Oct. 24, 1933. C. H. GREEN 1,931,693

COIN OPERATED MECHANISM

Filed June 22, 1931 4 Sheets-Sheet 1

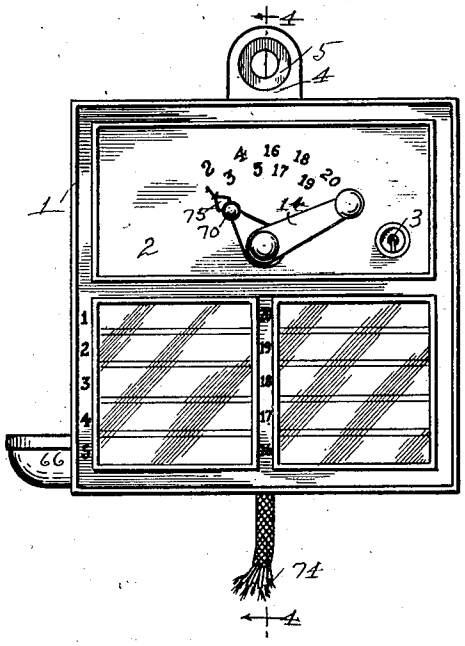


Fig. 1.

Fig. 6.

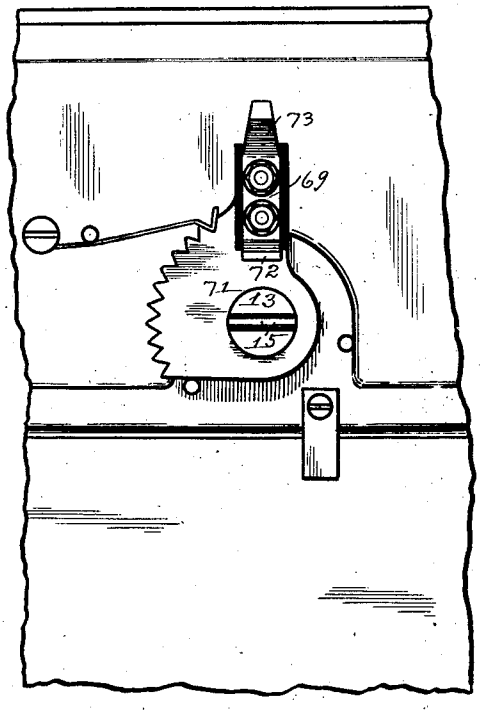
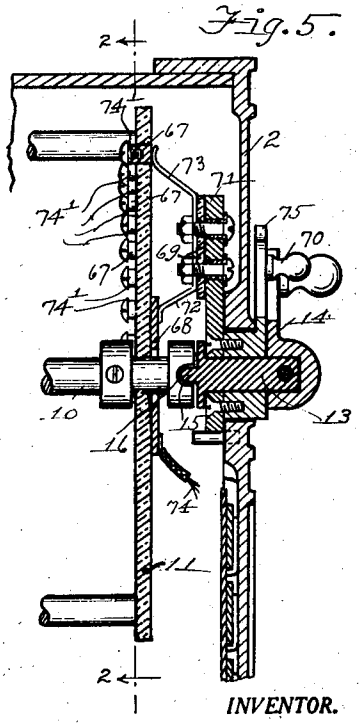


Fig. 5.



