

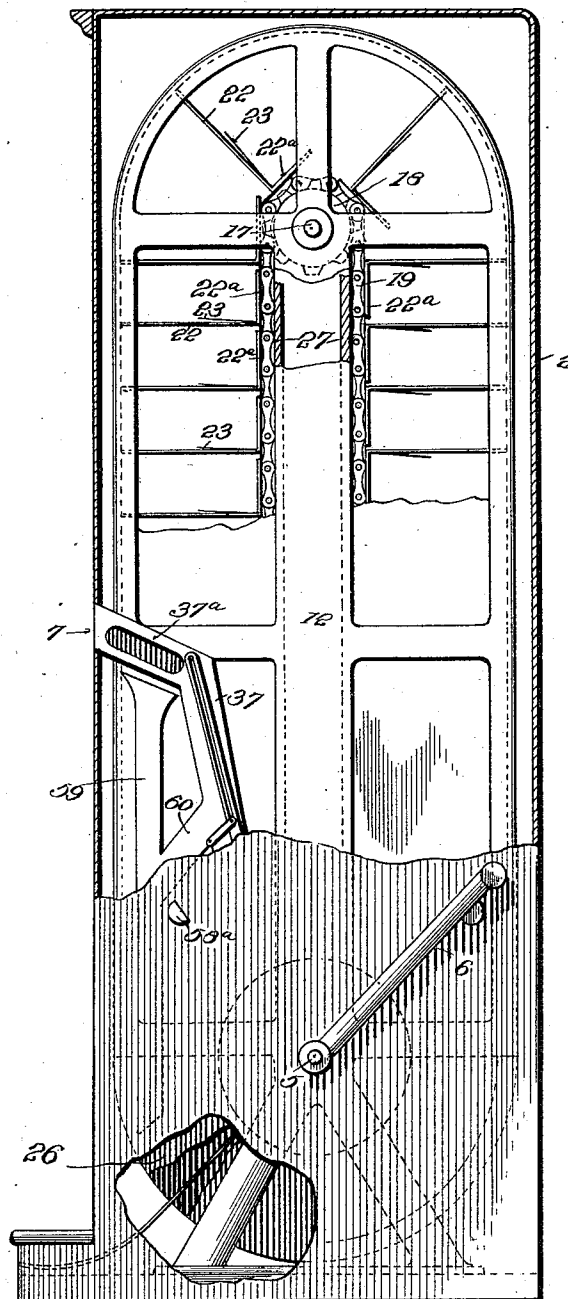
G. W. MILLER.
 COIN ACTUATED MECHANISM FOR VENDING MACHINES.
 APPLICATION FILED OCT. 21, 1911.

1,046,099.

Patented Dec. 3, 1912.

4 SHEETS—SHEET 1.

Fig. 1.



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Witnesses

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By

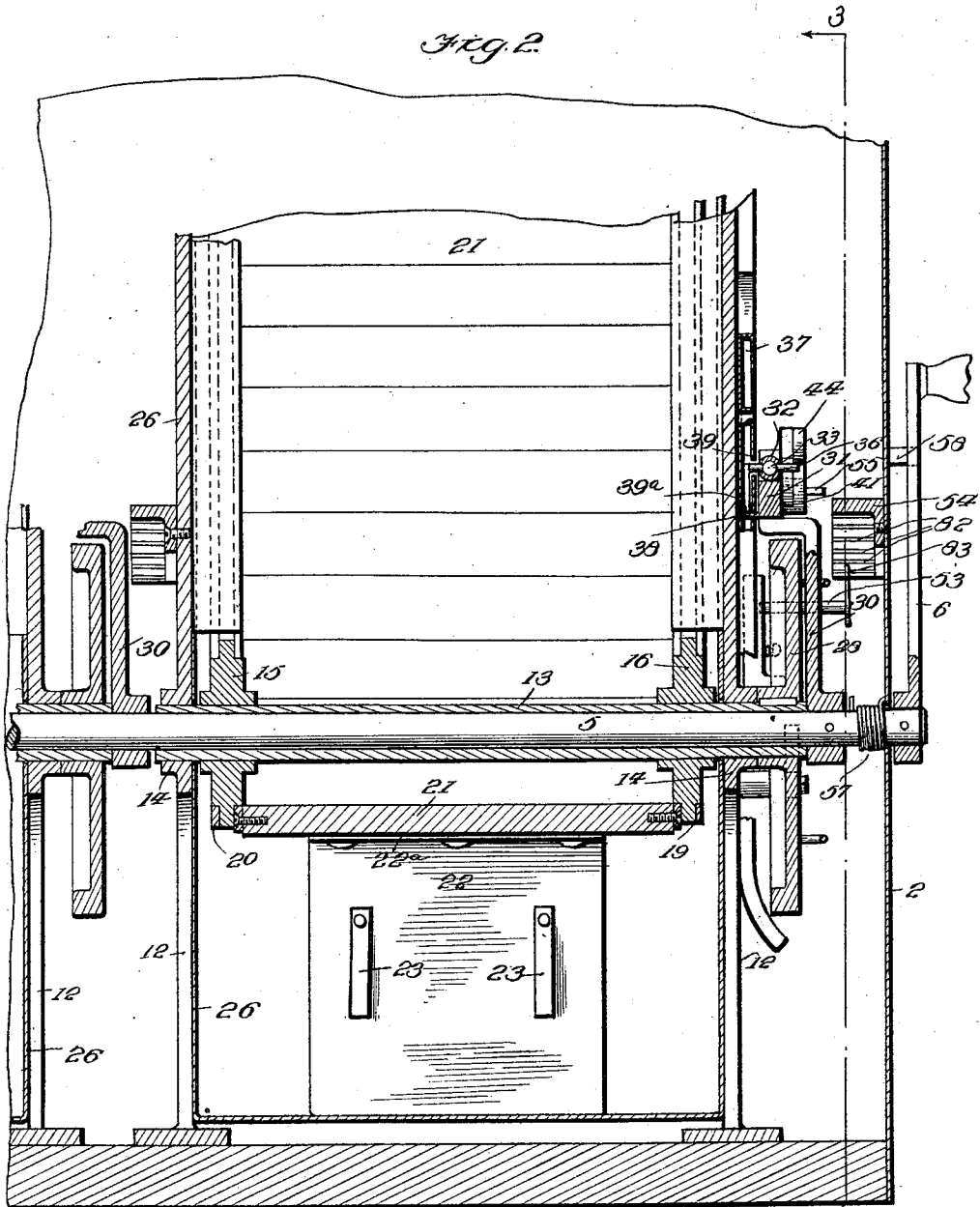
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4 SHEETS—SHEET 2.



