Feb. 22, 1938. J. N. PRYOR 2,108,943

COIN CONTROLLED MECHANISM

Original Filed Dec. 17, 1935 2 Sheets-Sheet 1

FIG. 1.

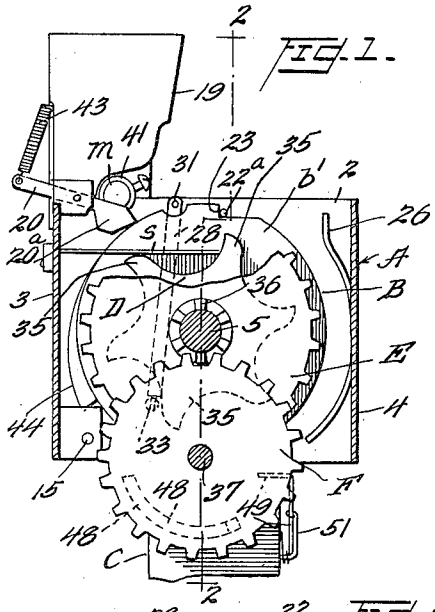


FIG. 2.

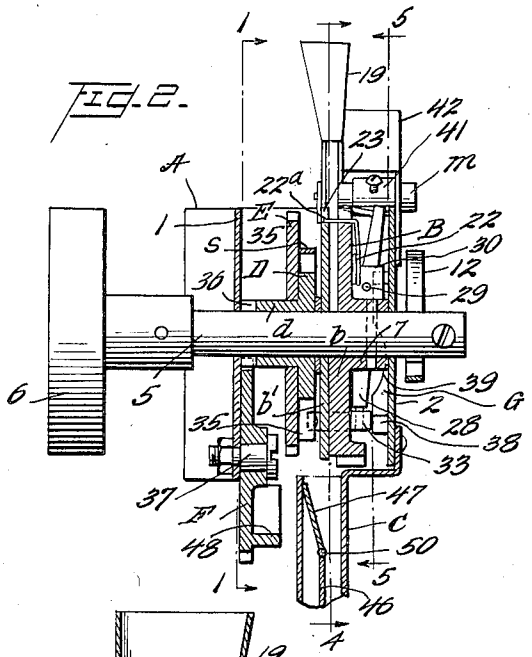


FIG. 3.

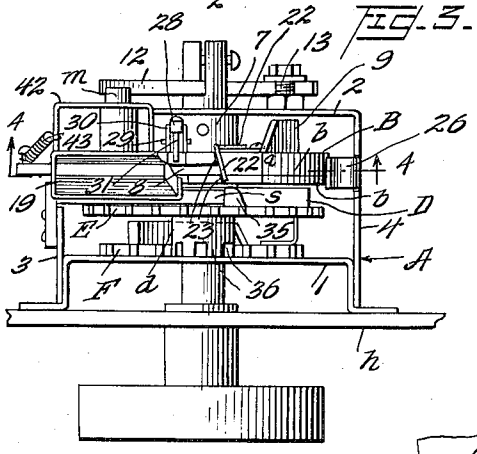


FIG. 4.

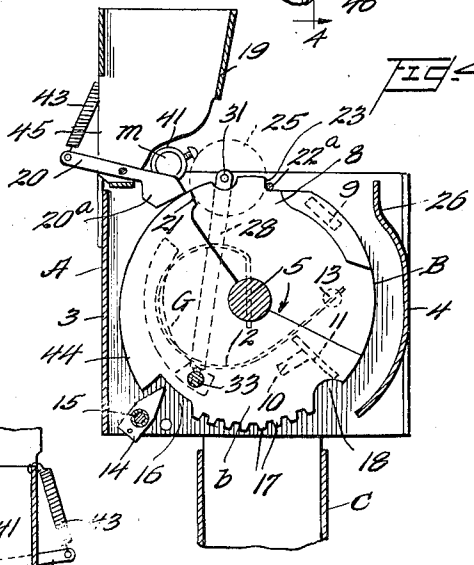
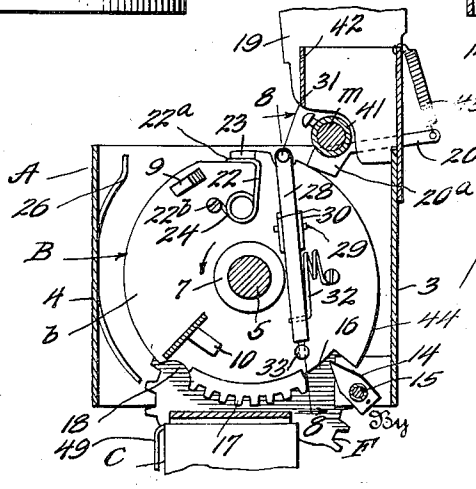


FIG. 5.



