

No. 757,741.

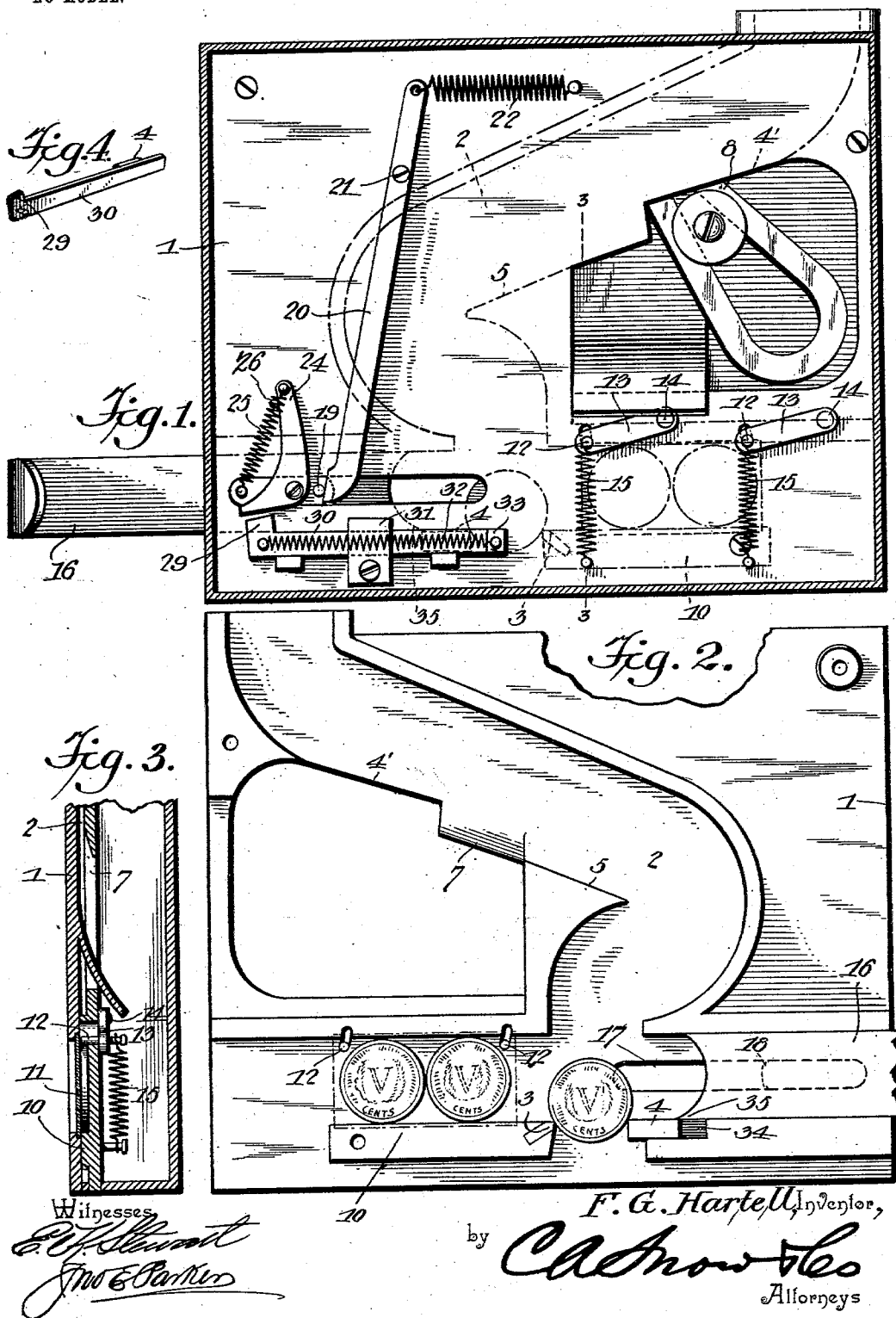
PATENTED APR. 19, 1904.

