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3,467,112 COIN TRACK ASSEMBLY FOR A COIN MECHANISM

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3 Claims

ABSTRACT OF THE DISCLOSURE

A coin mechanism is disclosed herein having interconnecting coin chute passages which, by virtue of the configuration and position thereof, provide discrimination of certain coins passing therethrough without moving parts.

SUMMARY OF THE INVENTION

This invention relates to a coin mechanism which is adapted to receive and discriminate between various size coins to register the passage of proper coins therethrough to in turn trigger the operation of some other associated apparatus. The device is provided with a generally horizontally elongated inlet chute to receive and pass coins in a horizontal position as presented thereto through an inlet opening on the side of the device. The inlet chute opens at the other end thereof into a coin rejection chute and a coin retention chute. The configuration, position and interrelationship of the inlet, coin rejection and coin retention chutes provide means whereby appropriately selected coins will be directed into and registered in the coin retention chute and all other coins will be directed to the coin rejection chute and will not be registered. A coin registration means is provided in the coin receiving chute to register passage of only the appropriate coins, and which in turn is adapted to trigger a supplemental apparatus.

DESCRIPTION OF DRAWINGS

FIG. 1 is a general perspective view of a vehicular passenger service facility which utilizes two coin mechanisms illustrative of the present invention for actuation of supplemental equipment.

FIG. 2 is a view on an enlarged scale of a portion of the apparatus of FIG. 1 with a face plate removed to illustrate the mechanism of the present invention.

FIG. 3 is a sectional view taken along line 3—3 of FIG. 2.

DETAILED DESCRIPTION

A coin mechanism illustrative of the present invention is represented generally by the numeral 10, and is shown in conjunction with a vehicular passenger service facility 11 having a stand 12 and a pair of operating units 12a.

A pair of coin mechanisms 10 are provided each of which include opposed vertical coin chute sides 13 formed to define a top coin guide member 14, a bottom coin guide member 15 and an outlet separation member 16. A switch 17 is provided to register acceptance of the proper coins as will be explained. Each mechanism is utilized to operate one of the units 12a.

The coin chute sides 13 are formed to define opposed vertical surfaces 18 which are spaced apart a distance greater than the thickness of the largest coin to be received by the device 10 to allow a vertically positioned coin to pass with nominal clearance therebetween.

The top coin guide member 14 is formed to extend between the vertical surfaces 18 to provide a curved inlet surface 14a and a curved outlet surface 14b which extends between the chute side surfaces 18. The bottom coin guide member 15 similarly extends between the chute sides

18 and is provided with a curved inlet surface 15a and outlet surface 15b which extend between the chute side surfaces 18. The outlet separation member 16 extends between the opposed vertical surfaces 18 and includes a coin rejection outlet surface 16a. These surfaces may be readily provided by utilizing one flat side 13 joined to another side 13 formed by stamping or other similar process to define the various surfaces.

The opposed vertical surfaces 18, in conjunction with the top and bottom coin guide members 14 and 15 and outlet separation member 16 define inlet, rejection, and receiving chutes generally designated by the numerals 30, 31, and 32, respectively.

The inlet chute 30 terminates at one end in a vertically extending inlet aperture 33 in a face plate 34 of the device 10. This opening is only large enough to receive the largest coin to be utilized. The inlet chute 30 opens at its opposite end into the rejection and receiving chutes 31 and 32 which in turn include openings in a bottom index surface 35 leading to a coin receiving box 36. The rejection chute 31 includes vertical walls 31a and 31b and the retention chute includes vertical walls 32a and 32b.

The switch 17 is provided in a cavity 50 formed in one side 13, and includes a movable actuation arm 37 which extends into the retention chute 32.

The particular illustration of the coin receiving and discriminating device 10 described herein is directed at receiving all coins the size of a twenty-five cent piece or quarter (United States currency) and smaller, and to discriminate between quarters and all other smaller coins. The quarters are caused to pass and actuate the switch 17 in the coin retention chute 32 and all other coins are caused to pass normally through the coin rejection chute 31.

The top coin guide member inlet surface 14a extends between the top of the coin inlet aperture 33 and a point or stop 38 intermediate the surfaces 14a and 14b, and comprises a continuous curve formed by a large radius adjacent the aperture 33 tangent to a smaller radius adjacent the point 38 (FIG. 3). The inlet surface 15a of the bottom coin guide member is a continuous single large radius surface extending from the bottom of the coin inlet aperture 33 to a point 39 intermediate the surface 15a and the surface 15b. The bottom inlet surface 15a is positioned with respect to the top coin guide member inlet surface 14a so that when a quarter is released in the inlet opening, the quarter will roll down the surface 15a past point 39, strike the extremity of the smaller curvature of the top inlet surface 14a immediately above 38 and be deflected downwardly to the left under the influence of gravity and over a point 40 on the separation member 16 to enter the coin receiving chute 32.

A quarter passing from the inlet chute 30 through the coin receiving chute 32 into the coin box 36 will engage switch arm 37 to actuate the switch 17 which in turn will actuate the supplemental device 11.