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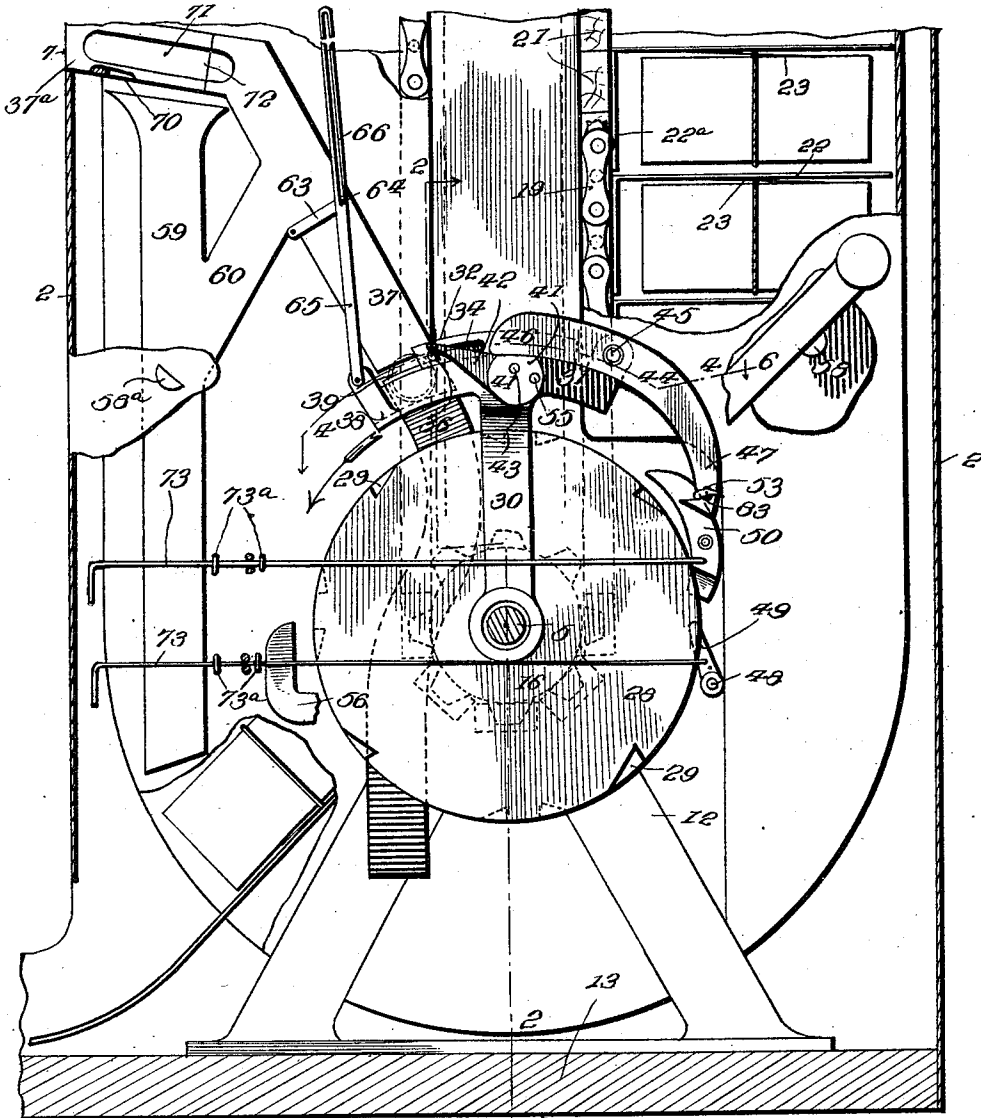


Fig. 3.

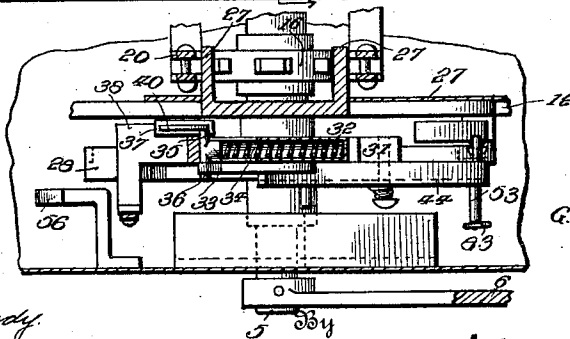


Fig. 4.