F. G. HARTELL.  
COIN DETECTOR.

APPLICATION FILED JUNE 1, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



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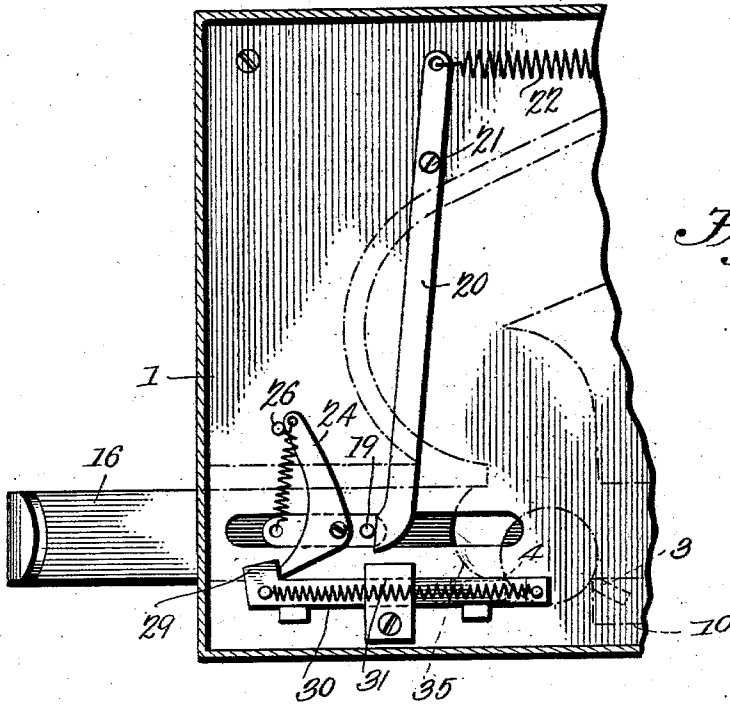


Fig. 5.

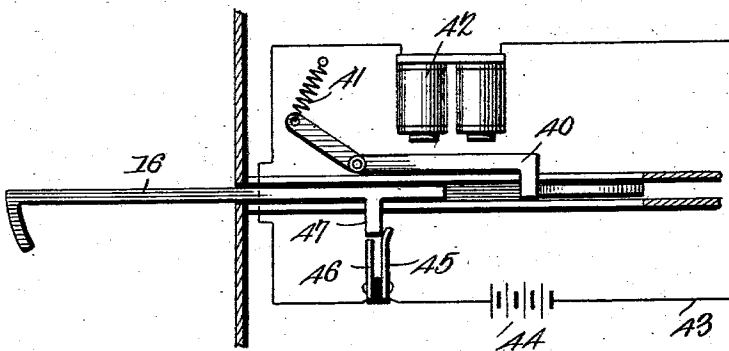
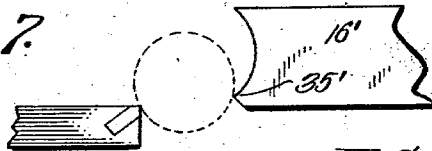


Fig. 6.

Fig. 7.



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# UNITED STATES PATENT OFFICE.

FREDERICK G. HARTELL, OF CHICAGO, ILLINOIS.

## COIN-DETECTOR.

SPECIFICATION forming part of Letters Patent No. 757,741, dated April 19, 1904.

Application filed June 1, 1903. Serial No. 159,691. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK G. HARTELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Coin-Detectors, of which the following is a specification.

The purpose and object of the present invention is to provide a device for detecting counterfeit or spurious coins, slugs, and disks of inferior metals which in many cases are placed in coin-controlled vending-machines and to provide mechanism which will prevent the operation of the machine and the delivery of goods except on the insertion of a coin.

A further object of the invention is to provide a device of this character with a coin rest or support of which a portion is movable to permit the passage of spurious coins or blanks.

A further object of the invention is to provide a device of this character with a movable coin-engaging member of such character and so constructed as to engage with and arrest operative movement of a blank or slug of inferior metal, and thus prevent the delivery of goods from the machine with which it is connected.

A still further object of the invention is to provide a movable coin-engaging member of such construction that when forced into contact with a blank or slug of a metal or other material softer than a standard coin it will bite into or interlock with such blank or slug and prevent further movement in the direction of the delivery-actuating mechanism.

A still further object of the invention is to provide a coin-engaging member with a tooth, point, or other pricking or piercing portion which when engaging a standard coin will move such coin in the direction of the delivery-actuating mechanism, but when moved into engagement with a slug or blank of softer metal or material will bite into such slug or blank and prevent further operative movement.

A still further object of the invention is to

provide a coin-rest of which a portion is movable either directly or indirectly by the coin-engaging slide.

A still further object of the invention is to provide a coin-rest of which a portion is movable to permit the passage of spurious coins, blanks, or slugs.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a view in elevation of a coin-detecting apparatus embodying the invention, a portion of the casing being shown in section. Fig. 2 is an elevation looking from the inner side of the casing, the outer plate having been removed. Fig. 3 is a detail sectional view of a portion of the device on the line 3-3 of Fig. 1. Fig. 4 is a detail perspective view of the movable coin rest or support detached. Fig. 5 is a view of a portion of the mechanism shown in Fig. 1 with the parts in different position. Fig. 6 is a sectional plan view illustrating a slightly-modified construction of the mechanism for actuating the movable coin-rest. Fig. 7 is a slight modification in the construction of the coin-engaging slide.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The device forming the subject of the present invention is intended for detecting spurious coins, blanks, or slugs, which in many cases are inserted in coin-controlled vending-machines in attempts to obtain goods without payment, although the device may be used in any capacity where it is desired to separate good coins from counterfeits and will prove of value in the counting and sorting of coins.

