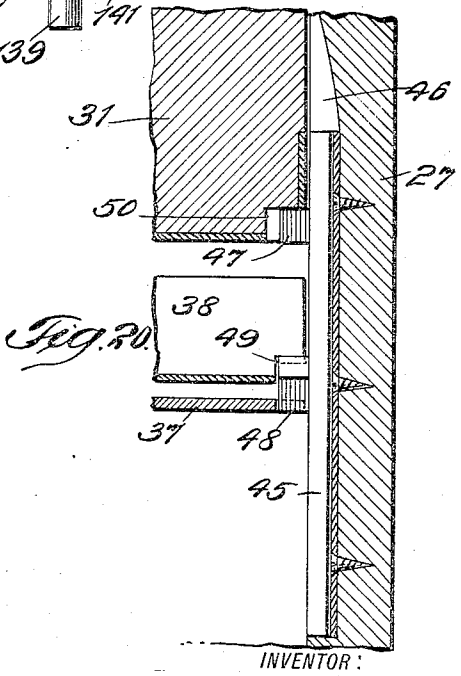


Fig. 20.



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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED VENDING-MACHINE.

1,196,103. Specification of Letters Patent. Patented Aug. 29, 1916.

Application filed April 24, 1916. Serial No. 93,209.

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 pertains more particularly to coin controlled vending machines for the sale of confections and resides in the novel features, structure and combinations of parts hereinafter described and particularly pointed out in the claims.

I present my invention herein as embodied in a four column machine or one having a tray adapted to receive four vertical columns or stacks of the pieces of confection or the like to be sold, and in carrying out my invention I pivotally support the tray from its upper end and connect the lower end thereof with mechanism to be actuated by the exposed operating rod, after the introduction of a proper coin to the machine, whereby the lower end of the said tray is forced rearwardly and in the path of certain goods ejectors properly positioned by the operation of said rod and the presence of the coin, so that the ejectors are permitted to discharge the lower piece or pieces of the confections from the tray. The goods ejectors have simply a vertical movement and on the operation of the machine are elevated to a position at which they are in line with the lower pieces of the goods in the tray, so that upon the rearward swinging movement of the tray, said lower pieces are carried by the tray against the ejectors and become thereby dislodged and finally pass to the purchaser. The machine presented herein has four of the ejectors, since the tray is adapted to hold four columns or stacks of the goods. Each ejector is independently operable on the introduction of the coin, and all of the ejectors may be elevated on the movement of the exposed operating rod provided four coins have been introduced through the four coin slots, one for each ejector and each piece of goods to be sold.

My invention embodies novel coin controlled mechanism operable by a proper coin and not operable by a coin not intended for the machine. The machine therefore embodies means whereby should, for illustration, a silver ten cent piece be introduced through the slot intended for a penny or one cent, the ten cent piece would fail to operate the machine and be returned to the purchaser.

The machine also embodies means for discarding washers, iron disks, paper disks and the like, which are sometimes employed as means for defrauding machines of this class.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a front elevation of a four column machine embodying my invention; Fig. 2 is a vertical section through the same, taken on the dotted line 2—2 of Fig. 1, with all the parts of the machine in normal position ready for operation; Fig. 3 is a like section of the same illustrating the interior mechanism as having been elevated to permit the withdrawal of the cash box and the tray as having been turned with its open side front and hooked upon suitable supports for permitting the tray to be inclined outwardly and fully exposed so that the tray may be replenished with the goods to be sold; Fig. 4 is a vertical section, on a larger scale, through the lower portion of the machine, taken on the dotted line 4—4 of Fig. 1, with the parts of the machine in normal position ready for operation, a coin having been introduced and being shown in position to perform its duty on the operation of the machine in elevating the goods ejector in line with it; Fig. 5 is a substantially corresponding view, partly broken away, showing the machine as having been partly operated, the mechanism being in the condition and position it takes upon the partial withdrawal of the operating rod; Fig. 6 is a substantially corresponding section showing the relative positions of the parts of the mechanism when the operating rod has completed its full outward stroke or is in its extreme outward position, the piece of goods not descending to the purchaser until said rod has been pushed inwardly to its initial position; Fig. 6 illustrates the coin as descending to the coin box, this taking place when the operating rod is in its outward position; Fig. 7 is a horizontal section through the machine, taken on the dotted line 7—7 of Fig. 4; Fig. 8 is a vertical section through the upper por-

