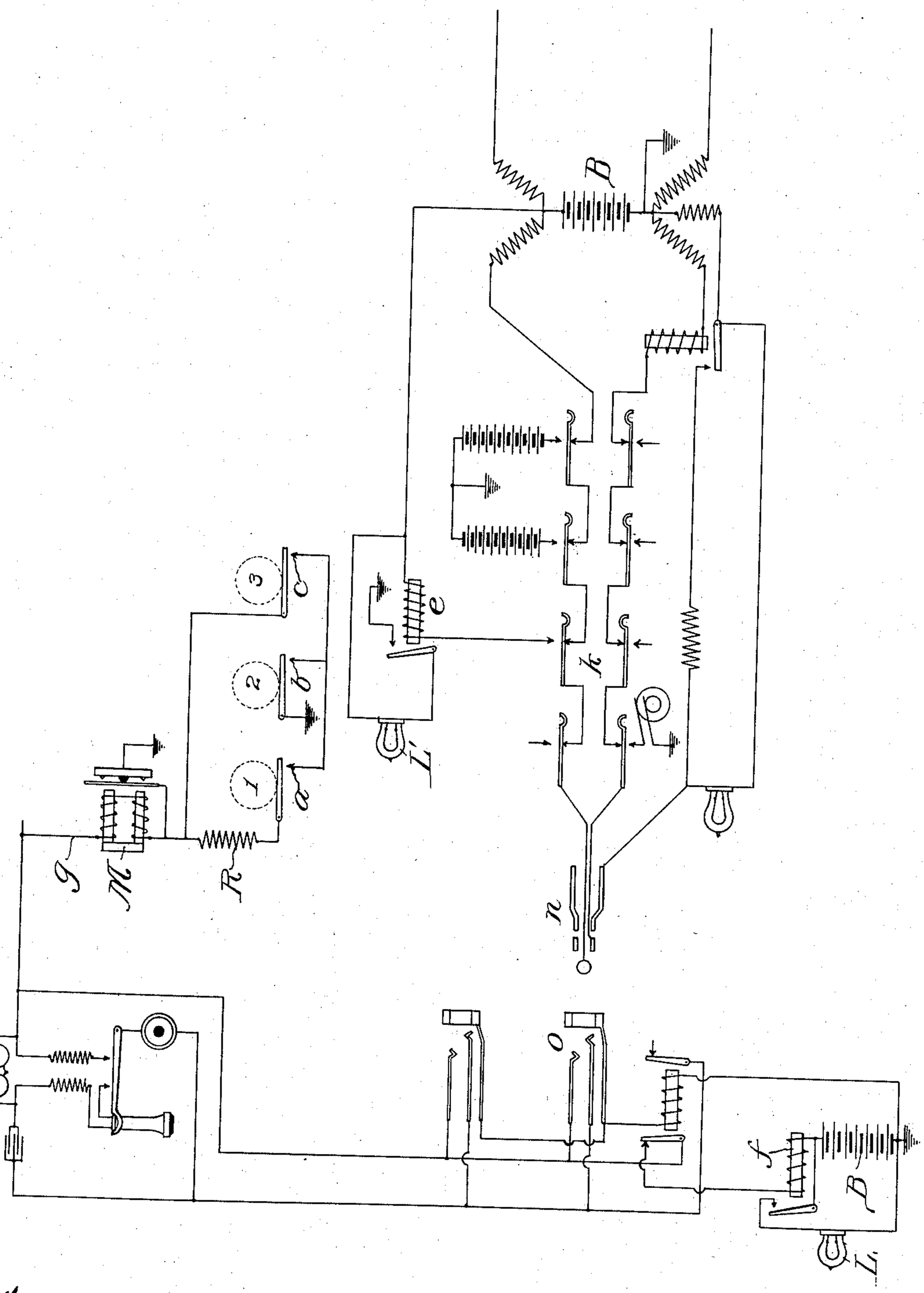
No. 850,352. PATENTED APR. 16, 1907.

H. D. CURRIER.

CIRCUIT FOR COIN COLLECTORS.

APPLICATION FILED FEB. 13, 1906.



Witnesses:
Geo. C. Currier.
W. H. Lusk

Inventor:
Hiram D. Currier,
By Barton & Sawyer
Attys.

UNITED STATES PATENT OFFICE.

HIRAM D. CURRIER, OF CHICAGO, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CIRCUIT FOR COIN-COLLECTORS.

No. 850,352. Specification of Letters Patent. Patented April 16, 1907.

Application filed February 13, 1906. Serial No. 300,933.

To all whom it may concern:

Be it known that I, HIRAM D. CURRIER, 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; and its object is to provide an improved coin-controlled circuit for use with coin-collectors where a plurality of coins may be required for a connection.

My invention more particularly relates to means for testing at the central office to determine if the requisite number of coins have been deposited.

In my invention the branch circuit, which includes the usual coin-operating magnet, also includes a resistance which controls the display of a test-signal at the central office. A short circuit of said resistance has coin-controlled contacts, the display of the test-signal depending on the closure of said short circuit.

I will describe my invention more particularly by reference to the accompanying drawing, which is a diagrammatic view showing a telephone system embodying my invention and illustrating by conventional symbols the apparatus at a subscriber's station and at the central office.

