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2,035,280

COIN COLLECTOR

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FIG. 1

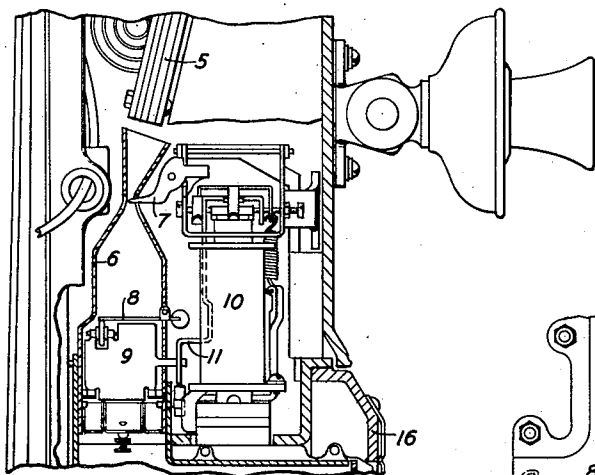


FIG. 2

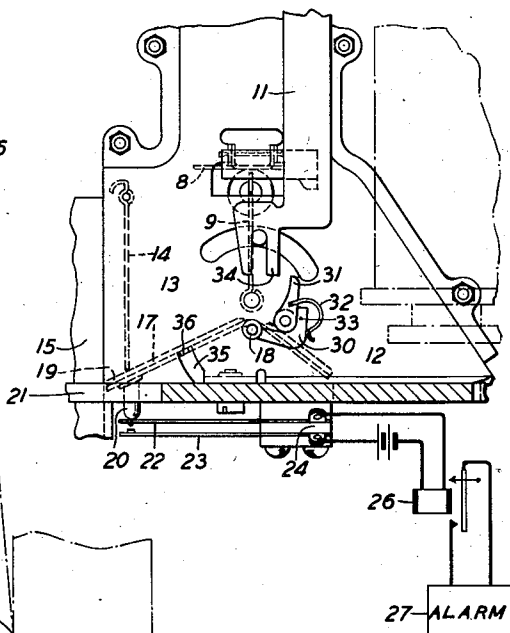
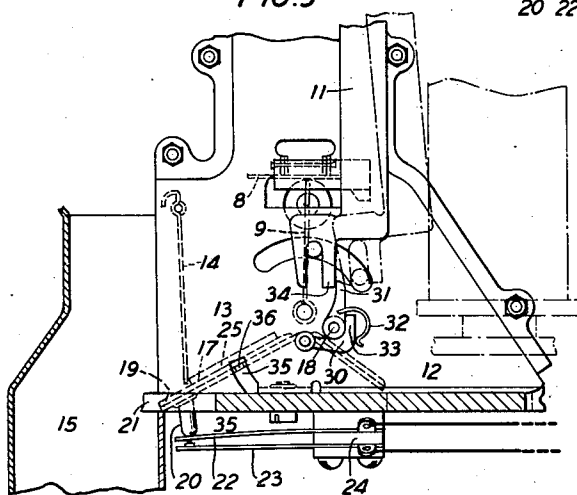


FIG. 3



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COIN COLLECTOR

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8 Claims. (Cl. 194—97)

This invention relates to coin collectors and more particularly to means for preventing the fraudulent collection of money from refund chutes of telephone coin collecting apparatus.

5 In connection with prepayment coin collectors of the type used at telephone pay stations it is the practice to refund money to patrons when calls are not completed. Unscrupulous individuals occasionally have taken advantage of this
10 feature of the coin collector by obstructing the coin refund chute, thus preventing the return of the coins to their rightful owners when calls have not been completed and later removing the obstruction and appropriating the accumulated
15 coins. The problem of designing a coin return chute within the cost and space requirements, which is capable of discharging a number of coins of various dimensions simultaneously, which also provides protection against tampering with the
20 coin magnet mechanism and which at the same time is proof against efforts at obstructing the chute is a difficult one.

One of the objects of this invention is to prevent the accumulation of refunded coins in a refund chute when the chute has become obstructed.

