Oct. 13, 1942. L. VIETH 2,298,440

COIN COLLECTOR

Filed June 12, 1940

FIG. 1

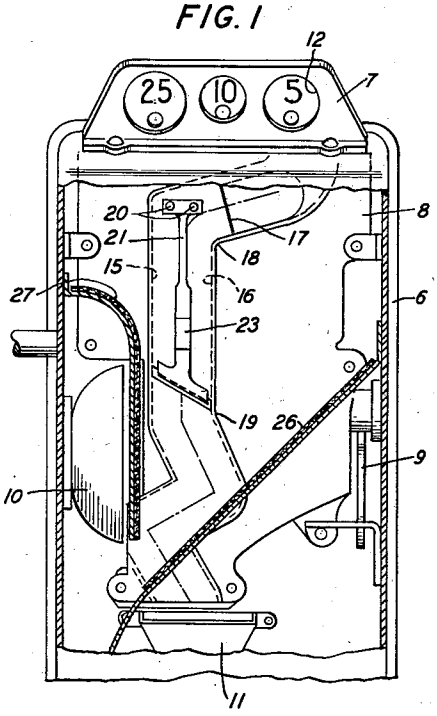


FIG. 2

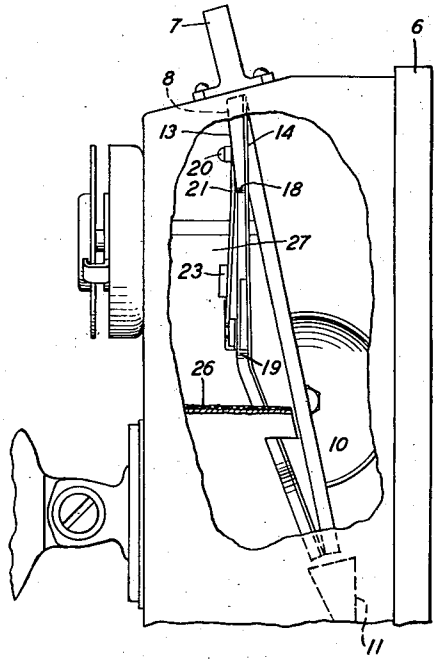


FIG. 3

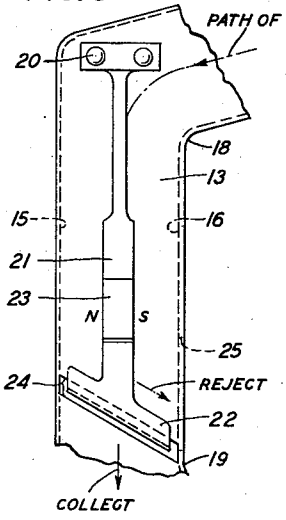


FIG. 4

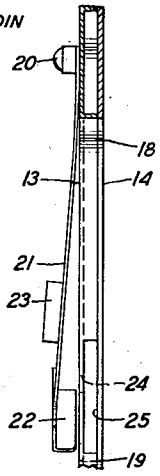
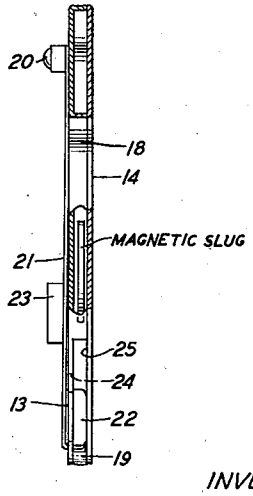


FIG. 5



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2,298,440

COIN COLLECTOR

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4 Claims. (Cl. 194—101)

This invention relates to coin chutes, particularly for telephone coin collectors, and has for an object the provision of means for ejecting from the chute coins or slugs made of magnetic material.

In telephone coin collectors as exemplified in the disclosure of the O. F. Forsberg, U. S. Patent 1,043,219 issued November 5, 1912, it is customary for the subscriber to tentatively deposit a coin when services are desired, which coin is subsequently collected or refunded, depending upon whether the desired telephone connection is established. Occasionally, attempts are made to secure the acceptance of a slug of magnetic material such as an iron disc or washer.

