

Oct. 19, 1943.

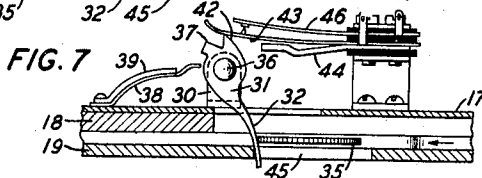
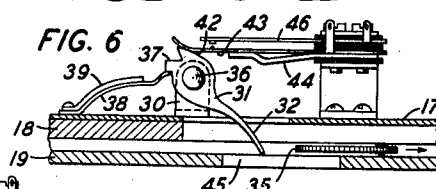
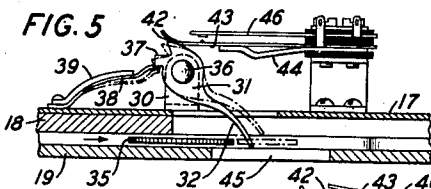
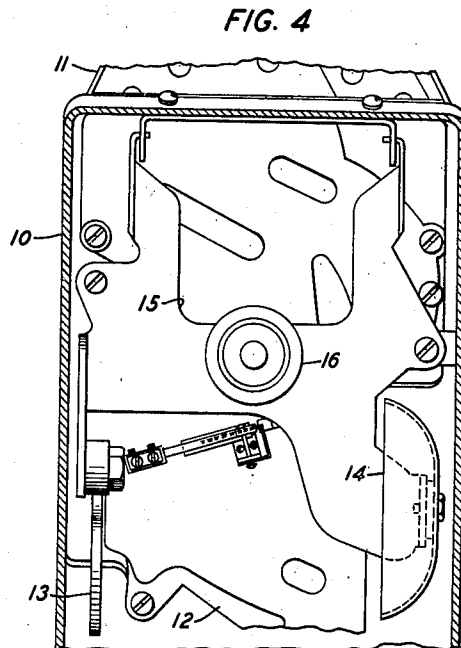
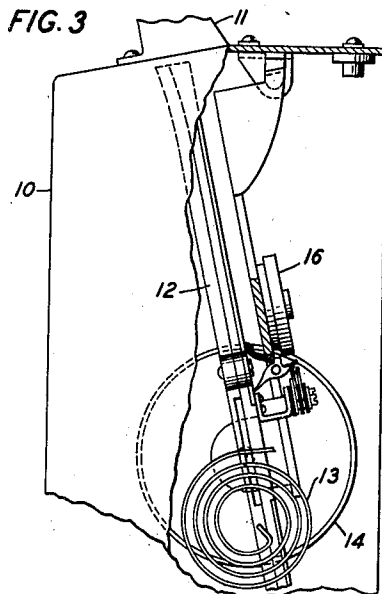
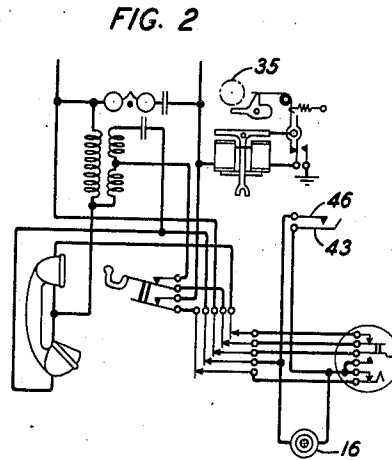
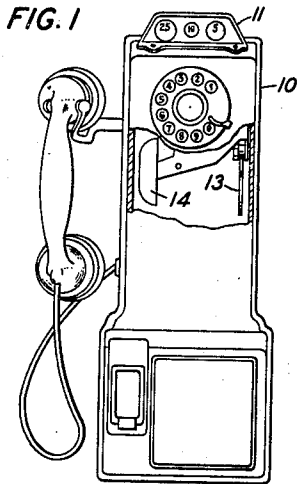
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2,332,018