tion of the machine and illustrates more particularly the means employed for suspending the upper end of the tray, one trunnion of the tray being shown in section and latched upon the support therefor, and the tray itself being omitted; Fig. 9 is a sectional view through a portion of the same, taken on the dotted line 9—9 of Fig. 8 and illustrating a portion of the tray, the vertical pockets in which normally open rearwardly; Fig. 10 is a horizontal section through the machine, taken on the dotted line 10—10 of Fig. 4, with all the parts of the machine in normal position; Fig. 11 is a vertical section through a portion of the machine and illustrates more particularly the means provided for closing the coin slot when a tray has become emptied; Fig. 12 is a horizontal section through the machine, taken about on the dotted line 12—12 of Fig. 4; Fig. 13 is a top view, partly in section, showing more particularly the coin race plate with the lever arms against which the coins are carried for elevating the goods ejectors to operative position, these lever arms having cam shaped forward ends coacting with the coins to position the ejectors so that on the continued outward movement of the operating rod, the tray is titled backwardly thereby, and the ejectors may act as obstructions to the lower pieces of goods in the tray and force said pieces outwardly toward the front; Fig. 14 is a vertical section through the machine, taken on the dotted line 14—14 of Fig. 4; Fig. 15 is a front elevation, partly in section, of the lower portion of the operative mechanism of the machine located in rear of the front coin plate down which the coins pass to the other portions of the mechanism; Fig. 16 is a detached top view of the front coin plate down which the coins pass to that portion of the mechanism disclosed in Fig. 15; Fig. 17 is a detached view, partly broken away and partly in section on the dotted line 17—17 of Fig. 19, on a large scale illustrating the initial position of the coin after having passed into the operative parts of the machine, the coin being shown as located between a solid abutment and an inclined edge of a pivoted gage; Fig. 18 is a corresponding view of the same illustrating the position of the coin after the operating rod has started outwardly and the coin is acting against the front cam shaped ends of the levers by which the goods ejectors are positioned, the lower edge of the coin being shown as resting on the coin race-plate and the gage being shown as having released the coin to descend to said plate; Fig. 19 is a horizontal section through the same portion of the machine, taken on the dotted line 19—19 of Fig. 17, and Fig. 20 is a vertical transverse section through a portion of the machine and illustrates more particularly adjacent portions of the front door, side of the machine and top coin plate, with the means for locking the lower end of the door and said plate in position.

In the drawings 25 designates the exterior casing of the machine as a whole, said casing comprising a back 26, sides 27, a top 28, a bottom 29, a lower front portion 30, and a removable front or door 31. In the rear of the door 31 is formed a chamber for the tray 32 for holding the stacks or columns of confections, and in the rear of the lower front section 30 of the casing is formed a chamber 33 for the operative mechanism of the machine, said mechanism being secured in a frame composed of sides 34 suitably connected by bars and also by a front plate 35 and a rear plate 36, and said frame being adapted to be bodily introduced within the chamber 33, as shown in Fig. 2, and also to be bodily lifted therefrom, as indicated in Fig. 3.

The front section 30 of the casing extends frontwardly in advance of the vertical plane of the door 31, and the operative mechanism fills in the space between said section 30 and the back 26 of the casing, and above the forwardly projecting portion of the mechanism is provided a frame composed of a plate 37 and an inclined plate or delivery chute 38, said plates being secured together to constitute a frame which may be handled as one piece. The front portion of the plate 37 extends downwardly, as at 39, and engages the upper front portion of the plate 35, and at its rear edge said plate 37 has upwardly extending portions 40 upon which the upper rear edge of the downwardly and frontwardly inclined plate 38 is supported. The lower front edge of the plate 38 is flanged upwardly, as at 41, to form a stop for the goods delivered from the machine. The plate 37 adjacent to its front edge is formed with the coin slots or coin receiving openings 42. The plate 37 at the side edges of its forward portion extends laterally beyond the sides 34 for the operative mechanism frame, forming flanges 43 which are adapted to slide in grooves 44 formed in the sides 27 of the main inclosing casing. The front door 31 is secured at its upper end by a suitable lock, as usual, and said door at its lower end and said frame composed of the plates 37, 38 are locked in position by means of suitable locking bars 45 which are loosely inserted in grooves 46 formed in the sides 27 of the general casing and have lugs 47, 48 extending laterally toward the interior of said casing. The lugs 48 are received within recesses 49 formed in the forward side edges of the plates 37, 38, and the lugs 47 receive recesses 50 formed in the lower side edges of the door 31. In assembling the door, operative mechanism and frame composed of the plates 37, 38, I first place the frame

carrying said mechanism into the chamber 33 of the general casing or to the position shown in Fig. 2, and then apply over the forward portion of said mechanism the said frame composed of the plates 37, 38, and thereupon I slide the locking bars 45 downwardly into the recesses 46, and in doing this the lugs 48 on said bars become arrested when within the recesses 49 of the plates 37, 38. I thereupon introduce the door 31 to position and cause its recesses 50 to pass upon and engage the lugs 47 of the bars 45 (Fig. 20) and finally secure the door by its upper lock 51. The bars 45 being held in the recesses 46 prevent through the medium of their lugs 47, 48 any removal of the door 31 and plates 37, 38 until said door has been unlocked and lifted from the general casing, and thereupon the plates 37, 38 may be lifted from the frame for the operative mechanism and also from the lugs 48 of the bars 45, after which the operative mechanism may be lifted to the position shown in Fig. 3 and the coin-box 52 withdrawn and emptied, said coin-box being slidably mounted between the sides 34 and upon horizontal bars 53 secured to said sides.

Upon the elevation of the operative frame mechanism to the position shown in Fig. 3 for releasing the coin-box, the lower front edge of the frame for said mechanism may be rested on the upper edge of the lower front casing section 30 and the upper rear edge of said frame inclined against the back 26 of the general casing, it being convenient when the mechanism is in such position both to empty the coin-box 52 and replenish the tray 32.

