Nov. 15, 1932. H. M. BOLLINGER 1,887,576

TELEPHONE PAY STATION APPARATUS

Filed Feb. 9, 1932

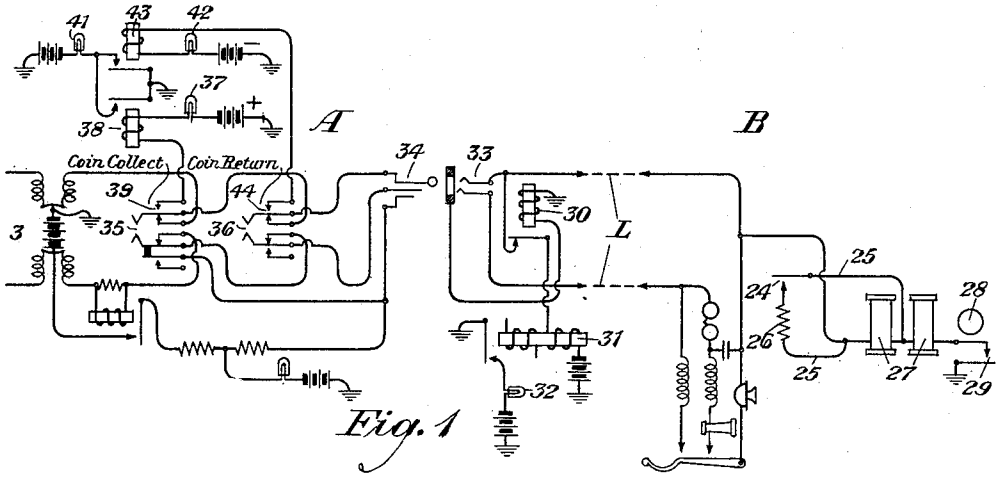


Fig. 1

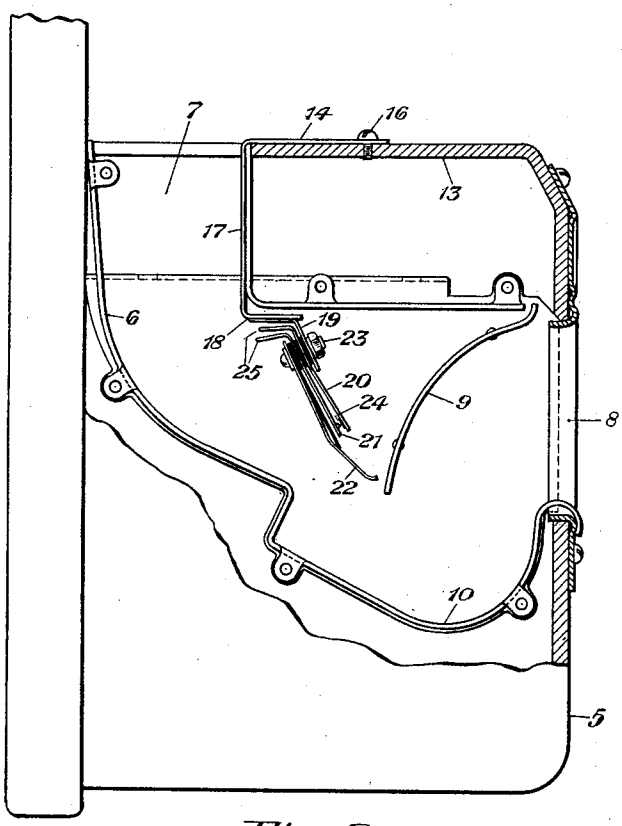


Fig. 2

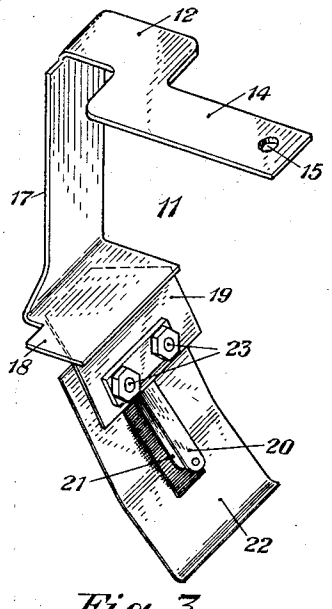


Fig. 3

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UNITED STATES PATENT OFFICE

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TELEPHONE PAY STATION APPARATUS

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This invention relates to coin collectors, and more particularly to means for preventing the fraudulent collection of money from refund chutes of telephone coin collectors.

