

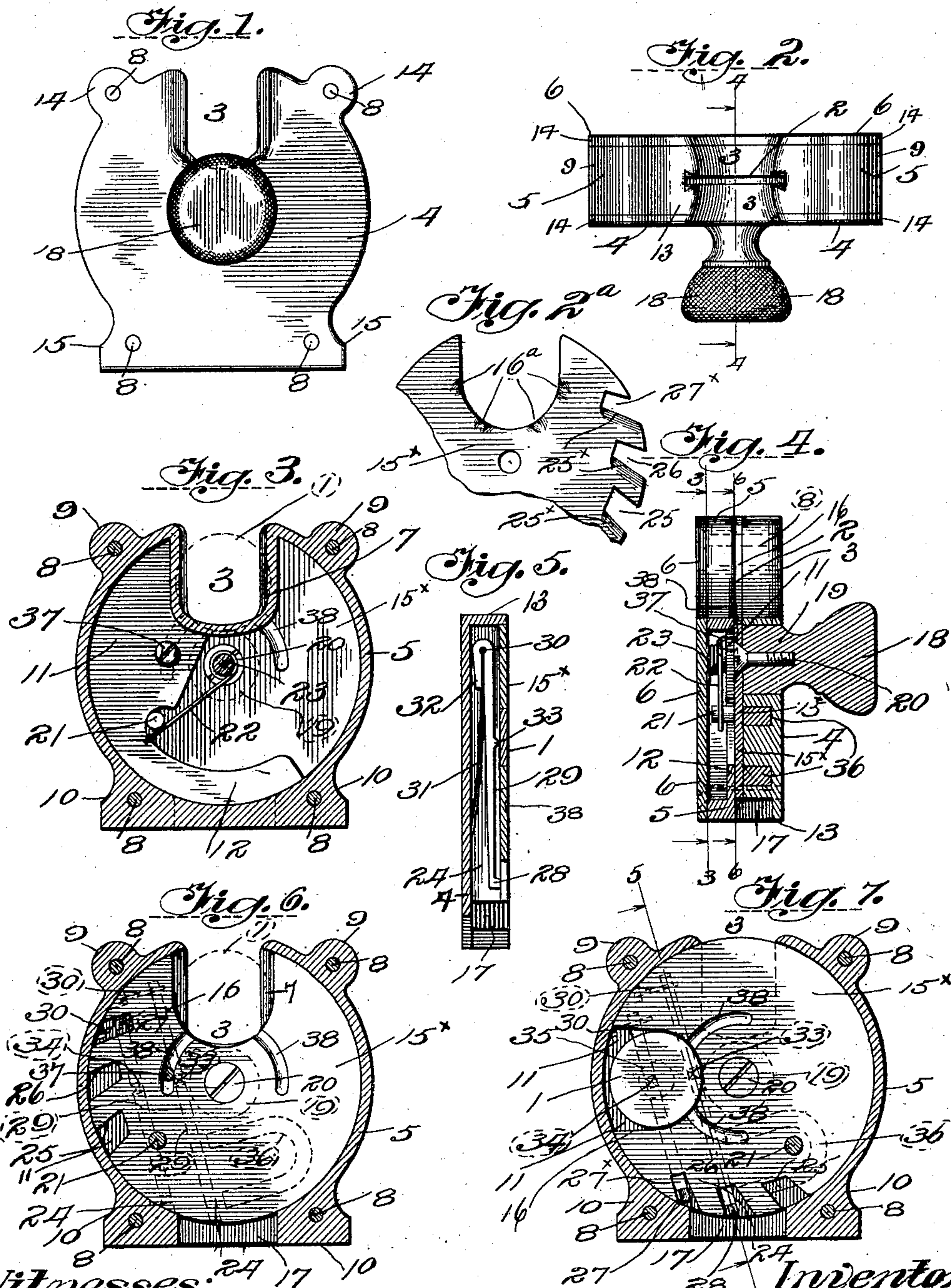
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COIN DETECTOR FOR COIN ACTUATED DEVICES.

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NO MODEL.



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UNITED STATES PATENT OFFICE.

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COIN-DETECTOR FOR COIN-ACTUATED DEVICES.