Inventor

James N. Pryor

Robert Watson

Attorney

Feb. 22, 1938. J. N. PRYOR 2,108,943

COIN CONTROLLED MECHANISM

Original Filed Dec. 17, 1935 2 Sheets-Sheet 2

FIG. 6.

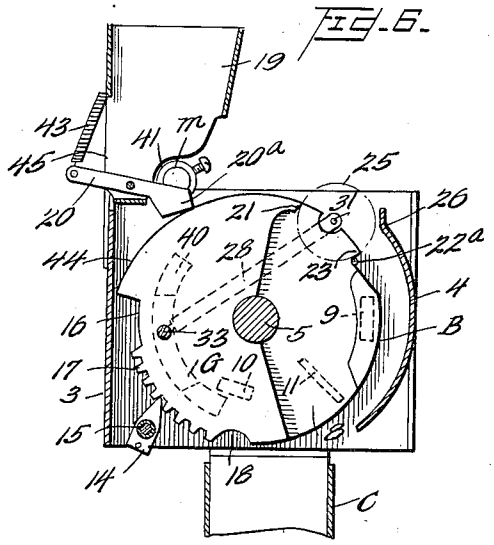


FIG. 7.

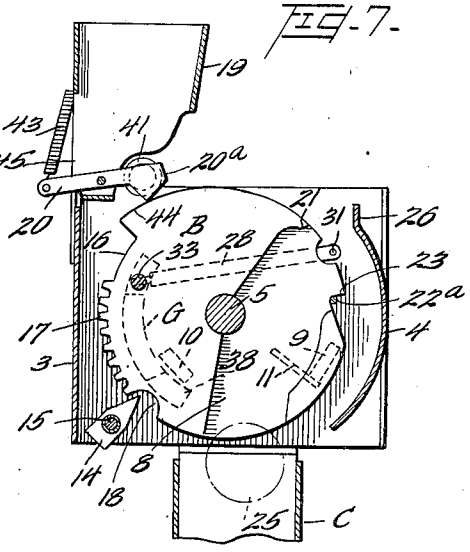


FIG. 8.

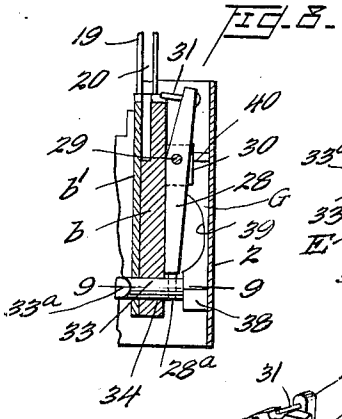
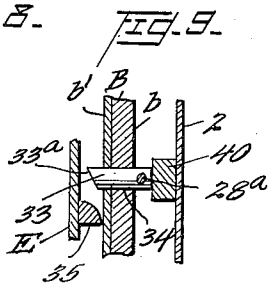


FIG. 9.



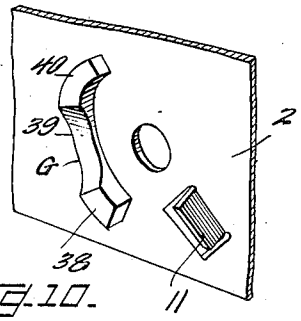


FIG. 10.

FIG. 11.

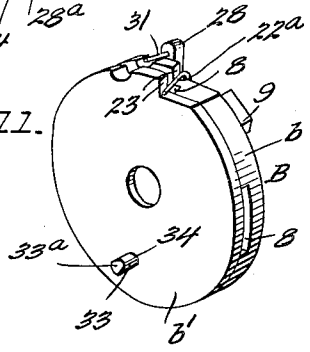
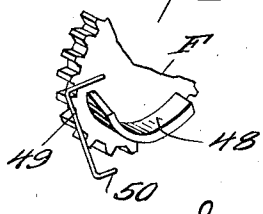


FIG. 12.



Inventor

James N. Pryor

By Robert Watson

Attorney

Patented Feb. 22, 1938 2,108,943

UNITED STATES PATENT OFFICE

2,108,943

COIN CONTROLLED MECHANISM

James N. Pryor, Baltimore, Md.