COIN COLLECTOR

Filed Aug. 19, 1941

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 9

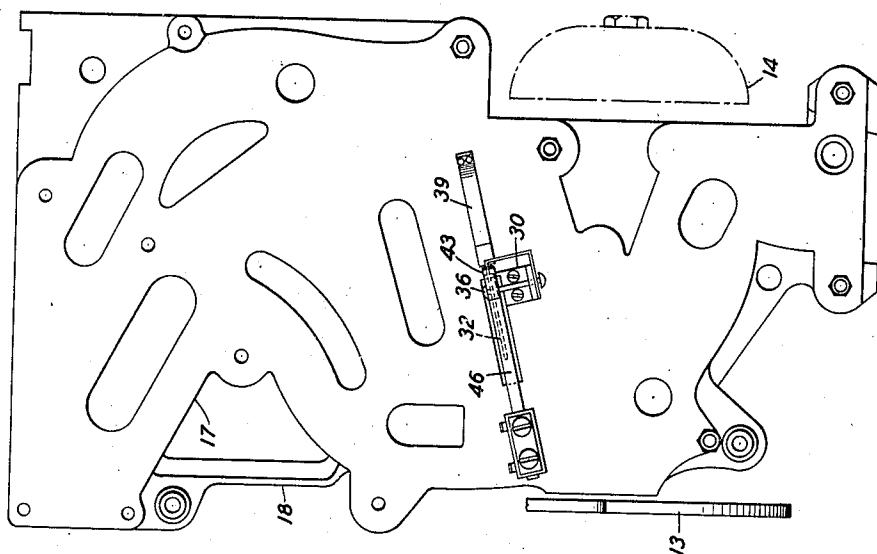
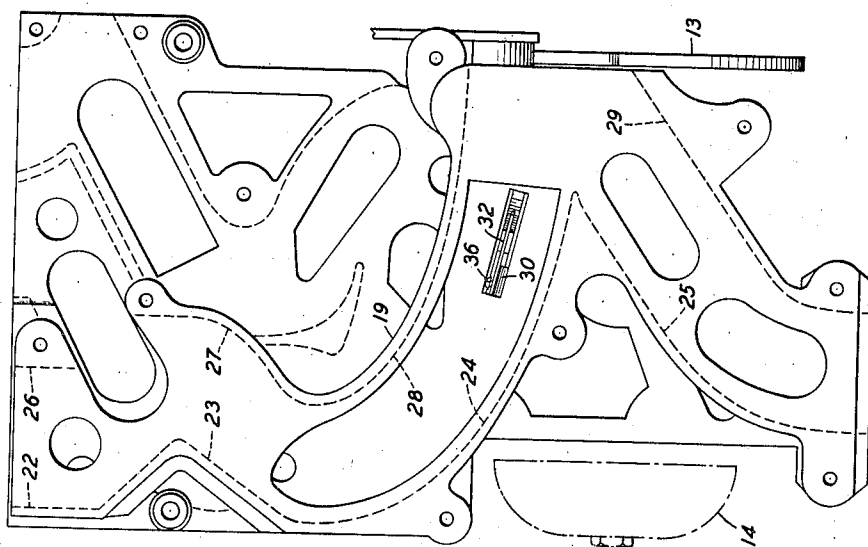


FIG. 8



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COIN COLLECTOR

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Application August 19, 1941, Serial No. 407,403

4 Claims. (Cl. 179-6.3)

This invention relates to telephone coin collectors and has for an object to prevent the production of false coin signals.

In the type of prepay telephone coin collector disclosed in the O. F. Forsberg Patent 1,043,219, issued November 5, 1912, any deposited coin is caused to strike a distinctive signal such as a gong or bell, the characteristic vibrations of which are picked up by a telephone transmitter in resonant connection therewith in order that the remote central office operator may be notified of the denominations and the number of the coins deposited. Occasionally attempts are made to cause the same coin to strike the signaling device several times in succession in order to simulate the deposit of a plurality of coins of the same denomination. The present invention provides an effective arrangement for defeating such a fraudulent operation.

In a preferred form of the invention there is provided a coin trigger which projects into the coin channel a short distance ahead of the point at which a coin traversing the channel engages the signaling device. This trigger is biased to a coin-obstructing position but upon being engaged by a deposited coin moves freely to a coin-releasing position and returns to normal after the passage of each coin so that the trigger interferes in no way with the normal operation of the collector.

However, if after a coin has passed the trigger and struck the signaling device, an attempt is made to partially withdraw the coin up the channel for subsequent release of the coin to effect a second engagement with the signaling device, such an attempted expedient is rendered ineffective in the following manner. Upon the attempted withdrawal of the coin, the coin again engages the trigger to move the trigger in the opposite direction to that for normal operation and the construction is preferably such that the trigger may be moved up the channel only a short distance where it encounters a stop to occupy a position positively preventing further coin withdrawal, in which position the trigger is biased to remain until struck by a subsequently deposited coin. This movement of the trigger to its reverse position may also serve to establish an electrical circuit to an electrical translating device, such as a short circuit for the sound signal pick-up transmitter, so that any subsequent blows on the sound signal by the trapped coin will be of no avail since such blows will not be heard by the remote central office operator. This short circuit for the pick-up transmitter

will remain effective until a subsequently deposited coin moves the trigger forwardly to coin-releasing position in the normal manner. This control by said trigger of the coin signal transmitter is particularly useful in coin collectors of the handset type having a coin signal transmitter separate from the voice transmitter in the handset, since any disabling of the coin signal transmitter through fraudulent manipulation will not interfere with any conversation which might be carried on with the central office operator.

