

Jan. 28, 1936.

P. E. MILLS

2,029,113

TELEPHONE COIN COLLECTOR

Filed May 15, 1935

2 Sheets-Sheet 1

FIG. 1

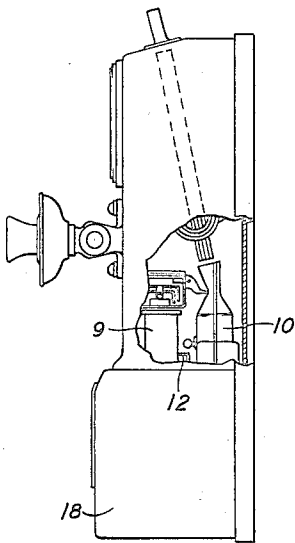


FIG. 2

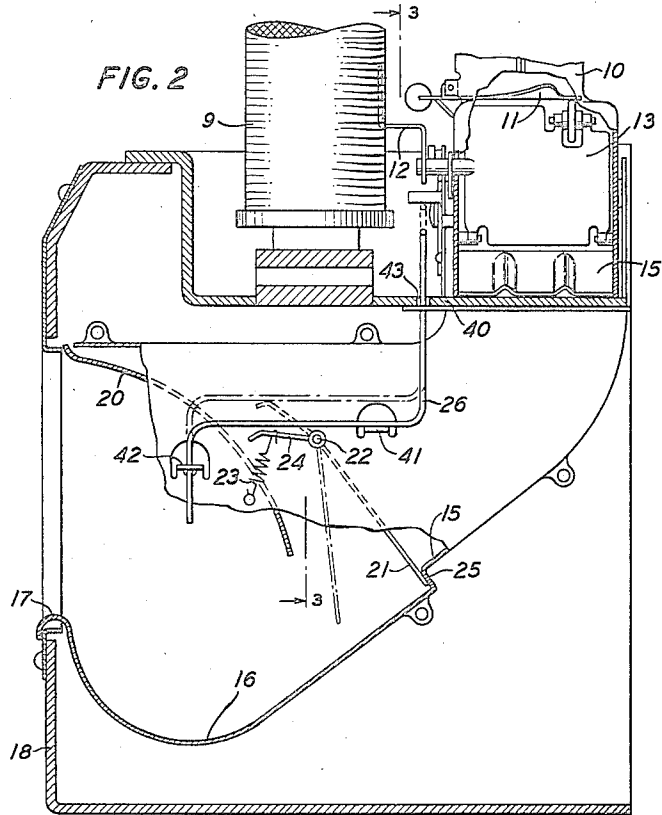


FIG. 3

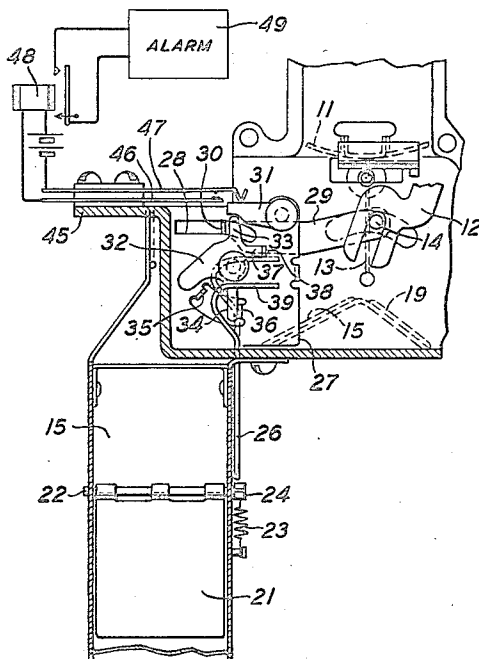
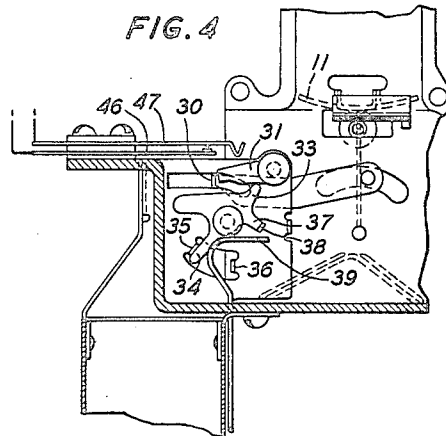