In connection with pre-payment coin collectors of the type commonly used at telephone pay stations, it is the practice to refund money to patrons when calls are not completed. Unscrupulous individuals have taken advantage of this feature of the coin collectors by obstructing the coin refund chute, thus preventing the return of the coins to their rightful owners when calls have not been completed.

It is an object of this invention to provide an arrangement to overcome this practice and prevent the collection of money when obstructions are placed in the refund chutes of coin collectors.

In accordance with this invention, contact mechanism associated with the refund chute is actuated upon the insertion of obstructions therein. The contact mechanism and a resistance of suitable value are connected in shunt with one coil of the coin collector magnet and when actuated close a circuit including said shunt, which causes the coin collector magnet to become unbalanced so that the collector operates to collect money with both collect and return polarities of current.

The novel features which are considered characteristic of this invention are set forth with particularity in the appended claims. The invention itself, both as to its organization and method of operation, together with other objects and advantages thereof, will be further explained in the following detailed description having reference to the accompanying drawing consisting of the following figures:

Figure 1 is a circuit diagram embodying the improved invention, and showing a central office A at which the line of a substation B terminates;

Fig. 2 is a fragmentary view of a coin collector showing the contact mechanism, embodying one feature of this invention, in position in the coin chute; and

Fig. 3 is a perspective view of one form of contact mechanism such as may be employed in connection with this invention.

In the drawing, one embodiment of the invention is illustrated in connection with a coin collector of the type disclosed in Patent 1,043,219 of November 5, 1912, to O. F. Forsberg. This patent shows the usual coin collector magnet and coin refund chute. The refund chute prevents direct access to the coin control mechanism through an exit opening in the chute.

The refund chute is provided within the casing 5 by parallel vertical side walls between which an inclined wall 6 is positioned. An opening 7 is formed between these walls through which coins travel in their passage from the coin control apparatus to a vertical opening 8 through which they may be recovered. A baffle 9 is positioned between the side walls of the coin chute and extends downwardly from the upper edge of the opening 8. This baffle is inclined inwardly into the chute to permit access of the coin well 10, and at the same time to prevent access to the coin control apparatus through the opening 8.

Contact mechanism 11 is positioned in the rear of the baffle 9 and includes an arm 12 which is mounted on the top horizontal flange 13 of the coin collector housing. An offset portion 14 of the arm 12 is provided with an opening 15 through which a screw 16 extends into an opening in the flange 13 and secures the contact mechanism in position. A vertical portion 17 of the contact mechanism extends downwardly from the arm 12 and lies against a vertical wall of the chute, as shown in Fig. 2. The portion 17 terminates in a substantially L-shaped bracket 18 which carries an extension 19 to provide a mounting

for contact springs 20, 21 and 22. Suitable strips of vulcanite or the like are interposed between the springs to properly insulate them from each other, and screws 23 which extend through these elements serve to clamp them together. The spring 22 extends downwardly to a point closely adjacent the rear surface of the baffle 9, and the width of this spring is slightly less than the width of the coin chute. Pressure upon the spring 22 will close a contact 24 between springs 20 and 21 and complete a shunt circuit over conductors 25 which are connected to the other ends of the springs.

One of the conductors 25 is connected to a resistance 26, and extends therefrom to one side of the left-hand coil of the collector magnet 27. The resistance may be mounted in any suitable position in the casing 5 of the coin collector. The other conductor 25 is connected to the opposite side of the left-hand coil of the collector magnet 27. The closure of this shunt path about the left-hand coil of the magnet 27 throws the magnet out of balance so that it will not operate to refund money when the contact 24 in the coin chute is closed by stuffing paper or the like therein. The operation of the system will now be described in detail.

