

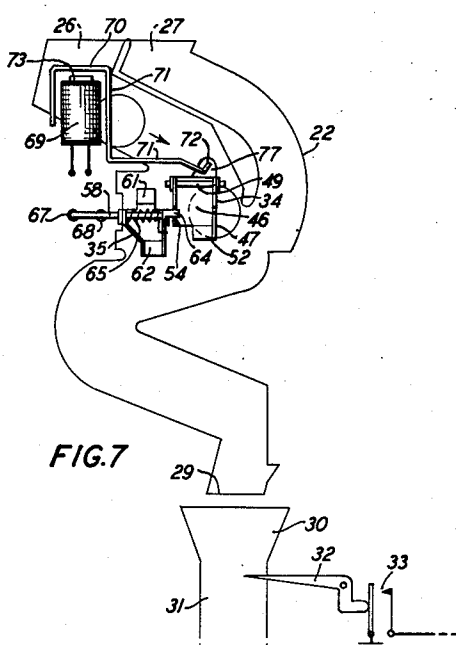
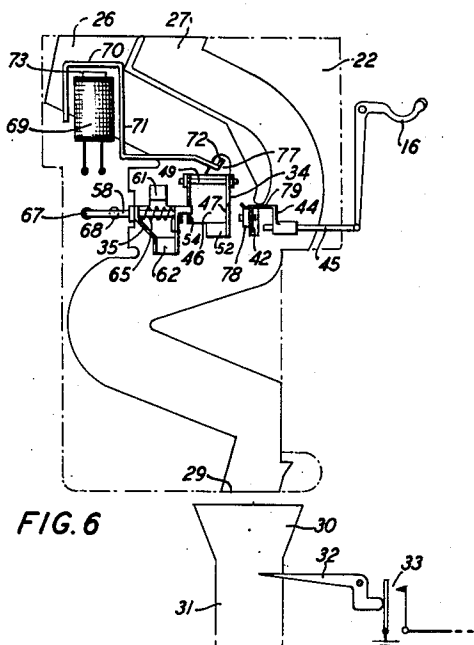
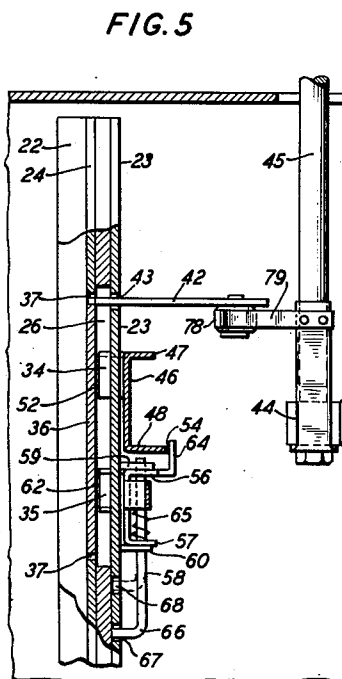
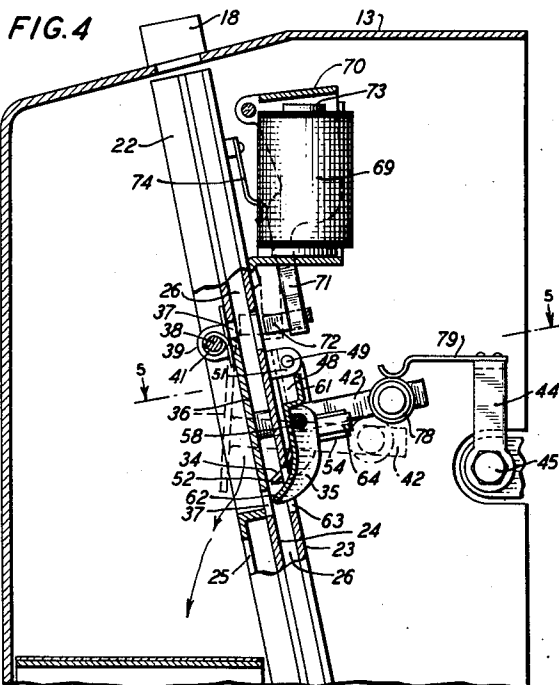
Oct. 12, 1954

