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COIN COLLECTOR APPARATUS

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FIG. 1

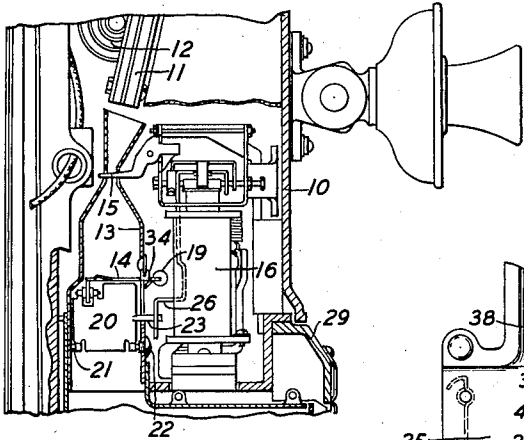


FIG. 2

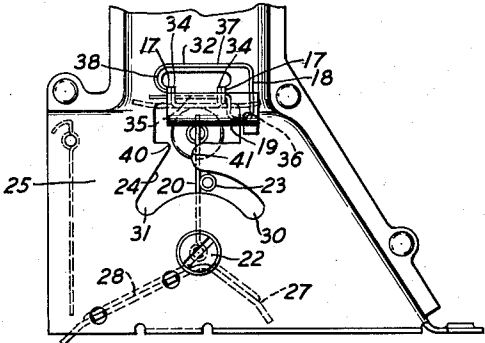


FIG. 3

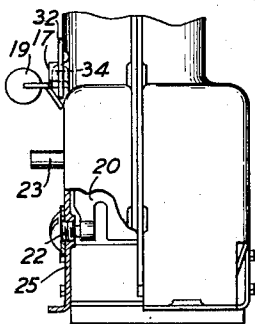


FIG. 4

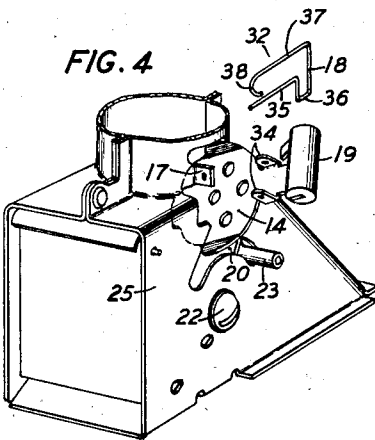
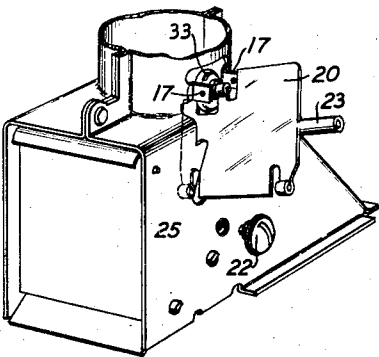


FIG. 5



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COIN COLLECTOR APPARATUS

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3 Claims. (Cl. 232—57.5)

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

As applied to telephone coin 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 trap door normally held in a coin supporting position by a pivoted vane having a pin projecting through an arcuate slot in a wall of the hopper to enable the vane to be actuated by an electromagnet to release the trap door to discharge the coin into a refund chute or collect chute, depending upon the direction the vane is moved. The coin trap projects through another slot in the coin hopper wall and is pivoted externally of the hopper and outside the path of coin travel.

In the commercial operation of such collectors it is frequently necessary to remove the coin trap and vane for cleaning or replacement due to sticking trouble or wear and with the type of collector heretofore employed this removal or replacement has required so much dismantling of the collector apparatus that it is the usual practice to remove the instrument from service and do the work in a repair shop.

An object of this invention is to reduce the amount of labor involved in removing or replacing the coin trap or coin vane of a telephone coin collector.