Application December 17, 1935, Serial No. 54,892
Renewed July 13, 1937

3 Claims. (Cl. 194—1)

This invention relates to a coin-controlled mechanism arranged as a compact unit which can be connected to article delivery apparatus of various kinds. The invention comprises a rotary coin carrier mounted on a manually operable shaft and having a coin passageway with inlet and outlet openings in the periphery of the carrier. A spring normally holds the carrier in position to receive coins from a coin chute, and a coin of proper size passing through the chute is held yieldingly in the inlet of said passageway while the operator turns the carrier to a discharge position where the coin is pushed into the coin passageway by contact with a stationary cam. A star wheel is journaled on the shaft adjacent the carrier and a dog mounted on the carrier operates the star wheel when the latter is moved toward the discharge position, providing a coin of proper size is held in the inlet to said passageway, but if there is no coin in the inlet, or if a washer is substituted for a coin of proper size, devices on the carrier hold the dog out of the path of the star wheel and the latter will not be operated. If an iron or steel slug is inserted in the coin chute, it is caught by a magnet and ejected from the bottom of the chute when the carrier is turned, without passing from the chute to the carrier. The star wheel operates gearing which may be connected to article delivery apparatus and it also operates a cam which controls a gate for directing the discharged coins to separate passageways.

In the accompanying drawings,

Fig. 1 is a vertical section through the coin-controlled apparatus taken at right angles to the shaft on the line 1—1 of Fig. 2;

Fig. 2 is a central vertical section through the same on the line 2—2 of Fig. 1;

Fig. 3 is a top plan view of the apparatus;

Fig. 4 is a section on the line 4—4 of Fig. 3;

Fig. 5 is a section on the line 5—5 of Fig. 2;

Fig. 6 is a section like that shown in Fig. 4 with the coin carrier moved part way from its normal position;

Fig. 7 is a similar view with the carrier moved to its final position;

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

Fig. 9 is a section on the line 9—9 of Fig. 8;

Fig. 10 is a perspective view of a portion of the casing with a stop for the coin carrier and a cam which controls the position of the dog for operating the star wheel;

Fig. 11 is a perspective view of the coin carrier, and,

Fig. 12 is a perspective view of part of the gear and cam which controls the coin distributing valve.

Referring to Figs. 1, 2 and 3 of the drawings, A represents a rectangular metal frame for supporting the coin-controlled mechanism, said frame consisting of a front plate 1, suited for attachment to the side *h* of an enclosing casing, not shown, and a sheet metal plate bent to form a back piece 2 and side pieces 3 and 4. A shaft 5 is journaled centrally in the front and back parts of the frame and is provided with a knob 6 outside the casing by which it may be turned.

A coin carrier B is secured to the shaft so as to turn therewith. This carrier comprises a substantially circular plate *b* having a hub 7 by which it is secured to the shaft and having a coin groove 8 cut in one side, as shown in Figs. 4, 6 and 7, and a circular plate *b'* secured to plate *b* and forming one side of the groove, as shown in Fig. 11. The inner or grooved side of the plate *b* is shown in Fig. 4 in the normal position of the carrier, and in Figs. 6 and 7 in successive positions of the carrier, and the outer side of said plate is shown in Fig. 5 in the normal position of the carrier.

On the side of the part *b* of the carrier are spaced lugs 9 and 10 adapted to engage a fixed stop 11 to limit the rotary movement of the carrier, the stop shown in the drawings being a tongue struck up from the back plate 2 of the frame. A flat spiral spring 12, secured at one end to a stud 13 on the back piece and at its other end to the shaft 5, normally holds the carrier in the position shown in Figs. 1–5, inclusive, with the lug 10 against the stop. When the carrier is moved in the clockwise direction by rotation of the knob, the lug 9 engages the stop and limits such movement, as shown in Fig. 7, and when the knob is released, the spring returns the carrier to its normal position with the lug 10 in engagement with the stop, as shown in Fig. 5.

When the coin carrier is in the normal position, shown in Figs. 4 and 5, a reversible dog 14 mounted on a stud 15 extends radially into a recess 16 in the periphery of the carrier and is held in this position by a light spring coiled about the post. When the carrier is turned by the knob away from normal position, the dog is engaged by a series of teeth 17 on the periphery of the carrier, as shown in Fig. 6, and it is then impossible to rotate the carrier back to normal position until after it has reached the end of its forward movement when the free end of the dog will pass from the teeth into a recess 18 in the carrier and the lug 9 will engage the stop 11, as

shown in Fig. 7. The carrier may then be turned backward by the spring or by hand, the dog slipping over the teeth, but it must complete the movement to the position shown in Fig. 4, as the dog will not permit a forward movement after the return movement has started until the dog enters the notch 16. Therefore there can be no partial back and forth movements of the carrier to operate the machine twice with the same coin.