FIG. 4



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2 Sheets-Sheet 2

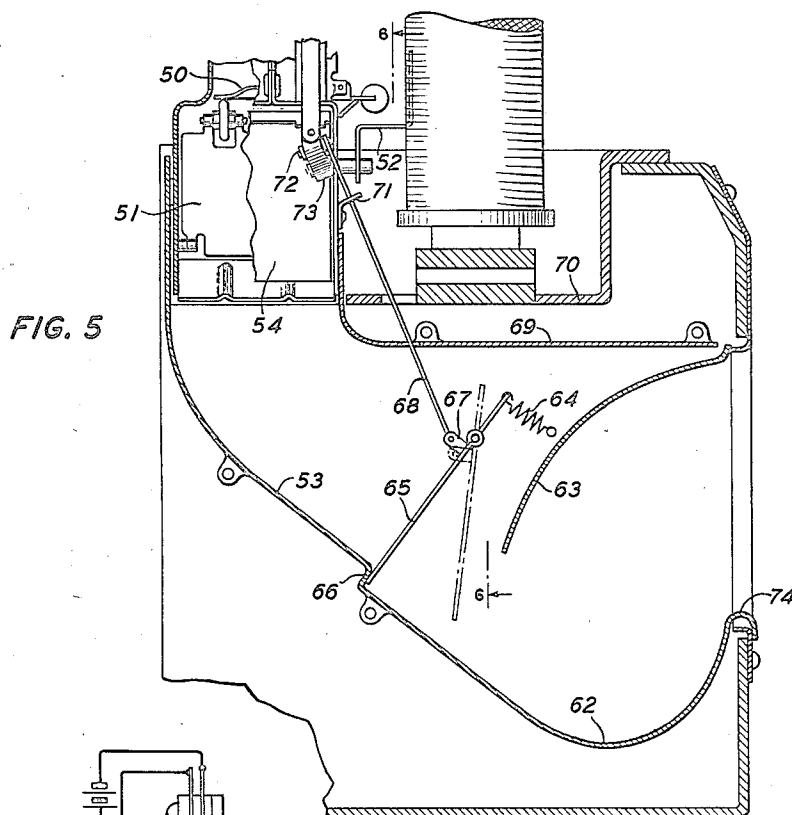


FIG. 5

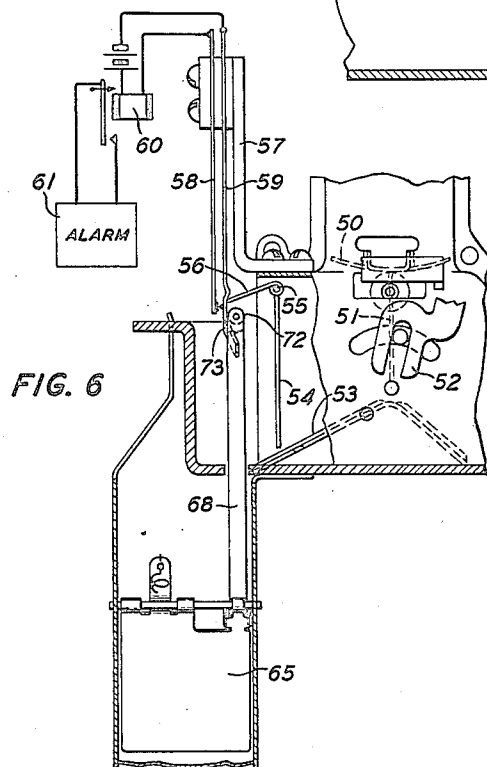


FIG. 6

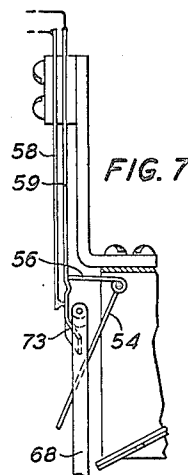


FIG. 7

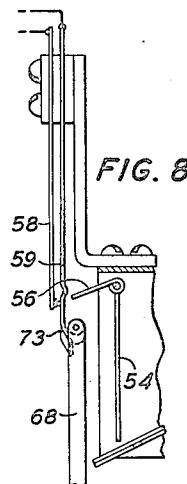


FIG. 8

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2,029,113

TELEPHONE COIN COLLECTOR

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Application May 15, 1935, Serial No. 21,556

