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2,028,210

COIN COLLECTING APPARATUS

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FIG. 1

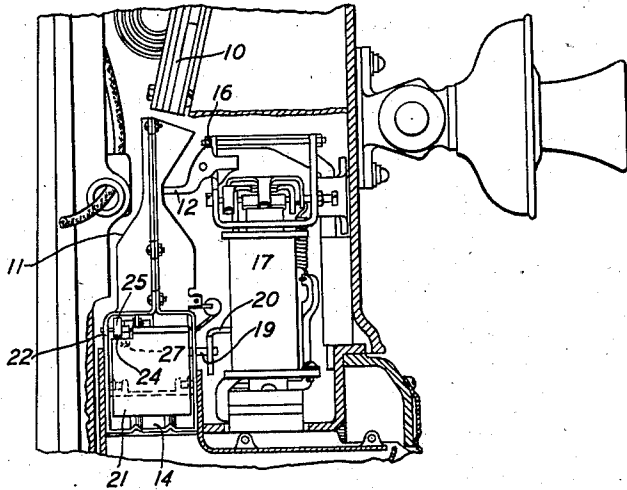


FIG. 2

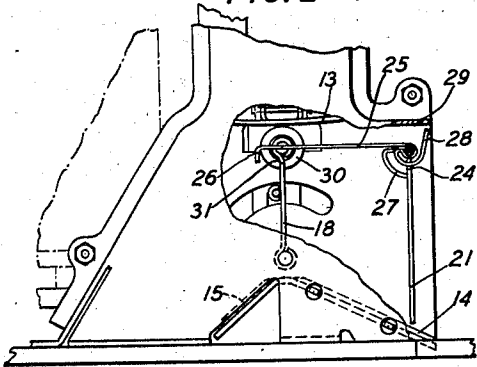


FIG. 3

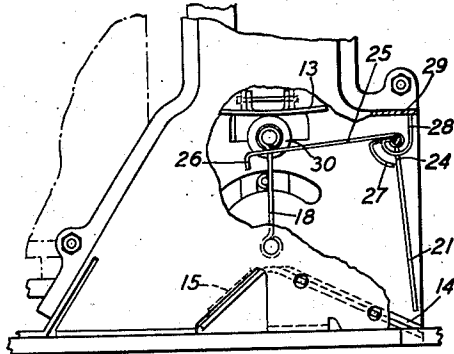
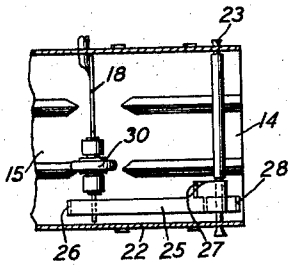


FIG. 4



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COIN COLLECTING APPARATUS

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8 Claims. (Cl. 232—57.5)

This invention relates to coin collecting apparatus particularly such apparatus for use at a telephone pay station.

As applied to telephone collectors the present invention is particularly adapted for that type of coin collector wherein the calling party tentatively deposits a coin, which coin is subsequently refunded or collected depending upon whether the desired connection is obtained. In such apparatus as disclosed, for example, in the O. F. Forsberg U. S. Patent 1,043,219, issued November 5, 1912, it is usual to temporarily retain the deposited coin within a coin hopper upon a trapdoor normally held in a coin supporting position by a normally vertical vane pivoted at its lower end, which vane may be moved by a relay to release the trap to discharge the deposited coin into a refund chute or collect chute depending upon which direction the vane is moved. The refund chute at its upper end and adjacent to this vane usually has a pivoted shutter which freely yields to pressure from discharged coins to permit the discharged coins to pass on down the refund chute to a position accessible from outside the coin collector housing, but normally will keep the refund chute closed when subjected to pressure from the opposite direction.

Attempts are occasionally made to obtain a fraudulent refund of deposited coins by inserting a tool into the space behind the above-mentioned shutter to actuate the trap supporting vane to coin refunding position before the central office operator has energized the coin relay to move the vane in the opposite direction for coin collection. This requires the manipulation of the tool in such a manner as to cause an outward movement of the shutter before the tool can be inserted behind the shutter in contact with the coin vane.

An object of this invention is to prevent fraudulent refunds of the above described character.