Witnesses

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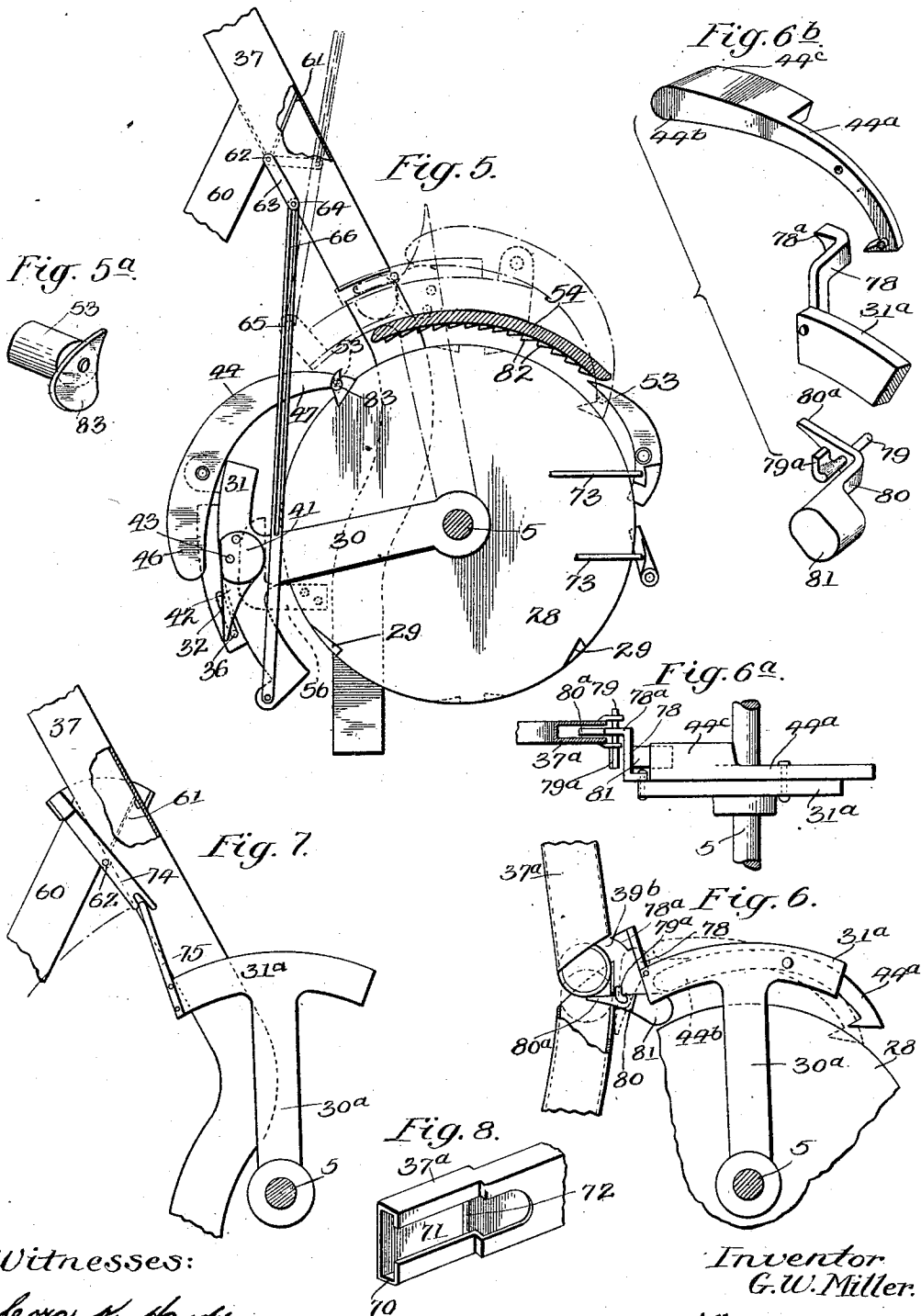
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4 SHEETS-SHEET 4.

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UNITED STATES PATENT OFFICE.

GEORGE W. MILLER, OF LOS ANGELES, CALIFORNIA.

COIN-ACTUATED MECHANISM FOR VENDING-MACHINES.

1,046,099.

Specification of Letters Patent.

Patented Dec. 3, 1912.

Application filed October 21, 1911. Serial No. 655,923.

To all whom it may concern:

Be it known that I, GEORGE W. MILLER, citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented certain new and useful Improvements in Coin-Actuated Mechanism for Vending-Machines, of which the following is a specification.

My invention relates to coin operated actuating mechanism for vending machines, and the primary object of my invention is to provide a simple and effective mechanism whereby, upon the deposit of a coin an operative engagement may be effected between an actuating lever and the vending machine.

A further object is to provide a very simple means for ejecting slugs, counters and coins of smaller size than that required to operate the mechanism.

A further object is to provide for closing off the main coin chute while the machine is being actuated, or in case the actuating mechanism is prevented from returning to its original position and shunting a coin placed in the chute into a relative chute whereby it may be returned to the depositor.

A further object is to provide means for preventing the return of the several parts of the mechanism to their initial position upon a partial actuation of the machine and unless the actuating lever has been fully moved to fully complete the delivery of the article being vended.

Another object is to prevent any movement of the vending mechanism in either direction except upon the deposit of a coin and the operation of the actuating lever.