10 Claims. (Cl. 232—57.5)

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 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 coins. 10 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 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. 25

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 thereof to be given to the proper authorities. 30

In accordance with the preferred form of this invention a pivoted shutter is provided in the refund chute, which shutter normally will be opened by the falling coins and subsequently closed after the coins have passed. In the event that because of stuffing the shutter is not actuated by the coins but the coins remain inaccessible to the patron behind the shutter, suitable means are provided indicating as by an alarm signal the failure of the shutter to function in a normal manner, or the arrangement may include means for preventing further refunds into the chute until the shutter has been freed. 40

45 In one embodiment of the invention disclosing how the invention may be applied to the type of coin collector disclosed in the Forsberg United States Patent 1,043,219, issued November 5, 1912, a pivoted shutter is provided in the refund chute above the coin well and the shutter is biased so that it normally completely closes the upper part of the chute. Mounted adjacent the usual coin vane designed to be actuated by the coin magnet for initiating the refunding of the coins 50 are a trigger and a blocking latch, the trigger

being operated by the first refunding movement of the vane to permit the latch to fall and prevent a second refunding movement of the vane. In normal operation the opening movement of this shutter by the falling coins is used to reactuate the trigger to make the latch ineffective. 5 But if the shutter fails to open due to an obstruction, for example, the trigger will not be restored and the latch will remain in position to prevent further refunding movements of the coin vane. If desired, contact springs may be associated with the latch in such a manner that an electrical circuit is completed whenever the trigger permits the latch to drop. This circuit may lead to an alarm through a suitable time 10 delay device which will not operate the alarm device if the trigger is promptly actuated by the shutter to restore the latch to its ineffective position but will actuate an alarm in case the falling coins fail to open the shutter. The above described arrangement is, therefore, responsive to the failure of the refunded coins to fall into the coin well and, therefore, gives a positive indication of any stuffing or obstruction in the coin refund chute. 25

Referring to the drawings,

Fig. 1 is a side view of one type of telephone coin collector with which this invention may be used;

Fig. 2 is a side view partly in section of the lower part of a telephone coin collector housing and the refund chute contained therein; 30

Fig. 3 is a front view partly in section of the apparatus of Fig. 2 taken along the line 3—3 of Fig. 2 and shows the control apparatus set to permit a refunding operation; 35

Fig. 4 is similar to Fig. 3 except that the control apparatus is set to prevent a refund;

Fig. 5 is a side view partly in section of the lower part of the telephone coin collector housing showing an alternative form of this invention; 40

Fig. 6 is a front sectional view of the apparatus of Fig. 5 taken along the line 6—6 of Fig. 5; 45 and

Figs. 7 and 8 illustrate details of the coin shutter control of the alarm circuit.

Fig. 1 of the drawings illustrates a general side view of a telephone coin collector housing, the lower portion of which is adapted to be equipped with the arrangements of this invention. For a full description of a complete telephone coin collector with which this invention is adapted to be employed reference may be made to the 55

above-mentioned O. F. Forsberg United States Patent 1,043,219.

As shown in the Forsberg patent the upper part of the telephone coin collector housing supports a coin gauge in which coins may be inserted when it is desired to use the instrument for securing a telephone connection. Each coin after insertion in the coin gauge follows a coin channel until it drops into a coin hopper 10 where it actuates a coin trigger and temporarily comes to rest upon a pivoted coin trap 11. The actuation of the coin trigger as explained in the Forsberg patent serves to establish a circuit for the associated polarized relay 9 by means of which the remote central office operator may cause the coin to be collected or refunded depending upon whether the desired connection is obtained. The lower part 12 of the operating arm of the armature of the coin relay 9 is shown in Fig. 2 but the details of the relay structure have been omitted. The coin trap 11 is normally supported in a substantially horizontal position by a pivoted vane 13 which has a pin 14 projecting through an arcuate slot in the coin hopper 10 for engaging the fork of the extension 12 of the relay armature. It will be apparent that if armature extension 12 is thrown to the right the coin trap 11 in falling will discharge the coins thereon into a refund chute 15 down which the coins will slide until they rest in a coin pocket 16 where they will be accessible to the patron of the instrument by means of a refund opening 17 in the external housing 18. On the other hand if vane 13 is thrown to the left it will be apparent that the coins discharged from trap 11 will fall into a collect chute 19 leading to a suitable cash compartment.