The tray 32 is of the usual general formation being composed of vertical sections, one for each column or stack of goods, secured together side by side. One face of the tray is closed and the other face has flanges 54 for retaining the goods in the pockets of the tray, said pockets being open at their upper ends to receive the goods. Each pocket of the tray 32 is formed at its lower end with inwardly extending flanges 55 which support the stack of goods and are separated from each other at their facing edges so as to leave an opening in the bottom of the tray for the passage therethrough of the goods ejector. In this instance the tray 32 has at opposite sides of its upper end trunnions 56 and at opposite sides of its lower end or portion trunnions 57. The tray is suspended by the engagement of the trunnions 56 with the supporting plates 58 secured to the inner faces of the opposite sides of the casing 25, one of which plates is shown on a clear scale in Fig. 8. The plates 58 are pivoted at their rear ends, as at 59, to plates 60 fastened to the casing and having laterally extending lips 61 carrying set-screws 62 whose inner ends engage lips 63 formed on the plate 58. The purpose of the screws 62 is to permit the adjustment of the plates 58 upwardly or downwardly, so that the tray may be so positioned that its lower end will be in proper relation to the goods ejectors. The plates 58 contain bearing slots or recesses 64 for the trunnions 56, and said trunnions 56 are removably secured within said slots or recesses by means of pivoted latches 65 whose construction and operation will be understood on reference to Fig. 8. The trunnions 56 of the tray 32 are fastened within the bearing slots or recesses 64 of the plates 58 when said tray is arranged in its operative position with its several pockets filled with the goods to be sold, and at such time the open sides of the pockets, shown in Fig. 9, face the back 26 of the casing 25. The trunnions 57 at opposite sides of the lower portion of the tray 32 are disposed within the forks at the upper ends of the upper arms of bell-crank levers 66, and the tray is by said levers given a swinging movement on the trunnions 56 during the operation of the machine, said levers 66 being caused to turn rearwardly on the pull of the operating rod and then forwardly when said rod is pushed inwardly or toward the rear, as hereinafter explained. When the tray 32 is to be replenished its trunnions 56, 57 will be detached from the plates 58 and bell-crank levers 66 respectively and the tray withdrawn from the casing 25, and thereupon said tray will be turned so that the open sides of its pockets face forwardly, and then the trunnions 56 will be hung upon the hooks 67 of the plates 58, as indicated in Fig. 3. After the tray has been replenished it will be removed from the hooks 67 and turned around to face the rear and restored to the bearings 64 of the plates and the forks of the bell-crank levers 66. I provide the hooks 67 on the plates 58 so that the tray 32 may be extended outwardly from the casing 25 and hung in an inclined position, this being for the convenience of the attendant in filling the pockets of the tray.

I number the pieces of confection in tray 32 as 68 and upon each stack of confections is placed a suitable weight 69 which in this instance has a rearwardly projecting arm 70 for coöperation with the means hereinafter described for closing the coin slot 42 when all of the goods in a stack or column have been sold, the purpose of closing the coin slot being to exclude coins therefrom. The tray 32 is adapted to have and in use has a swinging movement, and I provide the front 31 with rubber buffers 71 to receive the impact of the lower portion of the tray when the same is swung forwardly; and to the back 26 of the general casing I secure a leaf-spring 72 whose lower end is flexed

against the tray 32 so as to aid in steadying the tray and rendering its movement efficient and substantially noiseless. The lower end of each pocket of the tray 32 is open in its rear and front faces, as at 73, at the front to an extent somewhat greater than the thickness of one of the pieces of confection 68, so that the tray may be swung rearwardly against the goods ejectors and the goods ejectors pass through the rear openings 73 and out of the front openings 73 and at the same time force ahead of them the lower pieces of confection 68.

The operative mechanism supported in the frame composed of the connected sides 34, comprise three tiltable sections operable from the operating rod or handle 74, one section comprising a coin-plate 75 down which the coins pass from the coin slots 42, and another section comprising a coin carrying frame 76 which receives the coins from the plate 75 and carries them rearwardly along a coin race plate 77, and the third being a frame 78 secured to the arms 79 of the bell crank levers 66 and composed of an upwardly extending plate 80, a lower plate forming a shelf 81 and a depending protecting plate or member 82.

The operating rod or handle 74 has a loose trunnion connection 83 with the upper forked end of a crank arm 84 which is secured upon a transverse rock shaft 85 and has a downwardly extending portion 86 fastened to the frame 76, whereby when said operating rod or handle 74 is pulled outwardly or toward the front, it will, through the lever 84, cause the frame 76 to swing rearwardly from the position shown in Fig. 4 to that illustrated in Fig. 6, and when said rod or handle 74 is moved inwardly to its initial position, said frame 76 will be restored to its initial position shown in Fig. 4 preparatory to receiving another coin.

On the ends of the rock shaft 85 are secured hubs 87 from which extend slotted lever arms 88, which arms extend upwardly and forwardly, as shown in Fig. 4, and receive in their slots pins or screws 89 extending laterally from the upper ends of arms 90 constituting a portion of the frame 75. The frame 75 is pivotally mounted, as at 91, on the side plates 34, and hence during the movement of the lever 84, under the action of the operating rod or handle 74, the frame 75 will have a swinging movement on its pivotal supports 91, the lever arms 88, when the lever 84 is moving the frame 76 rearwardly, operating to swing the frame 78 frontwardly, or from the position shown in Fig. 4 to that illustrated in Fig. 6. When the operating rod or handle 74 is pushed inwardly or restored to its initial position, the lever arms 88 act on the pins or screws 89 to swing the frame 75 inwardly to its initial position shown in Fig. 4.