Other objects will be stated in the course of the following description.

My coin actuated mechanism is intended to be used with the vending machine illustrated and described in my pending application, Serial No. 627,568, filed on the 16th day of May, 1911, though not necessarily limited to such use. In this vending mechanism a plurality of compartments are shown, each compartment having therein an endless delivery chain or equivalent member provided with projecting shelves upon which the articles to be vended are disposed. A separate coin chute is used for each of these compartments and a common actuating means is used for all of the compartments, the vending mechanism for each compartment being normally out of engagement with the common actuating means but being

adapted to be engaged thereby upon the deposit of a coin in the proper chute. My present invention relates entirely to the coin actuated mechanism.

In the drawings: Figure 1 is an end elevation of a vending machine, the upper portion of the machine being broken away so as to show the location of a coin chute and the disposition of the article carrier. Fig. 2 is a fragmentary enlarged section on the line 2—2 of Fig. 1 and showing the lower portion of the vending mechanism with the coin operating mechanism connected therewith. Fig. 3 is a fragmentary enlarged cross section on the line 3—3 of Fig. 2. Fig. 4 is a horizontal sectional detail on the line 4—4 of Fig. 3. Fig. 5 is a view analogous to Fig. 3, the casing structure and vending mechanism not being shown, however, and showing the position of the coin actuating mechanism at the limit of its path of movement in one direction. Fig. 5^a is a fragmentary enlarged view of the stop pin 53 with the pawl 83 thereon. Fig. 6 is a fragmentary view of a modified form of actuating mechanism, the ratchet wheel not being shown. Fig. 6^a is a plan view of the construction shown in Fig. 6. Fig. 6^b is a detail perspective view of the pawl 44^a, the coin depressing finger and the coin supporting member separated from the carrying mechanism. Fig. 7 is a fragmentary elevation partly sectional of a modified form of mechanism for actuating the gate in the coin chute. Fig. 8 is a detail perspective view of a portion of the coin chute.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

The vending mechanism devised by me comprises a casing 2, preferably rectangular in form, and entirely inclosing the vending mechanism and the coin actuating mechanism. This casing may be provided with a door in either its front or back for the recharging of the vending mechanism and may be constructed in any desired manner. Preferably this casing incloses a plurality of vending mechanisms or compartments.

Passing through the lower end of the casing is the operating shaft 5 provided with the actuating handle 6 whereby the vending mechanism may be actuated upon the deposit of a coin. There are as many coin slots and chutes as there are vending mech-

anisms. One of these coin slots is shown in Fig. 1 together with the corresponding chute, this coin slot being designated 7. The base of the vending machine is preferably made of wood, and secured to this base are a plurality of vertically extending supporting frames 12 of the form illustrated in Fig. 1. There will be a pair of these frames for each vending compartment.

The shaft 5 is the common operating means for the vending mechanism of each compartment and extends transversely entirely through the casing of the vending machine and is supported in bearings in any suitable manner. There are, however, separate coin actuating means for each compartment. The coin actuating means of one compartment is precisely the same as the actuating means for the other compartments and hence a description of one applies to all.

Surrounding the shaft 5 is a sleeve 13 which is loose upon the shaft 5, this sleeve being supported in suitable bearings 14 in the frames 12. Mounted upon the sleeve 13 are the spaced sprocket wheels 15 and 16 which are fixed upon the sleeve 13 just inside of the frames 12. Located in the upper portion of the casing 2 is the shaft 17 which extends transversely through the casing and which is mounted in the supporting frames 12. This shaft is also provided with sleeves similar to the sleeves 13, and mounted on these sleeves are the sprocket wheels 18 similar to the wheels 15 and 16. These sprocket wheels 18 are of course in alinement with the sprocket wheels 15 and 16. Passing over the sprocket wheels 15 and 16 and the sprocket wheels 18 are the sprocket chains 19 and 20. Slats 21 connect the sprocket chains 19 and 20. These slats are preferably rectangular in cross section so as to present flat bearing surfaces to each other when the sprocket chains are straight, and thus prevent any deflection of the sprocket chains under the weight of the articles being vended.

Secured to the slats 21 and extending outwardly therefrom are the package carriers 22 which are in the form of shelves formed with base flanges 22^a which may be screwed to the slats 21. Each of these shelves 22 is provided with spaced resilient fingers 23 whereby the article carried upon the shelves may be engaged with the shelves until a point is reached where the article is delivered.

A sheet metal casing 26 is disposed between each pair of supporting frames 12 so as to separate the package carriers of one compartment from the package carriers of the next adjacent compartment and so as to inclose the package carriers and its contents, thus preventing the articles vended in one compartment from deleteriously

affecting the articles vended from any other compartment. This casing is provided with an opening at the bottom for delivering the package or other article being vended. Flanges 27 extend inwardly from the casing 26 and form guideways for the sprocket chains so as to hold the packages from sagging.

As before stated, each compartment is provided with an independent coin-controlled mechanism which forms the subject of this application. This mechanism includes a wheel or disk 28 which is fixed upon the sleeve 13 and is adapted to rotate said sleeve and the article vending carriers. Disposed upon the main actuating shaft 5 adjacent to the side face of the wheel or disk 28 is an operating arm 30 which extends normally upward beyond the periphery of the wheel 28 and is then laterally bent to a plane inside the wheel 28. Carried upon the outer end of this arm in any suitable manner is the operating head 31. This head is in the form of a segment of a circle and extends concentric to the operating shaft 5.