Another object of the invention is to provide coin collector apparatus which will detect the presence of obstructions in the coin refund chute and sound an alarm or otherwise cause notice
30 thereof to be given to the proper authorities.

In accordance with the preferred form of this invention a portion of the refund chute is provided with a pivoted floor adapted to be deflected
35 from its normal position by the weight of refunded coins. If the refund chute is stuffed in such a manner that the coins intended to be refunded remain on the pivoted floor member to retain said member in its deflected position,
40 means are provided for either sounding an alarm or for controlling the collector in such a manner as to prevent further refunds until the said pivoted member has been freed of its coin load.

When applied to the type of telephone coin collector shown, for example in the Forsberg U. S. Patent 1,043,219, issued November 5, 1912, the coin magnet disclosed in the said patent for normally causing the refund or collection of a given deposited coin, may have its armature blocked
50 for additional refunding operations as long as the said pivoted floor member remains deflected by a previously refunded coin or the circuits of the magnet may be so controlled by the deflection of said pivoted member as to cause all future deposited coins to be collected which in the ordinary

course of events would be returned to the user of the apparatus.

Referring to the drawing

Fig. 1 is a fragmentary side view partly in section of the central portion of a telephone coin collector;

Fig. 2 is an enlarged front view of the coin hopper of Fig. 1 showing the tiltable floor in the refund chute passage for controlling the refunding of deposited coins; and

Fig. 3 is similar to Fig. 2 except that the tiltable floor is shown actuated by the weight of a coin thereon to prevent further refunds until the coin on the tiltable floor has been released.

For convenience this invention will be described in connection with the type of telephone coin collector disclosed in the O. F. Forsberg U. S. Patent 1,043,219 issued November 5, 1912, to which reference may be had for a description of those parts of a telephone coin collector which have been omitted in the accompanying drawing.

As disclosed in the above-mentioned Forsberg patent a deposited coin after passing through a coin chute 5 and striking a signal, drops into a coin hopper 6, actuates a coin trigger 7 and comes to rest on a pivoted trap-door 8 where it is held for subsequent collection or refund, depending upon whether the desired telephone connection is established. The trap 8 is normally supported in a substantially horizontal position by a vane 9 pivoted at its lower end. The actuation of trigger 7 by a deposited coin serves in a well-known manner to establish a circuit for polarized coin relay 10 whereby the relay may be remotely controlled to cause the extension 11 of its armature to move vane 9 at times clockwise to close the collect chute 12 and cause the coins on trap 8 to fall into refund chute 13, while the relay at other times may cause vane 9 to move counter-clockwise to close refund chute 13 to allow coins on trap 8 to fall into collect chute 12. In order to protect the deflector vane 9 in trap 8 from tampering due to wires, for example, inserted through the refund chute it is also common practice to provide an additional vane 14 pivoted at its upper end to substantially close the refund chute at that point, which vane cannot be pushed inwardly towards vane 9 but which will freely yield to outward pressure to allow a coin from trap 8 to enter passage 15 and become accessible to the user of the instrument through the usual refund opening (not shown) in the lower part of the coin collector housing 16.

Attempts, however, are occasionally made to defeat this refunding operation by inserting

stuffing material up the refund chute and against vane 14 to keep vane 14 closed, so that coins released from trap 8 will remain behind vane 14 and be inaccessible from outside the housing until the stuffing has been removed, thereby depriving the original depositor of money to which he is clearly entitled.

In accordance with this invention it is proposed to nullify such refund chute stuffing by having all or a portion of the bottom wall 17 of the refund chute pivoted whereby the weight of a coin held thereon by stuffing will cause bottom wall 17 to drop and close an alarm circuit or else cause the operation of means to prevent further refunds by the relay 10 until the stuffing has been removed. Thus, plate 17 which receives the coins released from trap 8 when refunding is intended is shown pivoted along axis 18. The opposite end 19 of plate 17 is free for a limited upward and downward movement about axis 18 and has a downwardly projecting stud 20 which passes through an opening in the supporting framework 21 and rests on the upper one of a pair of electrical spring contacts 22, 23 which are suitably supported at the point 24. Plate 17 has a laterally extending lug 36 which projects through an arcuate slot 35 in a side wall of coin hopper G to limit the upward and downward movement of the plate 17.