F. A. HOYT
COIN COLLECTOR

2,691,484

Filed Aug. 25, 1948

3 Sheets-Sheet 2



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FIG. 8

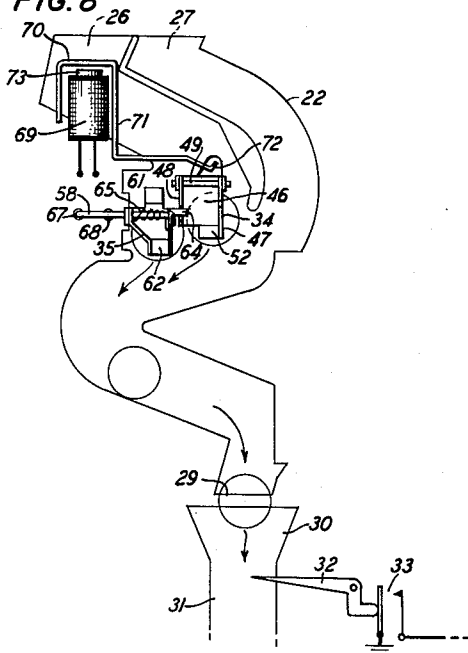


FIG. 9

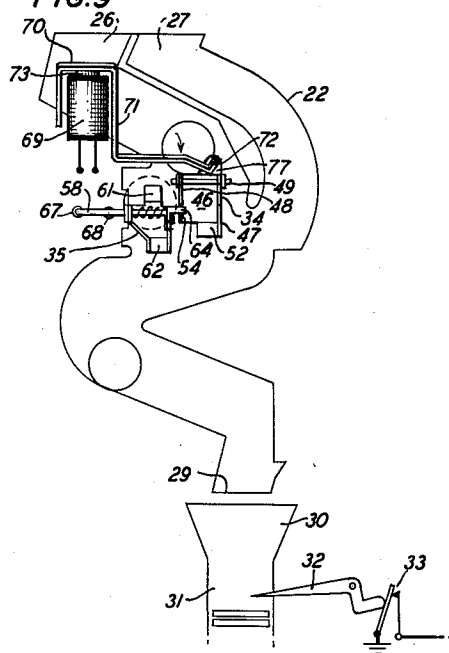


FIG. 10

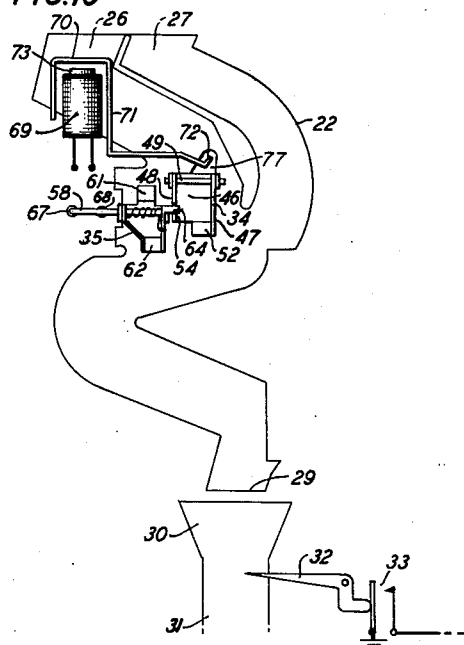
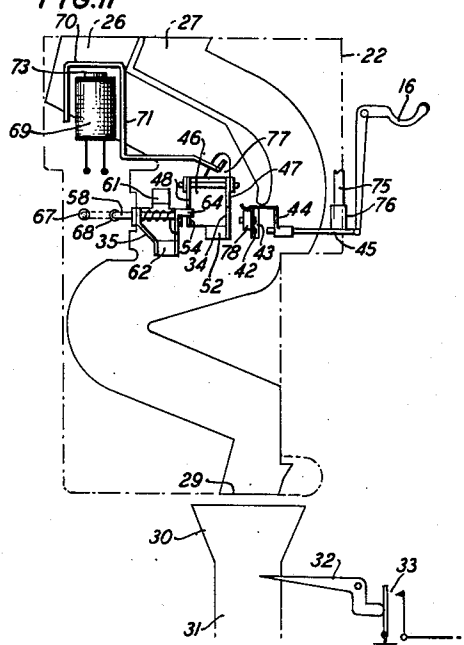


FIG. 11



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UNITED STATES PATENT OFFICE

2,691,484

COIN COLLECTOR

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Application August 25, 1948, Serial No. 46,099

1 Claim. (Cl. 232—57.5)

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This invention relates to coin collector apparatus and more particularly to a type of coin collector apparatus in which a coin chute is provided.