Referring to the drawings:

Fig. 1 is a front view of a telephone coin collector;

Fig. 2 is a simplified wiring diagram of the instrument;

Figs. 3 and 4 are side and rear views, respectively, of the upper housing of the collector;

Figs. 5, 6 and 7 are different views of the coin actuated trigger mounted for operation by a coin traversing the coin chute of the collector; and

Figs. 8 and 9 are front and rear views, respectively, of the coin chute of Fig. 3.

The telephone coin collector of Fig. 1 is of the same general type as that disclosed in the above-mentioned Forsberg Patent 1,043,219. Mounted on top of the upper housing 10 is a multiple coin gauge 11 for receiving deposited coins and for directing the coins into a coin chute 12 where coin channels individual to each denomination of coin serve to direct the coins into engagement with a sound signal such as gong 13 or bell 14 before permitting the coins to drop into a hopper where they are held in suspense for subsequent collection or refund depending upon conditions occurring after coin deposit. It may be assumed as in the Forsberg patent that a deposited five-cent coin strikes bell 14 once, a deposited ten-cent coin strikes gong 13 once. Bell 14 and gong 13 are mounted on a hinged bracket 15 on which a pick-up transmitter 16 is also mounted in resonant connection with both the bell and the gong for the purpose of transmitting the sound signals to the central office to notify the operator of the character and number of the coins deposited.

In the embodiment shown in the drawings, the invention is primarily concerned with the prevention of false signals for a coin or slug deposited in the quarter runway. As in the Forsberg patent, the chute assembly comprises a cover-plate 17, a center plate 18 and a front plate 19 with the five-cent and ten-cent coin channels between cover-plate 17 and center plate 18 and with the twenty-

five-cent coin channel between plates 18 and 19. Referring to Fig. 8, the broken lines 22 to 25, inclusive, on the one side and the broken lines 26 to 29, inclusive, on the other side define the limits and direction of the quarter channel with a deposited quarter being able to strike gong 13 at the end of the channel section defined by lines 24, 28.

As shown in Figs. 5 to 7, a bracket 30 mounted on cover-plate 17 serves to support a pivoted trigger 31 having an arm 32 projecting into the quarter runway at a point ahead of gong 13, a distance somewhat greater than the diameter of a quarter. The normal position of trigger arm 32 is shown in full lines in Figs. 5 and 6 while the advanced position momentarily taken by the trigger to permit the passage of a deposited coin 35 is shown in broken lines in Fig. 5.

On the side of its pivoting axis 36 opposite to its arm 32, the trigger has a shoulder 37 engaged by a biasing leaf spring 38 working against a stop 39. The trigger also has a cam surface 42 on which rides an electrical spring contact 43 working against a stop 44. When the trigger is moved counter-clockwise by a deposited coin to its advanced position shown in broken lines in Fig. 5, shoulder 37 serves to depress spring 38 whereby spring 38 after the coin has passed beyond the trigger serves to restore the trigger to its normal position.

If after coin 35 has reached the position shown in Fig. 6 an attempt is made to withdraw the coin, for example, by means of a string or thread attached to the coin, the coin will again contact the trigger arm and move the arm up the chute until the arm reaches the upper end of a slot 45 in the quarter plate 19, whereupon the trigger is held against any further clockwise movement and whereby the further withdrawal of coin 35 is positively prevented. Fig. 7 shows trigger arm 32 in its maximum clockwise position reached by an attempted withdrawal of coin 35. With trigger 31 in the position of Fig. 7, the direction of the force applied by spring 43 against cam surface 42 passes through the trigger axis 36 and hence spring 43 is temporarily ineffective to restore the trigger to normal. Whenever the trigger is retracted to its position of Fig. 7, the trigger will remain there until the trigger arm 32 is struck by another descending coin, whereby such a coin will move arm 32 from its position of Fig. 7 to its advanced position shown in broken lines in Fig. 5 to permit the coin to continue down the coin chute in the usual manner, after which arm 32 is restored to its normal position by spring 38.