In accordance with a preferred form of this invention the pivoted shutter supports or otherwise controls a latch member which has a hook capable of engaging the top or free end of the coin vane. The shutter in its normal position supports the hook out of the path of the vane but when the shutter is moved outwardly by a tool, for example, the hook is lowered to engage the vane and prevent the movement of the vane to a coin refunding position while offering no obstruction to the movement of the vane in the opposite direction to a coin collect position. The latch member is also preferably arranged to offer no obstruction to a legitimate refunding operation by the coin relay. The above described ar-

range, therefore, prevents the mechanical operation of the coin vane to obtain a refund by means of a tool inserted behind the shutter.

Referring to the drawing,

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

Fig. 2 is an enlarged rear view of the coin hopper of Fig. 1 with a portion of the side wall removed to show the interlocking of the coin vane and coin shutter;

Fig. 3 is similar to Fig. 2 except that the coin shutter in the refund chute has been moved outwardly thereby preventing a refunding movement of the coin vane; and

Fig. 4 is a top view of the coin vane and coin shutter.

Fig. 1 discloses only the central portion of a telephone coin collector of the general type disclosed in the above-mentioned Forsberg patent, and reference may be made to the cited patent for a fuller description of its mode of operation than is needed herein for a description of the present invention. A subscriber wishing to make a telephone call deposits a coin in a slot provided therefor and the coin after passing down a coin chute 10 enters a coin hopper 11, actuates a coin trigger 12 and comes to rest temporarily upon a pivoted coin trap 13 from which, under the control of a central office operator, it may be discharged into a refund chute 14 or a collect chute 15 depending upon whether the desired connection is established. Coin trigger 12 when actuated by a falling coin serves to release a spring pressed lever 16 for closing spring contacts to establish a circuit through the windings of the polarized relay 17 in the usual and well known manner.

Coin trap 13 is normally supported in a substantially horizontal position by a roller 30 mounted on a vertical vane 18 pivoted at its lower end. Vane 18 has a pin 19 projecting through an arcuate slot in the front wall of the coin hopper for engagement with the forked end of the armature extension 20 of electromagnet 17. If the central office operator energizes electromagnet 17 with current of one polarity vane 18 as viewed in Fig. 2 will be moved to the right and the coin trap 13 in falling will discharge coins thereon into the collect chute 15 but if the electromagnet is energized with current of the opposite polarity, vane 18 will be moved to the left and the coin trap in falling will discharge its coins into a refund chute 14 leading to an opening (not shown) in the external wall of the lower housing of the

coin collector where refunded coins can be recovered by the user of the instrument.

In view of the fact that refund chute 14 as in the Forsberg patent has an external opening it is necessary to protect vane 18 from tampering, specifically to prevent the vane 18 from being fraudulently operated by a wire or other instrument inserted through the refund opening in the external housing. Substantial protection may be secured by a pivoted shutter 21 which normally closes the refund chute and cannot be moved inwardly because of the upward slope of the bottom wall of chute 14 but can be moved freely outwardly by the weight of any coin discharged from coin trap 13.

Attempts, however, are occasionally made to insert a wire or tool under the lower edge of shutter 21 to cause it to move outwardly to an extent sufficient to gain access to the vane 18. This invention provides means whereby such fraudulent attempts may be frustrated. The upper edge of the shutter 21 adjacent rear wall 22 of the hopper is cut away to provide a small gap at that point between the pivoting pin 23 and the upper edge 24 of the shutter. Pivoted upon the free portion of pin 23 is a light-weight latch member 25 having a hooked end 26. This latch 25 is normally maintained in a plane substantially at right angles to the plane of shutter 21 by a formed extension 27 which normally rests against the inside face of the shutter. The member 25 has a second formed extension 28 which when the member 25 is moved counter-clockwise as viewed in Fig. 2, acts as a stop after a limited movement in that direction by contacting with the extension 29 of the upper wall of the coin hopper. Latch 25 is overbalanced by shutter 21 so that the latch will remain in a substantially horizontal position as shown in Fig. 2 as long as shutter 21 remains closed, but the latch will drop downwardly if shutter 21 is moved outwardly as shown in Fig. 3.

The upper edge of the coin vane 18 immediately below latch 25 is designated by reference character 31. It will be apparent that as long as shutter 21 remains closed, hooked end 26 lies out of the path of coin vane 18 so that coin vane 18 may be moved to the left by the refunding operation of electromagnet 17 without interference from latch 25. Any coins discharged by such a refunding operation will strike shutter 21 to thrust the shutter outwardly to allow the coins to pass on down the refund chute and this outward movement of shield 21 will be accompanied by a lowering of latch 25 but the subsequent closing of shield 21 after the coins have passed through will restore latch 25 to its normal position of Fig. 2 where it will not interfere with the return of vane 18 to its vertical position upon the deenergization of magnet 17.