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To all whom it may concern:

Be it known that I, BETHUEL M. DAVIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Coin-Detectors for Coin-Actuated Devices, of which the following is a full, clear, and exact specification.

My invention relates to means for preventing coin-actuated mechanisms, automatic vending-machines, and other devices requiring the deposit of a coin for their operation from being actuated by all coins, excepting those of a predetermined denomination, or by so-called "slugs," "lead bogus coins," "iron" or "magnetic" disks, washers, &c.; and it has for its primary object to provide an improved device which will receive a coin of predetermined denomination and permit the same to move into operative relation with the coin-actuated mechanism or automatic vending mechanism or other place where the presence of a coin is desired, but will arrest a bogus coin or coin of improper denomination or other device in imitation of the coin of predetermined denomination and prevent the same from reaching the coin-actuated mechanism or other place where the presence of the coin is desired.

A further object of my invention is to provide an improved coin-detector which will return the bogus coin to the starting position and so hold it that it may be readily removed by the operator and will prevent the machine from being actuated by any other coin until it is removed.

A further object of my invention is to prevent a lead or other soft disk from passing through the machine even though it may be of the exact size or dimensions of the coin of the predetermined denomination.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which the said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a front or face view of my improved device. Fig. 2 is a top or plan view thereof. Fig. 2^a is a face view of a part of the coin-receiver. Fig. 3 is a vertical section taken on the line 3 3, Fig. 4. Fig. 4 is a transverse section taken on the line 4 4, Fig. 2. Fig. 5 is a transverse section taken on the line 5 5, Fig. 7. Fig. 6 is a vertical section taken on the line 6 6, Fig. 4; and Fig. 7 is a vertical section taken on the same line, but showing a coin in the device advanced to a position half-way between the receiving and discharge slots.

My improved coin-detector is more especially designed for use in connection with and as auxiliary to the ordinary coin-actuated mechanism or automatic vending-machine and is adapted to be arranged at the receiving end of the coin-slot, so as to serve as a mechanical means of depositing the coin in such slot if it should be of the proper denomination and preventing the coin from entering the slot if it should be of an improper denomination, and for this reason it will not be necessary to describe in connection with my present invention any particular kind or form of coin-actuated mechanism.

In the example of my invention shown in the drawings the catch or catches for holding the coin-receiver against movement toward the coin-discharge slot at all times, excepting when a coin of the proper denomination is held therein, are arranged to impinge the side of the coin as contradistinguished from its edge, so that the thickness of the coin will determine the position of the catches with reference to the coin-receiver, or, in other words, the face of the coin pressing against said catches or parts connected therewith will deflect the catches out of engagement with the coin-receiver. The coin, which is shown at 1 in dotted lines in Figs. 3 and 6 and in full lines in Fig. 7, is deposited in a slot 2, which is formed in the side walls and bottom of a U-shaped notch or passage 3 at the upper side of the device. This U-shaped notch or recess 3 is constituted by registering recesses formed in the upper edges of a face-plate 4, an intermediate ring 5, and a back

plate 6, the coin being deposited in the slot 2 through the upper side of the U-shaped recess, and the recess being open through both sides of the device, so that the coin may be held between the thumb and finger until safely lodged in the slot 2 and may be readily grasped by the thumb and finger for removal in the event it should be ejected by the device by the means which will be presently described.

The sides and bottom of the recess 3 immediately adjacent to the slot 2 on one side thereof are formed by a U-shaped rib 7, formed on or secured to the intermediate ring 5, and against the outer face or edge of this rib 7, which is flush with the outer face or edge of the intermediate ring 5, fits the back plate 6, which is snugly held in place by screws or rivets 8, passing through the face-plate 4, the back plate 6, and lugs or bosses 9 10, formed on the exterior of the intermediate ring 5.