As previously stated attempts are occasionally made to obstruct the refund chute 15 behind the baffle 20 to prevent the return of coins to their rightful owners, the obstructor later removing the stuffing and appropriating the accumulated coins. The arrangements of this invention are designed to discourage or prevent this fraudulent practice.

As shown in Fig. 2 there is provided behind the baffle 20 a vane 21 pivoted on an axis 22 which vane normally completely closes the refund chute, being biased in that position by a spring 23 engaging an arm 24 on the opposite side of the pivoting axis, the lower end of the vane normally resting against the shoulder 25 in the bottom wall of the refund chute 15. When the vane 21 is moved outwardly by a refunded coin the resulting upward movement of its arm 24 serves to move upwardly a rigid wire or rod 26 to permit a subsequent refunding operation in a manner which will be described later.

Referring particularly to Figs. 3 and 4 it will be seen that upper side wall 27 of the refund chute which is laterally spaced from the adjacent wall of the coin hopper has an elongated slot 28. Connecting arm 29 which at one end is rotatably mounted on pin 14 between the armature extension 12 and the hopper wall has at its other end a right angle projection 30 projecting forwardly through slot 28 for an appreciable distance whereby projection 30 rides back and forth in slot 28 as vane 13 is rocked to the right or left for refunding or collection. Pivotaly mounted on wall 27 is a pawl or refund blocking latch 31 operating in a manner to be described later. Mounted on wall 27 below slot 28 is a pivoted irregularly shaped cam member 32 having an arm 33 which as shown in Fig. 3

normally holds latch 31 out of the path of projection 30 of link 29. When arm 33 is in the position shown in Fig. 4 latch 31 is thereby dropped into the path of projection 30 preventing by linkage 29 any movement of vane 13 to the right in the direction intended for refunding. The cam 32 is limited to a rocking motion determined by the movement of arm 34 between stops 35 and 36. Cam 32 also has an arm 37 with a right angle projection 38 which when in the position shown in Fig. 4 lies in the path of the horizontal portion 39 of the rod or wire 26 so that when the said wire is moved upwardly cam 32 will thereby be moved from the position shown in Fig. 4 to the position shown in Fig. 3. Referring back to Fig. 2 it will be seen that wire 26 has a vertical portion extending downwardly through an aperture 43 in shelf 40, a horizontal portion normally resting on lug 41 and a vertical portion passing through a guide 42.

The manner in which the above described apparatus operates to permit only one refund until vane 21 has been opened by a discharged coin and subsequently closed, will now be described.

Assume that the apparatus is in the position of Fig. 3 and the remote operator wishes to make a refund. The operation of the coin relay 9 will move vane 13 to the right in the usual manner discharging the coins on trap 11 into refund chute 15. The accompanying movement of link 29 will move cam 32 clockwise to the position of Fig. 4 thereby permitting latch 31 to drop and upon the deenergization of the coin relay 9 the vane 13 will be restored to its normal vertical position. The consequent movement of projection 30 to the left caused by the restoration of vane 13 to its vertical position will temporarily raise latch 31 and then allow it to drop after projection 30 has assumed its normal position corresponding to the vertical position of vane 13. Another refunding movement by vane 13 is not now possible until cam 32 has been moved counter-clockwise to cause its arm 33 to lift latch 31 out of the path of projection 30. If the coins discharged from coin trap 11 pass down the refund chute 15 and throw vane 21 outwardly to the dotted position of Fig. 2 (which will be done in the absence of stuffing) the resulting upward movement of control wire 26 will cause its end piece 39 to be moved from its lower position shown in Fig. 4 to its upper position shown in dotted lines in Fig. 3 thereby causing end piece 39 to contact with arm 38 to rotate the cam 32 counter-clockwise causing cam arm 33 to restore latch 31 to its upper position out of the path of projection 30. It will, therefore, be apparent that the upward movement of wire 26 produced by the opening of vane 21 sets the apparatus in condition for another refund. On the other hand if because of any obstruction or other fraudulent practice the shutter 21 is not opened after a refunding operation it will be apparent that latch 31 will continue to lie in the refunding path of projection 30 and hence prevent a second refund until the refund chute has been cleared and vane 21 opened.