The lower ends of the bell crank levers 66 are connected by a rod 92 which is seated freely within recesses in the rear end of the operating rod or handle 74, and hence when said rod or handle is drawn outwardly it will swing the upper members of said bell crank levers and the frame 78 upwardly toward the rear, and when said rod or handle 74 is pushed rearwardly it will cause said bell crank levers and frame 78 to turn frontwardly or to their initial position shown in Fig. 4. The bell crank levers 66 are pivotally mounted upon screws 93, and as described hereinbefore, the upper ends of the said bell crank levers are connected with the lower portion of the tray 32. When the operating rod or handle 74 is pulled outwardly the bell crank levers 66 swing the tray 32 rearwardly and then on the return movement of said rod or handle, said levers 66 restore the tray to its initial or front position. The shelf 81 receives the goods as discharged from the tray when the frame 78 is in the position shown in Fig. 6, and then upon the return of the parts to their normal position, said shelf 81 passes into line with the plate 38 and the piece of goods which was deposited on the shelf slides down to the stop 41 and may be removed by the purchaser. When the frame 78 is in its upper position shown in Fig. 6, the protecting plate or member 82 prevents the insertion of an instrument which might be employed to defraud the machine. The plate 80 aids in protecting the lower end of the tray 32 and one of its important duties is to compel a full throw of the operating rod or handle 74. It might be that a person would introduce a proper coin to the machine and then draw the rod or handle 74 outwardly to a partial extent sufficient to almost discharge a piece of the confection, but without moving said rod or handle far enough to release the coin and then perform a pumping operation on the rod or handle with the hope of dislodging pieces of confection one after another with the use of the one coin, and to prevent any such result is one of the purposes of the plate 80. It will be seen on reference to Fig. 5 that if the handle is drawn outwardly only to a partial extent and then pushed inwardly, the plate 80 will pass against the partially dislodged piece of confection and push it inwardly to its former position at the bottom of the stack. Below the door 31 is left an opening 94 into which the plates 37, 38 project and out through which the sold confections are discharged.

The goods ejectors are numbered 95 and in the present instance four of these ejectors are employed, one for each column in the tray 32. The ejectors 95 are vertically movable bars and are shown in lower normal position in Fig. 4 and in their upper operative position in Fig. 5. In Fig. 6 the ejec-

tors are shown as having returned to their normal position after having completed the operation of ejecting a piece of the confection to the shelf 81. The ejectors 95 are vertical bars having forwardly bent upper end portions carrying at their forward ends short transverse bars 96 clearly shown in Fig. 7. When the ejectors are in their lower position, their upper forwardly projecting portions are within slots 97 formed in an angle plate 98 secured to the side frames 34. The ejectors 95 are slotted at their lower ends and guide upon the screws 99 extending through said slots and entering an integral portion of the back plate 36. Near the upper ends of the vertical portions of the ejectors 95 said ejectors are slotted, as shown by dotted lines at 100 in Fig. 5, and guide upon the screws 101 which pass through said slots and enter integral portions of the back plate 36. The screws 101 also serve as pivotal bearings for lever arms 102 connected with the slot closing plates 103 hereinafter referred to. The goods ejectors 95 have a positive movement in an upward direction to their operative position, and this movement is imparted to them when a proper coin, which I number 104, is being carried through the machine and along the race-plate 77. Each ejector 95 has connected with it one arm of a bell-crank lever 105, which lever is pivotally mounted upon a transverse rod 106 and has pivotally connected with its other arm, one arm 107 of a bell-crank composed of said arm 107 and two forwardly projecting cam plates 108, the lower edges of whose forward portions curve downwardly and rearwardly. Each bell-crank composed of the parts 107, 108 is pivotally secured by a screw 109 to a rigid plate 110. The upper end of the arm 107 is slotted to engage a pin on that arm of the bell-crank 105 which said arm 107 engages, and the rear end of the other arm of the bell-crank 105 is slotted to engage the screw 111 secured to the lower vertical portion of the goods ejector 95. I employ two of the cam plates 108 so that the coin 104 may engage at its upper edge and at each side of its vertical center the plates 108 in the manner indicated in Figs. 18 and 19, and when the coin is moved rearwardly below the said plates 108 it will force said plates upwardly and in doing so turn the upper end of the arm 107 rearwardly, and this will have the effect of turning the bell-crank lever 105 toward the rear so that the rear arm of said bell-crank 105 may force the goods ejector 95 from its normal position shown in Fig. 4 to its upper position shown in Fig. 5, the slot at the lower end of the goods ejector and the slot 100 near the upper portion of the ejector serving to guide the ejector and limit its movement. I utilize the coin therefore as a means for positioning the goods ejector, and it will be understood from what has already been said that when the ejector is in its upper position, the tray 32 is swung rearwardly so that the transverse members 96 of the ejector standing in the path of the lower piece of goods in the tray will force said piece outwardly from the tray and onto the shelf 81. After the coin has elevated the ejector it will pass to a discharge opening 112 in the coin race 77 and descend into the coin box 52, as indicated in Fig. 6. When the coin 104 descends from the plate 77, the goods ejector 95 will descend by gravity to its normal position and in doing so turn the bell-crank lever 105 to restore the bell-crank composed of the plates 107, 108 to its normal position. When the coin 104 descends through the slot 112 of the coin race-place 77, it falls into the rear portion of the coin box 52 or in rear of the inclined plates 113, the purpose of said plates 113 being to protect the proper coins and return to the customer any improper coins or the like which may be fed to the machine and not reach the slot 112. As will be hereinafter explained a ten cent or other light coin or the like fed to the machine, will descend upon the upper plate 113 and pass through an opening 114 at the front of the coin box and then fall upon a plate 115 located at the base of an opening 116 in the front section 30 of the main casing, the improper coin or the like thus being returned to the purchaser.

