No. 676,114. Patented June 11, 1901.

P. E. BERGER.

BOGUS COIN DETECTOR FOR COIN CONTROLLED MACHINES.

(Application filed Sept. 26, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 3.

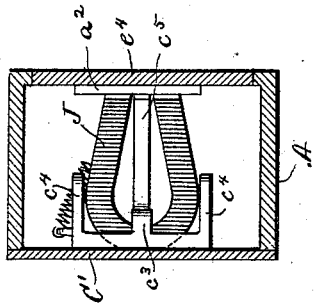


Fig. 2.

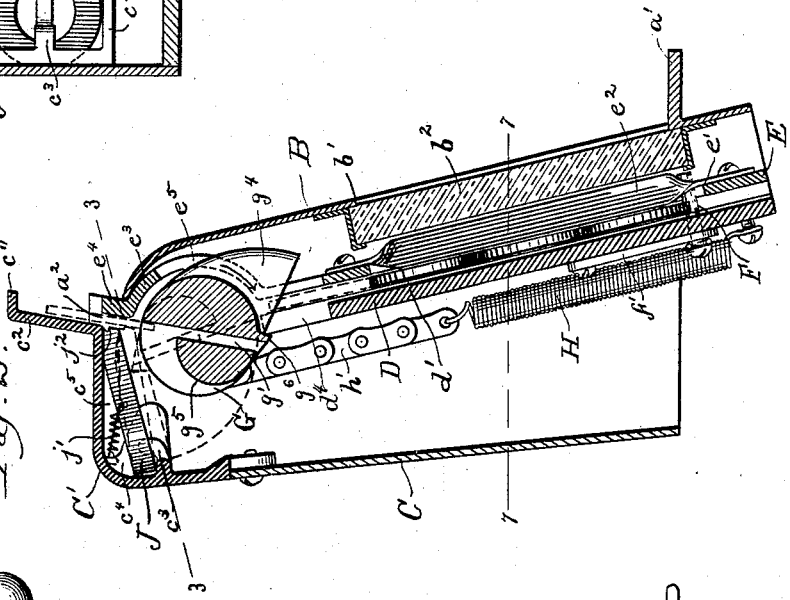
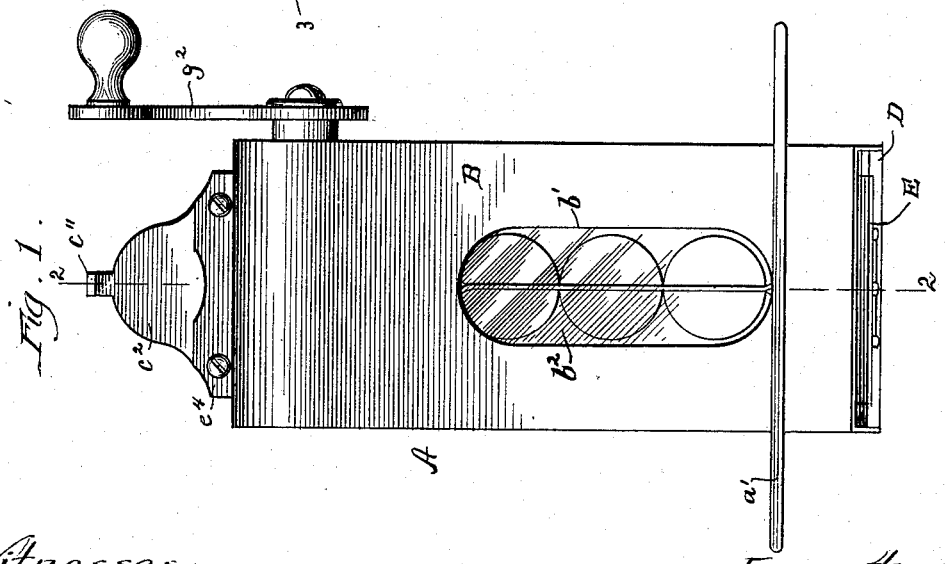


Fig. 1.



Witnesses
Tonis K. Alfords.
Alberta Adamick.

Inventor:
Paul E. Berger
By Peirce & Fisher
Attorneys.

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P. E. BERGER.

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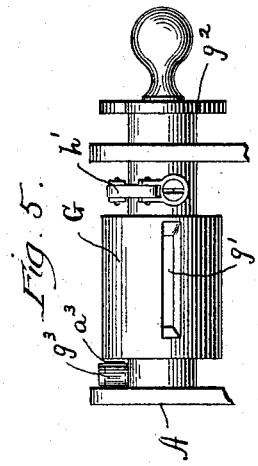

Fig. 5.

