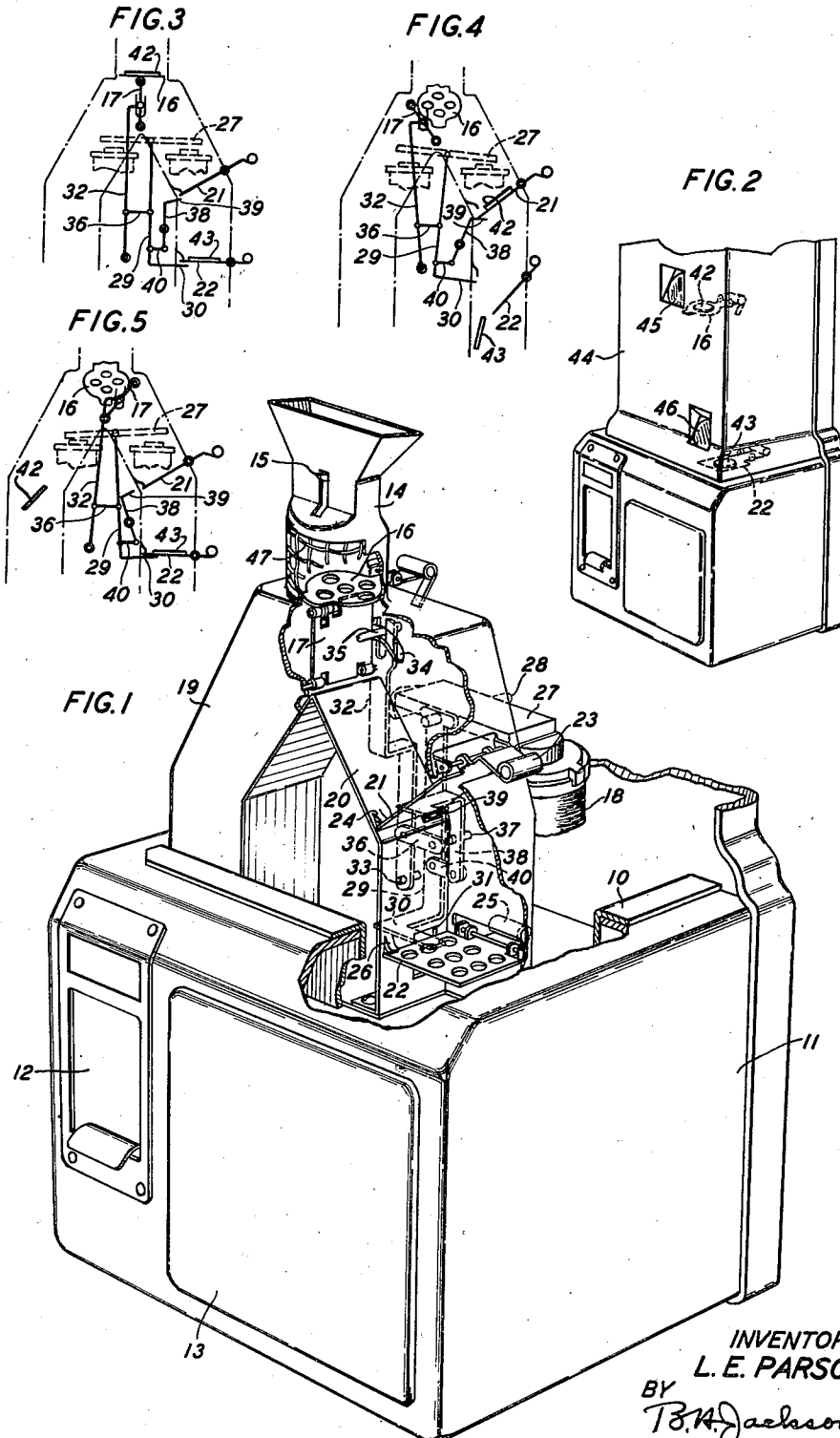


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TELEPHONE COIN COLLECTOR

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TELEPHONE COIN COLLECTOR

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This invention relates to coin controlled apparatus particularly telephone coin collectors wherein the deposit of one or more coins is required for the purpose of obtaining service from the instrument.