In the form of my invention shown in Fig. 3, the head is provided upon its upper face with a spring inclosing casing 32 within which as illustrated in Fig. 4 there is disposed a plunger 33 and a spring 34 which forces the plunger outward. The sides of the casing 32 are slotted, and attached to the plunger 33 are the oppositely projecting pins 35 and 36. The spring 34 of course holds these pins to the extremity of the slots in the casing 32, that is, in the position shown in Fig. 3. Extending downward from the coin slot 7 and to the head 31 is the coin chute 37 which will be hereafter described. This coin chute 37 is formed with a transversely extending slot 39 into which the pin 35 extends, and through which slot said pin travels. The coin chute is also formed below the slot 39 with a parallel slot 39^a in which a ledge or shelf 38 formed upon the lower edge of the head 31 projects, this ledge supporting the coin in the position shown in dotted lines in Fig. 3 when the parts are in their normal position. When the parts are in the position shown in Fig. 3, the pin 35 will engage with the edge of the coin. Rotatably mounted upon a pin 43 extending from the middle of the head 31 is a cam 41, this cam being eccentrically pivoted and formed with a flat face on one side. This cam is provided with an arm 42 which extends forward from the cam in position to engage over the pin 36. The lower edge of this arm 42 is inclined downward and rearward so that if the pin 36 be shifted rearward it will wedge upward upon the arm 42, thus turning the cam 41. Pivotally mounted upon ears projecting from the head is a pawl 44 mounted at its

middle upon the pivot 45 which is carried by the head 31. The upper end 46 of the pawl engages with the cam 41 and normally rests against the flat face of the cam, while the lower end of the pawl is provided with an inwardly projecting tooth adapted to engage with ratchet teeth 29 formed upon the periphery of the wheel 28. Pivotal-ly mounted on a stud 48 projecting from the adjacent supporting frame 12 is a pawl 49 which engages with teeth upon the periphery of the wheel 28 to prevent a reverse rotation of the wheel. This pawl however permits the wheel to move in the direction of the arrow, Fig. 3. A locking pawl 50 is pivotally mounted upon the frame 12 and points in the opposite direction from the pawl 49. This pawl 50 engages with teeth upon the periphery of the wheel 28 and normally locks the mechanism from rotating forwardly and discharging when there is no coin in the machine. Normally the pawl 50 has the position shown in Fig. 3, and in order to release the pawl from its engagement with the wheel 28 to permit a forward rotation of the wheel, I provide a pin 53 which extends from the rear extremity 47 of the pawl 44 and engages the outer face of the upper end of the pawl 50. When the lower end of the pawl 44 swings inwardly so as to bring the tooth thereon in engagement with the ratchet notch 29, the pin 53 will depress the upper end of the pawl 50 and throw the lower end of the pawl out of engagement with the wheel.

Mounted adjacent to the path of travel of the pin 53 and preferably mounted upon the inside face of the casing 2 or upon one of the supporting frames 12 as shown in Fig. 2 is an arcuate guard 54 which extends from a point slightly above the upper end of the pawl 50 to a point in line with the outer edge of the coin chute 37, as shown plainly in Fig. 5. The pin 53 on the pawl 44 extends from the pawl 44 in such position as to pass over the guard 54 when there is no coin in the machine and to pass under the guard 54 when there is a coin in the machine. The object of the guide is to hold the pawl 44 in engagement with the tooth 29 after it has once started so that there shall be no danger of the operator losing his money by breaking this connection. Further than this, it will be seen that each of the ratchet notches 29 is undercut at its end so that the detent tooth on the extremity 47 of the pawl 44 will engage beneath this undercut portion and thus the pawl will not tend to unhook when the operating lever is pushed over. In order to return the operating lever, I provide a coil spring 57 (see Fig. 2) which surrounds the shaft 5 and which is attached at one end to the casing 2 and at the other end to the shaft. The operating lever bears against a stop 58 when

the operating lever is in its normal position. The normal position of the operating lever is shown in Fig. 1, and the normal position of the coin actuating mechanism is shown in Fig. 3.

For the purpose of returning the cam 41 to its normal position as shown in Fig. 3, I provide a stop 56 located in the path of movement of a pin 55 which extends from the face of the cam 41. The outer face of this stop 56 is rounded and engages with the pin 55 to rotate the cam back to its original position. The operation of this part of my invention is as follows. When a coin is deposited in the slot 7, it passes down the chute 37 until it lodges upon the shelf or flange 38, the parts being in the position shown in Fig. 3. Upon a forward movement of the operating lever, the arm 30 will be moved in the direction of the arrow, Fig. 3. The pin 35 will engage with the edge of the coin and the plunger will be moved back against the force of the spring 34, while the head 31 moves forward.