The frame 75 constitutes the coin plate or chute to receive the coins from the coin slots 42, and this plate or frame 75 is probably more clearly illustrated in Figs. 12 and 16, the edge outline of the plate being indicated in Figs. 4, 5 and 6. The frame or plate 75 extends between the sides 34 of the supporting frame for the mechanism and is swiveled upon the pivot screws 91 hereinbefore referred to. The frame or plate 75 has an opening 117 in its front portion through which the operating rod or handle 74 may have its movement, and said frame or plate 75 is formed with openings 118 through which washers and the like may descend to the forward portion of the coin box 52. The frame or plate 75 is equipped with magnets 119, one magnet being disposed between two of the slots 42 for the entrance of coins so that one magnet may serve for two coin slots. The magnets 119 have curved inner ends and washers or the like arrested by the magnets will roll along said ends and fall through the openings 118. The frame or plate 75 has a series of slots 120 formed in its inner portion and within these slots are pivotally secured weight testers 121, the outline of which is clearly shown in Fig. 4, and these weight testers may also serve as washer catchers.

The weight testers 121 have a lower arm or weighted portion 122, an upwardly deflected finger 123 and a short claw 124. The finger 123 normally stands in the path of a coin introduced, and if the coin is of proper weight it will turn said finger 123 downwardly in opposition to the weighted portion 122 of the tester and pass thence to the coin carrying frame 76, but if the coin is of improper weight, such as being a ten cent piece when a penny is required, the weight tester 121 will not be tilted sufficiently for the coin to enter the coin carrying frame 76 and will, on the outward pull of the operating rod or handle 74, fall into the front portion of the coin box and be returned to the purchaser. Should a washer be introduced, the weight tester would turn sufficiently for the claw 124 to enter the hole therein and prevent the washer from passing to the coin carrying frame 76, and upon the outward pull of the operating rod or handle 74 the washer would fall and the plate or frame 75 then being substantially vertical, pass into the front portion of the coin box and be returned to the customer. A discharged coin or a discharged washer will descend through openings 125 in the plate 75, and proper coins will, by means of the finger 123 of the weight tester be deflected over a plate or strip 126 secured upon the offset inner edge portion of the plate or frame 75. The plate or strip 126 has forwardly and upwardly inclined fingers 127 to aid in confining a light weight coin or a washer to its discharge through the openings 125. The front edge of the plate or frame 75 is formed with slotted members 128 which in the normal position of the parts of the mechanism receive the lower ends of auxiliary weight testers 129, these being pivoted to the plate or frame 76 and one being in the path leading from each coin slot 42. A proper coin introduced to the machine at a coin slot 42 will slide down the frame or plate 75 and tilt the weight tester 121 and pass by it and be by the finger 123 thereof directed over against the auxiliary tester 129 whence the coin will descend to its position shown in Fig. 4 preparatory to the operating rod or handle 74 being pulled outwardly. The plate or frame 75 is pivotally mounted to swing forwardly when the operating rod or handle 74 is pulled outwardly, so that any matter arrested on said plate or frame may be permitted to descend to the front portion of the coin box, but otherwise it would not be necessary that said frame or plate 75 be pivotally mounted. The plate or frame 75 is also formed at opposite sides of and properly spaced from the magnets 119, with flanges 130 for aiding in directing the coins introduced to the machine to the coin testers 121.

The coin carrying frame 76 is actuated by the lever arm 84 and is hung from the rock-shaft 85 to which said lever arm is secured, and said frame 76 has at its ends weights 131 to aid in restoring the frame to its initial position shown in Fig. 4 after the operating rod or handle 74 has been pulled outwardly. The frame 76 comprises a main plate 132 and a front auxiliary plate 133 between which plates the coin is received from the coin plate or frame 75, as shown in Fig. 4. The plate 132 is slotted, as at 134, to permit the passage therethrough of the forward portions of the cam-shaped plates 108 when the frame 76 is swung rearwardly, and the plate 133 is recessed, as at 135, to permit the passage therethrough of the forward portions of said plates 108. The auxiliary coin testers and deflectors 129 hang downwardly in close relation to the plate 132 and are in line with the coin testers 121, and at opposite sides of the depending portions of the auxiliary coin testers and deflectors 129, the plate 132 is formed with partitions 136 for aiding in the direction of the coins to the rear of the plate 133 so that the coin may stand between said plates. Between the plates 132 and 133 are certain filler or spacing plates 137 against which one edge of the coin passes on the introduction of the coin to the frame 76. The plate 132 has pivotally secured to its rear face a series of coin size testers 138 which comprise a body portion, a downwardly extending finger 139 and a frontwardly extending member 140 which is beveled outwardly on its edge adjacent to the space provided for the coin when dropped between the plates 132, 133. The bevel on the member 140 is shown more clearly in Fig. 19, and said member projects through a slot in the plate 132 and extends into a slot in the front plate 133. The finger 139 extends downwardly through a slot 141 in the race-plate 77 and by gravity normally rests against a finger 142 formed on an adjustable plate 143 secured to the forward lower portion of the race-plate 77. The form of the fingers 142 and plates 143 is shown in Fig. 13. When the coin first passes between the plates 132, 133, one edge will engage the edge of the filler plate 137 and the other edge will engage the inclined member 140 of the size testers 138. If the coin is of proper dimensions, it will be held suspended slightly above the race plate 77, as shown in Fig. 17, and then when the frame 76 is swung rearwardly the pressure of the coin against the inclined member 140 of the tester 138 will, when the finger 139 of the tester is rearwardly beyond the rigid finger 142, force said finger 139 laterally from the position in which it is shown in Fig. 17 to that in which it is shown in Fig. 18, and at such time the coin will drop to the race-plate 77 and be in a position to