In accordance with this invention the slot in the coin hopper wall for the coin trap and the arcuate slot for the pin of the coin vane are joined and given a combined configuration such that the vane or trap may be removed or replaced through the slot without further dismantling of the collector once that the wall of the coin hopper containing the opening is made accessible to the operator. In the Forsberg type of coin collector this would require merely the removal of the coin relay from in front of the coin hopper wall in order to make the specified opening accessible for replacement purposes. In order to facilitate the removal or replacement of the coin vane that bearing for the vane supported by the slotted wall should be removable and may comprise a shouldered screw, for example. The coin trap in dropping to discharge coins lying thereon should

preferably direct the discharged coins away from the slot to preclude the possibility that a deposited coin might fall outside the hopper through the above specified slot.

Referring to the drawing.

Fig. 1 is a side view partly in cross-section of the central portion of a telephone coin collector; Fig. 2 is a front view of the lower portion of the coin hopper of Fig. 1;

Fig. 3 is a side view of the apparatus of Fig. 2;

Fig. 4 illustrates the manner in which the coin trap may be removed from the coin hopper; and

Fig. 5 illustrates the manner in which the coin vane may be removed.

For a general description of one type of coin collector in which this invention may be employed, reference may be had to the specification and drawing of the above-mentioned Forsberg patent.

Referring to the fragmentary view of a telephone pay station as shown in Fig. 1 the use of such an instrument is usually obtained by the deposit of a coin or coins in suitable openings in the upper part of the housing 10 after which each coin is guided down a chute 11 to strike a gong or signal such as signal 12. The coins on leaving chute 11 drop into a coin hopper 13 upon a coin trap 14 after actuating a coin trigger 15. As described in the Forsberg patent this actuation of coin trigger 15 serves to place the coin collector magnet 16 under the control of the distant central office for the purpose of collecting or refunding the deposited coin. The trap 14 extends fully across the hopper, is pivoted to extensions 17 by removable bearing pin 18 and is slightly overbalanced by an external portion 19. Trap 14 is normally supported in a substantially horizontal position by a coin deflector vane 20 lying nearly in a vertical plane and pivoted at its lower end on an axis defined by a fixed pin 21 on one side wall of the hopper and a removable bearing screw 22 on the opposite side wall. Vane 20 has a pin 23 above its pivoting point which projects through a slot 24 in wall 25 and this pin is engaged by an extension 26 of the armature of electromagnet 16. As explained in the Forsberg patent the operation of magnet 16 to deflect vane 20 in one direction will permit trap 14 to drop, whereby the deposited coin will be guided by vane 20 into a collect chute 27 leading to a cash box located in the lower housing 29 while the operation of the magnet to deflect vane 20 in the opposite direction will allow the deposited coins to be guided into a refund chute 28 where they will be accessible to the patron.

As previously stated, in the commercial operation of such collectors it is frequently necessary to remove the coin trap 14 and vane 20 for cleaning or replacement due to wear or sticking troubles. Efficient operation of the collector requires that the vane and trap function with a minimum of resistance to operation by the electromagnet 16. In the type of coin collector heretofore manufactured, the amount of labor and dismantling involved in removing the vane and the trap has usually required the removal of the entire instrument to a repair shop, which procedure means that the collector is out of service for some time, unduly increasing the cost of the desired replacement of the vane or trap.

With a view to reducing the expense and interruption in service involved in this procedure, this invention provides a modified coin hopper whereby the vane and trap may be removed and replaced in a few moments without removing the entire collector from the telephone booth or other location.

In the usual telephone coin collector as in the Forsberg patent the upper housing 10 may be readily unlocked and removed, exposing the apparatus such as magnet 16 and hopper 13 which are mounted on supports independent of housing 10. The magnet 16 is usually mounted in such a way that it may be readily removed, leaving exposed to the repair man the front wall 25 of the coin hopper. It will be noted that slot 24 not only provides an arcuate path for pin 23 in its refunding and collect movements between points 30 and 31 but the slot also continues upwardly to include as a part of the same slot the opening in the wall 25 between extensions 17 through which the coin trap normally projects. The distance between the upper end 32 and lower end 31 of the slot is made somewhat greater than the width of the coin trap or the height of the coin vane while the width of the slot between extensions 17 is made sufficient to accommodate the usual roller 33 which normally supports the trap.