The intermediate ring 5 is also formed with an internal web 11, having an extension 12 and located at an intermediate point with reference to the thickness or depth of the intermediate ring—that is to say, at a distance from both faces or edges of the intermediate ring—and the face-plate 4 is formed with a surrounding flange 13, against which the outer edge or face of the ring 5 is clamped by the screws 8, both the face-plate 4 and the back plate 6 being provided at top with lugs or bosses 14 and at bottom with bosses or lugs 15, complementary in shape to the bosses 10, respectively formed on the intermediate ring 5 for the engagement of the screws 8. By thus supporting the intermediate ring 5 against the face-plate a narrow space is left between the web 11 and its extension 12 and the inner face of the face-plate 4, and this space is in the same plane as the slot 2, and in it is located a coin-receiver in the form of a circular plate or disk 15^x, which is designed to fit snugly against the inner face of face-plate 4 and which is provided in one edge with a U-shaped notch or recess 16, adapted to register with the slot 2 and recess 3. The notch or recess 16 in the disk 15^x is slightly larger or wider than the side walls of the recess 3, so that a coin may be inserted through the upper end of the slot 2 and will be supported therein by the edges of the notch 16. The notch 16 is also of sufficient depth to permit the coin to descend until its upper edge is clear of the inner periphery of the intermediate ring 5, which inner periphery is circular and constitutes the edge of a coin-passage, of which the sides are constituted by the web 11 and its extension 12 and inner face of face-plate 4, respectively, the opposite edge of such coin-passage being constituted by the bottom of the recess or notch 16, which constitutes the coin receiver and carrier for conducting the coin from the receiving-slot 2 to a discharge-slot 17, arranged below the slot 2 and which may be placed in communication with the receiving end of the

slot of the coin-actuated mechanism to which my invention is to be applied, the connection being effected in any desired way not necessary to explain. This slot 17 at the bottom is constituted on three sides by a notch or recess formed through the bottom of the face-plate 4 between the lugs 10 and on the other and inner side by the lower edge of the intermediate ring 5. (See Fig. 4.) The disk or plate 15^x is secured to an operating knob or handle 18 in any suitable manner. In the example of the invention shown in the drawings this knob 18 is provided with a journal 19, journaled in the face-plate 4 and having its inner end arranged flush with the inner face of the plate 4 and firmly secured to the disk 15^x by means of screw 20 or other suitable device in such a way that the rotation of the knob will effect the rotation of the disk 15^x in one direction, while its return movement or rotation in the opposite direction may be produced by any suitable spring bearing against a lug 21, formed on the inner face of the disk 15^x and at the same time constituting a stop for limiting the return or retrograde rotation of the disk and holding the recess or notch 16 in register with the recess 3 when the knob is released, said lug 21 being arranged to strike against the edge of web 11, as shown in Fig. 3, for that purpose. The form of spring shown consists of a spring arm or wire 22, coiled on a pin 23, formed on or secured to the back plate 6 and projecting into the cavity afforded by the intermediate ring 5. The stop or lug 21 is also so situated that it will constitute a stop for limiting the movement of the disk 15^x when rotated by the knob 18 against the action of spring 22, so as to prevent the notch or recess 16 in the disk from being turned past the discharge-slot 17. To this end the lug 21 is so disposed that it will strike the side of rib 7 when the described position is reached.

The inner face of the face-plate 4 is provided with one or more recesses or channels 24, in which are embedded one or more catches 27 28 for locking the disk or receiver 15^x 16 against movement beyond a certain degree until a coin of the proper denomination be deposited. To the end that the catches may engage the disk at various points in its line of rotation the latter is provided with a plurality of peripheral notches 25 26 27^x (beveled at 25^x) outwardly, into which spring one or more of the aforesaid catches 27 28 when the latter are not depressed inwardly within the face of the plate 4, as shown in Fig. 5. These catches 27 28 are spring-actuated and are preferably formed on elongated arms 29, pivoted in the recesses 24 by means of pins 30, the pivoted ends of the arms being bent around the pins 30, so as to at one and the same time constitute means for attachment to the pin 30 and means for holding a spring 31, which is clamped between the bent end 32 and the back

of the arm and which spring by bearing against the inner wall of the recess 24 normally tends to force the catch outwardly into engagement with the notches in the disk.

5 Each of the arms 29 is provided with an outwardly-projecting lug, which when the springs 31 are not otherwise and sufficiently restrained protrude from the recesses 24 beyond the face of plate 4. One of these lugs is shown at 33
10 and the other at 34, and each is pointed or sharpened, so as to dig into any soft object and arrest the progress thereof in the event it should be attempted to force the same past them in the coin-receiver 15^x 16, which, as
15 will be understood, should be constructed of steel or other hard material capable of passing over the pointed lugs 33 34 without material damage, and the edges of the recess or notch 16 should be beveled, as shown at 16^a,
20 where they pass over lugs 33 34.