The insertion of "stuffing" in the coin chute at substation B will cause the spring 22 in said chute to be forced in an upward direction, thus closing contact 24 of springs 20 and 21. When a coin 28 is deposited in the coin chute to obtain a connection, it will close contact 29, as shown in Fig. 1. A circuit will be established under these conditions over the following path: From grounded contact 29, coils of magnet 27, tip side of the line L, closed contact of relay 30, and winding of relay 31 to battery. The closure of this circuit will energize relay 31 and thereby light lamp 32. The operator, noting this light, will insert plug 34 in jack 33 and cause lamp 32 to be extinguished in the usual manner. The operator can now communicate with station B and obtain the number desired by the subscriber thereat. In the event the call is completed, the coin collect key 35 is operated and the coin 28 deposited in the coin box in the following manner. The operation of key 35 closes a circuit from battery, lamp 37, winding of relay 38, upper make contact 39 of key 35, upper closed contact of key 36, tip contacts of plug 34 and jack 33, tip conductor of line L, windings of magnet 27, closed contact 29 to ground. The closure of the circuit just described will cause lamp 37 to be lighted and relay 38 to be energized. This relay will close a circuit through its make contact from ground to battery through the filament of lamp 40 and cause it to be lighted. The closure of the contact 24 in the refund chute by stuffing, as formerly described, and the shunt path established thereby about the left-hand coil of the magnet 27, will not affect the operation of collecting the deposited coin.

In case, however, the coin return key 36 is operated under this "stuffing" condition to return a coin should a call not be completed, a circuit will be closed over the following path: From battery, lamp 42, relay 43, upper make contact 44 of coin return key 36, tip contacts of plug 34 and jack 33, tip conductor of line L, windings of magnet 27, contact 29 to ground. The shunt about the left-hand coil of magnet 27 including the resistance 26, which is of a value approximately the same as that of said coil, causes an unbalanced condition of the magnet 27. The magnet 27 under this condition operates to collect money when current of either polarity is connected therewith, by either the coin collector key 35 or the coin return key 36.

After the key 35 or the key 36 is restored to normal and the plug 34 is disconnected from the jack 33, the circuit and apparatus at the central office A return to normal. The apparatus at the coin control station B will function as just described to collect money upon each occasion where a call is completed or not completed until the obstruction in the coin refund chute has been removed. Upon the removal of the obstruction the shunt about the left-hand coil of the magnet 27 will be opened by breaking contact 24 and the magnet will assume its normal operation by refunding money through the return opening upon the actuation of the coin return key 36 or by collecting money upon the actuation of coin return key 35.

From the foregoing description of the invention it will be apparent that any stuffing or article inserted far enough into the chute to escape detection by a casual inspection will move the spring 22 to close the contact 24 and establish a shunt including a resistance about one coil of the magnet 27. The fraudulent collection of money from the refund chute by this means is thus prevented.

Although the invention has been described in connection with a specific type of coin collector, it may be modified in obvious ways to meet the requirements of coin collecting apparatus having different types of coin return chutes.

What is claimed is:

1. In a coin collecting device, a coin control magnet, a return coin chute having an exit opening, and means to unbalance the coin control magnet upon the insertion of articles in said chute through said opening.

2. In a coin collecting device, a coin control magnet for collecting or refunding coins in accordance with the polarity of current applied thereto, a return coin chute having an exit opening, and means for unbalancing said magnet by the insertion of articles in said chute through said opening to operate the

magnet to collect coins upon the application of current of either polarity thereto.

3. In a coin collecting device, a coin control magnet, a return coin chute having an exit opening, a baffle plate adjacent said opening and partially closing the passage in said chute, switching means disposed behind said baffle and adapted to be actuated by material stuffed in said chute and past said baffle, and means responsive to the actuation of said switching means for unbalancing said control magnet to prevent refunding coins through said chute and exit opening.