The object of the invention is to provide improved control means to control the operation of the coin collector apparatus by coins passing through the apparatus.

A feature of the invention resides in an electromagnet device operable to permit a coin to travel uninterruptedly through the coin chute whenever talking current is on the line.

Another feature resides in a gate operating arm.

A telephone coin collector apparatus now in general use and of a type following in general the structure of the coin collector shown and described in the O. F. Forsberg United States Patent 1,043,219, the apparatus is designed to operate to give telephone service when a five cent piece or some coin of greater value than a five cent piece is deposited in the coin collector. The telephone coin collector apparatus will therefore operate to give telephone service upon payment into the coin collector of at least a five cent piece (nickel). If it were found necessary however to make the initial charge for telephone service more than a nickel, the telephone coin collector would not operate to require the higher payment before a telephone call could be made.

In my copending application F. A. Hoyt, Serial No. 14,589 filed March 12, 1948, there is shown a telephone coin collector apparatus in which means are provided to hold a first deposited nickel from causing the telephone coin collector to operate to give telephone service until a second nickel or coin of greater value is deposited in the telephone coin collector.

In the present invention, means are provided to divert coins from coming into engagement with a coin stopping finger if a telephone call connection is already established.

In the drawings:

Fig. 1 is a front elevational view of a telephone coin collector including the invention;

Fig. 2 is an enlarged view of a coin chute used in the telephone coin collector shown in Fig. 1 with a movable gate and coin controlling fingers supported on the coin chute;

Fig. 3 shows a portion of the coin chute and is taken from an opposite side of the showing in Fig. 2;

Fig. 4 is an enlarged side view partly in section of an upper portion of the telephone coin collector shown in Fig. 1;

Fig. 5 is a view partly in section of part of the

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portion shown in Fig. 4 and taken on the line 5—5 in Fig. 4;

Fig. 6 shows the coin operated fingers, the electromagnet device and a gate operating arm and switchhook and a portion of the coin chute leading to a hopper into which a coin operable trigger extends;

Fig. 7 is a partial view of Fig. 6 and showing a coin traveling through the coin chute;

Fig. 8 shows two nickels in the coin chute and the directions of travel of the coins;

Fig. 9 shows a trigger that has been operated by a coin to close a switch and the finger mechanism held in latched condition;

Fig. 10 shows the trigger restored to non-operated position; and

Fig. 11 shows the fingers conditioned so that they will not function to control the passage of a coin or coins going through the coin chute.

The telephone coin collector 12 shown in Fig. 1, comprises a casing 13 having a coin refund opening 14 and a door 15. A movable switchhook 16 extends outwardly from the casing 13 to support a telephone instrument 17. Supported on top of the casing 13 is a coin gauge 18 in which coins may be inserted to pay for telephone service required and the coin gauge 18 has apertures 19, 20 and 21 formed therein to receive respectively a five cent piece, a ten cent piece and a twenty-five cent piece which will hereinafter be called respectively, a nickel, a dime and a quarter. The coin gauge 18 is in register with a coin chute 22 shown enlarged in Fig. 2 and which is supported in the casing 13 in an inclined position as shown in Fig. 4. The coin chute 22 comprises assembled plates 23, 24 and 25 which may be stamped out of sheet stainless steel or other suitable material and formed and arranged to provide a nickel runway 26, a dime runway 27 and a quarter runway 28 shown in Fig. 2. As shown in Figs. 6, 7, 8, 9, 10 and 11, the lower end 29 of the coin chute 22 is constructed and arranged to deliver coins to a hopper 30 of a coin distributor 31. The coin distributor 31 is equipped with a trigger 32 controlling a switch 33. The structure of the coin distributor 31 forms no part of the present invention. Its function, however, is to direct a coin to either the coin refund opening 14 or into a coin box not shown but located to the rear of the door 15. A telephone coin collector following in general the structure of the telephone coin collector 12, is shown and described in the O. F. Forsberg United States Patent 1,043,219 and reference may be had to that patent for an understanding of the structure and operation of a telephone coin collector of this general type.