In order that the trap 14 and vane 20 may be removed from the coin hopper through this slot 24 the trap and vane should be mounted for ready removal from their pivoting axes while still retaining the fixed relationship of the moving parts during operation. Thus, trap 14 may have two upwardly extending lugs 34, the trap being pivotally mounted on a pin 18 having a straight portion or pintle 35 which is adapted to pass through holes in the lugs 17 and 34. The pin 18 has formed therein a downwardly extending loop 36 and a second straight portion 37 ending in a reversely turned arm 38 so that pin 18 forms a substantially closed loop. The loop 36 serves as a spring member and a clamp as well as aiding in keeping the pintle in place. When pin 18 is in its normal trap supporting position longitudinal movement in one direction is prevented by loop 36 contacting against lug 17 while longitudinal movement in the opposite direction is normally prevented by the curved arm 38 contacting against the other lug 17. Such a pin may be readily removed by pulling arm 38 away from pintle 35 enough to allow arm 38 to slip over lugs 17 as the pintle 35 is being pulled out of engagement with the coin trap.

In order to make the vane 20 readily removable through slot 24 a shouldered screw 22 is used as a removable front bearing for the vane. When this screw is removed the vane can be readily freed of the bearing stud 21 on the rear wall

and then lifted to a position in the coin hopper suitable for removal.

With the slot of the configuration shown in the drawing it is necessary to remove the trap 14 before removing vane 20. This may be done by removing bearing pin 18 in the manner above described after which the mechanic by grasping the counterweight 19 can lower the trap, tilting it slightly from an almost vertical position as shown in Fig. 4 whereupon it may be removed from the hopper. After removing bearing screw 22 the mechanic by means of the externally projecting pin 23 may lift the vane to a position slightly away from the vertical with the lower edge of the vane opposite slot portion 31 whereupon the vane may be readily removed from the hopper as shown in Fig. 5. In replacing the vane and the coin trap the steps just described should be followed in reverse order with the vane installed first.

An important consideration in the configuration of slot 24 is to minimize the danger that any coins discharged from trap 14 will fall through opening 24 and escape the proper collection or refunding as the case may be. By having the coin trap 14 pivoted from the hopper wall containing slot 24 it will be apparent that the trap when dropped will throw the coins in a direction away from the slot. It will also be noted that tabs 40, 41 considerably restrict the width of the slot 24 at points where maximum width is not required.

While only one embodiment of this invention has been specifically disclosed it is to be understood that alternative forms are contemplated commensurate with the scope of the appended claims.

What is claimed is:

1. In a telephone coin collector, a coin hopper for receiving deposited coins and having opposed side walls, a trap door having a coin receiving portion within said hopper and having another portion extending through a slot in one of said side walls, means for pivoting said trap about an axis external to said hopper, the coin receiving portion of said trap having an area substantially greater than the area of the face of a United States ten cent piece, said slot having a configuration sufficient to permit said trap to be removed from said hopper through said slot when said pivoting means is removed, said trap when dropped to discharge coins lying thereon directing the discharged coins away from said slot.

2. In a telephone coin collector, a coin hopper for receiving deposited coins and having a front wall and a back wall, a trap door having a coin receiving portion within said hopper and having another portion extending through a slot in said front wall, means for pivoting said trap about an axis external to said hopper, a vane mounted below said trap for normally supporting said trap in a substantially horizontal position, means projecting from each of said walls for pivotally supporting said vane, said projecting means on said front wall being removable, a pin on said vane projecting through said slot, said slot having a configuration sufficient to permit said trap and said vane to be removed from said hopper through said slot when said pivoting means and said removable projecting means are removed, said trap when dropped to discharge coins lying thereon directing the discharged coins away from said slot.

3. In a telephone coin collector, a coin hopper for receiving deposited coins and having opposed

side walls, a trap-door having a coin receiving portion within said hopper and having another portion extending through a slot in one of said side walls, a freely movable pin for pivotally supporting said trap about an axis external to said hopper, the coin receiving portion of said trap having an area substantially greater than the area of the face of a United States ten cent piece,

said slot having a configuration sufficient to permit said trap to be removed from said hopper through said slot when said pin is removed, said trap when dropped to discharge coins lying thereon directing the discharged coins away from said slot.

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