Attempts are occasionally made by unscrupulous persons to deposit spurious coins or slugs in coin operated telephone substations which attempts may be successful if the slug meets the tests to which it is subjected by the coin collector before acceptance. It is believed, however, that if such slugs were made visible immediately after deposit as well as visible to the subsequent user of the instrument, this fraudulent practice would be considerably reduced, if not eliminated, because of the increased ease of detection. In the usual telephone coin collector of the type disclosed, for example, in the O. F. Forsberg U. S. Patent 1,043,219, issued November 5, 1912, all coins are concealed from view as soon as they are deposited.

An object of the present invention is to provide means associated with a coin chute in a coin operated device to temporarily expose to view coins immediately after deposit in said chute and to render such coins visible to a subsequent user of the instrument.

In the usual type of telephone coin collector, a coin after insertion in a coin gauge follows a coin channel until it comes to rest on a pivoted coin trap normally supported in a horizontal position by a pivoted vane which, under the control of a polarized relay, can be moved in one direction to cause coins lying on the trap to be discharged into a collect chute while if the vane is moved in the opposite direction the coin lying on the trap will be discharged into a refund chute. According to one feature of this invention such a coin trap is exposed to view by a glass window, for example, inserted in the front wall of the housing adjacent the coin trap. When the coin resting on such a trap is discharged after a completed call the coin instead of being passed directly to the cash compartment is temporarily retained farther down the chute upon a second coin trap which also may be exposed to view by a window in the front wall of the housing. Such a coin on the second trap is retained until the coin from a second completed call is discharged from the first trap whereupon the coin on the second trap is discharged into the cash box while the coin for the second call after release from the first trap is kept in view on the second trap. Means are provided to insure that the second trap will have discharged the coin from the first

call and returned to its coin retaining position before receiving the coin from the next succeeding completed call. Preferably the arrangement is also such that the second coin trap will not discharge its coins when the first trap is actuated to coin refunding position and will be operated only when the first trap is actuated to coin collect position.

Referring to the drawing, Fig. 1 represents a telephone coin collector lower housing with certain walls partially removed to disclose the coin collecting and coin refunding apparatus;

Fig. 2 is an external view in perspective of a telephone coin collector equipped with the coin control apparatus of this invention; and

Figs. 3, 4, and 5 are schematic views showing different steps in the operation of the coin control apparatus of Fig. 1.

The fragmentary view of a telephone coin collector shown in Fig. 1 is intended to illustrate a collector of the same general type as disclosed in the above-mentioned Forsberg patent except for certain modifications which will be particularly described later. In this figure the upper housing has been removed to show the coin control apparatus mounted on a tray supported by the lower housing 11. The front of the lower housing as in the standard coin collector has a refund chute opening 12 and a door 13 normally closing the cash compartment.

As explained in the Forsberg patent, a person wishing to use a telephone coin collector deposits a coin in a coin gauge mounted on the upper housing and the coin thereupon passes through a coin chute leading to a coin hopper. It may be assumed that the upper housing for the apparatus of Fig. 1 has a suitable coin gauge and coin chute causing all legitimate deposited coins to drop into the mouth of a coin hopper 14. Projecting into the upper part of the coin hopper 14 is a trigger 15 which when struck by a deposited coin serves the purpose as described in the Forsberg patent for establishing circuit connections to place a polarized relay 18 under the control of the central office operator to enable the remote operator to collect or refund the deposited coins depending upon whether the desired telephone connection is established.

A deposited coin after striking the coin trigger 15 comes to rest on a pivoted coin trap 16 which as in the standard coin collector is normally supported in a horizontal position by a pivoted vane 17. As will be explained later, vane 17 is under the control of the coin relay 18. When vane 17, as viewed in Fig. 1, is moved to the right,

trap 16 drops to discharge the coins thereon into a refund chute 19 leading to refund opening 12 as in the standard coin collector. The present invention, however, is concerned with the control of the coin in its path from coin trap 16 down the collect chute 20 to the cash compartment behind door 13. The coin collect chute 20 has two coin traps 21 and 22, in addition to the main coin trap 16. The intermediate coin trap 21 is pivoted externally of the collect chute and has a counterweight 23 which normally holds trap 21 against stop 24 to provide a complete closure for the collect chute at that point. The lower coin trap 22 is also pivoted externally of the collect chute and has a counterweight 25 which normally holds coin trap 22 against stop 26 to completely close the collect chute at that point.