Witness:
G. E. Redding

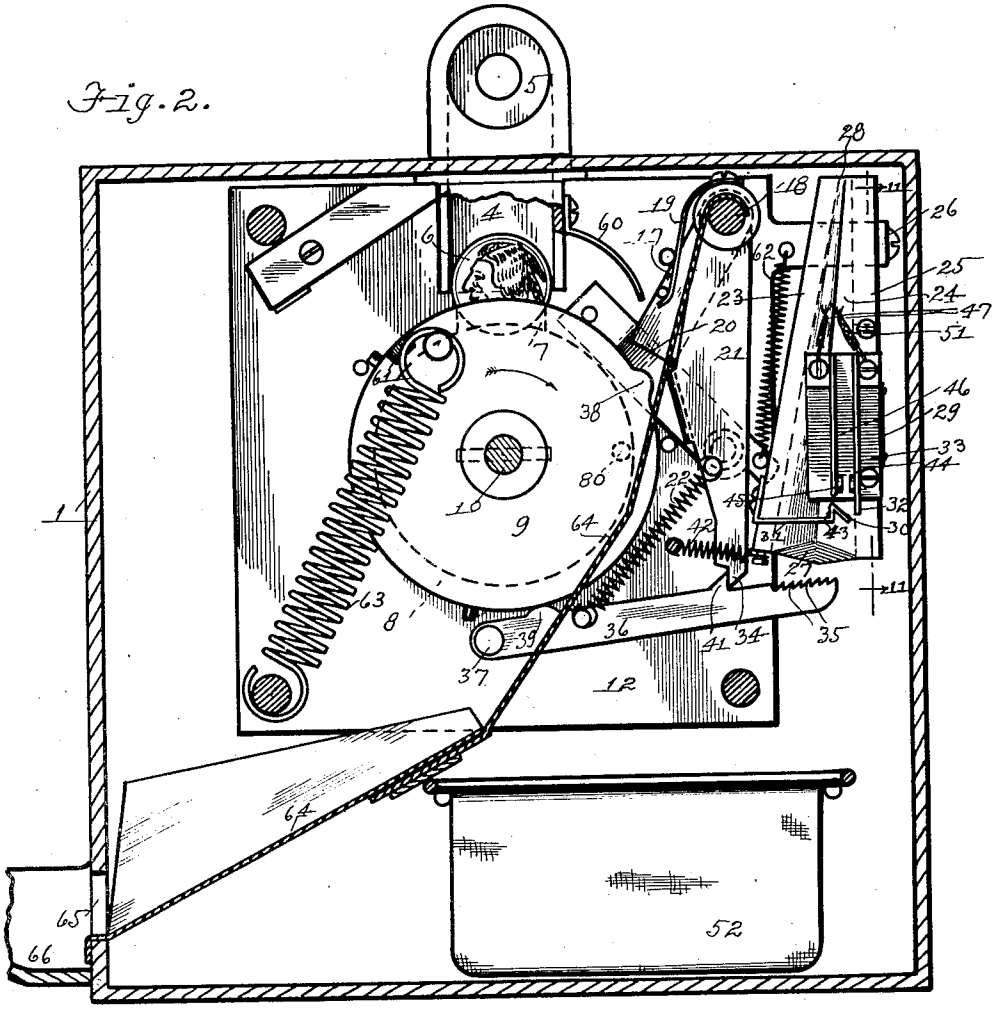
INVENTOR.
Clifford H. Green
BY
Rice and Rice
ATTORNEYS.

Oct. 24, 1933. C. H. GREEN 1,931,693

COIN OPERATED MECHANISM

Filed June 22, 1931 4 Sheets-Sheet 2

Fig. 2.



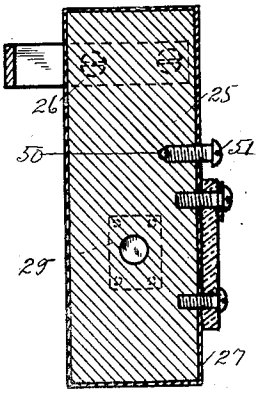


Fig. 11.

Witness:
G. E. Redding

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Oct. 24, 1933. C. H. GREEN 1,931,693