It should be noted, however, that vane 21 exerts no control for collecting operations since link 29 and vane 13 may be moved to the left and back to normal as many times as desired without any interference from latch 31.

A further feature of the apparatus of Figs. 2 to 4 is an arrangement whereby an alarm may be sounded if vane 21 is not immediately opened by the discharged coins after a refunding operation of the coin relay. Mounted upon the shelf

45 is a pair of electrical spring contact members 46, 47 connected through battery to a slow-operate relay 48 which when energized serves to sound a suitable alarm device 49 located on the same premises as the telephone coin collector or at some remote point such as the telephone central office. It will be apparent that latch 31 when supported in its upper position by arm 33 of cam 32 contacts with the end of spring 47 to keep the electrical contacts 46, 47 separated; but as soon as latch 31 is dropped by the clockwise movement of cam 32 due to a refunding operation contacts 46, 47 will close and the alarm will be sounded providing the contacts are closed for a long enough period. However, in the absence of any obstruction for vane 21 the discharged coins will open vane 21 to restore latch 31 to its upper position before sufficient time has elapsed to permit slow operate relay 48 to close its contacts.

The closure of spring contacts 46, 47 instead of sounding an alarm may serve to establish other types of control circuits. For example, contacts 46, 47 herein may be used in the same manner as contacts 20, 21 of the H. M. Bollinger United States Patent 1,887,576, issued November 15, 1932 to close a shunt around one winding of coin relay 9 to cause the relay to move its armature to collect position when refund current is applied.

An alternative form of the invention is shown in Figs. 5 to 8. As in Fig. 2 the coin trap 50 is supported by a pivoted vane 51, the vane 51 having a pin engaging the fork of the armature extension 52 of the coin relay whereby the vane 51 may be moved to the right for refunding or to the left for collection purposes. The upper part of the refund chute 53 is normally closed by a shutter 54 pivoted at the point 55 and having a lateral and slightly downwardly extending arm 56. Support 57 carries a pair of electrical spring contacts 58, 59, arm 56 normally engaging spring 59 as shown in the drawings. When vane 54 is in its closed position the length and angular position of arm 56 is such that contacts 58, 59 are open. However, when vane 54 is thrown outwardly by a discharged coin to the position of Fig. 7 the upward movement of arm 56 is sufficient to close the contacts and establish a circuit through battery to a slow-operate relay 60 which when energized serves to actuate a suitable alarm device 61. It will be apparent from Figs. 6 and 7 that vane 54 cannot be restored to its closed position until spring 59 has been moved outwardly away from arm 56 to allow freedom of movement of vane 54 back to its normally closed position.

Mounted in the lower part of the refund chute 53 above coin well 62 and behind baffle 63 is a pivoted shutter 65 biased by a spring 64 to normally close the refund chute, the lower and free end of the shutter normally resting against a shoulder 66 in the bottom wall of the refund chute. Shutter 65 has an arm 67 to which is pivoted a rigid wire or rod 68 which passes through apertures in walls 69 and 70 and through an aperture in a supporting lug 71 and terminates in a roller 72. Roller 72 normally lies within the curved angular arm 73 of spring 59 but when shutter 65 is thrown outwardly to the dotted position of Fig. 5 it follows that wire 68 will be pulled downwardly causing roller 72 to thrust spring 59 outwardly to free arm 56 and allow the vane 54 to return from its position of Fig. 7 to its position of Fig. 8.

