

Feb. 9, 1943.

F. A. HOYT

2,310,637

COIN CHUTE

Filed Jan. 8, 1941

2 Sheets-Sheet 1

FIG. 1

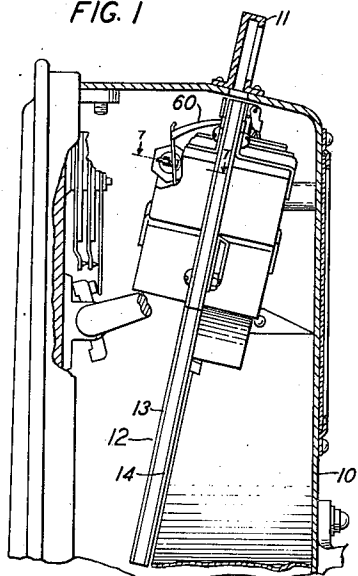


FIG. 7

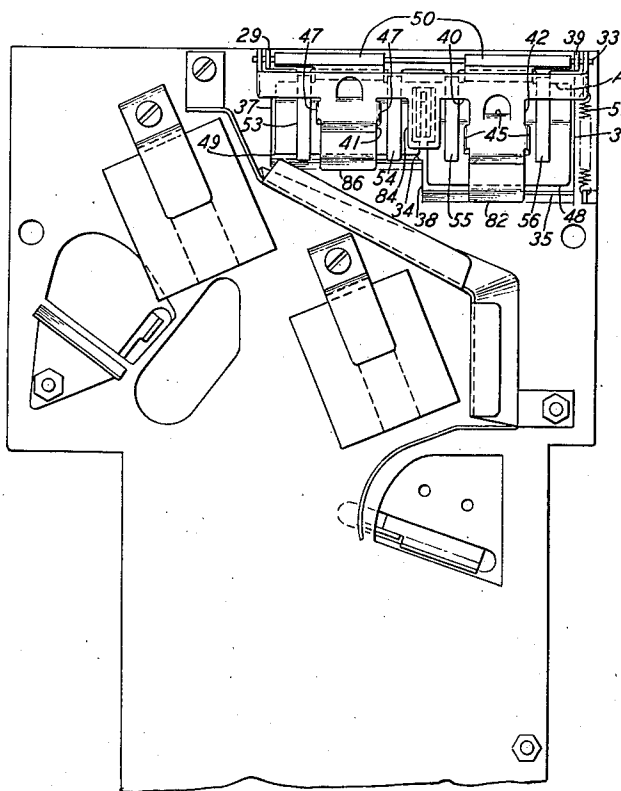
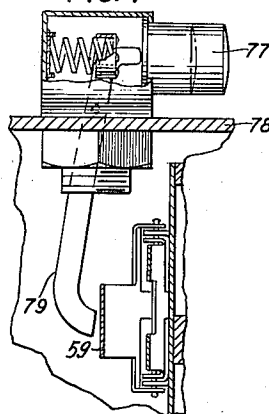


