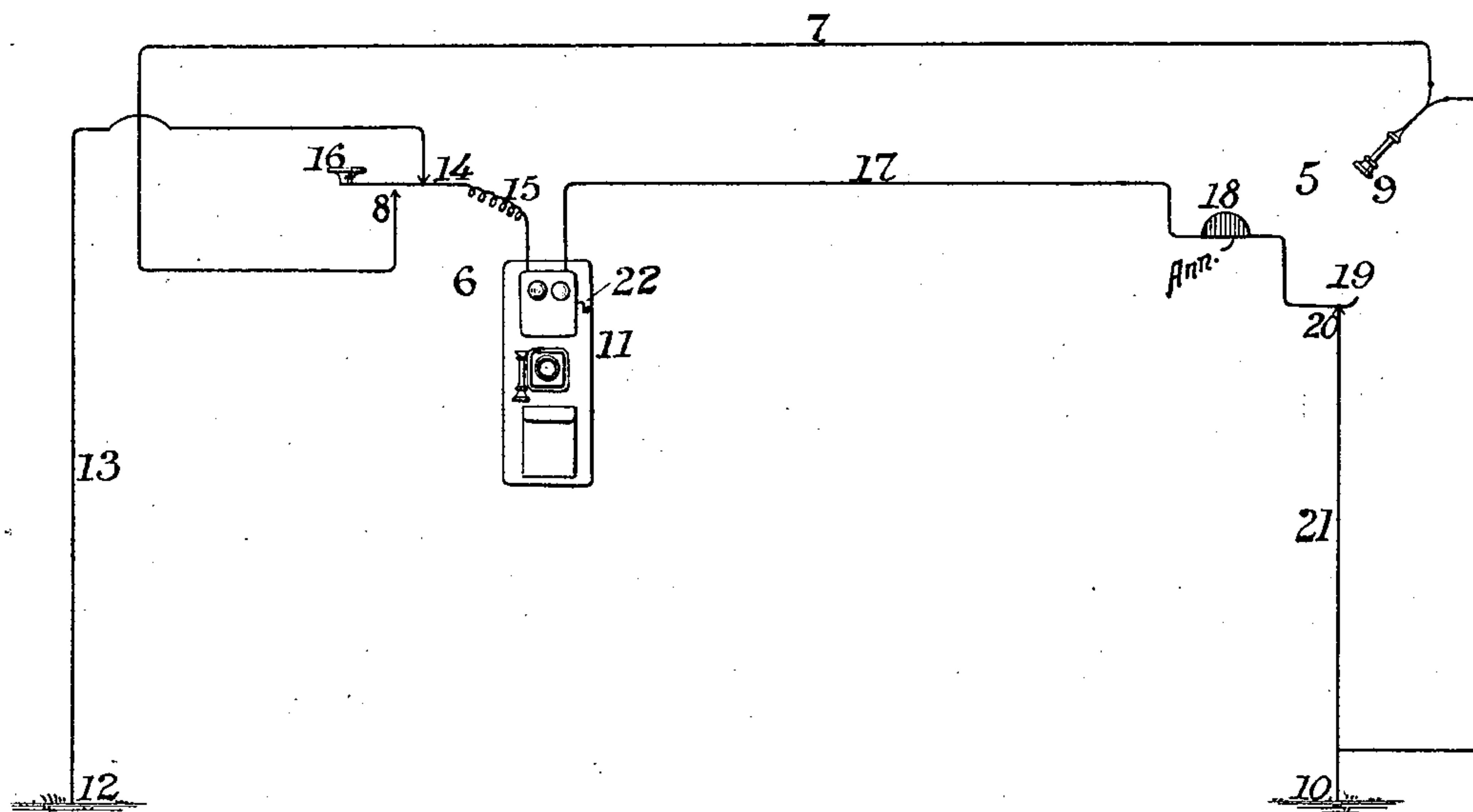


(No Model.)

G. S. MAXWELL.
TELEPHONE SYSTEM.

No. 562,011.