COIN OPERATED MECHANISM

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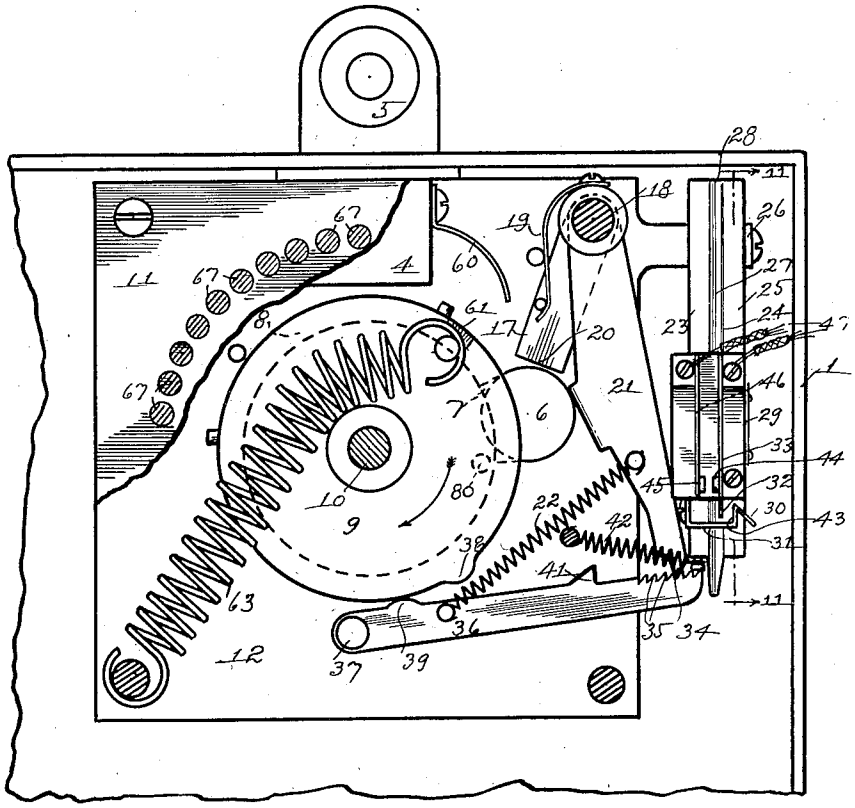


Fig. 3.

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Witness:

E. E. Redding

Oct. 24, 1933. C. H. GREEN 1,931,693

COIN OPERATED MECHANISM

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Fig. 7.

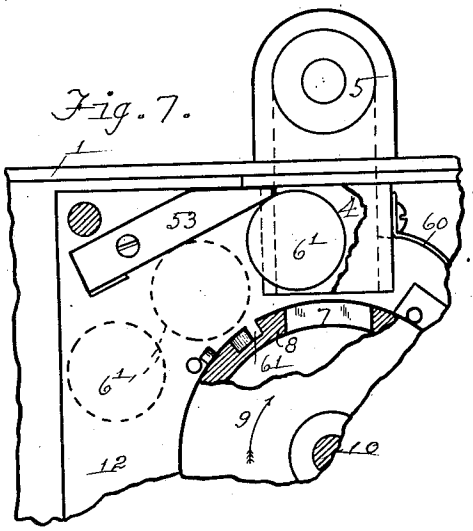


Fig. 4.

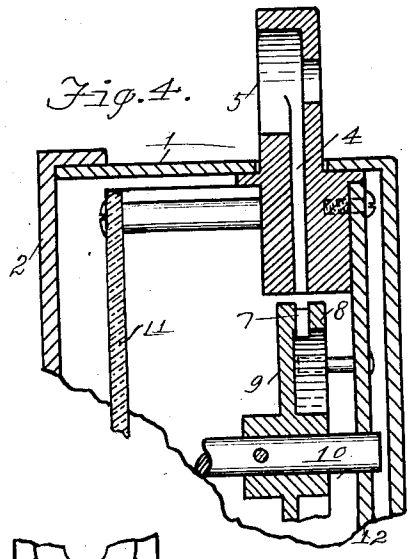


Fig. 8.

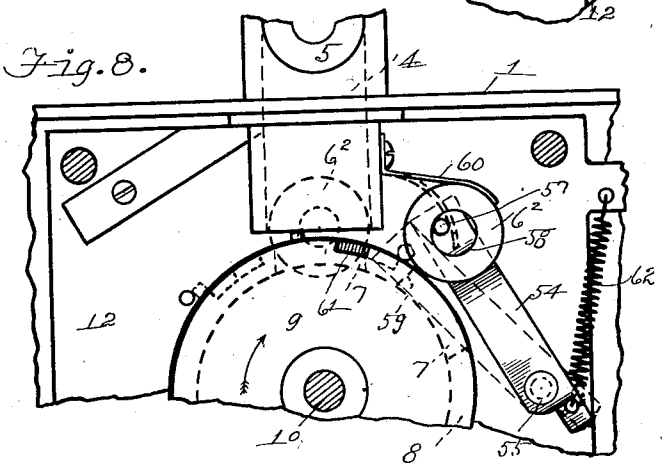
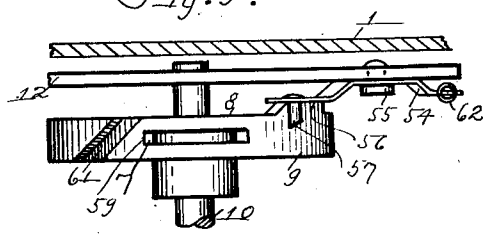


Fig. 9.