The head 31 carries with it in its forward movement the cam 41 and the arm 42, and the inclined lower edge of the arm 42 will ride up over the pin 36, thus causing the cam to turn and causing the cam to lift the forward end 46 of the pawl 44, thus forcing the rear end 47 of the pawl inward and into engagement with the adjacent ratchet notch 29. As the end 47 of the pawl 44 is forced inward it will depress the upwardly projecting end of the pawl 50 and lift the lower end of the pawl out of engagement with the notch with which the pawl engages, thus releasing the wheel 28 and permitting its rotation with the arm 30. As soon as the shelf or flange 38 has passed out of the slot in the chute 37, the coin will drop and pass down through the lower end of the chute and be deposited in any suitable receptacle. The arm 30 will move forward until it reaches the position shown in Fig. 5, that is, the arm will move through a quarter of a circle. At this position the handle 6 will engage against the stop 58^a, thus preventing any further forward movement of the lever. At the same time the pin 55 will engage with the stop 56 which will return the cam 41 to its normal position. So long as the pin 53 on the rear extremity of the pawl 44 is below the arcuate guard 54, so long will the tooth on the rear extremity of the pawl 44 be held in engagement with the wheel 28. As soon, however, as the pin 53 passes the forward end of the guard 54, the weight of the forward end 46 of the pawl will cause the rear end of the pawl to lift, so that upon a rearward movement of the arm 30 under the impulse of the spring 57, the pin 53 will ride over the upper face of the guard 54. When the operating lever or handle 6 reaches its fully

retracted position it will engage with the stop 58 and the parts will be held in position for a new actuation, that is, in the position shown in Fig. 3.

5 The chute 37 extends upward and outward at an angle as shown in Fig. 1, and near its upper end is bent so as to extend toward the front of the machine at a more obtuse angle than the main body of the chute.
10 This obtusely angled upper portion 37^a provides means for selecting the coins or other bodies placed within the slot 7, and discharges slugs or coins of less size than the proper coin designed to operate the machine, all of which will be later described.

15 Located beneath the branch 37^a of the chute 37 is a return chute 59, and opening into this return chute is a branch chute 60 which at its upper end opens out of the chute 37. At the junction of the chute 60
20 with the chute 37 is a valve or deflector 61 which is mounted upon a shaft 62. When the parts are in their normal position, the valve or deflector 61 forms a continuation of the side wall of the chute 37 and extends
25 across the opening of the chute 60. When a coin has been deposited within the chute 37 and the mechanism is operated, the shaft 62 is rotated so as to turn the valve or deflector from the position shown in Fig. 3
30 to the position shown in Fig. 5 where the deflector forms practically a continuation of the bottom wall of the chute 60. To accomplish this end, I may use the mechanism illustrated in Fig. 5 but preferably, because
35 of its simplicity and positive action, I use the construction shown in Fig. 7.

In the form of my invention shown in Figs. 3 and 5 an arm 63 is attached to the
40 shaft 62 and normally extends down in the position shown in Fig. 5. Extending between the forward end of the head 31 and the lower end of the arm 63 is a link 65 which is slotted as at 66. The arm 63 has
45 a pin 64 which engages in the slot 66. When the parts are in the position shown in Fig. 3, the link 66 is raised to its full height, the pin 64 being disposed at the lower end of the slot 66. When, however, the parts
50 are actuated, the link 66 is moved downward and continues so as to move until the upper wall of the slot 66 engages the pin 64, whereupon the arm 63 is drawn downward and the deflector 61 shifted to the position
55 shown in full lines in Fig. 5. Upon a return movement of the arm 30, the link 65 moves upward until the lower wall of the slot 66 engages with the pin 64, whereupon the deflector is returned to its normal position.
60 It will be seen that this mechanism positively prevents the permanent deposit of a coin in the machine when the parts are being operated, or if the mechanism is in some way prevented from returning to its
65 normal position.

The section 37^a of the coin chute 37 is formed on its lower edge with a slot 70 which is narrower than the width of the chute. This slot 70 permits thin coins or
70 pieces of thin sheet metal to drop out through the chute when they have reached the slot and to drop into the hopper-shaped upper end of the chute 59. Coins of full size, however, will span the slot 70 and thus be supported until they have passed the slot.
75 For the purpose of ejecting any pieces of relatively small diameter which may be inserted, I cut away the wall of the section 37^a as at 71.

Coins which are less in diameter than the full diameter of the coin used for actuating the machine, when rolling along the section
80 37^a will be unsupported at their upper edges and leaning at an obtuse angle in chute will be liable to tip out of the opening 71, and for the purpose of assisting this ejection of the defective piece I form the wall of the section 37^a opposite to one end
85 of the cutaway portion 71 with a jog or offset 72. When a defective piece strikes this offset it will be tipped out of the cutaway portion 71. The defective pieces or coins which are discharged from the section 37^a drop into the return chute 59 and
90 are carried down and eventually discharged through the outlet opening 1 at the lower end of the casing. Coins which are placed in the slot 7 at the time when the machine is being operated, or when the parts of the coin controlling mechanism are held from
95 reverse movement, as before described, pass down the branch 60, thence into the return chute 59 and are carried down and discharged through the opening 1 as previously described. I of course do not wish to be
100 limited to any specific mechanism for selecting or discharging defective coins or pieces as it is obvious that various instrumentalities might be disposed within the length of the coin chute designed to detect spurious actuating pieces and discharge the same.
105

In order to permit the locking pawls 49 and 50 to be withdrawn from engagement with the wheel 28, I have provided each of
115 the locking pawls with a lifting rod 73 which abuts against a lug on the corresponding pawl and extends forward in such position that it may be operated when the front of the casing is opened. By moving these
120 rods rearward, the pawls will be lifted from their engagement with the wheel 28, thus leaving the wheel and sleeve 13 free to be rotated and thus permit the carriers to be shifted so that they may be filled. The rods
125 73 are preferably provided with spaced lugs or stops 73^a by which the operator may gage the amount of movement necessary to give the rod in order to throw the pawls 49 and 50 into or out of operative position.
130

I do not wish to be limited to the construction shown in Fig. 3 as a means for operating the deflecting gate or valve 61. In Fig. 7 I show the preferable means for operating this valve. In this figure, 37 designates the chute previously described and 60 the branch chute. Mounted at the junction of the branch chute 60 with the main chute 67 is the deflecting valve 61, which in turn is mounted upon a pintle 62. All this is the same as previously described.

