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CIRCUIT FOR COIN COLLECTORS.

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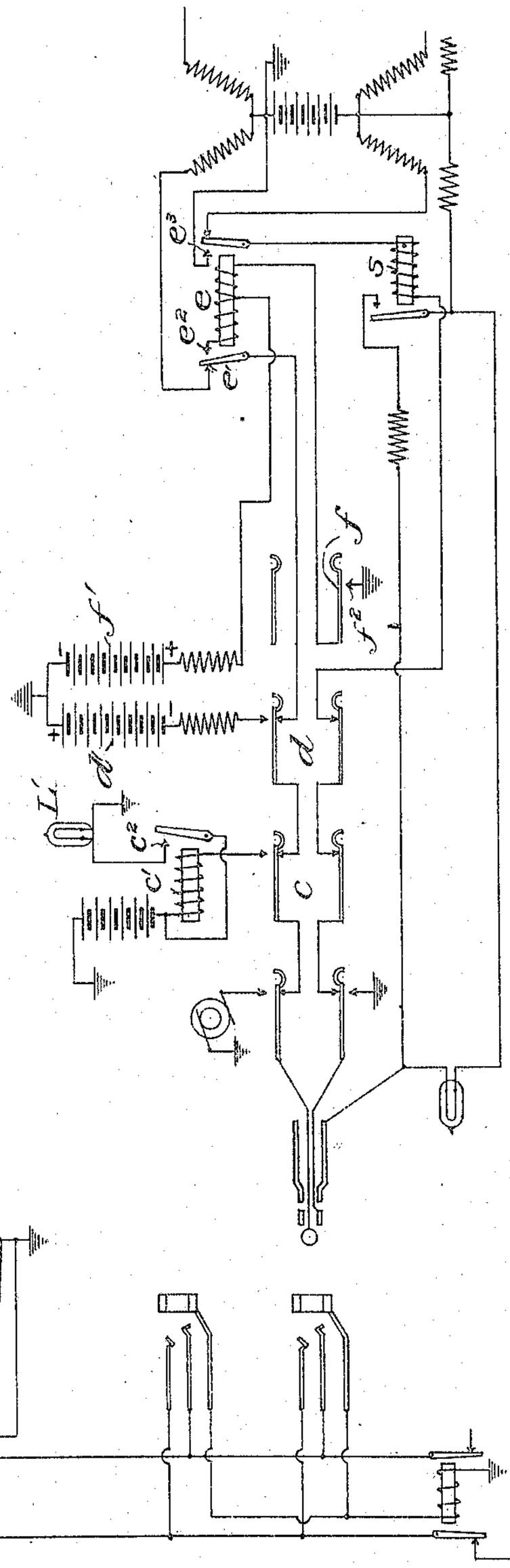
923,877. Patented June 8, 1909.



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UNITED STATES PATENT OFFICE.

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CIRCUIT FOR COIN-COLLECTORS.

No. 923,877. Specification of Letters Patent. Patented June 8, 1909.

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To all whom it may concern:

Be it known that I, JAMES L. McQUARRIE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Circuits for Coin-Collectors, of which the following is a full, clear, concise, and exact description.

My invention relates to a coin collecting telephone system.

One of its objects is to provide a signaling circuit having contacts adapted to be controlled by a plurality of coins.

A further object of my invention is to provide an improved arrangement of line and cord circuits, by which the operator at the central office can provide for the proper disposal of coins deposited in the subscriber's coin receiving apparatus without waiting for the subscriber to hang up his receiver, thereby relieving the system of drag.

My invention is adapted for use with coin collectors where the deposit of one or more coins, as the case may be, is required of the calling subscriber. In order to relieve such systems of drag, due to the operator having to wait until the subscriber hangs up his receiver before the coin can be returned to him, in case the desired connection is not established, I have introduced into the cord circuit a relay, which locks the refund battery in circuit with the subscriber's line. The circuit of the coin controlling magnet is so arranged that as soon as the subscriber hangs up his receiver, the circuit from the battery is completed through the magnet, which thereupon operates mechanism in the usual manner for properly disposing of the coins.

I will describe my invention more particularly by reference to the accompanying drawings, which is a diagrammatic view showing a line and cord circuit embodying my invention, and illustrating by means of conventional symbols the apparatus at a subscriber's station and at the central office.

The cord and line circuit I have chosen to illustrate my invention with, are of well-known types, and hence a detailed description of the familiar features thereof is unnecessary.

Referring to the drawings, the branch circuit g from the tip side of the line is provided with the usual polarized magnet M for controlling the disposal of a coin or coins k, k', deposited by the subscriber in his coin receiving apparatus. The contact a is normally open, while contact b is normally closed. The coin k, first deposited, closes contact a and grounds the branch circuit, thereby operating signal L at the central office in the usual manner. The deposit of the second coin k', in cases where two or more coins are required for connection, opens the contact b, the branch circuit being then grounded at the subscriber's station, through a shunt of contact b, only when the telephone hook is down, since the contact b' in said shunt is otherwise open. Since the deposit of the second coin removes the ground from the branch line g, the operation of the test key c would not close a circuit from the common central office battery through the relay c'. The contact c^2 is normally open and, unless the relay c' is energized to close said contact, the test lamp L' is not lighted. Hence the failure of the test lamp to light indicates to the operator that the second coin has been deposited.