In the drawings, 1 designates a casing which

is formed of any material and is of a shape and size depending on the character of the machine and the purpose for which the same is used. In the casing is a winding coin-chute 2, through which the coin travels and falls on a rest or support comprising two members 3 and 4, spaced apart for a distance less than the diameter of the coin and one of said members being movable in order to permit the passage of a counterfeit, blank, or slug. The bottom of the coin chute or runway is arranged at an incline for the greater part of its length and has portions on two different planes, (indicated by reference-numerals 4' and 5,) the latter being lower than the former and the two portions being separated from each other by an opening 7, through which a spurious coin may fall, while a coin of standard size and material will acquire sufficient momentum in traveling over the portion 4' to jump over the opening and strike the portion 5. The portion 4' of the runway is formed in part of the poles of an electromagnet 8, and the magnet will not of course attract a coin formed of copper, nickel, or silver; but should a blank or slug of paramagnetic material, such as iron punchings, be inserted in the slot it will be held or its progress retarded by the magnet to such an extent as to nullify the effect of a previously-acquired momentum and allow the counterfeit to fall through the opening.

In communication with the lower end of the chute is a coin-receiving recess or pocket adapted to receive a plurality of coins, in the present instance two, which are supported on a flange 10 and exposed to view through a transparent panel 11. These coins are held in position by small pins 12, arranged on arms 13, mounted on pivot-pins 14, the pins 12 extending through small slots in the wall of the casing and being normally held down in coin-locking position by means of small tension-springs 15. These pins will freely yield in order to permit the passage of a coin when the latter is forced into position by the coin-slide 16, and while not essential to the operation of the machine it is preferred to display the coins in order to lessen the liability of loss through the use of counterfeits or mutilated coins.

When the coin has reached the lower end of the chute 2, it falls to the supports 3 and 4, as previously described, and lies directly in the path of movement of the coin-engaging slide 16, a small portion of the coin extending below the line of the coin-pocket and the slide.

In the casing there is formed a slot 17, through which projects a guide-block 18, forming a part of or secured to the slide 16 and serving as a support therefor. To the outer end of the block is secured a pin 19, and with this pin engages the lower end of a lever 20, pivoted at a point intermediate of its length

to a pin 21, and at its upper end is connected to one end of a tension-spring 22, which serves to normally maintain the coin-engaging slide in the position shown in the drawings. The end of the coin-engaging slide is projected through a suitable slot in the casing and is provided with a knob or bent or otherwise so formed as to render it convenient to the operator.

The coin-engaging end of the slide is pointed or is provided with a sharp tooth, point, piercing, or pricking device for engagement with the coin.

To the outer side of the block 18 is pivoted a bell-crank lever 24, the vertical arm of which is connected by a spring 25 to a pin 26, also carried by the block. When in normal position, the vertical arm of the bell-crank lever is engaged by a stop pin or lug 26, projecting from the side of the casing and normally retaining the approximately horizontal line of the lever in a plane above the top of a lug or bill 29, projecting from a slidable bar 30. The bar 30 is held in suitable guides 31, projecting from one of the side-walls of the casing, and is normally held in the position shown in Fig. 1 by means of a coiled tension-spring 32, the movement of the bar being limited by a stop-lock 33.

The sliding bar 30 carries the coin-rest member 4, the latter projecting through a slot 34, formed in one wall of the casing.

In the operation of the mechanism a coin is inserted in the coin-slot at the top of the chute 2 and travels gradually downward, leaping over the opening 7 if the coin is of standard size and value. The coin drops to the two spaced rests 3 and 4 and is supported in the path of movement of the coin-engaging slide 16. When this slide is forced inward, one of its pointed ends or edges 35 engages the periphery of the coin and at points somewhat below a horizontal line extending through the diameter of the coin, and if the coin is of standard quality the sharpened edge will not bite into the periphery of the coin, but will lift such coin and force it over the coin-rest 3 and past the first of the pins 12. Should the coin be of an inferior softer metal, such as lead, the sharpened edge or point of the slide 16 will bite into the periphery of the coin and prevent upward movement over the coin-rest 3, it being noted that the latter is also provided with a comparatively sharp edge. The spurious coin will then resist further inward movement of the slide, and the operator will naturally relieve the pressure on the slide and allow the same to return to normal position preparatory to another inward movement. When the slide is released, the lower horizontal arm of the bell-crank lever will engage the lug 29 on slidable bar 30, and as the coin-engaging slide moves outward the sliding bar will be carried

with it and move the coin-rest 4 a distance sufficient to permit the spurious coin to drop through the space between the two coin-rests. The bell-crank lever is then disengaged from the lug 29, the vertical arm of said bell-crank lever engaging the stationary pin 26 and the latter acting as a cam to effect the disengagement of the horizontal arm of the bell-crank lever. The separating movement of the coin-rests need be but slight to effect the desired result, although the extent of movement may be varied in accordance with the character of the machine and the size of the coin-chute.