The three coin traps 16, 21 and 22 are controlled by the armature 27 of coin relay 18. Armature 27 which is pivoted along an axis 28 has fastened thereto a downwardly projecting arm 29 which at its lower end has a horizontal extension 30 normally extending through an aperture 31 in the side wall of the collect chute at a point just below coin trap 22 to hold coin trap 22 in its chute closing position when the trap is struck by a deposited coin. It will be apparent that lever 29 is adapted to be moved about the armature axis 28. Adjacent lever 29 is another vertical arm 32 pivoted at its lower end at the point 33, the other end of the arm 32 having a fork 34 embracing the pin 35 on the coin vane 17. The two arms 29 and 32 are coupled by a link 36 pivoted to each arm. Pivoted at the point 37 is another arm 38 having an extension 39 adapted to project through an aperture in the side wall of collect chute 20 at a point just below trap 21, but in its position shown in Fig. 1 extension 39 does not project into collect chute 20 sufficiently far to hold trap 21 in its chute closing position when the trap is struck by a falling coin. Arm 38 is also coupled to the armature lever 29 by a link 40 which is pivoted to both arms 29 and 38.

When armature 27 is in its neutral unactuated position as in Fig. 1 and Fig. 3, arm 32 has coin vane 17 in a vertical position supporting the main coin trap 16, arm 29 projects into the collect chute 20 to provide a support for trap 22, but arm 38 as previously stated does not project into the collect chute far enough to prevent trap 21 from falling under the weight of a deposited coin. When armature 27 is moved counter-clockwise, armature lever 29 causes arm 32 to move vane 17 clockwise; causes extension 39 to project still farther into the collect chute 20 still holding trap 22 in its coin supporting position as in the case of the neutral armature position; and causes extension 39 to be moved away from the collect chute. That is, when armature 27 is moved to coin refunding position, trap 21 is still uncontrolled by extension 39, trap 22 is still held in coin supporting position and trap 16 is dropped to discharge the coins thereon into the refund chute 19.

When armature 27 is moved clockwise the armature lever 29 causes coin vane 17 to be moved to the left to drop coins on the main coin trap 16 into collect chute 20; causes the extension 39 to project far enough into collect chute 20 to temporarily hold intermediate trap 21 in coin supporting position; and causes extension 30 to be removed from collect chute 20 to allow lower trap 22 to discharge into the cash compartment any coin thereon.

The manner of operation will be better under-

stood by reference to the schematic figures, Nos. 3, 4 and 5.

In Figure 3, the armature 27 is in its normal neutral position, main coin trap 16 is supporting a coin 42 just deposited, and the lower coin trap 22 is supporting a coin 43 which was deposited for the previous completed call. If now the central office operator wishes to collect coin 42 on the main coin trap 16, collect current is applied to relay 18 to move armature 27 clockwise and the apparatus will now assume the position of Fig. 4. Armature lever 29 in moving to the left releases the lower trap 22 and allows the previously deposited coin 43 to fall into the cash compartment. The pivoted vane 17 is swung to the left and coin 42 falls into collect chute 20 coming temporarily to rest on intermediate coin trap 21 since extension 39 by the application of collect current to relay 18 has been moved far enough into collect chute 32 to hold trap 21 in coin supporting position. Immediately following the escape of coin 43 the lower coin trap 22 due to its counterweight 25 returns to its chute closing position against stop 26. When the relay is now deenergized allowing armature 27 to return to its neutral position of Figs. 1 and 3 extension 39 is removed allowing the intermediate coin trap 21 to drop and thereupon coin 42 will come to rest upon the lower coin trap 22 until the relay is again energized with collect current to remove support 30 for coin trap 22.

It will be apparent that the chief function of intermediate coin trap 21 is to temporarily restrain coins discharged from the main coin trap 16 until the lower coin trap 22 has discharged its coin and returned to its chute closing position supported by extension arm 30.