It will be noted that when trigger 31 is retracted to its position in Fig. 7, the cam surface 42 is effective to raise spring 43 a distance sufficient to cause it to make electrical contact with the adjacent spring member 46. As shown in Figs. 5 and 6, the two spring contact members 43 and 46 are open in the normal position of trigger 31, remain open when the trigger is advanced by a descending coin and are closed only by the backward movement of the trigger arm to the position shown in Fig. 7; and after trigger arm 32 has reached its position of Fig. 7 these two contacts will remain closed until a subsequently deposited coin actuates the trigger in a manner previously described.

It will be noted from Fig. 2, that the closure of spring contacts 43, 46 serves to establish a short circuit across the sound signal pick-up transmitter 16, whereby the transmitter 16 will be inop-

erative to transmit the signal vibrations of the gong or the bell to the central office after trigger arm 32 has been moved rearwardly to the position shown in Fig. 7; and transmitter 16 will continue to remain inoperative until another deposited quarter has moved the trigger forwardly. It, therefore, will be obvious that with a short circuit under the control of trigger 31, the deposit of a quarter followed by an attempt to partially withdraw the quarter up the runway and then permit the coin to descend again to cause the same coin to strike the gong 13 more than once will be of no avail since the first withdrawal of the coin after engagement with the gong will serve to short-circuit transmitter 16.

The present invention has been illustrated as applied to the quarter runway, but it is obvious that the invention may be usefully employed in a runway for a coin of any denomination.

What is claimed is:

1. In a coin collector, a longitudinally inclined coin runway section terminating in an opening partially closed by a signaling device adapted to be actuated by a coin traversing said runway, a transmitter in resonant connection with said device, a pivoted member mounted external to said runway and having an arm biased to a normal position in which said arm projects into said runway for actuation in one direction by a descending coin after which said arm is adapted to return to its normal position, means for limiting the movement of said arm in the reverse direction to a retracted position where said arm blocks the withdrawal from the runway of a coin which has successfully passed said arm to actuate said device, a pair of electrical spring contacts connected in circuit with said transmitter and biased to a normal position in which said transmitter is operative but adapted to occupy a second position in which said transmitter is inoperative, and cam means on said pivoted member effective in the movement of said pivoted member from its normal position to said retracted position to actuate said contacts to said second position.

2. In a coin collector, a downwardly inclined coin runway, a sound signal adapted to be struck by a coin traversing said runway, a pivoted member biased to a normal position in which an arm of said member projects into said runway for actuation by a deposited coin to an advanced coin-freeing position with the member being restored to normal after the passage of the coin, said arm being so located that a descending coin strikes said arm prior to striking said signal, a telephone transmitter adapted to be actuated by said sound signal, means for limiting the maximum movement of said arm in the reverse direction to a retracted position in which said arm blocks the withdrawal up said runway of any coin which has previously passed beyond said arm, a pair of electrical contacts connected in circuit with said transmitter and biased to a normal position in which said transmitter is operative but adapted to occupy a second position in which said transmitter is inoperative and cam means on said member effective in the movement of said member from its normal position to said retracted position to actuate said contacts to said second position.

3. In a coin collector, a downwardly inclined coin runway, a sound signal adapted to be struck by a coin traversing said runway, a pivoted member biased to a normal position in which an arm of said member projects into said runway

for actuation by a deposited coin to an advanced coin-freeing position with the member being restored to normal after the passage of the coin, said arm being so located that a descending coin strikes said arm prior to striking said signal, a telephone transmitter adapted to be actuated by said sound signal, means for limiting the maximum movement of said arm in the reverse direction to a retracted position in which said arm blocks the withdrawal up said runway of any coin which has previously passed beyond said arm, a pair of electrical spring contacts biased to open condition but adapted when closed to shunt said transmitter to render said transmitter inoperative and cam means on said member effective in the movement of said member from its normal position to said retracted position to engage one of said spring contacts to cause their closure, said cam means being so shaped with respect to the pivoting axis of said member that the reaction of said one spring contact on said cam means is ineffective to restore said mem-

ber to normal after the attempted coin withdrawal has moved said arm against said stop.

4. In a coin collector, a downwardly inclined coin runway, a signaling device adapted to be struck by a coin traversing said runway, a pivoted member biased to a normal position in which an arm of said member projects into said runway for actuation by a deposited coin to an advanced coin-freeing position, said arm being so located that a descending coin strikes said arm prior to reaching said signaling device, means for limiting the maximum movement of said arm in the reverse direction to a retracted position wherein said arm blocks the withdrawal up said runway of any coin which has previously passed beyond said arm, an electrical translating device, a normally open circuit for said translating device and means on said member ineffective with said member in its normal position or advanced position but effective with said member in said retracted position for closing said circuit.

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