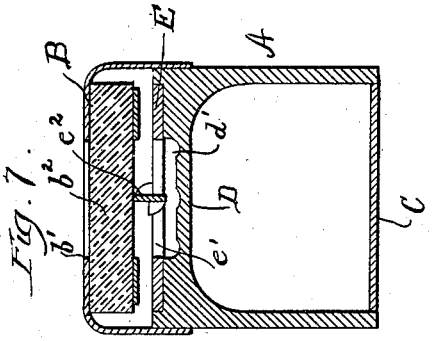

Fig. 7.

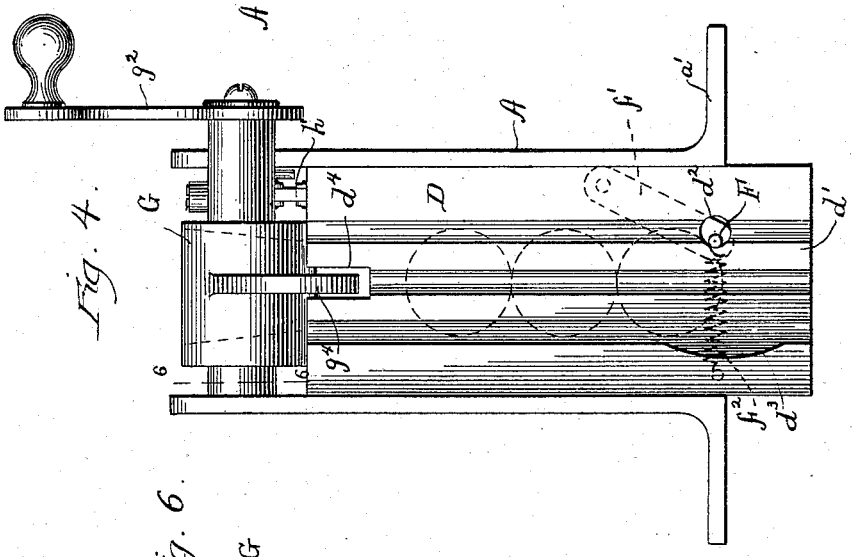

Fig. 4.

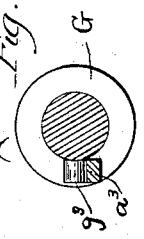

Fig. 6.

Witnesses:
Frank J. Blanchard
Alberta Adamick

Inventor:
Paul E. Berger.
By Peirce & Fisher.
Attorneys.

UNITED STATES PATENT OFFICE.

PAUL E. BERGER, OF CHICAGO, ILLINOIS.

BOGUS-COIN DETECTOR FOR COIN-CONTROLLED MACHINES.

SPECIFICATION forming part of Letters Patent No. 676,114, dated June 11, 1901.

Application filed September 26, 1900. Serial No. 31,191. (No model.)

To all whom it may concern:

Be it known that I, PAUL E. BERGER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bogus-Coin Detectors for Coin-Controlled Machines, of which the following is declared to be a full, clear, and exact description.

The invention appertains to machines and devices of various kind which require in some way as preliminary to their operation the insertion of a coin of some particular denomination. Such devices comprise machines for vending articles of various kinds, display apparatus, toll systems for telephones and the like, and other machines of various kinds.

The object of my invention is to provide an improved detector for such coin-controlled machines by which the introduction of coins other than those of the required denomination or of bogus coins or blanks are either prevented or are presented to and remain in view during one or more operations of the machine, so that the fraud may be readily detected.

The invention consists in the novel features of construction set forth in the following description, illustrated in the accompanying drawings, and particularly pointed out in the claims at the end of the specification.

In the drawings, Figure 1 is a front elevation of my improved detector. Fig. 2 is a view in sectional elevation, taken on line 2 2 of Fig. 1. Fig. 3 is an inverted sectional plan view taken on line 3 3 of Fig. 2. Fig. 4 is an elevation with the front and top parts of the device removed. Fig. 5 is a detail plan view of a portion of the device shown in Fig. 4. Fig. 6 is a detail sectional view taken on line 6 6 of Fig. 4. Fig. 7 is a view in cross-section on line 7 7 of Fig. 2, certain parts being omitted.