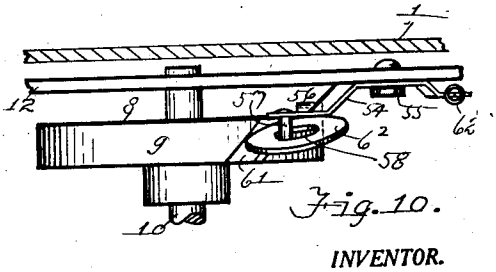


Fig. 10.

INVENTOR.

Clifford H. Green

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Witness:

H. C. Goulding

Patented Oct. 24, 1933 1,931,693

UNITED STATES PATENT OFFICE

1,931,693

COIN OPERATED MECHANISM

Clifford H. Green, Paris Township, Kent County, Mich., assignor, by mesne assignments, to Automatic Musical Instrument Company, a corporation of Michigan

Application June 22, 1931. Serial No. 545,983

13 Claims. (Cl. 194—9)

The present invention relates to coin-operated mechanisms; and its object is, generally, to provide an improved mechanism of that character which can be operated only by coins of a particular size, denomination or monetary value; and more particularly, to provide such an improved mechanism whereby coin-shaped disks of iron or steel, or mutilated coins, and the like, are ejected from the mechanism when used in an attempt to operate the same; and further, to provide in such a mechanism means for delaying the operation of other mechanisms actuated by such coin-operated mechanism, and for purposes hereinafter set forth; and further, to provide in combination with such coin-operated mechanism selective means for operating any one of several other mechanisms or devices.

These and any other objects hereinafter appearing are attained by, and the invention finds preferable embodiment in, the mechanism, mechanical and electric devices and parts, and combinations thereof, particularly described in the body of this specification and illustrated by the accompanying drawings, in which:

Figure 1 is a front elevational view of a coin-operated mechanism and housing therefor;

Figure 2 is a vertical sectional view thereof taken on line 2—2 of Figure 5; the mechanism being shown in its initial position;

Figure 3 is a front elevational view of the mechanism, said front plate being partially broken away to show such mechanism in a certain stage of its operation;

Figure 4 is a vertical sectional view of upper and rearward portions of the mechanism and housing, taken on line 4—4 of Figure 1;

Figure 5 is a vertical sectional view of upper and forward portions of the mechanism and housing, taken on said line but viewed in the opposite direction;

Figure 6 is an inner side view of certain parts shown in Figure 5;

Figure 7 is a front elevational view of portions of the mechanism showing means for ejecting iron or steel coin-shaped disks, certain parts being broken away or shown in vertical section;

Figure 8 is a front elevational view of portions of the mechanism showing means for ejecting mutilated coins;

Figures 9 and 10 are top plan views of portions of the mechanism illustrating said means in two other positions respectively; and

Figure 11 is a vertical sectional view of certain parts shown in Figures 2 and 3, taken on line 11—11 of said views.

In these drawings is illustrated a coin-operated mechanism contained in a suitable housing 1 having rear, top, bottom and side walls and a removable face plate 2 adapted to be secured in position by suitable locking means indicated generally at 3. A vertical coin chute 4 has a circular opening 5 through which a coin 6 may be inserted to fall into, and be retained by, a slot 7 through the rearwardly extending peripheral flange or rib 8 of the circular disk 9 keyed to the shaft or axle 10 journalled in the parallel vertical front plate 11 and rear plate 12 of the mounting frame of the mechanism.

The length of the slot 7 is such that the coin will be retained therein, i. e. the length of said slot is less than the diameter of the coin. The shaft 10 and its circular disk 9 are rotated in clockwise direction by the aligned stub shaft 13 journalled in the housing's face plate 2 and having an operating handle 14 and a diametrical rib 15 removably engaging in the kerf 16 in the forward end of said shaft. This shaft and the disk 9 being thus rotated, the coin is carried thereby into edgewise engagement with the detent 17 pivoted at 18 on the rear plate 12 and swings it against the spring 19 far enough to pass below its lower end 20 to be held thereby against return movement.