engage the plates 108 on the further rearward swinging motion of the frame 76. If the coin should have been of too small diameter, such as the diameter of a ten cent piece when a penny is required, it would not be held between the filler plate 137 and size tester 138, but would have fallen downwardly between the plates 132, 133 and escaped at the front of the race-plate 77, whence it would be returned to the customer. The fingers 142 are carried by adjustable plates 143 so that the testers 138 may be nicely adjusted to the diameter of the proper coin to be held between them and the filler plates 137.

The auxiliary weight testers and deflectors 129 are weighted at their upper rear portions, as shown in Fig. 4, and pivoted in forks 147 (Fig. 15) formed in small plates secured to transverse alined plates 144 secured to the rigid frame of the mechanism. The plates 144 are separated at their inner adjacent ends so as to allow room for the play of the upper portion of the locking lever arm 84. The deflectors and testers 129 serve to prevent a light weight coin or a disk of paper or the like from entering between the plates 132, 133, and such coin on striking one of said deflectors and testers 129 and being unable to tilt the same properly, will be returned to the customer. The plates 144 are rigid and their purpose is to support the testers 129.

The race-plate 77 is a rigid plate which is curved upwardly in its front portion, and along this plate the coins are carried by the frame 76 to the discharge 112 therefor. The plate 77 is shown in top elevation in Fig. 13, and as will be seen carries the plates 143 for the fingers 142 and also the plates 110 in which the lower ends of the lever arms 107 are pivoted. The plate 77 has in the path for each coin a discharge slot 112 and forwardly thereof the plate has a semi-circular opening 145. The opening 145 is to compel a full outer movement of the operating rod or handle 74. Should a customer pull the rod 74 outwardly to such extent as might nearly result in the discharge of a confection from a tray and then attempt to push the rod inwardly, the lower edge of the coin 104 would be carried against the front straight edge of the opening 145 and the inward movement of the rod 74 would become arrested thereby. The rear edge of each opening 145 is curved and hence when the rod 74 is being pulled outwardly and the coin when arriving at it enters the opening 145, the continued outward movement of the rod 74 is not interfered with, since during such movement the coin will ride out of the opening 145 and finally pass to the discharge slot 112, and descend through the same into the coin box.

I preferably pivotally connect to the lower end of the frame 76 a trailer plate 146, which inclines downwardly and frontwardly when the parts of the machine are in their normal condition and is drawn rearwardly over the race-plate 77 when the operating rod or handle 74 is drawn outwardly and the frame 76 swung rearwardly. The plate 146 serves as a deflecting plate to direct coins and the like which may be light in weight to the forward portion of the coin-box and also serves to protect the race-plate 77 from a deposit thereon of paper or the like which might be stuffed through the coin slots 42.

I provide means as hereinbefore mentioned for closing the coin slots 42 after all the goods in a stack in the tray 32 have been sold, and said means comprise for each coin slot 42 a pivoted lever arm 102 and a shutter plate 103 connected therewith. The arm 102 and shutter plate 103 act in coöperation with a rearwardly projecting arm 70 connected with a weight 69 resting on the goods in the tray 32. When all of the goods in a tray, except two bottom pieces, have been sold and then the machine is operated to deliver the upper one of said two pieces, the arm 70 of the weight 69 will descend upon the upper laterally bent end of the lever arm 102, this taking place on the front stroke of the operating rod or handle 74, effecting the discharge of said second to the last piece of confections onto the shelf 81, and then when the rod or handle 74 is again pushed inwardly, said arm 70 on the weight 69 and on the descent of the weight to the last piece of goods in the tray, will pass downwardly at the front of the upper bent end of the lever 102; on the next operation of the rod or handle 74 to discharge the last piece of confection in the tray, the arm 70 on the rearwardly swinging action of the tray to effect the discharge of said last piece of confection, will be carried against the upper end of the lever 102 and turn said lever on the screw 101 with the result that the lower end of the lever will force the plate 103 forwardly and close the coin slot 42, as shown in Fig. 11, thus excluding from said slot any further coins.

The shutter plates 103 are clearly illustrated in Fig. 10, and these plates are flat metal plates mounted upon cross-bars 149 which are slotted to receive depending pins 150 carried by said plates. Below the transverse bars 149 are leaf springs 151 which are connected with the plates 103 and press against the cross-bars 149 and thus serve to steady the plates 143 and prevent their automatic movement. A spring 151 is provided for each plate 103, and this spring is a frictional means for holding the plate 103 in any position to which it may be moved.

