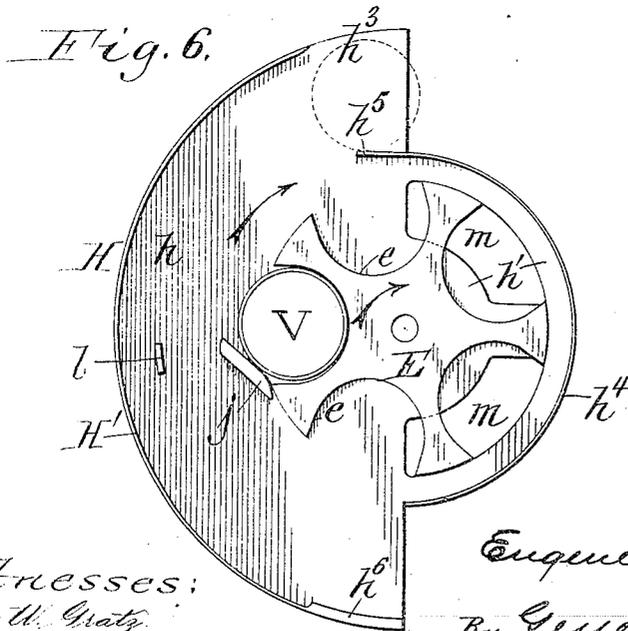
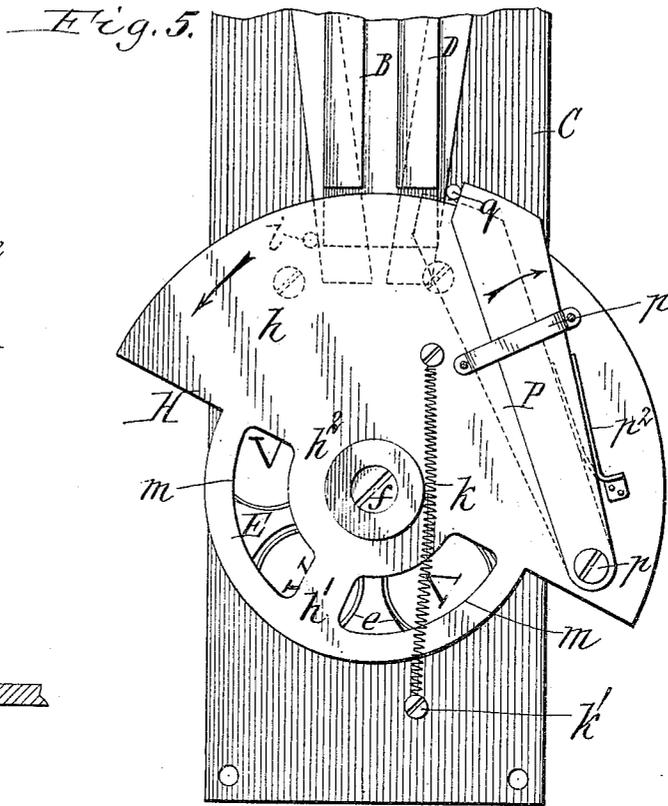
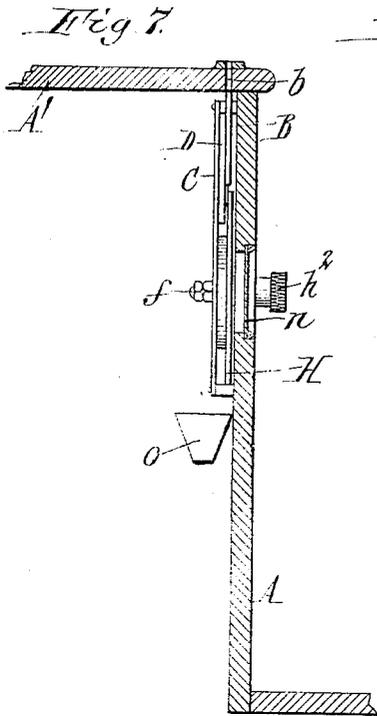


E. DE KLEIST.
COIN DETECTOR.

APPLICATION FILED FEB. 16, 1903.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EUGENE DE KLEIST, OF NORTH TONAWANDA, NEW YORK.

COIN-DETECTOR.

No. 808,243.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed February 16, 1903. Serial No. 143,545.

To all whom it may concern:

Be it known that I, EUGENE DE KLEIST, a citizen of the United States, residing at North Tonawanda, in the county of Niagara and State of New York, have invented new and useful Improvements in Coin-Detectors, of which the following is a specification.

This invention relates more particularly to that class of coin-detectors which temporarily expose the deposited coins to view, so as to discourage the introduction of slugs or bogus coins into the machine.