The turning of disk 9 continuing, the edge of the coin engages the lever arm 21 pivoted coaxially with the detent and swings said arm toward the right hand side of Figures 2 and 3 against the pressure of a spring 22, said lever arm engaging the movable leaf 23 of a bellows-like air container designated generally 24 and comprising also the fixed other leaf 25 (mounted at 26 on the rear plate 12) and the flexible side and bottom walls 27 tightly fastened to said two leaves 23, 25 which are connected in swingable relation at 28 adjacent their upper ends.

The rotation of disk 9 and the swinging movement of arm 21 and leaf 23 continuing by reason of the pressure of the coin on said arm, air is expelled from container 24 through its outwardly-opening flexible sheet valve indicated at 29, and the inclined end 30 of a spring 31 carried by leaf 23 snaps over the lower end 32 of a spring arm 33 of an electric switch.

As the lever arm 21 swings to the position shown in Figure 3 its lower end 34 slips over the ratchet teeth 35 of a lever arm 36 pivoted at 37 on rear plate 12, so that the arm 21 is held in said shown position until, by the continued rotation of the disk 9, its projection 38 engages the projection 39 of arm 36 and swings it downwardly against the pressure of said spring 22 thus releasing the lever arm 21 which is now swung by spring 22 (connected to both lever arms 21, 36) to the position seen in Figure 2 in which its lower end 34 is stopped by the projection 41 of lever arm 36.

When lever arm 21 is thus moved from leaf 23 of the air container 24, said leaf is swung by the spring 42 to the position seen in Figure 2. During this movement, the portion 43 of the spring

31 being in engagement with the lower end 32 of the spring switch arm 33 flexes it toward the left hand side of Figure 3 until its contact 44 meeting the contact 45 of a second spring switch arm 46 thus closes the electric circuit 47. As this movement of leaf 23 and its spring 31 and the flexing of switch arm 33 continues, the spring switch arm 46 is also flexed by the meeting or abutting of the contacts 44, 45, until the leaf 23 has swung far enough to cause the portion 43 of its spring 31 to move downwardly and snap off of the lower end 32 of spring switch arm 33, whereupon the two switch arms spring apart and open the electric circuit 47.

The moving of the leaf 23 away from the fixed leaf 25 to expand the air container 24 is retarded and the maintaining of the electric circuit closed is prolonged by the admission of air very slowly into the expanding container, such admission being through a restricted air passage 50 governed by a set screw 51.

When the coin 6 passes from edgewise contact with the lever arm 21 it falls into a bag or receptacle 52 in the housing.

Coins larger than those by which the mechanism is operable cannot be inserted into the opening 5 or pass through the chute 4, and smaller coins will fall through the slot 7 instead of being retained therein. Coin-shaped disks 6^1 of iron or steel passing down the chute are deflected therefrom by the fixed magnet 53. Mutilated coins 6^2 having holes as shown are removed from the slot 7 by means shown in Figures 8, 9 and 10, viz:

A spring lever arm 54 pivoted at 55 on rear plate 12 presses forwardly riding on the rearwardly extending cam portion 56 of the circular disk's rib or flange 8 in the position of the parts shown in Figure 9. When this circular disks 9 with the mutilated coin 6^2 in its slot 7 is turned to the position shown in Figure 10, the spring arm 54 rides down from the cam portion 56 and said arm's forwardly extending pin 57 enters the hole 58 in the mutilated coin and holds the same from being carried farther with said disk. In this holding operation, the rotation of disk 9 causes this coin to turn about the pin 57 and to be forced out of the slot by the contact of the slot's rear end 59 with the coin's inner edge, its outer edge engaging and flexing the spring 60 in such movement. The parts are now in the position seen in Figure 8, and the mutilated coin rides for a short distance on the periphery of disk 9 in its rotation, until it reaches a groove 61 in said periphery which is inclined backwardly from said disk's rear side to its front side, whereupon the spring arm 54 having passed off of the cam portion 56 presses the mutilated coin forwardly, and the spring 62 swings arm 54 to press the coin downwardly, into this groove so that the rotation of disk 9 carries said coin off of the pin 57, whereupon it falls along the forward side of the circular disk 9.

After each operation of the mechanism the circular disk 9 is returned to initial position by the spring 63.

The various coins or coin-shaped disks entering the housing through the chute 4 and failing to operate the mechanism fall into an inclined trough 64 and pass out of the housing through an opening 65 and into an outside receptacle 66.