A coin chute 19 is supported on the frame above the coin carrier with its outlet in the plane of the coin slot, and a coin deposited in the chute drops onto a lever 20 which is pivotally mounted in the lower part of the chute and which normally inclines toward the upper end of the slot in the carrier, as shown in Figs. 1–4, inclusive. The coin, indicated at 25 in dotted lines, runs upon the upper side of this lever and, if of proper size, comes to rest in the upper part of the slot, as shown in dotted lines in Fig. 4, being held from passing completely into the slot by a shoulder 21 at one edge of the slot, and the end portion 22a of a spring 22, which end portion extends diagonally across the entrance to the slot adjacent diagonally cut shoulders 23. The spring 22 has its opposite end secured to a pin 22b on the side *b* of the coin carrier and the spring extends under a stud 24, thence upwardly to the edge of the carrier and thence across the carrier, the bend around the stud causing the diagonal end portion to lie against the shoulders 23 with light spring pressure.

When the coin carrier is rotated to the position shown in Fig. 6, the coin engages a fixed cam member 26, struck up from the side 4 of the frame, and as the carrier rotates further to the position shown in Fig. 7, the coin is pushed by the cam into the slot and falls into a delivery chute C which is suitably attached to the lower end of the frame.

A lever 28 is mounted upon the part *b* of the coin carrier, this lever being pivoted between its ends upon a pivot pin 29 mounted in lugs 30 and adapted to rock in a plane transversely of the plane of the carrier. The lever has at one end a pin 31 which is movable by the lever cross-wise of the slot in the coin carrier so as to engage the central part of a coin when the latter is supported by the shoulder 21 and wire 22a. A spring 32 tends to rock the lever so that the pin will engage the coin, but in the normal position of the coin carrier the lever is held with the pin retracted from the plane of the coin slot, as shown in Fig. 3. The opposite end of the lever, as shown in Figs. 8 and 9, has a cylindrical part 28a which extends through a diametric opening in a short rod 33 which is slidable in a transverse opening 34 in the carrier. This short rod, which has a beveled end 33a, constitutes a dog or pawl for engaging the arms 35 of a star wheel D which has a hub *d* journaled on the shaft 5. A sprocket wheel E is mounted on the hub of the star wheel and secured to the latter so as to rotate therewith. The end of the hub *d* is slotted longitudinally to form pinion teeth 36 which mesh with a gear F mounted on a stud 37 secured to the front piece 1 of the frame near its lower end.

When the carrier is in its normal position, shown in Figs. 1–4, inclusive, one end of the dog 33 rests upon the high part 38 of a stationary cam G secured to the back piece 2 of the frame and concentrically arranged with respect to the shaft. In this position, the dog 33 projects into the plane of the arms of the star wheel and the pin 31 at the opposite end of the lever 28 is held out of line with the coin slot in the carrier.

If a coin of proper size is deposited in the coin chute, it will take the position shown in dotted lines in Fig. 4. When the carrier is rotated clockwise from this position, the dog 33 will ride off of the high part 38 of the cam G and the spring 32 will rock the lever slightly until the pin 31 engages the side of the coin. The coin will prevent further rocking movement of the lever and the dog 33 will not enter upon the low part of the cam and hence will not be withdrawn from the path of the arms of the star wheel, and as the carrier progresses, the dog will engage one of these arms and rotate the star wheel and operate the gears associated with it a given distance. Toward the final part of the movement of the carrier, the dog 33 will ride on to the high part 40 of the cam G, and this will cause the lever 28 to rock the pin 31 out of engagement with the coin, and the latter will be pressed by the cam 26 into the coin channel 8 from whence it will drop into the delivery chute C. The sprocket wheel F, through a chain drive, will operate package delivery mechanism, not shown, each time the star wheel is moved. On the return movement of the lever, the spring 32 will cause it to rock so that the dog will ride from the high part 40 of the cam on to the low part 39 and thence on to the high part 38. When moving from the low part of the cam, the dog is withdrawn from the path of the star wheel arms and hence will pass by one arm in returning to its normal position, which arm will be engaged by the dog on the next forward movement of the carrier, providing there is a proper size coin in the coin slot. A flat spring *s*, Figs. 1 and 2, secured to the frame bears on the star wheel arms and prevents backward rotation of the star wheel.

If a washer or slug of iron or steel is inserted in the coin receptacle, it will be ejected in the manner hereinafter described. If the washer is of non-magnetizable material and is of the proper size to be arrested at the entrance of the coin channel in the carrier, then when the carrier is rotated from normal position, the spring 32 will rock the lever when the dog passes off of the high part 38 of the cam and the part 31 will pass through the hole in the washer while the dog 33 will follow the low part of the cam and be withdrawn from the plane of the arms of the star wheel. Hence the star wheel will not be operated and no article will be delivered. As the dog passes on to the high part 40 of the cam, the lever is rocked and the pin 31 is withdrawn from the hole in the washer and the cam 26 then forces the washer into the coin channel 8, from whence it drops into the delivery chute.