FIG. 2

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FIG. 3

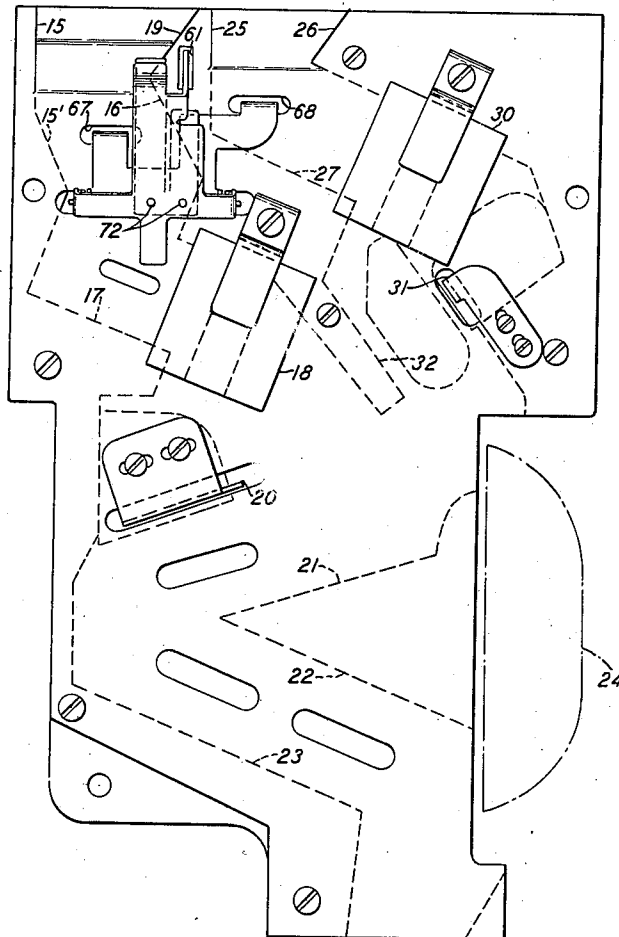


FIG. 4

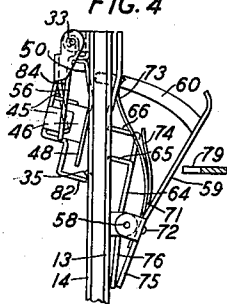


FIG. 5

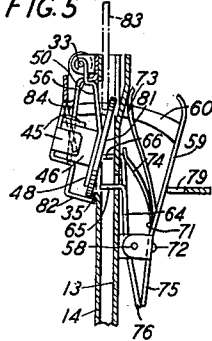
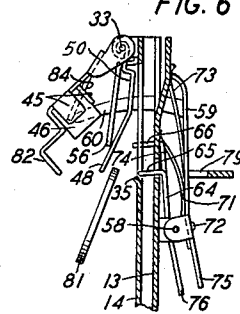


FIG. 6



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COIN CHUTE

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Application January 8, 1941, Serial No. 373,562

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 preventing the acceptance of slugs made of magnetic material.

In telephone coin collectors are 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 accordance with the embodiment of the invention disclosed in the appended drawings, a hinged magnet is provided for holding a deposited magnetic slug in a substantially vertical section of the coin chute in such an angular position that the bottom edge of the slug is directed towards or partially into a side wall reject opening but associated with this opening is a stop member which positively prevents the rejection of the slug when any external force is applied to the slug through the coin passageway. However, manually operated means accessible to the user of the collector are provided which when operated serve first to block the genuine coin passage adjacent the lower end of said reject opening and thereafter move the magnet away from the held slug, at the same time removing the stop member to permit the rejection of the released slug through the side wall opening.

Referring to the drawings:

Fig. 1 is a partial disclosure of the upper housing of a telephone coin collector of the Forsberg type utilizing one embodiment of this invention;

Fig. 2 is a front view of a coin chute embodying this invention;

Fig. 3 is a rear view of the coin chute of Fig. 2;

Figs. 4, 5 and 6 are detail views partly in section of the upper part of the coin chute of Fig. 2 illustrating the operation of the magnetic slug rejector; and

Fig. 7 is a view partly in section taken along the line 7—7 of Fig. 1 for disclosing the manually operated means for releasing a previously deposited magnetic slug.

For illustrative purposes it may be assumed that Fig. 1 is a view of the upper portion of a telephone coin collector of the type disclosed in the above-mentioned Forsberg patent to which reference may be made for details of its construction and operation.

Mounted on the top wall of the upper housing

10 is the usual coin gauge 11 containing openings for receiving coins of various denominations such as nickels and dimes, after which a deposited coin traverses an individual channel in a coin chute assembly 12 and strikes a suitable sound signal before reaching a coin hopper where the coin is held in suspense for subsequent collection or refund depending upon conditions occurring after coin deposit. The path taken by a genuine nickel or dime in traversing the coin chute is shown in Fig. 3. The nickel and dime channels lie between two parallel plates 13 and 14 and are defined by ledges which guide each coin through the chute in the proper manner. A deposited nickel enters this coin channel at the upper end of the coin chute to initially follow a path defined on one side by ledges 15, 15' and on the other side by ledges 19 and 16. The deposited nickel first drops substantially vertically past a magnetic slug rejector (to be described later) after which the coin rolls down the longitudinally inclined ledge 17 to pass through the field of an eddy-current magnet 18 with sufficient velocity to leap to the right of dividing point 20 and strike the reversely inclined ledge 21. The coin then follows the channel portion lying between ledges 22 and 23 to strike the lower edge of a bell 24 and then drop out of the chute into the usual coin hopper.