I have chosen a well-known type of cord and line circuit with which to illustrate my invention, and hence a detailed description of only such parts as relate to my particular improvement will be given.

Referring to the drawing, the branch circuit *g* to ground from the tip side of the line includes the usual polarized magnet M for controlling the disposal of a coin or coins 1 2 3, deposited by the subscriber in the usual coin-receiving apparatus. For convenience I have illustrated my invention as adapted to the use of three coins to secure a connection and means for testing for the third coin; but I do not wish to limit myself to any particular number of coins, as it is evident a lesser or greater number may be provided for without departing from my invention.

In series with the magnet M is a high non-inductive resistance R and normally open contacts *a* and *b*. A short circuit of resistance R is normally open at contact *c*. It will be understood that, as usual, the first coin 1 to be deposited passes over contacts *c* and *b* and rests in position to close contact *a*. The second coin 2 passes over contact *c* and rests in position to close contact *b*, thereby lighting the line-lamp, as will be hereinafter described. The first coin deposited, therefore, by closing contact *a* merely prepares the circuit for the operation of the line-lamp upon the deposit of a second coin. Although the closing of contact *a* produces no immediate result, such normally open contact is preferably provided in order that when the first coin rides over contact *b* it will not thereby temporarily close the signal-circuit and flash the line-lamp. The third coin deposited closes contact *c*, thereby short-circuiting resistance R.

The operation of the system is as follows: A subscriber desiring a connection deposits coin 1 in the coin-receiving apparatus, thereby closing contact *a*. The deposit of a second coin 2 closes contact *b*, thereby completing a signaling-circuit from ground at the subscriber's station through contacts *b a*, resistance R, magnet M, the tip side of the line, relay *f*, battery B to ground at the central station. The relay *f* operates its armature to close a local circuit, including lamp L or other signal at the central office. The operator observing the signal inserts her answering-plug *n* in the spring-jack *o* and ascertains the subscriber's wishes in the usual manner.

In case the deposit of a third coin is required of the calling subscriber my invention provides a simple means for enabling the operator at the central office to determine whether or not the third coin has been deposited. If a third coin has not been deposited when the operator actuates her test-key *k*, the circuit closed from ground at the central office through battery B, test-relay *e*, the tip side of the line to ground through branch *g*, includes resistance R, the short circuit thereof being open at contact *c*. Owing to said high resistance R, sufficient current does not flow through the line to operate relay *e*, and hence if a third coin has not been deposited the test-lamp L′ is not lighted when the test-key *k* is operated. If the third coin has been deposited, thereby short-circuiting resistance R, sufficient current flows through the circuit when test-key *k* is oper-

ated to cause the display of test-signal L'. It will be noted that my invention provides for a positive test-signal—that is, the test-lamp lights when the third coin is in position. The depositing or refunding of the coins is accomplished in the usual manner.

Having thus described my invention, I claim—

1. The combination with a signaling-circuit including an indicating device, of normally open contacts in said circuit adapted to be closed by a coin to actuate the indicating device, an electromagnetically-operated test signaling device adapted to be connected to said circuit, a resistance in the circuit normally rendering said signaling device inoperative, and a normally open short circuit of said resistance having coin-controlled contacts.

2. The combination with a signaling-circuit, of two electromagnetically-operated signaling devices, a resistance in the circuit normally rendering one of said signaling devices inoperative, a normally open contact in the circuit adapted to be closed by a coin to actuate the normally operative signaling device, and a short circuit of said resistance having normally open contacts adapted to be closed by an additional coin, thereby permitting the operation of the normally inoperative signaling device.

3. In a telephone system, the combination with a signaling-circuit extending from a subscriber's station to a central office, of an electromagnetically-operated line-signal in said circuit, a normally open contact in said circuit adapted to be closed by a coin to actuate said line-signal, an electromagnetically-operated test-signal adapted to be connected to said circuit, means for normally rendering said test-signal inoperative, and means, controlled by an additional coin, for causing the display of the test-signal.

4. The combination with a telephone-line, extending from a subscriber's station to a central office, of a coin-receiving apparatus at the substation, a branch circuit of said telephone-line, two normally open contacts in said branch circuit adapted to be closed respectively by the deposit of two coins in said coin-receiving apparatus, a signal in the circuit at the central office, operated upon closure of both of said contacts, an electromagnetically-operated test-signal adapted to be connected to said circuit, and means controlled by an additional coin, for controlling the display of the test-signal.

5. The combination with a telephone-line, extending from a subscriber's station to a central office, of a coin-receiving apparatus at the substation, a branch circuit of said telephone-line, two normally open contacts in said branch circuit adapted to be closed respectively by the deposit of two coins in said coin-receiving apparatus, and a signal in the circuit at the central office, operated upon closure of both of said contacts, a test-signal adapted to be connected to the line, a resistance in said branch circuit normally preventing the display of said test-signal, and a short circuit of said resistance having a normally open contact adapted to be closed by the deposit of a third coin in said coin-receiving apparatus.

In witness whereof I hereunto subscribe my name this 26th day of January, A. D. 1906.

HIRAM D. CURRIER.

Witnesses:
ROY T. ALLOWAY,
E. F. BEAUBIEN.