In this structure is shown selective mechanism whereby the coin-operated mechanism may be employed for any selected one of several purposes or to operate any one of a plurality of devices or the like, as the placing of a selected record disk on the turntable of a graphophone, etc.

This selective mechanism comprises circularly disposed spaced electric contact points 67, and an electric contact plate 68, all mounted on the front plate 11 of the structure. A switch member 71 is turnable by its handle 70 around the stub shaft 13 and carries the electric switch 69 whose arms 72, 73 contact the plate 68 and the desired contact point 67 to close the electric circuit 74 and the branch 74^1 thereof leading to the device selected for operation or for accomplishing the desired purpose. This handle 70 has a pointer 75 turned into registration with the index numeral shown on the face plate 2 which indicates the selected branch circuit 74^1 to be closed when the pointer is in such registration.

The retarded opening of the switch 33, 46 is desirable where the electric circuit controlled thereby contains a solenoid or the like instrument requiring some time for its complete operation.

The coin is carried by the rotation of disk 9 into engagement with the stationary pin 80 on the plate 12 and is thereby forced out of the slot before the disk's projection 38 strikes the projection 39 of the catch 36.

The invention being intended to be pointed out in the claims, is not to be limited to or by details of construction of the particular embodiment thereof illustrated by the drawings or hereinbefore described.

I claim:

1. In an organization of the character described: a wheel having a pocket receiving a coin in one position of the wheel and holding the same partly extending therefrom but permitting the same to fall therefrom in another position of the wheel; mechanism actuated by the engagement of the coin therewith in an intermediate position of the wheel, including a fluid container with a restricted fluid passage thereinto for its slow operation and having a movement to expanded and to contracted positions being movable to one of its positions by said engagement, means for returning the container to its other position, and an electric switch movable to circuit-opening and to circuit-closing positions being movable to one of said positions by the movement of the container to one of its positions.

2. In an organization of the character described: a wheel having a pocket receiving a coin in one position of the wheel and holding the same partly extending therefrom but permitting the same to fall therefrom in another position of the wheel; mechanism actuated by the engagement of the coin therewith in an intermediate position of the wheel, including a fluid container with a restricted fluid passage thereinto for its slow operation and having a wall movable by said engagement to container-contracting position and having means for returning said wall to container-expanding position, and an electric switch comprising arms movable to circuit-closing position, said wall having a catch engaging in its container-contracting movement one of said arms and moving the same to circuit-closing contact with the other arm during a portion of said wall's opposite movement and releasing said arm in a farther portion of its said opposite movement.

3. In an organization of the character described: a wheel having a pocket receiving a

coin in one position of the wheel and holding the same partly extending therefrom but permitting the same to fall therefrom in another position of the wheel; mechanism actuated by the engagement of the coin therewith in an intermediate position of the wheel, including a fluid container with a restricted fluid passage thereinto for its slow operation and having a wall movable by said engagement to container-contracting position and having a spring for returning said wall to container-expanding position and an electric switch comprising spring arms movable to circuit-closing position, said wall having a spring catch engaging in its container-contracting movement one of said arms and moving the same to circuit-closing contact with the other arm during a portion of said wall's opposite movement and releasing said arm in a farther portion of its said opposite movement.

4. In an organization of the character described: a wheel having a pocket receiving a coin in one position of the wheel and holding the same partly extending therefrom but permitting the same to fall therefrom in another position of the wheel; mechanism actuated by the engagement of the coin therewith in an intermediate position of the wheel, including a fluid container with a restricted fluid passage thereinto for its slow operation and having a wall movable to container-contracting position and having means for returning said wall to container-expanding position, a lever arm swingable by said engagement to engage and move said wall to its said position, an electric switch, said wall having a catch engaging in said wall's said position the switch and moving the same to circuit-closing position during a portion of said wall's movement from its said position and releasing the switch in a farther portion of said wall's said opposite movement, and a catch holding the lever arm in its swung position wherein it has moved said wall to its said position the second-mentioned catch being released by the wheel in a farther turned position thereof.