Mounted upon the projecting extremity of the shaft 62 is an arm 74, preferably weighted at its upper end and having a bifurcated lower extremity, one arm of the bifurcated extremity extending below the other. Projecting from the forward end of the head 31 is a finger 75 whose upper extremity projects into the bifurcated end of the lever 63. The operation of this construction is obvious. Upon the forward movement of the head 31, the finger 75 will move the lower end of the lever 74 forward, thus turning the shaft 62 and turning the deflecting valve from the position shown in Fig. 3 to that shown in Fig. 5. Upon a reverse movement of the head 31, the lever will again be turned so as to carry the deflecting valve back to its original position. The weighted end of the lever of course aids its movement and assists in holding the valve or deflector firmly to its seat. This form of gate operating means is much simpler and more positive in its action than the mechanism previously described and illustrated in Fig. 5.

In Fig. 6 I show the preferable means whereby the pawl 44 may be thrown in engagement with the wheel 28 upon the deposit of a coin and a forward movement of the arm 30. In this figure, 30 designates the arm, 31^a the head, both of them made precisely as described. Pivotaly mounted upon this head as before described is the pawl 44^a which is laterally enlarged at its forward end as shown in Fig. 8, the forward end of the pawl being rounded as at 44^b. The chute 37^a is slotted as at 39^b, and mounted upon the forward extremity of the head is an upwardly and laterally extending finger 78 having a lug 78^a which extends into the slot and whose face is slightly concaved so as to engage with the upper edge of a coin deposited in the slot. The extremity of the lug moves through the slot 39^a and forces any coin therein downward upon an actuation of the machine.

Pivotaly mounted upon the chute by means of a pivot 79 is a member 80 having at one end a projecting coin supporting finger 80^a which projects into the chute 37^a below the slot 39^a. The counterweight 81 is formed with or attached to the other end of the member 80 and projects toward the head 31^a in such position as to normally en-

gage beneath the forward end of the pawl 44^a as shown in Fig. 6. Below the pivot 79 of the member 80 the chute 37^a is slightly deflected, and the rear wall of the chute is slotted so that as the finger 80^a moves down to its vertical position to permit a coin to pass, the finger will pass out of the slot and thus will not obstruct the lower end of the chute 37^a but will permit the easy passage of the coin down the chute.

A stop 79^a is formed upon or carried by the pivot pin 79, which stop is in the path of movement of the counterweight and prevents the counterweight moving beyond a vertical position. In this position the counterweight will be in unstable equilibrium and as a consequence as soon as the enlarged end 44^c of the pawl 44^a has passed, the counterweight 80 will fall to its original position, thereby returning the finger 80^a to the position shown in full lines in Fig. 6. The operation of this mechanism is as follows. When a coin is deposited it will rest upon the finger 80^a. The handle of the machine is then actuated to carry the arm 30 forward. As this occurs, the finger by means of its lug 78^a will force downward on the coin and depress the finger 80^a raising the counterweighted end of the finger. As this counterweighted end rises it lifts upon the forward end of the pawl 44^a, depressing the rear end in engagement with the wheel 28 until the counterweight 81 escapes the rounded end 44^b of the pawl. The arm 30 in then free to move forward, the lug 78^a traveling through the slot 39^a in precisely the same manner as previously described for the construction shown in Fig. 5. As soon as the enlarged portion 44^c of the pawl 44^a has passed the counterweight 81, the counterweight will drop, returning the supporting finger to its original position ready for its engagement with another coin.

In Fig. 5 I show a mechanism for preventing the return of the operating lever after it has once started. The guard 54 is formed on its inside face with ratchet teeth 82 and pivotaly mounted upon the extremity of the pin 53 is a counterweighted pawl 83 adapted to engage with the teeth 82 upon a rearward movement of the pin 53 but to slide over the teeth 82 upon a forward movement of the pin. When, however, the pin 53 passes beyond the forward end of the guard 54, the weighted end 46 of the pawl 44 will act to raise the end 47 of the pawl and raise the pin 53 above the guard 54, thus permitting the return of the parts to their original position.

It will be seen that in all forms of my invention I provide a pawl which is adapted to lock the sleeve for rotating the carriers to the actuating member, namely, the shaft 5, and that in all forms of my invention this locking pawl is thrown into engagement by

means of a member which contacts with the coin.

It will be seen that very light pressure is exerted upon the coin either in the form of my invention shown in Fig. 3 or that shown in Fig. 6, and that therefore there is no danger of the coin being bent or deformed as there is where the coin itself is used as a means of connecting two otherwise disconnected members. It will be seen that I have provided means whereby the carrier of any one of a number of vending compartments may be actuated without the actuation of the carriers of the other compartments. It will also be seen that I have provided a very simple mechanism to this end, one that is positive in its operation, and one which will not readily get out of order.

What I claim is:

1. A coin actuating mechanism including an actuating shaft, a coin actuated pawl operatively carried upon the shaft, a member loose on the shaft with which the pawl is engageable, a coin chute delivering a coin into position to actuate said pawl, and means operatively carried by and movable with said shaft, engaging said coin to force it downward in the chute to actuate the pawl.