On the other hand, it may be assumed that the call for which coin 42 was deposited was not completed. The remote operator will then apply refund current to coin relay 18 and armature 27 will be moved counter-clockwise to cause the armature control levers to assume the relative positions shown in Fig. 5. Vane 17 is thrown to the right allowing coin 42 to fall unimpeded through refund chute 19 to refund opening 12. The movement of main armature lever 29 counter-clockwise causes no change in its control over auxiliary coin traps 21 and 22, since armature extension 39 is merely moved farther out of collect chute 20 and extension arm 30 is moved farther into the collect chute so that the lower coin trap 22 with coin 43 thereon is held in coin supporting position even when the levers are moved to coin refunding position.

The upper housing 44 of Fig. 2 for enclosing the apparatus mounted on tray 10 of Fig. 1 preferably has a window 45 opposite coin trap 16 and another window 46 opposite coin trap 22. In order that any coin on coin trap 16 may be visible through window 45 the portion of the front wall of the coin hopper between the window and the coin trap may be apertured or provided with a wire grating 47 to enable a clear view of the interior of the coin hopper just above coin trap 16. A similar grating may be employed in the front wall of coin chute 20 just above the lower coin trap 22 so as to provide a clear view of any coin on the lower coin trap. Windows 45 and 46 may be of plane glass or may comprise magnifying lenses, if desired. It may also be desirable to provide artificial illumination within housing 44 in order to facilitate the examination of any coins on the two coin traps 16 and 22.

It will therefore be seen that the arrangement of this invention enables the inspection of any coin deposited for a given telephone call and also for the inspection at the same time of any coin deposited for the previous completed telephone call. It should be noted that any coin on lower coin trap 22 is not removed by the refunding of a later deposited coin but remains in view on trap 22 until vane 17 is moved again to coin collecting position.

While only one embodiment of this invention has been illustrated in the drawing, it is to be understood that alternative arrangements are contemplated commensurate with the scope of the appended claims.

What is claimed is:

1. A coin collector housing comprising a coin receptacle, a pivoted coin trap in said receptacle, a collect chute, a refund chute, means for temporarily holding said trap in position to support coins deposited thereon, said means when released permitting at times the discharge of coins from said trap into said collect chute and at other times into said refund chute, a second coin trap in said collect chute for temporarily supporting coins discharged from said first trap, holding means for said second trap, means for releasing said second trap when said first trap is released to discharge its coins into said collect chute while preventing the release of said second trap when said first trap is released to discharge its coins into said refund chute, and means for rendering both of said coin traps visible from outside said housing.

2. A coin collector housing comprising a coin trap for temporarily retaining deposited coins, holding means for said trap, a collect chute, a refund chute, a relay for controlling said holding means to direct at times coins from said trap into said collect chute and at other times into said refund chute, a second coin trap in said collect chute for temporarily retaining coins discharged into said collect chute by said first trap, means controlled by said relay for holding said second trap in coin supporting position and for releasing said second trap to discharge its coins when said first trap is released to discharge its coins into said collect chute while preventing the

release of said second trap when said first trap is released to discharge its coins into said refund chute and means for rendering both of said coin traps visible from outside said housing.

3. A coin collector housing comprising a coin trap for temporarily retaining deposited coins, holding means for said trap, a collect chute, a refund chute, a relay for controlling said holding means to direct at times coins from said trap into said collect chute and at other times into said refund chute, a second coin trap in said collect chute for temporarily retaining coins discharged into said collect chute by said first trap, means controlled by said relay for holding said second trap in coin supporting position and for releasing said second trap to discharge its coins when said first trap is released to discharge its coins into said collect chute, means for delaying the arrival at said second trap of coins from said first trap until said second trap has been restored to its coin supporting position, and means for rendering both of said coin traps visible from outside said housing.

4. A coin collector housing in accordance with claim 3 in which said delaying means comprises a third coin trap and holding means therefor controlled by said relay.

5. A telephone coin collector of the prepayment type comprising a housing, said housing comprising a main coin chute, a collect chute and a refund chute each adapted to receive coins from said main chute, means for temporarily retaining in said main chute a coin deposited for one call, means for temporarily retaining in said collect chute a coin deposited for an earlier completed call, a relay for releasing said first means to direct its coin at times into said refund chute and at other times into said collect chute, said relay controlling the release of said second means when said first means is released to direct its coin into said collect chute while preventing the release of said second means when said first means is released to direct its coin into said refund chute, and means for exposing to view from outside said housing the coins on both of said retaining means.

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