A represents a casing, preferably cast of metal, which is provided with a removable front B, back C, and top C', which may be secured thereto in any suitable manner. The casing is provided with a coin-inserting slot, and within the casing is located a coin-chute comprising two sections—an upper rotatable section and a lower fixed section—which will be hereinafter described. The casing A is preferably tapering in form and provided with a flange a' and is intended to be placed upon coin-controlled machines of various types, with the lower end of the chute properly located to deposit coins therein to control the operation. Preferably cast integral with the sides of the casing is a chute-plate D, having in its face the grooved coin-chute d', which forms the lower chute-section.

The front of the chute-plate D is recessed, and secured in such recess is a plate E, forming the front of the lower chute-section. The plate is provided with an elongated slot e', across which extends lengthwise the twisted bar e^2, by which the coins are held in place in the chute. The front B is also provided with an elongated opening b', behind which is secured a plate of glass b^2, and through these elongated openings b' and e' any coin which may be deposited in the device remains in view through one or more operations of the device, so that any bogus coin may be detected. A spring-held yieldable stud F extends into the lower chute-section, at one side of its lower end, through an opening d^2 in the chute-plate D. This stud is mounted on the end of an arm f', which is pivoted to the back of the plate D, and said stud is normally held by a spring f^2 against one side of the opening d^2 and in the path of the chute, so as to retain any coin or coins which are in the chute. The stud is, however, located, as shown, so that it may be moved to the opposite side of the opening d^2 and permit the lowermost coin to drop into the machine on which the detector is placed. In order that the coin may readily clear the stud F, the chute is recessed in one side opposite the opening d^2, as at d^3.

Located above the chute-plate D and in the rear of a curved upper portion e^3 of the plate E is the rotary cylinder G, which is provided with a downwardly-tapering slot g', and which constitutes the upper chute-section. The cylinder G is mounted in suitable journals in the sides of the casing A and is provided with the exterior operating-handle g^2. Above the cylinder G a coin-inserting slot a^2 is formed in the top C', between an upwardly-inclined extension c^2 of the top C' and an inclined lip e^4 of the plate E. The extension c^2 is provided with a lug c'' over the slot a^2. This slot is, as shown in Fig. 2,

slightly inclined and at an angle to the lower chute-section. The cylinder G is normally held with a stop g^3 on one of its journals, in engagement with a lug a^3, projecting from the side of the casing, so that the upper chute-section normally communicates with the slot a^2 and with the interior of the casing at the rear of the chute-plate D. The cylinder G is held in and returned to the normal by a spring H, connected to one of the journals of the cylinder by a flexible chain h', which may be readily wound on the journal. Mounted centrally upon the cylinder is a cam-wing and stop g^4, which moves through properly-located slots d^4 and e^5 in the plates D and E.

Pivotally mounted between an upturned central lug c^3 and side lugs c^4 of the top piece C′ is a small permanent steel magnet J of the horseshoe form, the ends of which extend on either side of a centering-rib c^5. This magnet is normally located, as shown in Fig. 2, at a slight angle to the slot a^2, and with its ends, which are slightly beveled, coincident with one side of the slot and opposite the lip e^4. The top C′ is constructed of cast-iron, so that the magnet is so held in its normal position (shown in Fig. 2) by magnetic attraction. If desired, a light spring j' may also be used to retain the magnet in its raised position. The ends of the magnet are provided with gripping edges j^2. The cylinder G on one side of the slot g' and beneath the magnet J is cut away and formed into a cam-shaped portion g^5. The cylinder G is also provided with a lug or extension g^6.

The operation of the device is as follows: A coin of the proper denomination is inserted in slot a^2 and drops into the slot g' of the upper chute-section. As this coin is larger than the lower opening of the tapering slot g, it is retained therein. If, however, a coin of smaller denomination or a blank of smaller size is inserted, it will drop entirely through the slot g' and into the space back of the plate D, thus preventing it from serving as a medium through which to operate the detector, as hereinafter described. With the coin in the upper chute-section the operator will turn the handle g, thus inverting the upper chute-section in the direction of the arrow, Fig. 2, until it communicates with the lower chute-section, in which position it is stopped by the stop g^4 coming in contact with the lug c^8 of the casing, as shown in dotted lines in Fig. 2. The coin will then fall through the lower chute-section until it engages the stud F, where it remains in view through the openings b' and e'. When the operator removes his grasp on the handle g^2, the upper chute-section will be returned to the normal by the spring H and chain h', ready for the insertion of another coin. This operation may be repeated until it will only require one more coin to fill the lower chute-section. In the device illustrated in the drawings such a state of affairs is brought about after three coins have been inserted. When the next coin is placed in the detector and the upper chute-section turned so as to communicate with the lower chute-section, the coin will fall into the position shown in dotted lines in Fig. 2; but on the return of the upper chute-section under the influence of the spring H the cam-face of the stop-cam g^4 will engage the coin last inserted and force the lowermost coin past the yielding stud F and into the device with which the detector is used to control the operation thereof. The stud F is thus forced to one side, but will be returned to the normal by the spring f^2 and prevent the next coin from passing into the machine to be operated. It will be understood that before the machine is put in use three coins in this particular form will be placed in the detector, with the lowermost in contact with the stud F, which latter coin is always the one to drop into the vending-machine at each coin insertion into and operation of the detector, so that the last-inserted coin will remain in view for a prolonged period, and if bogus the fraud will be disclosed.