5. In an organization of the character described: a base frame having a coin chute; a wheel having a pocket in its periphery with a mouth shorter in the wheel's circumferential direction than the diameter of the coin, receiving in one position of the wheel the coin falling from the chute and holding the same partly extending radially therefrom but permitting the coin to fall therefrom in a turned position of the wheel, the wheel also having in its periphery a groove behind the pocket extending inclinedly between the opposite sides of the wheel; means for yieldingly holding the coin in the pocket in an intermediate turned position of the wheel; a pin carried in connection with the frame spring-pressed into engagement in a hole in the adjacent side of the coin in the pocket at a turned intermediate position of the wheel and moving by the wheel's rotation the coin from the pocket and into the groove and then releasing the same by said rotation and the engagement of the coin with the inclined groove; means for holding the pin from engagement in said hole between the first-mentioned position and said intermediate position of the wheel; mechanism actuated by the engagement therewith of a coin in the pocket in another turned intermediate position of the wheel for holding the wheel against reverse turning movement.

6. In an organization of the character described: a base frame having a coin chute; a wheel having a pocket in its periphery with a mouth shorter in the wheel's circumferential direction than the diameter of the coin, receiving in one position of the wheel the coin falling from the chute and holding the same partly extending radially therefrom but permitting the coin to fall therefrom in a turned position of the wheel, a spring yieldingly holding the coin in the pocket in an intermediate turned position of the wheel the wheel also having in its periphery a groove behind the pocket extending inclinedly between the opposite sides of the wheel; a leaf spring on the frame having at its free end a pin pressed thereby in contact with the adjacent side of the coin in the pocket during the wheel's rotation to an intermediate position and at a point in such rotation pressed into engagement with a hole in said side and moving by the wheel's rotation the coin from the pocket and into the groove and then releasing the same by said rotation and the engagement of the coin with the inclined groove; means for holding the pin from engagement in said hole between the first-mentioned position and said intermediate position of the wheel; mechanism actuated by the engagement therewith of a coin in the pocket in another turned intermediate position of the wheel for holding the wheel against reverse turning movement.

7. In an organization of the character described: a base frame having a coin chute; a wheel having a pocket in its periphery with a mouth shorter in the wheel's circumferential direction than the diameter of the coin, receiving in one position of the wheel the coin falling from the chute and holding the same partly extending radially therefrom but permitting the coin to fall therefrom in a turned position of the wheel, a spring yieldingly holding the coin in the pocket in an intermediate turned position of the wheel the wheel also having in its periphery a groove behind the pocket extending inclinedly between the opposite sides of the wheel; a leaf spring pivotally mounted on the frame having at its free end a pin pressed thereby in contact with the adjacent side of the coin in the pocket during the wheel's rotation to an intermediate position and at a point in such rotation pressed into engagement with a hole in said side and moving by the wheel's rotation the coin from the pocket and into the groove and then releasing the same by said rotation and the engagement of the coin with the inclined groove, the leaf spring being spring pressed about its pivotal mounting to turn its free end toward the wheel's periphery; means for holding the pin from engagement in said hole between the first-mentioned position of the wheel and said point; mechanism actuated by the engagement therewith of a coin in the pocket in another turned intermediate position of the wheel holding the wheel against reverse turning movement.

8. In an organization of the character described: a base frame having a coin chute; a wheel having a pocket in its periphery with a mouth shorter in the wheel's circumferential direction than the diameter of the coin, receiving in one position of the wheel the coin falling from the chute and holding the same partly extending radially therefrom but permitting the coin to fall therefrom in a turned position of the wheel, the wheel also having in its periphery a groove behind the pocket extending inclinedly between the opposite sides of the wheel; a pin carried in connection with the frame spring-pressed into en-

gagement in a hole in the adjacent side of the coin in the pocket at a turned intermediate position of the wheel and moving by the wheel's rotation the coin from the pocket and into the groove and then releasing the same by said rotation and the engagement of the coin with the inclined groove; means for holding the pin from engagement in said hole between the first-mentioned position and said intermediate position of the wheel; a curved spring mounted on the frame pressing the coin edgewise in the pocket and in the groove, mechanism actuated by the engagement therewith of a coin in the pocket in another turned intermediate position of the wheel for holding the wheel against reverse turning movement.