The object of my invention is to produce a reliable detector of this kind which can be easily operated and which is comparatively simple and inexpensive in construction.

In the accompanying drawings, consisting of two sheets, Figure 1 is a detached front elevation of the detector, showing the parts in their normal position. Fig. 2 is a vertical longitudinal section in line 2-2, Fig. 1. Fig. 3 is a similar section showing the movable parts in a different position. Fig. 4 is a fragmentary front view of the detector with the rotary actuator removed to expose the coin-wheel. Fig. 5 is a view similar to Fig. 1, but showing the actuator and the centrifugal stop in a different position. Fig. 6 is a detached rear elevation of the actuator and the coin-wheel. Fig. 7 is a sectional elevation of the coin-detector applied to the case of a self-playing piano or other instrument or machine.

Similar letters of reference indicate corresponding parts throughout the several views.

A indicates the front wall, and A' the horizontal top of the case of an automatic musical instrument or a vending-machine to which the coin-detector is applied.

b is a coin-slot formed in the top A' adjacent to its front wall, and B a coin-chute arranged within the case in line with said slot.

C indicates an upright support or plate secured to the inner side of the front wall A at a short distance therefrom and carrying the coin-chute B and the other parts of the detector.

D is a magnet, preferably of the permanent horseshoe type, arranged between the supporting-plate C and the rear side of the coin-chute and having its legs extended a short distance below the lower extremity of the chute, so as to arrest and hold any iron washers or disks as they issue from the same.

Below the chute is arranged a rotary coin wheel or carrier E, having peripheral pockets

or holders e, which are arranged to successively receive the coins from the chute B and carry the same from the upper to the lower side of the wheel, at which latter side they are discharged from the detector. The coin-wheel is mounted upon a horizontal arbor f, projecting forwardly from the supporting-plate C, and is yieldingly held against rotation by a detent or catch g, arranged underneath the coin-chute and projecting, preferably, into the bottom of the uppermost pocket of the wheel, as shown in Figs. 2 and 4.

The detent shown in the drawings consists of a flat spring secured at its upper end to the supporting-plate C and provided at its lower end with a head which extends through an opening formed in a washer G. The latter is interposed between the supporting-plate and the coin-wheel and serves to raise this wheel to the plane of the coin-chute. The washer is provided in its rear side with a recess g' for receiving the detent-spring g, as seen in Figs. 2 and 3. The head of the detent has a beveled face g², against which the coin in the uppermost pocket e is adapted to bear for deflecting the same out of engagement with the coin-wheel and releasing the latter.

H indicates a rotary or oscillating actuator for the coin-wheel, consisting, preferably, of a plate shaped to form a large sector h and an opposing small sector h'. This sector-plate is arranged on the front side of the coin-wheel E and mounted upon the arbor f. It carries an operating hub or knob h², which extends through an opening in the front wall of the case A. The large sector h is of such a radius that its curved edge comes in close proximity to the lower end of the coin-chute, and it is provided at said edge with an inwardly-turned rim or guard H', which bounds the entire edge of the sector with the exception of that portion opposite the lower end of the coin-chute in the normal position of the actuator, so that this guard extends across and closes the lower end of the chute when the actuator is turned out of its initial position, but leaves a gap h³ for the descent of the coins in the normal position of the actuator, as shown in Fig. 6. The small sector h' is of somewhat larger radius than the coin-wheel E and the washer G and provided at its peripheral edge with an inwardly-turned guard or rim h⁴, which prevents the coins from falling out of those pockets e opposite the rim. The lower end of this guard-rim terminates at or near the adjacent

end of the small sector, while its upper portion is continued beyond the straight edge of said sector, so as to stand opposite the gap h^3 and form a ledge h^5 , upon which the deposited coin rests preparatory to dropping into the uppermost pocket of the coin-wheel E, as shown by full lines in Fig. 2 and by dotted lines in Fig. 6.

i indicates a stop or pin arranged at the left-hand side of the magnet D between the delivery end of the coin-chute and the ledge h^5 and projecting beyond the face of the magnet. This stop-pin is so located as to prevent a nickel or other proper coin from rolling off the sloping ledge toward the left, while allowing a smaller coin or bogus object which is not attracted by the magnet to clear the pin and roll off the ledge and guard-rim h^4 without passing through the detector.