If an attempt is made to operate the detector with a steel or iron blank, the superior magnetic force at the ends or poles of the magnet will cause the ends to drop away from the top piece C′ and against the bogus blank. The gripping edges j^2 of the ends will engage the blank and force it against the opposite side of the slot against the lip e^4, as shown in dotted lines in Fig. 2. The parts are so arranged that such bogus coins are caught and held against the side of the slot by what is practically a toggle-joint, and it is impossible to force such blanks into my improved detector. In order to release such bogus blanks after they have been caught, the cylinder G is cut away on one side, so that it may be rotated in the direction of the arrow, and the cam portion g^5 brought in engagement with the bogus blank to force it from the slot. At the same time the magnet J will be returned to the normal by the projection g^6, where it is held by the magnetic attraction of the iron top-plate C′. This projection g^6 serves also to return the magnet J at any time if it should happen to be accidentally displaced. In order to prevent the sudden forcible insertion of an iron or steel blank, I provide the projection c'' over the slot, whereby it is rendered necessary to place the coin in position and allow it to drop. Otherwise by placing a bogus coin over the slot and striking it a sharp blow it might be forced past the magnet before the latter operated.

My invention is not to be understood to be limited to the precise details of structure herein set forth, which may be easily varied within the skill of the mechanic and some of which may even be omitted without departure from the essentials of the invention.

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

1. In a detector for coin-operated machines,

the combination with the casing, of a coin-chute, said coin-chute being provided with a yieldable stop for holding coins therein, and with means for exposing the coins to view, and a cam device for engaging the coins in said chute to force the lowermost coin past said yieldable stop.

2. In a detector for coin-operated machines, the combination with a casing, of a coin-chute, comprising normally non-coincident upper and lower chute-sections, said lower chute-section being provided with a yieldable stop for retaining coins therein and with means for exposing the coins to view, one of said chute-sections being movable to communicate with the other chute-section and a cam device coöperating with the movable chute-section for engaging the coins in said lower chute-section to force the lowermost coin therein past said yieldable stop.

3. In a detector for coin-operated machines, the combination with a casing, of a coin-chute, comprising normally non-coincident upper and lower chute-sections, said lower chute-section being provided with a stop for retaining coins therein and with means for exposing the coins to view, one of said chute-sections being movable to communicate with the other chute-section and means connected with said movable chute-section and operated thereby for releasing the lowermost coin in said lower chute-section past said stop.

4. In a detector for coin-operated machines, the combination with a casing, of a coin-chute, comprising a lower chute-section provided with a yieldable stop for holding coins therein and with means for exposing the coins to view, an upper chute-section normally non-coincident, but movable to communicate with said lower chute-section and provided with a cam device for engaging the coins in said lower chute-section for forcing the lowermost coin therein past said yieldable stop.

5. In a detector for coin-operated machines, the combination with a casing, of a coin-chute, comprising a lower chute-section provided with a stop for retaining coins therein and with means for exposing the coins to view, and an upper chute-section normally in position to receive the inserted coin and normally non-coincident, but movable to communicate with said lower chute-section and means for releasing the lowermost coin in said lower chute-section past said stop.

6. In a detector for coin-operated machines, the combination with a casing, of a coin-chute, comprising a fixed, transparently-covered, lower chute-section having at its lower end a yieldable stop, and a spring-held, rotatable upper chute-section normally non-coincident but adapted to communicate with said lower chute-section and provided with a cam for engaging the uppermost coin in said lower chute-section.