However, it will be apparent from Fig. 3 that if shutter 21 is successfully moved outwardly by a tool inserted up the refund chute such a tool, when inserted far enough to strike vane 18, cannot move the vane to the left a distance sufficient to cause the coin trap to drop because of the hook 26 engaging the upper edge of the vane 18 thereby preventing the counter-clockwise rotation of the vane. The arrangement just described, therefore, prevents any fraudulent refunding operation of vane 18 by any means which involves the displacement of shield 21 from its normally closed position.

Fig. 4 is a top view showing the relationship of the coin vane 18, shield 21 and latch 25 and requires no further explanation.

It will be apparent that latch 25 does not follow the full outward movement of shutter 21 caused by discharged coins since extension 28 stops the downward movement of the latch 25 after it has dropped a short distance but its limited movement of the latch does not interfere in any way with the free yielding of the shutter 21 to the pressure exerted by discharged coins since the latch 25 and shield 21 are independently pivoted on pin 23. While the normal position of latch 25 with its hook 26 should be such as to avoid any danger that the hook will engage the vane 18 in a legitimate refunding operation with the shutter 21 in its closed position it is equally true that the relation should be such that shutter 21 needs to be opened only a very small amount in order to make hook 26 effective to engage the upper edge of vane 18.

While the preferred embodiment of the invention has been illustrated in the drawing it is to be understood that alternative forms are contemplated commensurate in scope with the appended claims.

What is claimed is:

1. In a coin collector, a coin trap, a pivoted vane for supporting said trap, a refund chute, a pivoted shutter in said refund chute, and a latch member for said vane controlled by said shutter.

2. In a coin collector, a coin trap, a pivoted vane for supporting said trap, a refund chute, a pivoted shutter in said refund chute, a latch member supported by said shutter out of the path of said vane when said shutter is in its normal position but lying in the path of said vane when said shutter is displaced from its normal position.

3. In a coin collector, a coin trap, a pivoted vane for supporting said trap, a refund chute, a pivoted shutter in said refund chute and means controlled by said shutter for controlling said vane.

4. In a coin collector, a coin chute, means for temporarily retaining a deposited coin in said chute, pivoted means for supporting said retaining means, a refund chute below said retaining means, a pivoted shutter in said refund chute and means controlled by said shutter for controlling said supporting means.

5. In a coin collector, a coin trap, a pivoted vane for supporting said trap, a refund chute, a pivoted shutter in said chute and means controlled by said shutter for preventing a movement in one direction of said vane when said shutter is held displaced from its normal position.

6. In a coin collector, a main coin chute, means in said chute for temporarily retaining a deposited coin, pivoted means for supporting said retaining means, a refund chute and a collect chute below said retaining means, a relay for moving said pivoted means in one direction to discharge coins into said refund chute, and for moving said pivoted means in the opposite direction for discharging coins into said collect chute, a pivoted shutter in said refund chute, and means controlled by said shutter for preventing at times the movement of said pivoted means in one direction while freely permitting the movement of said pivoted means in the opposite direction.

7. In a coin collector, a coin hopper having a coin trap therein, a refund chute and a collect chute below said trap, a pivoted vane for supporting said trap, means for moving said vane in one direction to discharge coins from said trap into said collect chute, and for moving said vane in the opposite direction to discharge coins from said trap into said refund chute, a pivoted shutter

in said refund chute, and means controlled by said shutter when said shutter is held displaced from its normal position for preventing said vane from being moved to its refunding position.

5 8. In a coin collector, a coin hopper having a coin trap therein, a refund chute and a collect chute below said trap, a pivoted vane for supporting said trap, means for moving said vane in one direction to discharge coins from said trap
10 into said collect chute and for moving said vane in the opposite direction to discharge coins from

said trap into said refund chute, a coin pocket in said refund chute normally accessible from outside said collector, a pivoted shutter in said refund chute between said pocket and said vane, a latch member supported by said shutter in a position out of the path of said vane when said shutter is in its normal position but projecting into the refunding path of said vane when said shutter is held displaced from its normal position.

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