The initial portion of the dime runway is defined by ledges 25, 26 where the coin drops substantially vertically past a magnetic slug rejector (to be described later) and then rolls down the longitudinally inclined ledge 27 into the field of an eddy-current magnet 30 whereby the coin speed is retarded sufficiently to cause the coin to pass to the left of dividing point 31, after which the coin is directed by downwardly inclined ledge 32 to strike the upper edge of bell 24 and then follow the same path previously described for a deposited nickel to also strike the lower edge of bell 24. The use of eddy-current magnets for distinguishing between coins and slugs in accordance with their electrical conductivity is well known in the art and does not constitute a part of the present invention.

The present invention is primarily concerned with the rejection of magnetic slugs from the nickel and dime runways of the coin chute of Figs. 2 and 3. Referring particularly to Fig. 2, the front plate 14 of the chute near the coin entrance contains a large aperture A which for the dime runway extends downwardly from a point just below a pair of lugs 29, 39 to an outwardly turned lip 34 and which for the nickel runway extends downwardly from a point just below

lugs 29, 39 to an outwardly turned lip 35; while laterally this aperture extends from plate edge 36 to plate edges 37, 38. This aperture which hereinafter will be called aperture A is large enough to permit the ejection from the nickel and dime runways of a slug of standard diameter.

Extending between lugs 29 and 39 on plate 14 is a pin 33 on which is pivotally mounted a U-shaped member 40 having two spaced downwardly extending arms 41, 42, arm 41 being opposite the dime runway and arm 42 being opposite the nickel runway. Suitably supported on the rear face of arm 42 by means of lugs 45 is a U-shaped permanent magnet 46 (Figs. 4, 5 and 6); and similarly arm 41 supports between lugs 47 a U-shaped permanent magnet for the dime runway although the dime magnet is not shown in Fig. 2. Also pivoted on pin 33 is a stripper plate 50 having a downwardly extending arm 48 lying between the nickel runway and the nickel magnet 46, and a second downwardly extending arm 49 lying between the dime runway and the dime magnet. Extending forwardly and downwardly from the upper edge of aperture A are stationary arms 53, 54, 55, 56 which act as stops for the stripper plate 50 in its movement away from the coin runway. The magnet carrying plate 40 is biased to its normal position of Fig. 4 by any suitable means such as a coiled spring 57 of Fig. 2 whereby the lateral extensions 82 and 85 of arms 42 and 41 are normally held in engagement with the outer face of coin chute plate 14.

The other plate 13 of the coin chute assembly suitably supports a horizontal pin 58 about which is pivoted a member 59 which near its upper end carries an arcuate-shaped arm 60 the free end of which is adapted to enter slots in plates 13, 14 (see aperture 61, Fig. 3) to engage portion 84 of the magnet carrying plate 40. Also pivoted about pin 58 is a second member 64 which near its upper end has two laterally projecting arms 65, 66, arm 65 being adapted to enter slot 67 in plate 13 to block the nickel runway immediately above or opposite lip 35 and the other arm 66 being adapted to enter slot 68 in plate 13 to block the dime runway immediately above or opposite lip 34.

Members 59 and 64 are biased to their normal positions of Fig. 4 by a leaf spring 71, the lower end of which is fastened to member 59 at a point adjacent pin 58 by rivets 72, the said spring having one arm 73 resting against plate 13 with a second arm 74 resting against member 64. The tension of spring 71 is such as to normally maintain member 59 in its position of Fig. 4 with the lower end 75 of member 59 pressing the lower end 76 of member 64 against plate 13, thereby normally overcoming the tendency of leaf spring 74 to force blocking arms 65, 66 into the coin runways.