Patented June 16, 1896.



WITNESSES,
J. S. Bowen.
M. C. Hillyard.

INVENTOR.
George S. Maxwell,
by W. L. Stevens. ATT'Y.

UNITED STATES PATENT OFFICE.

GEORGE S. MAXWELL, OF RICHMOND, VIRGINIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF ONE-FIFTH TO WILLIAM H. CULLINGWORTH AND JOSEPH N. CULLINGWORTH, OF SAME PLACE.

TELEPHONE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 562,011, dated June 16, 1896.

Application filed March 17, 1896. Serial No. 583,530. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. MAXWELL, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented a new and useful Improvement in Telephone Systems; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which a telephone system according to my invention is represented by a diagram.

This invention relates in general to telephone systems, and particularly to that branch which pertains to calling the operator at the central office by a subscriber. As heretofore arranged, if the common electric calling-wire should become grounded or open or otherwise interfered with it would cut out a number of subscribers from communicating with the central office, and consequently render their telephones useless.

The object of this invention is to provide means to insure the subscribers against such accidents by arranging the common call-wire in connection with a magneto system, so that either the call-wire or the wire of the magneto system may be used by the subscriber to call the central office.

To this end my invention consists in the arrangement and combination of parts forming a telephone system hereinafter described and claimed, reference being had to the accompanying drawing, in which—

5 represents the central office, and 6 a subscriber's station.

7 is a common call-wire having one end free at the subscriber's station and provided with a contact-point 8. The call-wire is grounded at 10 and includes in its circuit a telephone-receiver 9.

11 represents the instrument, and 12 the ground at the subscriber's station.

13 is the ground-wire, provided with a contact-point 14.

15 is a wire connected with the instrument 11 and provided with a switch 16, which is normally in contact with the ground-wire 13 at the point 14, whereby the instrument is normally grounded; but by pressure of the subscriber's finger upon the switch 16 that

connection with the ground is broken, and the instrument is connected with the call-wire 7 at the point 8.

17 is the line-wire connecting the instruments of subscribers with an annunciator 18 at the central exchange.

19 is a spring-jack connected with the annunciator and normally in contact with the point 20 of a grounding-wire 21.

22 represents the crank of a common generator whereby the operator at the central exchange may be called through the annunciator 18. This system is similar to other magneto systems, with the exception of my switch 16 at the subscriber's station, which enables the subscriber to shift his instrument from the normal ground connection to the calling-wire or by releasing the switch to restore the ground connection. It will now be readily understood that the subscriber may press the switch 16 in contact with point 8 and call central by his voice over the wire 7 and through the receiver 9, or he may release the switch and then with his instrument grounded ring his bell 22 and call central by means of the annunciator 18, as in the ordinary magneto system.

When calling the operator at the central office by means of the general calling-wire 8, it is not necessary for the subscriber to ring his magneto-bell, but merely to speak to the operator. So if the common calling-wire 8 gets out of order in any way the subscriber may ring a call over wire 17; and if wire 17 should become grounded he may call over wire 8, thus insuring the subscriber with double security in the use of his telephone at all times.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. In a telephone system, a subscriber's instrument provided with a call-bell; an annunciator, a ground-wire and a spring-jack therefor at a central exchange; a line-wire connecting the subscriber's instrument with the said annunciator; an independent call-wire grounded at, and having a telephone-receiver at the central exchange and communicating between the said exchange and subscriber's station; a ground-wire at the subscriber's station and a switch adapted to connect the sub-

scriber's instrument with either the ground or the said independent call-wire, substantially as described.

2. In a telephone system an annunciator and
5 a telephone-receiver at a central exchange;
a telephone instrument at a subscriber's station and a ground-wire therefor; a system of wires and connections for the instrument and
10 said instrument and receiver, and a switch

for connecting the instrument with either the ground-wire or the said call-wire, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEO. S. MAXWELL.

Witnesses:

R. J. ACORE, Jr.,

FRED W. COLLOTON.