2. A coin actuating mechanism including an actuating shaft, an arm fast on the actuating shaft, a ratchet wheel loose on the shaft, a pawl pivotally carried on said arm and engageable with the ratchet wheel but normally held out of engagement therewith, means normally held in engagement with the ratchet wheel for preventing a movement of the ratchet wheel, and means for shifting said holding means out of engagement with the ratchet wheel when the pawl on the arm is thrown into engagement with the ratchet wheel.

3. A coin actuating mechanism including an actuating shaft, a ratchet wheel loose on the shaft, an arm fast on the actuating shaft and disposed adjacent to the ratchet wheel, an actuating pawl pivotally carried by the arm normally held out of but movable into engagement with the ratchet wheel, a coin chute, means carried by the arm and engageable with the coin in the chute for shifting the pawl into engagement with the wheel, a pawl normally held in engagement with the ratchet wheel for preventing a forward movement of the ratchet wheel, and means carried by the actuating pawl for disengaging said holding pawl from its engagement with the ratchet wheel.

4. A coin actuating mechanism including an actuating shaft, a ratchet wheel loosely carried on the shaft, an arm fast on the shaft, an actuating pawl pivotally supported on the arm and normally held out of but movable in engagement with the ratchet wheel, a coin chute having a transverse slot, means for supporting a coin within the

chute with its periphery intersecting said slot, and means carried by the arm and movable into said slot for engagement with a coin, said means when so engaged shifting the actuating pawl into engagement with the ratchet wheel.

5. A coin actuating mechanism including an actuating shaft, a ratchet wheel loose on the shaft, a pawl preventing the rearward movement of the ratchet wheel, an oppositely disposed pawl engaging the ratchet wheel for preventing its forward movement, an arm carried by the shaft, an actuating pawl pivotally mounted on said arm and normally held out of but movable into engagement with the ratchet wheel, a coin chute, means engageable with the coin in said chute for shifting the actuating pawl into engagement with the ratchet wheel, and a pin carried by the actuating pawl and engaging the second named pawl for lifting said second named pawl from engagement with the ratchet wheel when the actuating pawl is forced into such engagement.

6. The combination with an actuating shaft, of a plurality of sleeves loosely surrounding said shaft, of a plurality of ratchet wheels, one for each of said sleeves and mounted upon the shaft, a plurality of coin chutes, one for each of said ratchet wheels, a plurality of arms, one for each of said ratchet wheels projecting from the shaft and movable across said coin chute, an actuating pawl carried by each of said arms normally held out of but shiftable into engagement with its corresponding ratchet wheel, and means controlled by the deposit of a coin in any one of said chutes whereby the actuating pawl upon the corresponding arm shall engage the corresponding ratchet wheel to rotate said sleeve.

7. In a coin actuating mechanism, an operating shaft, a ratchet wheel loose on the shaft, an arm carried by the shaft, a pawl normally held out of engagement with the ratchet wheel, a coin chute having a return branch, means engageable with a coin deposited in said main chute for shifting the pawl into engagement with the ratchet wheel, a gate pivotally mounted at the junction of the main chute and the branch chute, and means normally holding the gate in alinement with the main chute but rotating said gate to a position in line with the branch chute across the main chute when the said arm is shifted in one direction.

8. A coin actuating mechanism including an actuating shaft, a ratchet wheel loose on the shaft, an arm radially extending from the shaft, an actuating pawl pivotally carried by said arm normally out of but movable into engagement with the ratchet wheel, a coin chute, means carried by said arm for engaging a coin in said chute and shifting the actuating pawl into engagement with

the ratchet wheel, an arcuate guide holding the active end of the pawl into engagement with the ratchet wheel during its movement in one direction, and means carried on the actuating arm and engageable with said guide for preventing a rearward movement of the arm upon a partial forward movement of the arm.

9. A coin actuating mechanism including an actuating shaft, a ratchet wheel loose upon the shaft, an arm fast upon the shaft and having a head concentric to the ratchet wheel, a pawl pivotally mounted on the head normally held out of but shiftable into engagement with the ratchet wheel, a coin chute, means carried by the head for engaging the coin in the chute to shift the actuating pawl into engagement with the ratchet wheel, an arcuate guide having a length less than the length of travel of the arm for a complete actuation of the machine, said guide acting to hold the pawl in engagement with the ratchet wheel during said travel, ratchet teeth on the guide, and a pawl operatively carried upon said head engaging said teeth to prevent a rearward movement of the head and arm until the pawl has passed the forward end of the guide.

10. A coin actuating mechanism including an actuating shaft, a ratchet wheel on the shaft, an actuating arm fast on the shaft and having a head concentric to the ratchet wheel, an actuating pawl carried by said head, normally out of but shiftable into engagement with the ratchet wheel, a coin chute, means on the head engageable with a coin deposited in said chute to shift the pawl into engagement with the ratchet wheel, a pin projecting from the active end of the pawl, an arcuate guide concentric to the ratchet wheel and having a length slightly less than the length of travel of the actuating arm and spaced from said ratchet wheel to engage over the pin on the actuating pawl to hold the actuating pawl in engagement with the ratchet wheel during its movement, and means carried by the pawl and engaging said arcuate guide for preventing a reverse movement of the parts until the pawl has cleared the forward end of the guide.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. MILLER. [L. S.]

Witnesses:

GEORGE BOUQUET,
MARK H. TAYLOR.