With the construction thus described it will be seen that unless the catches 27 28 be restrained by the pressure of either the disk 15^x or a coin in the notch 16 against the lugs 33
25 34 such catches will spring outwardly into engagement with one or more of the notches 25 26 27^x, and the catches 27 28 are so proportioned and arranged with relation to the lugs 33 34 that they will not be deflected out of the line
30 of movement of the disk 15^x unless the coin carried in the notch 16 be of the requisite thickness, and it is also evident that since there are a plurality of the lugs 33 34 the coin must be of the requisite area or diameter to
35 cover all of such lugs; otherwise one of the catches 27 28 would be allowed to spring outwardly into engagement with at least one of the catches 25 26 27^x before the coin-receiving notch 16 came into register with the discharge-slot 17. This, as will be seen, might
40 also be the result if the object deposited were a washer, a thing which is frequently used to defraud coin-actuated mechanisms, which though possessing the requisite thickness and
45 diameter is provided with a central aperture, such as represented by dotted lines 35 in Fig. 7, and which aperture would invariably permit at least one of the lugs 33 34 to spring outwardly and lock the coin-receiver against
50 further progress. It is also evident that even though the coin should be of the requisite thickness and diameter, but composed of lead or other soft material, the sharp points of the lugs 33 34 would dig into it to such an extent
55 as to make it impossible to continue the rotation of the disk 15^x by the aid of the knob 18, and, again, it is apparent that even though the coin or object might possess the requisite thickness, but too small in diameter, it would
60 be apt to leave one of the lugs 33 34 uncovered, and hence permit at least one of the catches 27 28 to lock the disk from being rotated the entire distance.

If the coin deposited should be an iron or
5 other magnetic disk possessing both the req-

uisite thickness and diameter, it would be prevented from falling through the discharge-slot 17 by a magnet 36, embedded in face-plate 4, as shown in dotted lines in Figs. 6 and 7 and in full lines in Fig. 4, and consequently
70 as soon as the operator released his hold on the knob 18 the spring 22 would instantly return the receiver 15^x 16 to its former position, carrying the slug or bogus coin with it and presenting the same into recess 3 in position
75 to be removed.

If desired, the web 11 may be provided with a set-screw 37, threaded therein and adapted to impinge the disk 15^x for taking up wear and holding the latter firmly against the face-
80 plate 4, the disk 15^x being preferably provided with a groove or circular depression 38 for the inner end of set-screw 37 to engage in.

Having thus described my invention, what I
85 claim as new therein, and desire to secure by Letters Patent, is—

1. In a coin-detector the combination of a casing having a discharge-slot, and a U-shaped coin-receiving recess open through both sides
90 and the edge of said casing, and a coin-receiver in said casing for moving a coin from said receiving-recess to said discharge-slot, substantially as set forth.

2. A coin-detector comprising a face-plate
95 having a finger-recess, a receiving coin-slot, and a discharging coin-slot, a back plate having a finger-recess, an intermediate ring having a finger-recess and a receiving coin-slot, and means for securing the parts together.
100

3. A coin-detector comprising a face-plate
105 having a receiving coin-slot, and a discharging coin-slot, a back plate, an intermediate ring having a U-shaped rib, and a receiving coin-slot, and means for securing the parts together.
110

4. A coin-detector comprising a face-plate
115 having a surrounding flange formed with corner-lugs, a finger-recess, a receiving coin-slot, and a discharging coin-slot, a back plate having corner-lugs, and a finger-recess, an intermediate ring having corner-lugs, a finger-recess, and a receiving coin-slot and means for securing the parts together by their corners.
120

5. A coin-detector comprising a face-plate
125 having a finger-recess, a receiving coin-slot, a discharging coin-slot, and a magnet recessed in the body of the face-plate, a back plate having a finger-recess, an intermediate ring having a finger-recess and a receiving coin-slot, and means for securing the parts together.
130

6. A coin-detector comprising a face-plate
135 having a finger-recess, a receiving coin-slot, and a discharging coin-slot, a back plate having a finger-recess, an intermediate ring having a finger-recess, a receiving coin-slot, and integral intermediate web and means for securing the parts together.