In the preferred embodiment of this invention a deposited coin or slug is directed into a coin runway having a substantially vertical section down which the coin falls freely under the influence of gravity. Mounted adjacent this vertical section is a movable member carrying a shelf normally biased to a position outside the runway. The side wall of the runway adjacent the shelf contains a slot through which the shelf may enter to divert from the legitimate coin runway any magnetic slug which is deposited with fraudulent intent. This movement of the shelf to its coin diverting position is preferably caused by a permanent magnet mounted on the movable member at a point adjacent an intermediate portion of the specified vertical section of the runway so that a magnetic slug in falling down the forward runway section will attract the permanent magnet towards the runway, thereby causing the shelf to assume its coin diverting position. A legitimate coin, however, will not react with the permanent magnet to place the shelf in its coin diverting position whereby a deposited legitimate coin will freely pass down the chute into the usual coin hopper for subsequent collection or refund as the case may be.

In the preferred embodiment, the permanent magnet is of such proportions that it influences a slug having only a center portion of magnetic material in substantially the same manner and magnitude as a slug made entirely of magnetic material. This may be accomplished by making the distance between the poles of the magnet small compared to the diameter of a legitimate coin; and for this purpose a cross-polarized bar magnet is particularly suitable.

Referring to the drawing,

Fig. 1 is a view of a portion of the upper housing of a telephone coin collector embodying the coin chute of this invention;

Fig. 2 is a side view of the upper housing of Fig. 2; and

Figs. 3, 4 and 5 are different views of a vertical section of the coin runway provided with means for rejecting magnetic slugs.

For the purpose of this description it will be assumed that the coin chute of this invention is embodied in a telephone coin collector of the type disclosed in the above-mentioned Forsberg Patent 1,043,219. Mounted on top of upper housing 6 is a coin gauge 7 for receiving nickels, dimes and quarters and for directing them into individual coin channels in a coin chute 8 by means of which the deposited coins strike suitable sound signals 9 and 10 in a distinctive manner, after which they drop into a coin hopper 11 for subsequent collection or refund depending upon whether the desired telephone connection is established.

In the embodiment shown in the drawing the invention is shown applied to the nickel runway although it is obvious that it may be employed in runways for coins of any denomination. A legitimate five-cent piece deposited in opening 12 in coin gauge 7 enters a coin runway defined generally by side walls 13 and 14 and retaining ledges 15 and 16. The coin first traverses a laterally and longitudinally inclined section which contains in the lower side wall 13 an elongated opening 17 through which coins or slugs of less than standard diameter will be rejected. The coin then falls freely down a vertical channel section extending substantially between the points 18 and 19 after which the coin strikes the lower edge of bell 10 and drops into hopper 11.

Any slug of magnetic material will be rejected from the nickel runway before reaching bell 10 by mechanism which will now be described. Suitably mounted on side wall 13 at the point 20 is an elongated spring member 21 which extends downwardly and substantially parallel to the vertical chute section and which carries at its lower end a longitudinally inclined shelf 22. Mounted on spring 21 at an intermediate point along its length is a short bar magnet 23 which is cross-polarized as indicated in Fig. 3. Spring 21 is normally biased to its position of Fig. 4 with shelf 22 located outside the coin runway. Side wall 13 adjacent shelf 22 has an elongated slot 24 which is longitudinally inclined in the same manner as shelf 22.

When a magnetic slug is deposited in the nickel runway and reaches the point where it is falling past magnet 23 the mutual magnetic attraction between the slug and the magnet causes the magnet to move towards the slug from its position of Fig. 4 to its position of Fig. 5, and this movement causes shelf 22 to enter slot 24 to occupy a coin obstructing position as shown in Fig. 5. With the inclined shelf 22 in its actuated position of Fig. 5 the magnetic slug is prevented from continuing on down the legitimate coin channel and is deflected out of the runway through an opening 25 in end wall 16, whereupon the rejected slug strikes the inclined surface 26

of the refund chute and is guided in the usual manner to the coin return opening in the lower housing. Such a rejected slug is prevented from any accidental striking of the bell **10** by means of a suitable baffle **27** which shields the bell from any coin deposited in the nickel runway except a coin that is traversing that part of the legitimate coin channel below slot **24**.

The magnet **23** and its spacing with respect to the path of the slug as shown in Fig. 4 are so proportioned that sufficient force is developed to move the magnet in the manner described above against the resisting force of spring **21**. In Fig. 5 the gap of non-magnetic material consisting of the thickness of spring **21** and side wall **13** is of such proportion that the force developed in this position is not sufficient to interfere with the free path of the slug. The distance between the magnet **23** and the shelf **22** is such that the position of the magnet shown in Fig. 5 is maintained until the slug reaches shelf **22** and is diverted into the reject channel.