Intermediate sized coins which are released in the inlet aperture 33 will roll along the inlet surface 15a of the bottom guide member 15 and downwardly to the right beyond the point 39 thereof in a normal trajectory and into the coin rejection chute 31 directly or will be deflected thereinto from the portion of the top coin guide surface adjacent stop 38 or the curved surface 16a of the outlet separation member 16 adjacent 40, into the coin rejection chute 31 and into the coin box 36. Coins passing into the rejection chute 32 could alternatively be directed into a coin return chute (not shown).

Nominal sized coins which are released in the inlet chute 30 through aperture 33 will roll along the bottom guide member inlet surface 15a and downwardly to the right in a normal trajectory past 39 and 40 directly into the rejection chute 31, or will be deflected thereinto from

the curved surface 14a adjacent point or stop 38. The point or stop 38, since it is subjected to contact with a majority of the coins placed into the device, may be formed by a separate removable wear place which may be hardened to prevent wear.

In particular, a specific example of a coin mechanism 10 includes an inlet aperture 33 $3\frac{1}{32}$ inches along the bottom of which is disposed $3\frac{3}{4}$ inches from index surface 35. The point or stop 38 is positioned $3\frac{3}{16}$ inches from the index surface 35 and $3\frac{3}{8}$ inches from the face plate 34. The point 39 is positioned $3\frac{3}{16}$ inches from index surface 35 and $2\frac{3}{16}$ inches from face plate 34. Point 40 formed on outlet separation member 16 is disposed $2\frac{1}{32}$ inches from index surface 35 and $2\frac{1}{16}$ inches from face plate 34.

Coin rejection opening 35a is 1 inch in width and the vertical edge 31b formed by outlet separation member 16 is disposed $3\frac{3}{4}$ inches from face plate 34. Coin retention opening 35b is $1\frac{3}{16}$ inches in width of the vertical edge 32a formed by outlet separation member 16 is disposed $2\frac{1}{16}$ inches from face plate 34.

Top coin guide member inlet surface 14a is formed upon a $5\frac{1}{2}$ inch radius adjacent aperture 33 tangent to a connecting $1\frac{1}{2}$ inch radius extending from point or stop 38. The $1\frac{1}{2}$ inch radius is taken from a center located $3\frac{3}{8}$ inches from index surface 35 and $1\frac{15}{16}$ inches from face plate 34. Outlet surface 14b is formed on a $1\frac{1}{16}$ inch radius extending from point 38 to the vertical side 31a of rejection chute 31. This radius is taken from a center located $1\frac{7}{8}$ inches from index surface 35 and $2\frac{3}{4}$ inches from face plate 34.

Bottom guide member 15 inlet surface 15a is formed by a $5\frac{1}{2}$ inch radius extending from the bottom of aperture 33 to point 39. Outlet surface 15b is formed upon a $1\frac{3}{8}$ inch radius extending from point 39 to the vertical side 32b of retention chute 32. This radius is taken from a center located $2\frac{1}{4}$ inches from index surface 35 and $2\frac{1}{16}$ inches from face plate 34.

Coin rejection outlet surface 16a is formed upon an $11\frac{1}{16}$ inch radius extending from point 40 and tangent to vertical side 31b of coin rejection chute 31. This radius is taken from a center located $1\frac{1}{2}$ inches from surface 35 and $2\frac{3}{16}$ inches from face plate 34.

The specific example described is illustrative of the features of the present invention. This mechanism is particularly suitable to accept and register quarters and reject other coins.

What is claimed is:

1. A coin mechanism comprising opposed vertical coin chute side surfaces spaced apart a distance slightly greater than the thickness of the largest coin to be received by the device, a top coin guide member positioned between said chute sides and having an inlet and an outlet surface extending between said chute sides, a bottom coin guide member positioned between said chute sides and having

an inlet and an outlet surface extending between said chute sides with said inlet surface thereof spaced from said top inlet surface of said top member to provide an inlet chute with an elongated vertically directed opening at one end, an outlet separation member positioned between said chute sides having a coin rejection outlet surface and a coin receiving outlet surface extending between said chute sides with said rejection surface spaced from said outlet surface of said top member with said rejection surface spaced from the outlet surface of said bottom member to provide a coin rejection chute and a coin receiving chute respectively, and means associated with said coin receiving chute to register passage of a coin therethrough, said top guide member inlet surface comprising a continuous curve formed by a large radius adjacent the inlet chute opening and terminating in a tangent smaller radius surface at the other end thereof and horizontally opposite the inner termination of said bottom guide member inlet surface, whereby said smaller radius surface will sharply deflect only the largest coin passable in the inlet chute to cause said coin to enter said coin inlet chute while allowing smaller than the largest coins to follow a normal trajectory or a slightly deflected trajectory into the coin rejection chute.

2. A coin mechanism as defined in claim 1 wherein said separation guide member rejection outlet surface comprises a curved upper portion substantially concentric with a curved top guide member outlet upper portion to guide nominal sized undeflected coins passed adjacent thereto from said inlet chute and to guide the intermediate sized coins to said rejection chute directly or as slightly deflected by the termination of the upper guide member inlet surface to guide all of these coins through said rejection chute.

3. A coin mechanism as defined in claim 1 wherein said means associated with said receiving chute for registering passage of a coin therethrough comprises a switch having an actuator arm extending into the coin receiving chute a sufficient distance from said separation member to cause engagement thereof by the largest coin passable in said inlet chute when said coin is deflected into said receiving chute.

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