The manual movement of members 59, 64 from their normal positions of Fig. 4 is secured by a push button 77 mounted on a vertical wall 78 of the upper housing as shown in Fig. 7. Button 77 is suitably connected by means, as shown, to a pivoted arm 79 normally accompanying its position of Fig. 7 but which is adapted upon actuation of push button 77 to be moved into engagement with member 59 at a point substantially above pivoting pin 58 as indicated in Figs. 4 to 6.

The sectional views shown in Figs. 4, 5 and 6 illustrate the operation of the nickel magnetic

slug rejector and it may be assumed that the operation is similar for the dime runway. When a genuine nickel is deposited in the nickel opening of coin gauge 11 all the movable parts of the magnetic slug rejector remain in their normal positions as shown in Fig. 4 and the deposited nickel falls freely past the magnetic slug trap to follow the path previously described whereby the nickel strikes the lower edge of bell 24 before moving to an exit opening at the bottom of the chute assembly. However, if a magnetic slug such as slug 81 is deposited in the nickel opening in coin gauge 11 the slug 81 is attracted by magnet 46 so that the bottom edge of the slug is pulled out of the runway to the left of lip 35 as seen in Fig. 5. It will be noted that the magnet supporting plate 40 by means of spring 57 is biased to a position in which its lateral arm 82 engages plate 14 immediately below lip 35 whereby arm 82 acts as a stop to prevent further downward movement of the partially rejected slug. Although slug 81 is shown in Fig. 5 with its lower edge supported by stop 82 it is to be understood that the strength of magnet 46 may be sufficient to hold slug 81 in a slightly higher position than that indicated in Fig. 5, in which event the lower edge of the slug while being directed towards reject opening A would not actually be in contact with stop 82. After a magnetic slug has been deposited in the chute can be cleared for the acceptance of a genuine coin only by the operation of push button 77 to cause its arm 79 to move to the left as viewed in Figs. 4, 5 and 6 to engage pivoted member 59 and move member 59 from its position of Fig. 4 to its position of Fig. 6. In the initial movement of member 59 the magnet carrying plate 40 is not disturbed but with the disengagement of end 75 from end 76 of member 64 the biasing spring 74 becomes free to force member 64 from its position of Fig. 4 to a position in which lugs 65, 66 enter the nickel and dime runways, respectively, to block the entrances to the genuine coin channels at a point slightly above lips 35 and 34, as shown in Fig. 5. After these lugs 65 and 66 have reached a coin blocking position the continued movement of arm 60 causes its free end to engage extension 84 of plate 40 whereby the magnet carrying plate 40 is rocked about its pin 33 from its position of Fig. 4 to its position of Fig. 6. This carries magnet 46 far enough from the coin runway to release slug 81 from the magnetic attraction and since stop 82 is simultaneously removed by this movement, slug 81 is now free to fall out of the chute for rejection as indicated in Fig. 6. The stripping plate 50 is preferably made of spring material of such a configuration that its extension 48 is biased to engage stops 55, 56 as indicated in Fig. 6 but is normally held in its position of Fig. 4 by engagement with the pole faces of magnet 46. Hence, with the removal of the magnet carrying plate 40 from its position of Fig. 4 to its position of Fig. 6 the stripper plate 48 moves against stops 55, 56 to give the slug 81 ample room for rejection.

The slug rejector above described is also effective to prevent the acceptance of a second iron slug 83 (Fig. 5) deposited after the first slug 81 and followed by the operation of push button 77. The second slug 83 will be held in the position shown in Fig. 5 since the coin chute is blocked by the first slug 81. If now the push button 77 is operated to remove magnet 46 the first slug 81 will be released and rejected as previously de-

scribed while the second slug 83 will drop downwardly until it strikes stop member 65 whereby slug 83 will also be deflected through aperture A for rejection.