The invention may be modified in a number of ways, as by placing the sharpened points at an intermediate point in the width of the coin-engaging slide or by permitting more or less indirect action of the movable coin-rest, the latter in some cases being in the form of an armature for a suitable electromagnet having a controlling-circuit energized each time the coin-engaging slide moves outward.

In the construction illustrated in Fig. 6 the movable coin-rest forms a portion of an armature 40, normally held in operative position by a small tension-spring 41 and disposed within the field of force of an electromagnet 42. The electromagnet is arranged in a circuit 44, including a battery or other source of electrical energy and a pair of contacts 45 and 46. The contact 45 is arranged within the path of movement of the coin-engaging slide 16, so that on the outward movement of said slide an electric circuit will be completed, the armature attracted, and the coin-rest withdrawn from its position under the coin.

In Fig. 7 is illustrated a slight modification of the construction, the coin-engaging slide 16' being provided with a biting edge or point 35' in a position slightly different from that shown in Fig. 2.

Having thus described the invention, what is claimed is—

1. In a coin-detector, a coin-engaging slide, a coin-rest including a movable member, means for maintaining the movable member in normal position during the forward movement of the slide, and means for moving said member to release position on the returning movement of the slide.

2. In a coin-detector, a coin-engaging slide, a coin-rest including a movable member, means for maintaining said movable member in initial position during forward movement of the slide, and means operable by the slide for moving said member to release position on the returning movement of said slide.

3. In a coin-detector, a coin-engaging slide, a coin-rest including a movable element, means for holding said element in initial position during the forward movement of the slide, and engaging means carried by the slide and mov-

able element for effecting releasing movement of said element on the returning movement of the slide.

4. In a coin-detector, a coin-rest having a pointed portion for engaging the periphery of the coin, and a slide also having a pointed portion for engaging the periphery of the coin whereby after the insertion of a disk of metal softer than coin, said disk will be caught and limit inward movement of the slide.

5. In a coin-detector, a coin-rest, and a coin engaging and moving member having a pointed portion for engagement with a periphery of a coin, the point being forced positively into a disk of metal softer than the coin to thereby limit the movement of said member.

6. In a coin-detector, a pair of spaced coin-rests, initially separated for a distance less than the diameter of a predetermined coin, and a pointed slide adapted to engage a coin carried by the rests and to raise such coin above the rests, the engagement of the point of the slide with a spurious coin preventing full inward movement of said slide.

7. In a coin-detector, a pair of spaced coin-rests of which one is movable with respect to the other, said rests being initially spaced for a distance less than the diameter of a predetermined coin, a pointed slide for engaging and raising a coin over the rests, and means for operating the movable slide to effect the release of a spurious coin.

8. In a device of the class specified, a pair of coin-rests of which one is movable, a coin-engaging slide, a bell-crank lever carried thereby, a slidable bar carrying the movable coin-rest, a spring normally holding said bar from movement, and a lug carried by the bar and adapted to be engaged by the bell-crank lever on the outward movement of the slide.

9. In a device of the class specified, a movable coin-engaging member, having a sharpened point for engagement with the periphery of a coin, and an auxiliary pointed member between which and the movable coin-engaging member a spurious coin may be caught to prevent full inward movement of said coin-engaging member.

10. In a device of the class specified, a coin-rest having a sharpened edge, and a movable coin-engaging member having a sharpened point between which and the sharpened edge of the coin-rest a spurious coin may be caught and limit the movement of said member.

11. In a device of the class specified, a movable coin-engaging member having a point or tooth for biting into metals or materials softer than a standard coin, and a stationary member having a sharpened edge between which and the point or tooth a spurious coin may be caught to prevent full inward movement of said movable coin-engaging member.

12. In a device of the class specified, a movable coin-rest having a sharpened edge, and a movable member coacting therewith and adapted to engage and bite into metals or  
5 other materials softer than standard coins.

13. In a device of the class specified, a pair of coin-rests of which one is movable, a movable and pointed coin-engaging member coacting therewith, and means controlled by said

coin-engaging member for operating the movable coin-rest. 10

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

FREDERICK G. HARTELL.

Witnesses:

J. ROSS COLHOUN,  
JNO. E. PARKER.