The actuator H is provided on its inner side adjacent to the periphery of the coin-wheel E with a cam or projection j , which comes in contact with the protruding portion of the coin in the uppermost pocket of said wheel when the actuator is turned in the direction of the arrow, Figs. 1 and 6, forcing the coin farther into the pocket. The coin in riding over the beveled face of the detent g presses the latter out of engagement with the coin-wheel, leaving the wheel free to turn with the actuator a distance equal to a pocket-space, whereupon the detent snaps into the next vacant pocket and again locks the coin-wheel in position. In order to compel the coin-wheel to turn with the actuator, the coin-pockets are shallower than the diameter of a proper coin, so that a coin after tripping the detent still protrudes sufficiently to be engaged by the cam j and impart the movement of the actuator to the coin-wheel.

k indicates a spring which serves to return the actuator to its starting position when released. This spring is fastened at one end to the actuator and at its other end to a pin or screw k' on the supporting-plate C. When the actuator is turned toward the left, this spring is bent and stretched around the hub h^2 . The screw k' also forms a stop against which the actuator H is normally held by the spring k .

l is a lug projecting from the rear side of the actuator H and arranged to sweep over the lower portion of the magnet D for dislodging any iron washers or slugs therefrom, such slugs being discharged laterally into the case A or into a suitable receptacle provided for the purpose.

The small sector h is provided with slots or sight-apertures m , which are preferably curved concentrically with the coin-wheel E and through which the coins in a number of the pockets e are exposed. The case A is provided, opposite said exposed pockets, with a window n , through which their contents can be seen, thus deterring unscrupulous persons

from depositing bogus coins in the machine. In the construction shown in the drawings portions of the three left-hand coin-pockets are uncovered, but a greater or less number may be exposed, if desired.

In the normal position of the parts shown in Figs. 1 and 2 the coin-wheel E is yieldingly locked in position by the detent g and the actuator H is held against the stop-pin k' , bringing the ledge or continuation h^5 of its inner guard-rim directly under the coin-chute B. In the operation of the detector upon depositing a proper coin in the chute the same drops upon the ledge h^5 , as shown by full lines in Fig. 2 and by dotted lines in Fig. 6. After inserting the coin the purchaser gives the actuator H about a half-turn toward the left by means of the knob h^2 . During the first portion of this movement the ledge h^5 is withdrawn from under the deposited coin, allowing the latter to drop into the uppermost pocket of the coin-wheel and rest upon the beveled head of the detent g , as shown by dotted lines in Fig. 1 and by full lines in Fig. 3. During the subsequent movement of the actuator its cam j comes in contact with the projecting portion of the pocketed coin and forces the same farther into the pocket, causing the coin to deflect the detent out of engagement with the coin-wheel and releasing the wheel, which is now turned forwardly with the actuator the distance of one pocket and then again locked by the engagement of the detent with the next pocket, as hereinbefore described. The coin-wheel is advanced one step or pocket every time a coin is deposited and the actuator is operated. When a pocket reaches a position below and to the right of the actuator-arbor f and the actuator is permitted to return to the starting position (shown in Fig. 1,) the guard h^4 of the small sector h' clears the open end of said pocket and allows the coin to drop out of the same and act upon the operating mechanism of the instrument or the vending-machine to which the coin-detector is attached. This mechanism forms no part of my invention and is not shown in the drawings. When the detector is applied to an automatic musical instrument operated by an electric motor, I prefer to drop the discharged coin into a hopper o , having metallic walls which form the terminals of the motor-circuit, as more fully shown and described in Letters Patent of the United States, No. 713,653, granted to me November 18, 1902.

It will now be understood that every time the actuator H is operated after the deposit of a proper coin a preceding coin is discharged from the detector and that each coin is exposed during a fraction of the rotation of the coin-wheel before being discharged, thus affording sufficient time to detect any spurious coins that may have been inserted in the machine. As it requires about a half-turn of

the coin-wheel to carry a deposited coin from its entrance side to its discharge side, it is necessary for the owner of the machine to deposit two coins in the same before placing the machine at the disposal of the public. To facilitate the discharge of the coins, the lower terminal of the outer guard-rim h is beveled on its inner side, as shown at h^b in Fig. 2.

Whenever the actuator H is operated, the guard-rim H' of its large sector closes the lower end of the coin-chute and does not clear the same until the actuator is allowed to return to its initial position, thus preventing the delivery of more than one coin to the wheel E at a time and effectually guarding against clogging of the detector.

When the actuator is turned very rapidly, the deposited coin is liable to be thrown laterally beyond the upper pocket of the coin-wheel E , in which case the coin does not pass through the detector and the purchaser receives no value. To prevent this, the actuator is preferably provided with an automatic stop device which operates to check its rotation before such a diversion of the coin can take place. The preferred device consists of a centrifugal stop-bar P , pivoted to the face of the actuator by a pin p , so as to swing parallel therewith and having its outer portion guided by a strap p' on the actuator. This centrifugal bar is yieldingly held in its inner position by a light spring p^2 , secured to the actuator. When the bar P is in its inner position, it clears a stop or abutment q , arranged on the supporting-plate C adjacent to the edge of the large sector h of the actuator; but if the actuator should be quickly turned the bar will fly outwardly to the position shown by dotted lines in Fig. 1, thereby encountering the stop q and arresting the actuator.