The rejection of a magnetic slug from the dime runway is accomplished in the same manner as described above for the nickel runway since plate 40 carries both the nickel magnet 46 and the corresponding dime magnet, and since the operation of push button 77 first blocks both the nickel and dime runways at a point just above the lower edge of aperture A and then releases any magnetic slug held in either the nickel or dime runways. In this connection it may be noted that the dime magnet supporting plate 41 has a laterally directed arm 86 which functions in the same manner as arm 82 to prevent the complete rejection of a dime slug from the chute until the push button 77 has been operated.

What is claimed is:

1. In a coin collector, a substantially vertically arranged coin runway section down which a deposited coin falls substantially vertically, said section being defined by opposed side walls, one of said walls having an aperture of sufficient size to permit a coin of standard diameter to be discharged therethrough, a permanent magnet, hinged means biased to support said magnet adjacent said aperture for holding a deposited magnetic slug in a position in which said slug projects partially through said aperture, said other side wall having a slot adjacent the lower edge of said aperture, a pivoted member adapted to enter said slot to block said runway but biased to a non-blocking position, manually operated means adapted to be moved from a normal position to an advanced position, means actuated by said manually operated means in the initial advancement of said manually operated means for moving said member to said coin blocking position, and means actuated by said manually operated means and effective upon further advancement of said manually operated means for moving said magnet to a position releasing said slug.

2. In a coin collector, a substantially vertically arranged coin runway section down which a deposited coin falls substantially vertically, said section being defined by opposed side walls, one of said walls having an aperture of sufficient size to permit a coin of standard diameter to be discharged therethrough, a permanent magnet, hinged means biased to support said magnet adjacent said aperture for holding a deposited magnetic slug in a position directing the bottom edge of said slug toward said aperture, an arm on said hinged means normally blocking the passage of said slug through said aperture, said other side wall having a slot adjacent the lower edge of said aperture, a pivoted member adapted to enter said slot to block said runway but biased to a non-blocking position and manually operated means for first actuating said member to its runway blocking position and for subsequently

moving said magnet to a position releasing said slug after said member has reached its runway blocking position.

3. In a coin collector, a substantially vertically arranged coin runway section down which a deposited coin falls substantially vertically, said section being defined by opposed side walls, one of said walls having an aperture of sufficient size to permit a coin of standard diameter to be discharged therethrough, a permanent magnet, hinged means biased to support said magnet adjacent said aperture for holding a deposited magnetic slug in said runway opposite said aperture, a pivoted stripper plate lying between said magnet and a slug held in said runway by said magnet, said plate being biased for movement away from said aperture but normally held by said magnet in a position partially closing said aperture, said other side wall having a slot adjacent the lower edge of said aperture, a pivoted member adapted to enter said slot to block said runway but biased to a non-blocking position, manually operated means, means actuated by said manually operated means for first moving said member to its runway blocking position and subsequently moving said magnet away from said runway.

4. In a coin collector, a substantially vertically arranged coin runway section down which a deposited coin falls substantially vertically, said section being defined by opposed side walls, one of said walls having an aperture of sufficient size to permit a coin of standard diameter to be discharged therethrough, a permanent magnet, hinged means biased to support said magnet adjacent said aperture for holding a deposited magnetic slug in said runway opposite said aperture, a pivoted stripper plate lying between said magnet and a slug held in said runway by said magnet, said plate being biased for movement away from said aperture but normally held by said magnet in a position partially closing said aperture, a stop for limiting the movement of said plate away from said aperture upon removal of said magnet, an arm on said hinged means cooperating with said plate to prevent a magnetic slug from being forced through said aperture when said magnet is in its slug holding position, said other side wall having a slot adjacent the lower edge of said aperture, a pivoted member adapted to enter said slot to block said runway but biased to a non-blocking position, manually operated means adapted to be moved from a normal position to an advanced position, means actuated by said manually operated means and effective upon the initial movement of said manually operated means from its normal position for moving said member to its runway blocking position, and other means actuated by said manually operated means and effective upon further advancement of said manually operated means for moving said magnet away from said aperture to release said slug.

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