The circuit controlling the coin is established when the hook is down, whether one or more coins have been deposited, and the operator can conveniently deposit the coins by operating the key d just before taking down the connection. In the cases where the coins have to be refunded, however, it would impose a drag on the system to require the operator to wait until the calling party hangs up his receiver before she operates the refund key. In order to eliminate this drag, a relay e has been introduced into the cord circuit. When the refund key f is operated, the circuit from the battery f' is grounded through contact f^2. The relay e which has a winding included in said circuit operates its armature e' and closes a locking circuit through contact e^2. This circuit may be traced from ground through battery f'', winding of relay e, contact e^2, over the tip side of the line, through the subscriber's set in case its receiver is off its hook, over the ring side of the line, through relay s, contact e^4, which is closed by relay e, to ground. In case only one coin k has been deposited, the circuit over the tip side of the line would, of course, be grounded through the normally closed contact b, and upon the operation of key f the coin would be immediately refunded by the operation of the magnet M. In case two or more coins were required from the subscriber and coin k has also been deposited, the ground through

magnet M would be completed through contact b' as soon as the subscriber hangs up his receiver. It is apparent, therefore, that the operator, without waiting for the subscriber to hang up his receiver, may operate the refund key f, and thereby provide for the return of the coins to the calling subscriber without further attention on her part.

Having thus described my invention, I claim:—

1. The combination with a telephone line extending from a subscriber's station to a central office, of a coin receiving apparatus at the subscriber's station, an electromagnet, mechanism operated by the energization of said magnet for disposing of a coin deposited in the coin receiving apparatus, means at the central office for impressing current upon the telephone line, and means at the subscriber's station, automatically operated upon the subscriber hanging up his receiver, to apply said current to the electromagnet.

2. In a telephone system, the combination with a telephone line extending from a subscriber's station to a central office, of a coin receiving apparatus at the subscriber's station, a branch circuit of said telephone line, an electromagnet in said circuit, mechanism operated by the energization of said magnet for disposing of a coin deposited in the coin receiving apparatus, means at the central office for impressing current upon the telephone line, and means at the subscriber's station automatically operated upon the subscriber hanging up his receiver to apply said current to the branch circuit.

3. The combination with a telephone line extending from a subscriber's station to a central office, of a coin receiving apparatus at the subscriber's station, an electromagnet, a branch circuit, including said magnet, a switch in said circuit controlled by the subscriber's telephone hook, mechanism operated by the energization of said magnet for disposing of a coin deposited in the coin receiving apparatus, and means at the central office for connecting a source of current with the line which will subsequently energize the magnet when said switch in the branch circuit is closed.

4. The combination with a telephone line extending from a subscriber's station to a central office, of a coin receiving apparatus at the subscriber's station, an electromagnet, a branch circuit including said magnet, a normally open and a normally closed coin actuated switch in said branch circuit, a shunt of said normally closed switch, a switch in said shunt controlled by the subscriber's telephone hook, and means at the central office for impressing current upon the telephone line for energizing said electromagnet.

5. The combination with a telephone line extending from a subscriber's station to a central office, of a coin operated device at the subscriber's station, an electromagnet controlling the operation of said coin operated device, means at the central office for impressing current upon the telephone line, and means at the subscriber's station automatically operated upon the subscriber hanging up his receiver, to apply said current to the electromagnet.

6. The combination with a telephone line, of a coin operated device associated with the line, an electromagnet for controlling the operation of said coin operated device, a cord circuit, a circuit including a relay and source of current adapted to operate said electromagnet, a switch for closing the circuit of said source of current, a locking circuit closed by the energization of said relay for connecting said source of current with the cord circuit and the line, and means, automatically operated upon the subscriber hanging up his receiver, for applying said current to the electromagnet.

7. The combination with a telephone line extending from a subscriber's station to a central office, of a coin receiving apparatus at the subscriber's station, an electromagnet, mechanism operated by the energization of said magnet for disposing of a coin deposited in the coin receiving apparatus, a source of current, a relay and switching mechanism in the circuit thereof, a locking circuit closed by the energization of said relay, whereby said current is connected with the line, and means at the subscriber's station, automatically operated upon the subscriber hanging up his receiver, to apply said current to the electromagnet.

8. The combination with a telephone line extending from a subscriber's station to a central office, of a coin receiving apparatus at the subscriber's station, an electromagnet, a branch circuit including said magnet, a switch in said circuit controlled by the subscriber's telephone hook, mechanism operated by the energization of said magnet for disposing of coin deposited in the coin receiving apparatus, a source of current, a relay and switching mechanism in the circuit thereof, and a locking circuit closed by the energization of said relay; whereby said source of current is connected with the line and applied to the magnet upon the subscriber hanging up his receiver.

9. The combination with a telephone line extending from a subscriber's station to a central office, of a line signal and a test signal at the central office, a coin receiving apparatus at the subscriber's station and coin controlled contacts arranged to be actuated by a plurality of coins deposited in said coin receiving apparatus to control the operation of said signals.

10. In a telephone system, the combination with a signaling circuit extending from a subscriber's station to a central office, of

electromagnetically controlled signaling means at the central office, a coin receiving apparatus at the subscriber's station, and contacts in said circuit constructed and arranged to be actuated successively by coins deposited in said coin receiving apparatus to control the operation of said signaling means.

11. The combination with a telephone line extending from a subscriber's station to a central office, of electromagnetically controlled signaling means at the central office, a coin receiving apparatus at the subscriber's station and a series of coin-controlled contacts in the circuit of said line arranged to be actuated by coins deposited successively in said apparatus to vary the electrical continuity of the circuit of said electromagnetically controlled signaling means.

In witness whereof, I, hereunto subscribe my name this 7th day of February, A. D. 1906.

JAMES L. McQUARRIE.

Witnesses:
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