As shown in Figs. 2, 3, 4, and 5, two pivotally supported fingers 34 and 35 and a pivotally supported gate 36 are provided to control the passage of a nickel through the nickel runway 26. When the gate 36 is open, a nickel placed in the telephone coin collector will fall through an opening in one of the walls of the coin chute and pass to the coin refund opening 14 from which the nickel may be recovered by the person who deposited the nickel in the telephone coin collector. When the gate is closed the nickel will not fall through the aperture in the wall of the coin chute. The pivotally supported fingers 34 and 35 are constructed and arranged to extend into the nickel runway 26 and their function is to prevent full operation of the telephone coin collector until an initial payment of two nickels or a coin of equal or greater value than two nickels is deposited in the telephone coin collector.

As shown in Fig. 4, the nickel runway 26 is cooperatively defined by the walls 23 and 24 of the coin chute 22 which is supported in an inclined position in the casing 13 and so that the wall 24 is on the lower side of the inclined structure and forms in effect the front wall of the nickel runway 26. Due to the inclined position of the coin chute 22, a nickel in passing through the nickel runway 26 will bear against the wall 24. An aperture 37 of larger dimensions than the diameter of a nickel is formed in the wall 24 and the gate 36 of slightly smaller dimensions than the aperture 37 is operable in this aperture to prevent or allow a nickel to fall through the aperture 37. The gate 36 is pivotally supported on a shaft 33 supported in apertured spaced supports 39 and 40 extending from the wall 24. A spring 41 supported on a shaft 38 and having one end portion in engagement with the wall 24 and another end portion in engagement with the gate 36, operates to urge the gate 36 to a closed position. The gate 36 as shown in Figs. 4 and 5 is equipped with an arm 42 which extends across the nickel runway 26 and through an elongated aperture 43 formed in the wall 23 and into engagement with a flexible arm 79 mounted on and extending from a lever 44, secured to a rotatable shaft 45 supported in the casing 13. The rotatable shaft 45 is in mechanical connection with the switchhook 16 and is rotated in one direction when the telephone instrument 17 is placed on the switchhook 16. When the telephone instrument 17 is on the switchhook 16, the gate 36 is open, as shown in dotted lines in Fig. 4, since the weight of the telephone instrument 17 is sufficient to operate the shaft 45 to hold the gate 36 opened against the action of the spring 41 and when the telephone instrument 17 is removed from the switchhook 16 the spring 41 causes the gate 36 to close, as shown in full lines in Figs. 4 and 5. The arm 42 is equipped with a roller 78 for engagement with the flexible arm 79 extending from the lever 44.

The pivotally supported fingers 34 and 35 are located in register with the aperture 37 and are mounted on the outer face of the wall 23. As viewed in Figs. 3, 6, 7, 8 and 9, the finger 34 is located to the right of and slightly above the finger 35. The finger 34 has a plate-like body portion 45 with angularly extending side flanges 47 and 48 which are apertured to accommodate a shaft 49 mounted in spaced and apertured lugs 50 and 51 extending from the wall 23. The finger 34 is pivotally supported by means of a shaft 49 and the body portion 45 terminates at its lower end in a curved end portion 52 constructed and