7. A coin-detector comprising a face-plate
140 having a finger-recess, a receiving coin-slot, and

and a discharging coin-slot, a back plate having a finger-recess, an intermediate ring having a finger-recess, a receiving coin-slot, and an intermediate web, a disk having a coin-recess adapted to register with the finger-recesses and with the receiving coin-slots, and located within the intermediate ring between the face-plate and the integral web of the intermediate ring, and means for operating the disk.

8. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot, and a discharging coin-slot, a back plate having a finger-recess, an intermediate ring having a finger-recess, a receiving coin-slot and an intermediate web, a disk having a coin-recess, and located within the intermediate ring between the face-plate and the integral web of the intermediate ring and a knob journaled in the face-plate and secured to the disk whereby the latter is operated.

9. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot, and a discharging coin-slot, a back plate having a finger-recess, an intermediate ring having a finger-recess, a receiving coin-slot and an intermediate web, a disk having coin-recess, and a stop-lug adapted to contact with the web for limiting the movement of the disk and means for operating the disk.

10. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot and a discharging coin-slot, a back plate having a finger-recess and a pin, an intermediate ring having a finger-recess, a receiving coin-slot, an intermediate web and a rib, a disk having a coin-recess, and a stop-lug adapted to contact with the web for limiting the movement of the disk, a spring coiled around the pin on the back plate and having its free end bearing against the stop-lug for returning the disk, and means for operating the disk, the stop-lug contacting with the rib to limit its advance movement.

11. A coin-detector comprising a face-plate having a receiving coin-slot a discharging coin-slot, and a channel, a back plate, an intermediate ring having a receiving coin-slot, a disk having a coin-recess, and a peripheral notch, a spring-catch located in the channel and having a lug adapted to project into the path of the notch, and means for operating the disk.

12. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot a discharging coin-slot, and channels, a back plate having a finger-recess, an intermediate ring having a finger-recess and receiving coin-slot, a disk having a coin-recess, and a plurality of peripheral notches, spring-catches located in the channels and having lugs adapted to project into the path of the peripheral notches and means for operating the disk.

13. A coin-detector comprising a face-plate

having a finger-recess, a receiving coin-slot, a discharging coin-slot, and a channel, a back plate having a finger-recess, an intermediate ring having a finger-recess and a receiving coin-slot, a disk having a coin-recess, and a peripheral beveled notch, a spring-catch located in the channel and having a lug adapted to project into the path of the notch, and means for operating the disk.

14. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot, a discharging coin-slot and a channel, a back plate having a finger-recess, an intermediate ring having a finger-recess and a receiving coin-slot, a disk having a coin-recess and a peripheral notch, a catch having an arm formed with a bent end and pivoted in the channel, and a lug adapted to project into the path of the notch, a spring secured to the bent end of the arm, and means for operating the disk.

15. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot, a discharging coin-slot and a channel, a back plate having a finger-recess, an intermediate ring having a finger-recess and a receiving coin-slot, a disk having a coin-recess, a spring-catch having an arm formed with a sharpened lug adapted to project into the path of the coin-recess of the disk, and means for operating the disk.

16. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot, a discharging coin-slot and a channel, a back plate having a finger-recess, an intermediate ring having a finger-recess and a receiving coin-slot, a disk having a coin-recess formed with a bevel, a spring-catch having an arm formed with a sharpened lug adapted to project in the path of the bevel of the coin-recess of the disk, and means for operating the disk.

17. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot, a discharging coin-slot and channels, a back plate having a finger-recess, an intermediate ring having a finger-recess and receiving coin-slot, a disk having a coin-recess and a peripheral notch, spring-catches each having an arm formed with a sharpened lug adapted to project into the path of the coin-recess of the disk and means for operating the disk.

18. A coin-detector comprising a face-plate having a finger-recess, a receiving coin-slot, and a discharging coin-slot, a back plate having a finger-recess, an intermediate ring having a finger-recess, a receiving coin-slot and integral intermediate web, a disk having a coin-recess and circular depression, a screw working through the web into the circular depression for taking up wear, and means for operating the disk.

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