The above type of magnetic slug rejection is particularly advantageous in rejecting a slug which may comprise, for example, a brass washer with a center hole plugged up with magnetic material. Since the distance between the poles of magnet **23** is small compared to the diameter of a standard coin and is preferably less than the radius of a standard coin, it follows that magnet **23** will affect a slug whose magnetic material is confined to the central portion thereof in substantially the same manner and magnitude as a slug of standard diameter composed entirely of magnetic material. However, for situations where the primary object is to reject slugs which are composed substantially entirely of magnetic material the distance between the poles of magnet **23** may be substantially greater than that shown in the accompanying drawing, in which event a permanent bar magnet which is cross-polarized, would not be essential.

What is claimed is:

1. In a coin collector, a pair of spaced plates of non-magnetic material having guide rails therebetween defining a coin channel between said plates, said channel having a substantially vertical section down which a coin falls after being deposited in said channel, one of said plates in the lower portion of said section having a slot, a movable member mounted externally to said plates and extending along said vertical section for a substantial distance, said member having a projection adapted to enter said slot to provide a coin supporting surface obstructing the passage of coins through said section, said member being biased to maintain said projection in coin non-obstructing position, said vertical section adjacent to and above said projection in its coin obstructing position having an opening through which a deposited coin may be deflected when said projection occupies its coin obstructing position and magnetized means mounted on said member a substantial distance above said projection for magnetizing a magnetic slug traversing said section to an extent insufficient to cause the mutual magnetic attraction therebetween to stop the progress of said slug down said section but sufficient to move said means towards said slug and advance said projection into its coin obstructing position.

2. In a coin collector, a pair of spaced plates of non-magnetic material having guide rails therebetween defining a coin channel between said plates, said channel having a substantially vertical section down which a coin falls after being deposited in said channel, one of said plates in the lower portion of said section having a slot, a movable member mounted externally to said plates and extending substantially parallel to said channel section, said member having a projection adapted to enter said slot to provide a coin supporting surface obstructing the passage of coins through said section, said coin supporting surface when present in said channel being inclined at a substantial angle with respect to the horizontal, said member being biased to maintain said projection in coin non-obstructing position, one of said guide rails adjacent said slot having an opening through which a deposited coin will be deflected when said projection occupies its coin obstructing position, and magnetized means mounted on said member a substantial distance above said projection for moving said projection into its coin obstructing position when a magnetic slug traverses said channel adjacent said means.

3. In a coin collector, a coin chute comprising spaced plates having a downwardly inclined coin channel section, one of said plates having a slot extending laterally with respect to the path of coin travel, a movable coin deflecting member mounted adjacent said channel and having a projection adapted to enter said slot to occupy a coin deflecting position in said channel, said member being biased to a normal position maintaining said projection in coin non-obstructing position, said channel section adjacent to and above said projection in its coin obstructing position having a reject opening for receiving coins deflected by said projection whereby any coin striking said projection rolls off said projection into said opening, and a permanent magnet mounted on a portion of said member adjacent said channel section at a point a substantial distance above said slot, said magnet being effective to magnetize a magnetic slug traversing said channel to an extent sufficient that the mutual magnetic attraction between said magnet and said slug moves said magnet towards the slug a distance sufficient to cause said projection to enter said slot.

4. In a coin collector, a coin chute comprising spaced plates with guide rails therebetween forming a substantially vertical coin channel section, one of said plates in the lower part of said channel section having a slot extending laterally with respect to the path of coin travel, a movable member mounted on said one plate at a point a substantial distance above said slot, said member extending downwardly along said one plate from its mounting point to said slot, said member terminating in a laterally disposed shelf adapted to enter said slot to present to the bottom edge of a deposited coin a sloping surface for deflecting a coin from said channel section, said member being biased to a position holding said shelf out of said channel section, one of said guide rails above said slot having an opening adapted to receive any slug deflected by said shelf when said shelf occupies a coin deflecting position in said channel section, and a permanent magnet mounted on said member above said slot in a position effective to cause a slug of magnetic material to traverse the magnetic field of said magnet as the slug passes down said channel section.

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