The operation of the machine will be largely understood from the foregoing description, without further elaborate expla-

nation. The method of emptying the coin box and replenishing the tray has been quite fully described and it may be assumed for purposes of further description that the tray has been filled and the parts of the machine returned to their normal position shown in Fig. 2. Upon the introduction of a proper coin to a coin-slot 42 the operating rod or handle will be pulled outwardly and then moved inwardly, a full stroke being made at each instance. When a proper coin is fed to a coin-slot 42 it will descend down the frame or coin plate 75 and pass to its proper position between the plates 132, 133 of the coin carrying frame 76 and then upon an outward pull on the rod or handle 74 the coin carrying frame 76 will turn rearwardly and the coin frame or plate 75 frontwardly, and during the rearward swinging motion of the frame 76 the coin will be carried below the cam plates 108 and position the goods ejectors 95. At the same time the shelf 81 and plate 80 will be turned upwardly and the lower end of the tray 32 swung rearwardly by the action of the lever arms 66, the lower piece of confection in the tray being moved against the goods ejector and dislodged from the tray, said piece falling on the shelf 81 then in a horizontal position, as shown in Fig. 6. Upon the inward movement of the operating rod or handle 74 the frames 75, 76 become restored to their normal position and the shelf 81 is turned downwardly in line with the discharge plate 38, and the lever arm 66 turns the lower end of the tray 32 frontwardly. The goods ejector 95 returns by gravity to its lower position after having performed its function. A coin may be placed in each of the coin slots 42 and four pieces of goods ejected on one operation of the rod or handle 74, but when only one coin, for illustration, is inserted through a coin slot, and the rod 74 is operated, only one piece of confection will be ejected, since under that condition only one of the goods ejectors will be positioned to compel the operation of the machine.

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

1. In a coin-controlled vending machine, in combination, a general casing, a tray therein mounted to swing for holding a stack of confections, a goods-ejector to dislodge the lower piece of confection, an operating rod, means operable therefrom in connection with an introduced coin for positioning the ejector, and means operable from said rod for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece.

2. In a coin-controlled vending machine in combination, a general casing having a coin slot, a tray within said casing mounted to swing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, manually operative means, means operable therefrom in connection with an introduced coin for positioning the ejector and means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece.

3. In a coin-controlled vending machine, in combination, a general casing having a coin-slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, manually operative means for, in connection with an introduced coin, positioning the ejector, and means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece, the means for positioning the ejector comprising a frame to receive and carry the coin, a race-plate over which said coin is carried on edge, and means in the path of the coin and connected with the goods ejector and adapted to be moved by the coin during its travel for actuating said ejector.

4. In a coin-controlled vending machine, in combination, a general casing having a coin-slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, manually operative means for, in connection with an introduced coin, positioning the ejector, and means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece, the means for positioning the ejector comprising a frame to receive and carry the coin, a race-plate over which said coin is carried on edge, a bell-crank having a cam-plate in the path of the coin and to be engaged and actuated thereby, and a bell-crank to which the first-mentioned bell-crank is connected and which has one arm connected with the goods ejector for moving the same.

5. In a coin-controlled vending machine, in combination, a general casing having a coin-slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, manually operative means for, in connection with an introduced coin, positioning the ejector, and means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece, the means for positioning the ejector comprising a frame to receive and carry the coin, a race-plate over which said coin is carried on edge, a bell-crank having a cam-plate in

the path of the coin and to be engaged and actuated thereby, and a bell-crank to which the first-mentioned bell-crank is connected and which has one arm connected with the goods ejector for moving the same, the goods ejector being slidably mounted and free to descend by gravity upon the escape of the coin to the coin box.

6. In a coin-controlled vending machine, in combination, a general casing having a coin-slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, manually operative means for, in connection with an introduced coin, positioning the ejector, and means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece, the means for positioning the ejector comprising a frame to receive and carry the coin, a race-plate over which said coin is carried on edge, a pivotally mounted bell-crank in the path of the coin and having two cam-shaped arms to be engaged by the edge of said coin at the opposite sides of its vertical center and actuated therefrom, and a bell-crank pivotally connected with one arm of said first-mentioned bell-crank and also pivotally connected with the goods ejector for actuating the same, said goods ejector being mounted to move to its inoperative position before the tray is swung to its initial position.

7. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, manually operative means for, in connection with an introduced coin, positioning the ejector, and means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against the ejector for dislodging said piece and then returning the tray to its initial position after the goods ejector has left its operative position.

8. In a coin-controlled vending machine, in combination, a general casing having a coin-slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, manually operative means for, in connection with an introduced coin, positioning the ejector, means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against the ejector for dislodging said piece and then return the tray to its initial position after the goods ejector has left its operative position, a shelf on which said piece of confection passes when dislodged from the tray, and means on the return of the manually operative means to the initial position of the same for tilting said shelf to permit the final discharge of said piece to the customer.

9. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, a pivotally mounted shelf to receive the dislodged piece of confection from said tray and having secured with it a plate normally closing the discharge from the tray, manually operative means for, in connection with an introduced coin, positioning the ejector, means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein again said ejector for dislodging said piece onto said shelf, and means connected with the means for swinging the tray for turning said shelf upwardly to receive the dislodged piece of confection and thereafter downwardly to discharge the same and carry said plate into a position to close the discharge exit from the tray.

10. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, a pivotally mounted shelf to receive the dislodged piece of confection from said tray, manually operative means for, in connection with an introduced coin, positioning the ejector, means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece onto said shelf, and means connected with said manually operative means for turning said shelf upwardly in position to receive the dislodged piece of confection and thereafter downwardly to discharge the same.

11. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, a pivotally mounted shelf to receive the dislodged piece of confection from said tray, manually operative means for, in connection with an introduced coin, positioning the ejector, means connected with said manually operative means for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece onto said shelf, and means connected with said manually operative means for turning said shelf upwardly in position to receive the dislodged piece of confection and thereafter downwardly to discharge the same, said casing

having an opening for the delivery of the goods sold and a stationary inclined plate extending from without through said opening and being in line with said shelf when said shelf is in its lower position.

12. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, an operating rod, pivoted levers engaging said rod and the lower portion of said tray for permitting the swinging motion of the tray on the sliding motion of said rod, and means operable from said rod, in connection with an introduced coin, for positioning the ejector.

13. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, an operating rod, pivoted levers engaging said rod and the lower portion of said tray for permitting the swinging motion of the tray on the sliding motion of said rod, and means operable from said rod, in connection with an introduced coin, for positioning the ejector, said means for positioning the ejector comprising a frame adapted to receive and carry the introduced coin, a race-plate along which said coin is carried on edge by said frame, a cam shaped plate against which the upper edge of said coin moves while being carried to its delivery position for actuating said plate, and lever means between said plate and the goods ejector for positioning the ejector therefrom.

14. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, an operating rod, pivoted levers engaging said rod and the lower portion of said tray for permitting the swinging motion of the tray on the sliding motion of said rod, and means operable from said rod, in connection with an introduced coin, for positioning the ejector, said means for positioning the ejector comprising a frame adapted to receive and carry the introduced coin, a race-plate along which said coin is carried on edge by said frame, a cam shaped plate against which the upper edge of said coin moves while being carried to its delivery position for actuating said plate, and lever means between said plate and the goods ejector for positioning the ejector therefrom, said ejector being a vertically disposed bar having a laterally turned end to engage the confections and being adapted to descend by gravity to its inoperative position upon the release of the coin from said plate.

15. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections the open side of which stack faces rearwardly, a goods ejector to dislodge the lower piece of confection, an operating rod, means operable therefrom in connection with an introduced coin for positioning the ejector, and means operable from said rod for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece and then returning said tray to its initial position, said tray being open at the lower end of its front and rear sides and having a slotted bottom so as to permit the movement of the tray along said ejector, and said ejector upon the release of the coin to enter the coin box being adapted to descend by gravity before the tray is swung to its initial position.

16. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, an operating slide rod, means operable therefrom in connection with an introduced coin for positioning the ejector, and means operable from said rod for swinging the tray to carry the lower piece of goods therein against said ejector for dislodging said piece and then returning said tray to its initial position, said tray being open at the lower end of its front and rear sides and having a slotted bottom, so as to permit the movement of the tray along said ejector, and said ejector upon the release of the coin being adapted to move to its initial position before the tray is swung to its initial position.

17. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the pieces of confection, one after another, from the bottom of the stack, a weight loosely resting on said stack and having an outwardly projecting arm, an operating rod, means operable therefrom in connection with an introduced coin for positioning the ejector, means operable from said rod for swinging the tray to carry the bottom piece of goods therein against said ejector for dislodging said piece and then returning said tray to its initial position, a plate for closing the coin slot on the sale of the last piece of goods in the tray, and a lever arm connected with said plate for moving the same to its operative position, said lever arm being in the path of the arm connected

with said weight when the latter is in its lower position, so that on the swinging movement of the tray to sell the bottom piece of goods, the said arm may on the swing of the tray to dislodge the said piece be moved against said lever arm for actuating it to move the slot closing plate.

18. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, an operating rod, means connecting said rod with said tray, for swinging the tray on the movement of the rod, and means coöperating with said rod, in connection with an introduced coin, for positioning the ejector comprising an oscillatory frame adapted to receive and carry the coin, a race plate above which said coin is carried, a pivoted gage carried by said frame initially positioned to retain a coin of proper diameter and thickness and having a depending finger to ride along a finger on said race plate and finally off therefrom to allow the coin to settle on said race-plate, and pivoted levers to be engaged by said coin and actuated therefrom on its travel along said race plate to its point of discharge for positioning the goods ejector.

19. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, an operating rod, means connecting said rod with said tray, for swinging the tray on the movement of the rod, and means coöperating with said rod, in connection with an introduced coin, for positioning the ejector comprising an oscillatory frame adapted to receive and carry the coin, a race plate above which said coin is carried, a pivoted gage carried by said frame initially positioned to retain a coin of proper diameter and thickness and having a depending finger to ride along a finger on said race plate and finally off therefrom to allow the coin to settle on said race-plate, and pivoted levers to be engaged by said coin and actuated therefrom on its travel along said race plate to its point of discharge for positioning the goods ejector, said race-plate having a slot for the escape of the coin after its function has been performed and in advance of said slot a semi-circular opening to be engaged by the coin for compelling a full movement of the operative parts of the machine.

20. In a coin-controlled vending machine, in combination, a general casing having a coin slot, a vertically disposed tiltable tray in said casing for holding a stack of confections, a goods ejector to dislodge the lower piece of confection, an operating rod, means connecting the lower end of said tray with said rod for swinging the tray on the sliding motion of the rod, and means connected with said rod for, in connection with an introduced coin, positioning the goods ejector in the path of the lower piece of goods in the tray, said means leading from the coin slot to the ejector and comprising a tiltable coin plate or chute having a coin tester and deflector, a tiltable coin carrying frame connected therewith and adapted to receive the coin from said plate or chute, a coin-race along which said frame carries the coin, and lever means in the path of the coin and connected with the goods ejector, whereby on the movement of the coin to its discharge it may position the ejector.

Signed at New York city, in the county of New York and State of New York, this 20th day of April A. D. 1916.

HARVEY GILES.

Witnesses:
ARTHUR MARION,
CHAS. C. GILL.

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