Normally, the resiliency of spring member 22 is sufficient to hold plate 17 in the position shown in Fig. 2, providing there is no load on the hinged plate. However, as soon as a coin strikes plate 17 to slide down the chute past vane 14 the weight of the coin is sufficient to lower plate 17 to the position of Fig. 3, thereby closing contact members 22, 23, the closure of which may be utilized for various purposes as will be later described. If no stuffing is present to block the outward movement of vane 14 the coin will rapidly pass over plate 17 and the hinged plate will move back to its upper position with only a momentary closure of contacts 22, 23. However, if the return chute is stuffed so that vane 14 will not yield to the weight of a coin such as coin 25 but holds the coin on plate 17 the contacts 22, 23 will remain closed until steps are taken to free vane 14 to permit the passage of the retained coin on down the refund chute.

The closure of contacts 22, 23 may serve to establish a circuit for a slow-operate relay 26 for actuating an alarm device 27 located on the same premises as the coin collector or at some remote point. Relay 26 should be sufficiently slow in its operation to prevent the alarm from sounding by the momentary dropping of plate 17 due to a coin passing along in the ordinary manner when the chute is not stuffed, but will serve to sound an alarm after the coin has remained on hinged plate 17 for a definite time interval. An alternative possibility is to have contacts 22, 23 close a shunt circuit for one of the windings of polarized magnet 10 to cause the magnet to operate for coin collection even when coin refund current is applied thereto by the central office operator. Thus, the above-mentioned contacts 22, 23 may take the place of contacts 23, 24 of Fig. 1 of the U. S. patent application to P. E. Mills, Serial No. 709,060, filed January 31, 1934 wherein it is described how this result may be obtained.

If desired, the dropping of plate 17 may be utilized to mechanically block any future refunding operations by magnet 10 after an initial refunding operation has resulted in a coin remaining on plate 17. Thus, the plate 17 may have attached

thereto an angular arm 30 extending in the opposite direction from the pivoting axis 18 so that the outer end of arm 30 will move upwardly when plate 17 is lowered by the weight of a coin. Arm 30 has pivoted thereto an upwardly extending latch member 31 which is biased in a position shown in the drawing by a suitable spring 32. Latch 31 is free to move counter-clockwise from its vertical position and will be restored by spring 32 but it will be apparent that the vertical projection 33 on arm 30 prevents any clockwise movement of the latch. In the absence of any coin on plate 17 the upper end of latch 31 is out of the path of fork 34 in its movement to the right to cause vane 9 to close the collect chute and direct coins from trap 8 onto the hinged plate 17. That is, in ordinary refunding with no stuffing against vane 14 and with the magnet 10 held energized long enough that all coins have cleared plate 17 before deenergization takes place the latch 31 will not interfere with either the forward or return movement of fork 34 in its refunding operation. The normal and neutral position of fork 34 is shown in full lines in Figs. 2 and 3 and its refunding position is shown in dotted lines in Fig. 3.

A different operation results if a coin remains on plate 17 as the arrangement is such that the lowering of plate 17 due to the weight of a coin throws latch 31 upwardly into the path of fork 34. This will not prevent the return of fork 34 from its refunding position to its neutral position since fork 34 in striking latch 31 will merely move latch 31 counter-clockwise against the action of spring 32 to lower the latch sufficiently to permit fork 34 to continue its return movement. Now if a second refunding is attempted by the central office operator due to an uncompleted call by a subscriber, latch 31 will be in the position shown in Fig. 3 which will prevent fork 34 from moving to the right, thereby preventing the refund. That is, due to latch 31 being in its upper position no further refunding of coins is possible as long as a coin remains on plate 17. Therefore, after a first refund which leaves a coin on plate 17 no further refunding of coins by the central office operator is possible until plate 17 has been cleared. It should be noted, however, that latch 31 even in its upper position does not interfere in any way with fork 34 moving to the left for coin collection. As long as vane 14 remains blocked by stuffing it will be apparent that other arrangements will be required to return deposited money to subscribers who for any reason are entitled to the refund.