arranged to extend through an aperture 53 in the wall 23 and into the nickel runway 26. The flange 48 has an arm portion 54 extending in the same plane as the flange 48 and outwardly with respect to the flange 48 and the plate-like body portion 45. The finger 35 has a plate-like body portion 55 with angularly extending side flanges 56 and 57 which are apertured to accommodate a longitudinally movable pin 58, extending through spaced and apertured lugs 59 and 60, extending from the wall 23. The plate-like body portion 55 is channel shaped in cross-section and terminates at its upper end in a tongue portion 61 and at its lower end in a curved end portion 62 constructed and arranged to extend through an aperture 63 in the wall 23 and into the nickel runway 26. Extending outwardly and then laterally from the side flange 56 of the finger 35 and overlying the outer end of the arm portion 54 of the finger 34 is an arm portion 64 to hold the finger 34 against outward pivotal movement except when the finger 35 is moved as required. The finger 35 is pivotally supported on the pin 58 and a restoring spring 65 mounted on the pin 58 and engaging the finger 35 and the wall 23 serves to urge the finger 35 to such position that the end portion 62 is in the nickel runway 26 and the arm portion 64 bears against the outer end of the arm portion 54 of the finger 34. The arm portion 54 on the finger 35 and the arm portion 64 on the finger 34 cooperatively form a releasable latch means for the finger 34. Since the finger 34 is pivotally supported by the shaft 49 and the finger 35 is pivotally supported on the pin 58 the fingers 34 and 35 may be operated to swing outwardly with respect to the wall 23 to bring the end portions 52 and 62 of the respective fingers 34 and 35 out of the nickel runway 26. This outward movement of the fingers 34 and 35 is against the action of the spring 65 which normally urges the finger 35 inwardly with respect to the nickel runway 26 and by reason of the arm portion 64 overlying the outer end of the arm portion 54 urges the finger 34 inwardly with respect to the nickel runway 26. When the finger 35 is swung outwardly with respect to the wall 23, the arm portion 64 on the finger 35 moves out of the way of the arm portion 54 on the finger 34 and the finger 34 can then swing outwardly to clear the end portion 52 from the nickel runway 26.

The longitudinally movable pin 58 in addition to serving as a pivotal supporting means for the finger 35 can be adjusted to hold the finger 34 outwardly swung from the wall 23 to such position that the end 52 of the finger 34 will be clear of the nickel runway 26. The pin 58 has a bent outer end 66 as shown in Fig. 5 to be selectively made to extend into spaced apertures 67 and 68 formed in the wall 23 to hold the pin 58 in required set position. When the bent outer end of the pin 58 is in the aperture 67 the pin 58 functions only as a pivotal support for the finger 35. If it is desired, however, to hold the finger 34 withdrawn from the nickel runway 26, the pin 58 may be longitudinally moved to extend between the finger 34 and the wall 23. To do this, it is only necessary to withdraw the bent end 66 of the pin 58 from the aperture 67, manually swing the finger 34 outwardly from the wall 23, move the pin 58 longitudinally to extend between the finger 34 and the wall 23 and set the bent end 66 of the pin 58 in the aperture 68.

An electromagnet device 69 is provided to function independently of fingers 34 and 35 to direct

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coins through the coin channel (nickel) irrespective of the latched conditions of fingers 34 and 35. The electromagnet device 69 is mounted on the coin chute 22 and may be controlled from a telephone central office so that the electromagnet device will be energized to attract its armature 70 when direct current is supplied over the telephone line to the telephone coin collector 12. The armature 70 is equipped with an arm 71 having a bent end portion 72 extending over to an aperture 77 in wall 23 of the chute and in communication with a nickel runway. When the armature 70 is attracted toward the core 73 and against the action of the armature restraining spring 74, the bent end portion 72 of the arm 71 moves in through the aperture 77 of wall 23 and blocks the passageway between walls 23 and 24 so that no coins entering the runway can come into engagement with the finger 34 and be held there in suspension. Projection 72 on arm 71 of the electromagnet device 69 when moved into the coin runway by the operation of the electromagnet, will deflect the travel of the coin and cause the coin to fall into the coin path directly in front of finger 35 and then follow the same path as any other coin that has tripped finger 35.

Assuming that a person proceeds to use the telephone coin collector in attempting to obtain a telephone call and that the telephone instrument 17 is resting on the switchhook 16, as shown in Fig. 1. In this case if a nickel is deposited in the coin gauge 18, the nickel will fall through the coin gauge 18 and into the coin chute 22 and will proceed down the coin chute 22 until the nickel reaches the relatively large aperture 37. The nickel will then fall through the aperture 37 and exterior of the coin chute 22 and into the coin refund opening 14 for return to the person who deposited the nickel. No telephone call can therefore be obtained with a nickel while the telephone instrument 17 is on the switchhook 16, as shown in Fig. 1, and the gate 36 is open, as shown in dotted lines in Fig. 4. In order to condition the coin chute 22 to prevent a nickel from falling out through the aperture 37, the telephone instrument 17 must be lifted to relieve the switchhook 16 from the weight of the telephone instrument 17, thus closing the gate 36, as shown in full lines in Fig. 4.