If a slug or washer of iron or steel is dropped into the coin chute 19, it will be caught by a permanent bar magnet *m* which is supported in a non-magnetic sleeve 41 with one pole of the magnet close to the side of the lever 20 near its lower end 20a. The sleeve is supported by a bracket 42 of non-magnetic metal which is secured to the back piece 2 of the frame, which bracket also supports the coin receptacle 19. A spring 43 attached to one arm of the lever and to the bracket causes the lower end 20a of the lever to rest on the periphery of the coin carrier near one end of the coin slot, when the carrier is in normal position. A gradually rising cam 44 is provided on the periphery of the carrier at the rear of the coin slot, and as the carrier is rotated in the clockwise direction, this cam rocks the

lever into the position shown in Fig. 7 where the inclination of the lever is reversed. As the lower end of the lever rises, it brushes the magnetizable slug or washer off of the pole piece of the magnet, and the slug or washer then rolls down the inclined upper surface of the lever and out of the receptacle through a slot 45 in the back thereof through which the lever extends. The delivery chute C has a central partition 46 forming two channels for the passage of coins into separate receptacles and at the upper end of the partition there is provided a pivoted valve 47 which may be swung from one side of the chute to the other to direct coins into either channel. It is desirable to be able to direct a certain percentage of the coins into one receptacle for the benefit of the party in whose place the machine is installed and to have the balance of the coins go into a separate receptacle for the party who supplies the goods. To accomplish this, the gear F is provided with a cam 48 on one side which is engaged once during each revolution of the gear by a lever 49 connected to the hinge pin 50 of the gate or valve. The valve is biased to one side of the chute by a coiled spring 51, and when the cam engages the lever, the valve is swung over against the opposite side of the delivery chute. By shortening or lengthening the cam, or by changing the gear ratio, the percentage of coins delivered into the different channels may be varied as desired.

What I claim is:

1. In a coin-controlled mechanism, a rotary coin carrier having a slot to receive a coin, a coin chute above the carrier, a centrally pivoted lever in the lower part of the chute having one end resting on the carrier, said lever forming the bottom of the chute and being downwardly inclined toward the slot in the normal position of the carrier so as to direct coins to the slot, a magnet having a pole piece close to one side of the lever near said end and adapted to arrest slugs of magnetizable metal and prevent them from passing to the slot, and a cam on the carrier adapted to rock the lever to an oppositely inclined position when the carrier is rotated, whereby the lever will brush the slug off of the magnet pole and the slug will roll downwardly on the lever out of the coin chute.

2. In a coin-controlled mechanism, a coin chute, a shaft, a circular coin carrier mounted on the shaft so as to turn therewith and comprising two plates having a coin passageway therebetween, stops for limiting the movement of the carrier, a spring normally holding said carrier against one stop with the inlet to said passageway in position to receive a coin from said chute, means for yieldingly holding a coin at the inlet of said passageway, a stationary cam adapted to force the coin into the passageway when the carrier is moved to its discharge position against the other stop, and a spring for returning the shaft and carrier to their normal positions.

3. In a coin-controlled mechanism, a coin chute, a shaft, a circular coin carrier mounted on the shaft so as to turn therewith and having a coin passageway with inlet and outlet openings at its periphery, stops for limiting the movement of the carrier, a spring normally holding said carrier against one stop with the inlet to said passageway in position to receive a coin from said chute, means for yieldingly holding a coin at the inlet of said passageway, a star wheel journaled on the shaft adjacent the carrier, a lever centrally pivoted on one side of the carrier to rock transversely of the plane of the carrier, and having a projection on one end movable across the inlet of the coin passageway, a dog connected to the opposite end of the lever and movable into and out of the path of the star wheel arms, a stationary cam adapted to rock the lever so that the projection will be out of the plane of the coin inlet and the dog will be in the plane of the star wheel at each end of the movement of the carrier, and a spring adapted to rock the lever in the opposite direction during an intermediate part of the movement of the carrier, whereby if a coin is in the inlet during the movement of the carrier to its discharge position, said projection will engage the side of the coin and the coin will prevent the lever from rocking the dog out of the plane of the star wheel and the dog will operate said wheel, and if there is no coin in the inlet the lever will rock the dog out of the plane of the star wheel.

JAMES N. PRYOR.