While only one embodiment of this invention has been disclosed in the accompanying drawing it is to be understood that other forms are in contemplation coming within the scope of the appended claims.

What is claimed is:

1. A coin collector comprising a main coin chute for receiving deposited coins, a refund chute, a movable floor member adapted to support coins discharged from said main chute and to direct said coins into said refund chute, means for diverting coins from said main chute onto said floor member, said floor member being lowered from its normal position by the weight of a coin supported thereby, means for biasing said floor member to its normal position and means controlled by the movement of said member for controlling said diverting means.

2. A coin collector in accordance with claim 1, characterized by alarm means controlled by said

member only when said member remains lowered from its normal position for a time interval greater than that normally required for a refunded coin to clear said member.

5 3. In a coin collector, a coin trap upon which deposited coins are temporarily retained, a pivoted deflector vane for supporting said trap, a relay having an armature for moving said vane to allow said trap to fall, a refund chute, a pivoted inclined floor member for receiving coins from said trap and for directing said coins into said chute, a second pivoted vane normally closing said refund chute at a point adjacent said member and normally freely actuated by coins from said trap to pass into said chute, said member being adapted to be lowered from its normal position by the weight of a coin remaining thereon when said second vane remains closed, and means effective only after said floor member has remained lowered from its normal position for an abnormal length of time for indicating the failure of a refunded coin to clear said member.

4. In a coin collector a coin trap upon which deposited coins are temporarily retained, a refund chute, a pivoted inclined shelf for supporting coins received from said trap and for directing said coins into said refund chute, said shelf being lowered from its normal position by the weight of a coin resting thereon, means for actuating said trap to cause coins thereon to drop onto said shelf and means for preventing a second actuation of said trap for a subsequent refund until said shelf has been freed of the weight of any of said coins previously refunded.

35 5. In a coin collector, the combination with a chute of a trap-door therein, a pair of branch chutes converging below said door, a coin deflector below said door and pivoted at its lower edge neutrally with respect to said branch chutes, means for releasing said door and for moving said deflector across the mouth of one of said branch chutes, one of said branch chutes having a hinged floor lowered from its normal position by the weight of a coin thereon, and means for blocking said releasing means against a subsequent release of a coin into said last mentioned branch chute until said floor has been freed of the weight of any coin previously released into the said last mentioned chute.

6. In a coin collector, a coin trap upon which deposited coins are temporarily retained, a refund chute, a pivoted inclined shelf for supporting coins received from said trap and for directing said coins into said refund chute, said shelf being adapted to be lowered from its normal position by the weight of a coin resting thereon, a relay having an armature for controlling the movement of said trap and mechanical means actuated by the movement of said shelf for blocking said armature against a subsequent refund movement until said shelf has been freed of the weight of any previously refunded coin.

7. In a coin collector, a coin trap upon which deposited coins are temporarily retained, a pivoted deflector vane for supporting said trap, a relay having an armature for removing said vane to allow said trap to fall, a refund chute, a pivoted inclined floor member for receiving coins from said trap and for directing said coins into said chute, a second pivoted vane normally closing said refund chute at a point adjacent said member and normally freely actuated by coins from said trap to permit said coins to pass into said chute, said member being adapted to be actuated from its normal position by the weight of a coin remaining thereon when said second vane remains closed, and selective means controlled by said member in its actuated position for controlling said relay.

8. In a coin collector, a coin trap upon which deposited coins are temporarily retained, a refund chute, a collect chute, a pivoted deflector vane for supporting said trap, a relay having an armature for moving said vane at times to cause coins on said trap to be directed into said collect chute and for moving said vane at other times to cause coins on said trap to be diverted into said refund chute, a pivoted inclined floor member for supporting coins from said trap prior to their passage into said refund chute, said member being lowered from its normal position by the weight of a coin thereon, and means responsive to the lowering of said member caused by a coin resting thereon from a first refund for preventing further refunds by said relay until said member has been freed of coins from said first refund.

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