9. In an organization of the character described: a base frame having a coin chute; a wheel having a cam on its side and a pocket in its periphery with a mouth shorter in the wheel's circumferential direction than the diameter of the coin, receiving in one position of the wheel a coin falling from the chute and holding the same partly extending radially therefrom but permitting the coin to fall therefrom in a turned position of the wheel, a spring yieldingly holding the coin in the pocket in an intermediate turned position of the wheel the wheel also having in its periphery a groove behind the pocket extending inclinedly between the opposite sides of the wheel; a leaf spring on the frame riding on the cam and having at its free end a pin pressed thereby, in the spring's position off of the cam, into engagement in a hole in the adjacent side of the coin in the pocket at a turned intermediate position of the wheel and moving by the wheel's rotation the coin from the pocket and into the groove and then releasing the same by said rotation and the engagement of the coin with the inclined groove; mechanism actuated by the engagement therewith of a coin in the pocket in another turned intermediate position of the wheel for holding the wheel against reverse turning movement.

10. In an organization of the character described: a base frame having a coin chute; a wheel having a pocket with an open bottom and a mouth shorter in the wheel's circumferential direction than the diameter of the coin, receiving in one position of the wheel the coin falling from the chute and holding the same partly extending radially therefrom but permitting the coin to fall therefrom in a turned position of the wheel, a spring yieldingly holding the coin in the pocket in an intermediate turned position of the wheel the wheel also having in its periphery a groove behind the pocket extending inclinedly between the opposite sides of the wheel; a pin carried in connection with the frame spring-pressed into engagement in a hole in the adjacent side of the coin in the pocket at a turned intermediate position of the wheel and moving by the wheel's rotation the coin from the pocket and into the groove and releasing the same by said rotation and the engagement of the coin with the inclined groove; means for holding the pin from engagement in said hole between the first-mentioned position and said intermediate position of the wheel; mechanism actuated by the engagement of a non-mutilated coin therewith in a position of the wheel turned farther from said intermediate position, said pocket permitting a coin of less diameter than the length of the mouth of the pocket to fall through its open bottom.

11. In an organization of the character described: a base frame having a coin chute; a wheel having a pocket with an open bottom and a mouth shorter in the wheel's circumferential direction than the diameter of the coin, receiving in one position of the wheel the coin falling from the chute and holding the same partly extending radially therefrom but permitting the coin to fall therefrom in a turned position of the wheel, a spring yieldingly holding the coin in the pocket in an intermediate turned position of the wheel the wheel also having in its periphery a groove behind the pocket extending inclinedly between the opposite sides of the wheel; a pin carried in connection with the frame spring-pressed into engagement in a hole in the adjacent side of the coin in the pocket at a turned intermediate position of the wheel and moving by the wheel's rotation the coin from the pocket and into the groove and releasing the same by said rotation and the engagement of the coin with the inclined groove; means for holding the pin from engagement in said hole between the first-mentioned position and said intermediate position of the wheel; mechanism actuated by the engagement of a non-mutilated coin therewith in a position of the wheel turned farther from said intermediate position, said pocket permitting a coin of less diameter than the length of the mouth of the pocket to fall through its open bottom; a magnet adjacent the lower end of the chute for attracting iron and steel coin-shaped disks and preventing the same from entering the pocket.

12. In an organization of the character described: a base frame having a coin chute; a wheel having a pocket receiving in one position of the wheel a coin falling from the chute and holding the same partly extending therefrom but permitting the coin to fall therefrom in a turned position of the wheel; mechanism actuated by the engagement of the coin therewith in a turned intermediate position of the wheel, including a switch provided with means for retarding the operation thereof in an electric circuit; a plurality of electric circuits having contacts on the frame spaced circularly about the wheel's axis; a switch arm turnable about said axis into circuit-closing contact with said contacts respectively, said switch and said switch arm in circuit closing position coacting to maintain the circuits closed for a period governed by the retarding means.

13. In an organization of the character described: a hollow base frame having a coin chute and a removable cover; a wheel journalled on the frame having an axle with a socket in its end and having a pocket receiving in one position of the wheel a coin falling from the chute and holding the same partly extending therefrom but permitting the coin to fall therefrom in a turned position of the wheel; mechanism actuated by the engagement of the coin therewith in a turned intermediate position of the wheel, including a switch provided with means for retarding the operation thereof in an electric circuit; a plurality of electric circuits having contacts on the frame spaced circularly about said axle; a switch arm mounted in the cover turnably concentrically with said axle into circuit-closing contact with said contacts respectively; a stub axle mounted on the cover concentric with the wheel's axle and having at its end a projection removably seated in said socket for turning the wheel, said switch and said switch arm in circuit-closing position coacting to maintain the circuits closed for a period governed by the retarding means.

CLIFFORD H. GREEN.