Thus in the normal operation of the device coins refunded from coin trap 50 will first throw

vane 54 outwardly to the position of Fig. 7 thereby temporarily closing contacts 58, 59. The coin will later strike shutter 65 throwing it outwardly to its dotted position of Fig. 5, the coins coming to rest in coin well 62 where they may be readily recovered by the user of the instrument through the refund opening 74 in the external housing of the collector. The outward movement of shutter 65 by means of rod 68 frees arm 56 of spring 59 and allows vane 54 to return to its closed position. Shutter 65 after the passage of the coins is closed again by spring 64 and this closure moves roller 72 upwardly within the bowed portion of the angular terminal of contact spring 59 whereby opening electrical contacts 58, 59 before the circuit for relay 60 has been closed for a length of time sufficient to sound the alarm. If, however, due to some obstruction in the refund chute either above or below shutter 65 the shutter 65 fails to open after discharged coins have passed the upper vane 54 it will be apparent that contacts 58, 59 will remain closed and cause the alarm device to be actuated. The failure of shutter 65 to open promptly after discharged coins have opened the upper vane 54 will, therefore, be positively indicated to the proper authorities and cause a prompt investigation of the collector from which the alarm originated.

It is, of course, to be understood that the linkage controlled by shutter 21 of Fig. 2 or shutter 65 of Fig. 5 is so arranged as not to prevent the shutters from being readily thrown outwardly by a descending coin discharged from the coin trap.

While certain forms of the invention have been chosen for illustration it is to be understood that the invention is capable of other embodiments commensurate with the scope of the appended claims.

What is claimed is:

1. A coin collector comprising a refund chute having a coin pocket accessible from outside said collector, means for discharging deposited coins into said chute, a pivoted member actuated from its normal position when a deposited coin is discharged into said chute, a vane normally substantially closing said chute above said pocket but actuated by the weight of a discharged coin to permit passage of said coin to said pocket, and means responsive to such actuation of said vane for restoring said member to its normal position.

2. A coin collector in accordance with claim 1, characterized by means of preventing a subsequent discharge of coins into said chute until said pivoted member has been restored to normal.

3. A coin collector in accordance with claim 1, characterized by an indicating device controlled by said member.

4. A coin collector in accordance with claim 1, characterized by circuit closing means controlled by said member.

5. A coin collector in accordance with claim 1, characterized by indicating means controlled by said member and operated after said coin is discharged into said chute unless said member is restored to its normal position within a definite time interval.

6. A coin collector comprising a refund chute, means for discharging a deposited coin into said chute, a pivoted member actuated from its normal position to a second position when a coin is discharged into said chute, electrical contacts controlled by said member, said contacts being in one condition for the normal position of said member and in a second condition when said

member is in said second position, and a vane in said chute actuated by the weight of a deposited coin for restoring said member to its normal position after the operation of said means.

5 7. In a coin collector, a refund chute having a coin pocket available from outside said collector, means for diverting a deposited coin into said chute, a pivoted vane normally closing said chute above said pocket but actuated by the weight of
10 a refunded coin to permit the passage of said coin, a second pivoted vane mounted in said chute below said first vane and biased to normally close said chute above said pocket but actuated by the weight of a refunded coin to permit said coin to
15 reach said pocket, and means controlled by the actuation of said second vane by a refunded coin for controlling said first vane.

8. In a coin collector housing, a coin receptacle having a coin trap for temporarily holding deposited coins, a refund chute having a coin pocket
20 accessible from outside said housing, means for actuating said trap to discharge coins on said trap into said chute, a trigger in said chute above said pocket and normally actuated by the weight of

coins discharged into said chute, and indicating means responsive to the failure of a discharged coin to actuate said trigger.

9. In a coin collector housing, a coin receptacle having a coin trap for temporarily holding deposited coins, a refund chute having a coin pocket
5 accessible from outside said housing, means for operating said trap to discharge coins into said chute, means tending to prevent said first means from refunding additional deposited coins and
10 a trigger in said chute above said pocket normally actuated by the weight of a refunded coin for rendering said second means ineffective.

10. In a coin collector housing, a refund chute having a coin pocket accessible outside said housing, means for diverting a deposited coin into said
15 chute, a pivoted vane in said chute biased to substantially close said chute above said pocket but normally actuated by the weight of a refunded coin to permit the passage of the refunded coin
20 to said pocket and means actuated by said vane for controlling said diverting means.

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