7. In a detector for coin-operated machines, the combination with a casing, of a coin-chute, comprising a fixed, transparently-covered lower chute-section, having a spring-held, yieldable stud projecting into said chute-section at one side of its lower end, and a spring-held, rotatable, upper chute-section normally non-coincident but adapted to communicate with said lower chute-section, a handle exterior to said casing for rotating said upper chute-sections, stops for limiting the rotation thereof, and a cam mounted on said rotatable chute-section and adapted to engage the uppermost coin in said lower chute-section.

8. In a detector for coin-operated machines, the combination with a casing, of a coin-slot and a lower coin-chute section out of line with said coin-slot, in said casing, and an upper chute-section open at both ends and interposed between said slot and said lower chute-section, said upper chute-section normally coincident with said slot, but movable to communicate with said lower chute-section.

9. In a detector for coin-operated machines, the combination with a casing, of a coin-slot and a fixed, lower coin-chute section in said casing, a rotatable upper chute-section interposed between said slot and said lower chute-section normally coincident with said slot, a spring for holding said movable chute-section in its normal position, a handle for moving the same to communicate with said lower chute-section and stops for limiting the rotation of said upper chute-section.

10. In a detector for coin-operated machines, the combination with a casing, of a coin-slot and a lower chute-section in said casing, a movable upper chute-section interposed between said slot and said lower chute-section and normally coincident with said slot, a spring for holding said movable chute-section in its normal position, a handle for moving the same to communicate with said lower chute-section and stops for limiting the movement of said upper chute-section.

11. In a detector for coin-operated machines, the combination with a casing, of a fixed lower coin-chute section, an upper, downwardly-tapering, chute-section open at both ends and normally non-coincident with said lower chute-section, said upper chute-section provided with means for inverting the same to communicate with said lower chute-section.

12. In a detector for coin-operated machines, the combination with a casing, of a fixed lower coin-chute section and an upper open-ended coin-chute section normally out of line with said lower chute-section and contracted at its lower end to retain coins of predetermined size, with means for inverting said upper chute-section to communicate with said lower chute-section.

13. In a detector for coin-operated machines, the combination with a casing, and with a coin-slot therein, of a magnet movably mounted adjacent said slot and arranged to be projected by the magnetic face thereof

slightly within the said slot, whereby spurious coins of iron or steel placed in the slot are caught and held against the side thereof.

14. In a detector for coin-operated machines, the combination with a casing and with a coin-chute therein, of a magnet pivotally mounted within said casing, and at a slight angle to said chute with its end normally coincident with one side thereof, said magnet arranged to be swung in a plane parallel to said chute so as to project its end slightly within the same end to grip spurious coins of iron or steel between said end and the opposite side of said chute.

15. In a detector for coin-operated machines, the combination with a casing, and with a coin-slot therein, of a horseshoe-magnet pivotally mounted within said casing and arranged with its ends normally coincident with one side of said slot, said ends being provided with gripping edges and adapted to be projected slightly within said slot, whereby spurious coins of iron and steel placed in the slot are caught and held against the opposite side thereof.

16. In a detector for coin-operated machines, the combination with a casing, and with a coin-slot therein, of a horseshoe-magnet movably mounted within the casing, and spring-held with its ends normally coincident with one side of said slot, said ends adapted to be slightly projected within said slot, and a rotatable cam within the casing for returning the magnet to the normal.

17. In a detector for coin-operated machines, the combination with a casing, and with a coin-slot therein, of a magnet movably mounted adjacent said slot and arranged to be projected by the magnetic force thereof slightly within the said slot, whereby spurious coins of iron or steel placed in the slot are caught and held against the side thereof, and means for returning the magnet to the normal.

18. In a detector for coin-operated machines, the combination with a casing, and with a coin-slot therein, of a magnet movably mounted adjacent said slot and arranged to be projected by the magnetic force thereof slightly within the said slot, whereby spurious coins of iron or steel placed in the slot are caught and held against the side thereof, and means for returning the magnet to the normal and for releasing and ejecting said spurious coin.

19. In a detector for coin-operated machines, the combination with a casing, and with a coin-slot therein, of a magnet movably mounted adjacent said slot and arranged to be projected slightly within the same, whereby spurious coins of iron or steel placed in the slot are caught and held against the side thereof, and a rotatable cam mounted within said casing for returning the magnet to the normal and for releasing and ejecting said spurious coin.

20. In a detector for coin-controlled machines, the combination with a casing and with a slot therein, of a magnet movably mounted adjacent said slot and arranged to be projected slightly within the same, and a guard-lug arranged over said slot, substantially as described.

PAUL E. BERGER.

Witnesses:
HARRY L. CLAPP,
ALBERTA ADAMICK.