My improved detector, while being reliable in operation, intercepts iron washers or disks, turns aside coins of deficient size, always exposes a number of the deposited coins to view, and baffles any attempts to clog the detector and defraud the machine by depositing more than one coin at a time.

I claim as my invention—

1. The combination of a coin-chute, a coin-wheel having a plurality of pockets or holders arranged to receive the coins from the chute, and a rotary actuator having a guard arranged to retain the coins in said pockets during a portion of the rotation of the coin-wheel and a second guard arranged to extend across the delivery end of the coin-chute when the actuator is turned out of its normal position, substantially as set forth.

2. The combination of a coin-chute, a coin-wheel having a plurality of pockets or holders adapted to receive the coins from the chute, a rotary actuator arranged concentrically with said coin-wheel and carrying a coin-

supporting ledge arranged opposite the delivery end of the coin-chute in the normal position of the actuator, and a guard extending across the open outer ends of a number of said coin-pockets, substantially as set forth.

3. The combination of a coin-chute, a coin-wheel having a plurality of pockets or holders adapted to receive the coins from the chute, a rotary actuator arranged concentrically with said coin-wheel and carrying a coin-supporting ledge arranged normally opposite the delivery end of the coin-chute, a guard extending across the open outer ends of a number of said coin-pockets, and a second guard arranged to close the delivery end of the coin-chute except in the normal position of the actuator, substantially as set forth.

4. The combination of a coin-chute, a coin-wheel having peripheral pockets or holders adapted to receive the coins from the chute, and a rotary actuator applied to the front side of said wheel and comprising a sector provided with a guard-rim arranged to extend across the delivery end of said chute and a second sector arranged opposite the first-named sector and provided with a guard-rim extending across the open ends of a number of said coin-pockets and a window through which the coins in one or more of the pockets are exposed, substantially as set forth.

5. The combination of a coin-chute, a coin-wheel having peripheral pockets or holders adapted to receive the coins from the chute, and a rotary actuator applied to the front side of said wheel and comprising a sector provided with a guard-rim arranged to extend across the delivery end of said chute and a second sector arranged opposite the first-named sector and provided with a guard-rim arranged to close the open ends of a number of said pockets and extending to a point opposite the chute in the normal position of the actuator, substantially as set forth.

6. In a coin-detector, the combination of a coin-chute, a coin-wheel having peripheral pockets arranged to receive the coins from said chute, a detent arranged opposite the delivery end of the chute and extending normally into the wheel-pocket facing the chute, so as to intercept and support a coin dropped into said pocket, and a rotary actuator for the coin-wheel having a member constructed and arranged to engage the protruding edge of the coin partly seated in said pocket, whereby upon rotating the actuator the coin is positively shifted inwardly in said pocket by said member and caused to move said detent out of engagement with the coin-wheel, substantially as set forth.

7. The combination of a coin-chute, a coin-wheel having peripheral pockets or holders adapted to receive the coins from the chute, a detent for said coin-wheel arranged opposite the delivery end of the chute and engaging with the adjacent pocket of the wheel, and a

rotary actuator applied to the front side of the coin-wheel and comprising a large sector and an opposing small sector, said large sector having a guard-rim arranged to extend
 5 across the delivery end of the chute and a projection arranged to engage the coin protruding from the pocket opposite the chute, and said small sector having a guard-rim extending across the open ends of one or more of said
 10 pockets, and means for returning said actuator to its initial position, substantially as set forth.

8. The combination of a coin-chute, a coin-wheel having pockets or holders arranged to receive the coins from the chute, a rotary actuator for said wheel, and a centrifugal stop device carried by said actuator, substantially as set forth.

9. The combination of a coin-chute, a coin-wheel having pockets or holders arranged to receive the coins from the chute, a rotary ac-

tuator for said wheel, an abutment arranged adjacent to said actuator, a centrifugal stop member carried by the actuator and adapted to strike said abutment, and means for yield- 25
 ingly holding said stop member in its retracted position, substantially as set forth.

10. The combination of a coin-chute, a coin-wheel having pockets or holders arranged to receive the coins from the chute, a rotary ac- 30
 tuator for said wheel, an abutment arranged adjacent to said actuator a stop-arm pivoted to said actuator and adapted to swing outwardly and strike said abutment, and a spring for normally withdrawing said arm clear of 35
 said abutment, substantially as set forth.

Witness my hand this 3d day of February, 1903.

EUGENE DE KLEIST.

Witnesses:

CARL F. GEYER,
 EMMA M. GRAHAM.