Assuming that the telephone instrument 17 is off the switchhook 16, the gate 36 will be closed, as shown in full lines in Fig. 4, under the action of the spring 41 since the pressure of the spring 41 is sufficient to move the gate 36 and the arm 42. The flexible arm 79, on the lever 44, on the shaft 45, is moved out of the way of the arm 42 and roller 78, by means of a spring 75 pre-tensioned and operating against the leg 76 on the shaft 45 to lift the switchhook 16 when the telephone instrument 17 is removed from the switchhook 16. When the gate 36 is closed and the nickel is deposited in the coin gauge 18, the nickel will fall through the coin gauge 18 into the coin chute 22. The nickel will then proceed down the coin chute 22 to the finger 34 and will rest on the end portion 52 of the finger 34 as shown in Fig. 7. The finger 34 is held against outward movement from the nickel runway 26 by the arm portion 64 of the finger 35 extending over and in engagement with the arm portion 54 on the finger 34, the finger 35 being under the pressure of the spring 65. The first nickel deposited after gate 36 is closed will be held by the finger 34 against full passage through the coin chute 22 until the

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finger 35 is moved to release the arm portion 64 from engagement with the arm portion 54. Under this condition if a second nickel is deposited in the coin gauge 18, the second nickel will go down through the coin gauge 18 and the coin chute 22 and strike the first nickel. The second nickel as shown in Fig. 8 will roll off the edge of the first nickel and engage the finger 35 and will tilt the finger 35 outwardly from the nickel runway 26 against the action of the spring 65. The finger 35 will allow the second nickel to pass downward through the coin chute 22 and the finger 34 will be tilted outward under the weight of the first nickel to let the first nickel proceed down the coin chute 22 since the tilting of the finger 35 under the action of the second nickel causes the arm portion 64 to move out of engagement with the arm portion 54 on the finger 34. Both the first and the second deposited nickel will proceed on down through the coin chute 22. One of the nickels will subsequently strike the trigger 32 and operate the trigger 32 to close the switch 33 in the usual manner to cause a signal to be sent to a telephone central office to indicate that a telephone call is desired. It will be seen therefore that a telephone connection can be obtained from the coin collector apparatus 12 to a telephone central office by removing the telephone instrument 17 from the switchhook 16 and then depositing two nickels in the telephone coin collector 12.

When talking current is applied to the telephone line between the central station and the telephone coin collector 12, the electromagnet device 69 is energized to move arm 71 toward the chute and the projection 72 on arm 71 can pass through the aperture 77 in wall 23 and across the nickel coin path so that the coin cannot come into engagement with and be held in suspension by finger 34. The electromagnet device 69 is maintained energized while talking current is on the line and under this condition any subsequently deposited nickels will be deflected by the projection 72 on arm 71 from engagement with the finger 34 and will slip past finger 35 and go on down through the coin chute to be collected as part of the payment for the telephone call. When the telephone call has been completed and the telephone instrument 17 is replaced on the switchhook 16, as shown in Fig. 1, the gate 36 will be opened as shown in dotted lines in Fig. 4, under the weight of the telephone instrument 17, the electromagnet device 69 will be deenergized and the projection 72 on the arm 71 will be withdrawn from the nickel runway 26.

What is claimed is:

A telephone coin collector apparatus comprising a housing, a switchhook for supporting a telephone instrument mounted on said housing, spaced apart walls positioned in said housing, said walls cooperating to form a coin runway, an electromagnet mounted on one of said walls, terminals on said electromagnet adapted for connection to a circuit for operating said electromagnet, said electromagnet having an extending arm portion thereon adapted to project through an aperture in one of said walls and into said coin runway when said electromagnet is energized, a plate hingedly mounted on said one wall and having a finger thereon extending into said runway below said arm portion, to releasably hold a coin from full passage through said runway, the other of said walls having a

second aperture therein adjacent said hinged plate, a gate hingedly supported in said second aperture and forming a portion of said other wall, spring means on said gate for maintaining said gate in a closed position to confine a coin in said runway against said hingedly mounted plate, and an extending arm on said gate actuated by said switchhook for opening said gate to divert a coin out of said runway, said first arm operable by said electromagnet for deflecting a coin passing through said runway to prevent it from engaging the finger on said hingedly mounted plate.

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