4. In a coin collecting device, a coin control magnet for collecting or refunding coins in accordance with the polarity of current applied thereto, a return coin chute having an exit opening, a baffle plate adjacent said opening, switching means disposed behind said baffle and adapted to be actuated by material stuffed in said chute and past said baffle, and means responsive to the actuation of said switching means for operating said magnet to cause it to collect coins upon the application of current of either polarity thereto.

5. In a coin collecting device, a coin control magnet, a return coin chute having an exit opening, and means including a shunt about a part of the coin control magnet windings responsive to the insertion of articles in said chute through said opening for unbalancing said magnet.

6. In a coin collecting device, a coin control magnet for collecting or refunding coins in accordance with the polarity of current applied thereto, a return coin chute having an exit opening, and means including a shunt connected to said magnet responsive to the insertion of articles in said chute through said opening to cause the magnet to collect coins upon the application of current of either polarity thereto.

7. In a coin collecting device, a coin control magnet, a return coin chute having an exit opening, a baffle plate adjacent said opening and partially closing the passage in said chute, switching means disposed behind said baffle and adapted to be actuated by material stuffed in said chute and past said baffle, and means including a circuit in shunt of part of the windings of said magnet and responsive to the actuation of said switching means for unbalancing the control magnet to prevent the refunding of coins through said chute and exit opening.

8. In a coin collecting device, a coin control magnet for collecting or refunding coins in accordance with the polarity of current applied thereto, a return coin chute having an exit opening, a baffle plate adjacent to and partially closing said opening, switching means disposed behind said baffle and adapted to be actuated by material stuffed in said chute and past said baffle, and means including a circuit in shunt of part of the windings of said magnet and responsive to the actuation of said switching means for unbalancing said magnet to cause it to collect coins upon the applicaiton of current of either polarity thereto.

9. In a telephone system including a central station and a substation connected thereto, coin collect and coin return keys at the central station, a coin collecting device including a coin control magnet at the substation, a return coin chute for the collecting device having an exit opening, and means actuated by the insertion of articles in said coin chute through said opening for causing the coin control magnet to prevent the passage of coins to the return coin chute upon the operation of the coin collect or coin return keys.

10. In a telephone system including a central station and a substation connected thereto, coin collect and coin return keys at the central station, the coin collect keys being connected to a source of current of one polarity and the coin return keys being connected to a source of current of the opposite polarity, a coin collecting device including a coin control magnet at the substation for collecting or refunding money in accordance with the polarity of current applied thereto as determined by the operation of the coin collect keys or the coin return keys, a return coin chute having an exit opening, and means for unbalancing said magnet by the insertion of articles in said chute through said opening to cause the magnet to collect coins upon the operation of the coin collect or coin return keys.

11. In a telephone system including a central station and a substation connected thereto, coin collect and coin return keys at the central station, a coin collecting device including a coin control magnet at the substation, a return coin chute having an exit opening, a baffle plate adjacent said opening and partially closing the passage in said chute, switching means disposed behind said baffle and adapted to be actuated by material stuffed in said chute and past said baffle, and means responsive to the actuation of said switching means for unbalancing said control magnet to prevent the refunding of coins through said chute and exit opening upon the operation of the coin return keys.

12. In a telephone system including a central station and a substation connected thereto, coin collect and coin return keys at the central station, the coin collect keys being connected to a source of current of one polarity and the coin return keys being connected to a source of current of the opposite polarity, a coin collecting device including a coin control magnet at the substation for collecting or refunding coins in accordance with the polarity of current applied

thereto as determined by the operation of the coin collect or coin return keys, a return coin chute having an exit opening, a baffle plate adjacent said opening, switching means disposed behind said baffle and adapted to be actuated by material stuffed in said chute and past said baffle, and means responsive to the actuation of said switching means for causing said magnet to operate to collect a coin upon the operation of the coin collect or coin return keys.

In testimony whereof, I have signed my name to this specification this 3d day of February 1932.

HOWARD M. BOLLINGER.