

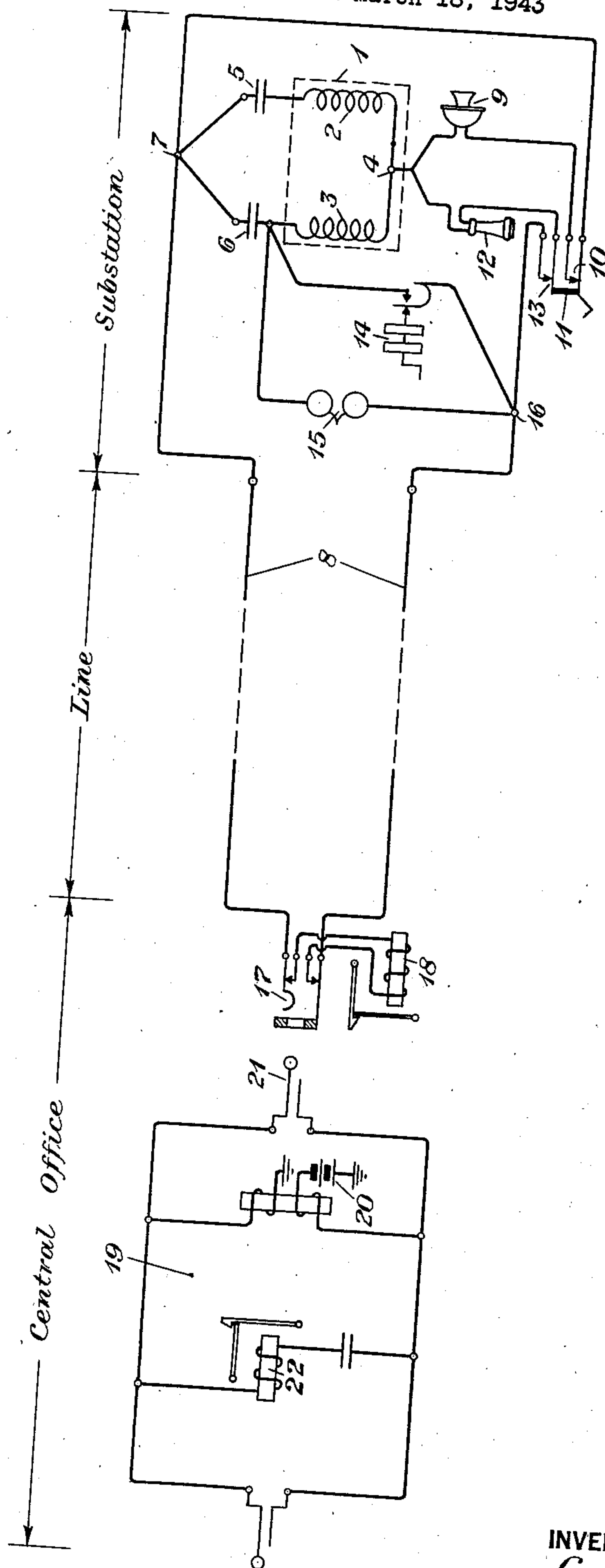
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TELEPHONE SUBSTATION

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TELEPHONE SUBSTATION

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5 Claims. (Cl. 179—81)

This invention relates to telephone substations and more particularly to one characterized by the use of a magneto-generator for signaling between the substation and a central office and, by the supplying of the transmitter current to the substation from a common battery at the central office.

This invention will be understood from the following description when read in connection with the attached drawing which shows a substation circuit, in which the present invention is embodied, connected to a line to which a cord circuit at the central office is adapted to be connected for supplying the talking current to the substation.

The substation comprises an induction coil 1 having a primary winding 2 and a secondary winding 3, one end of each of the said windings being joined at 4. The windings 2 and 3 are connected to one side of the condensers 5 and 6, respectively, and the opposite sides of those condensers are joined at the point 7 upon one side of the line 8 that extends to the central office. Between the junction points 4 and 7 is connected the transmitter 9, the connection including the contact 10 of the switch 11. The receiver 12 is connected through the contact 13 of the switch 11 to the other side of the line 8. The contacts of that switch are normally open when the receiver is on its hook, as in the case of a hand receiver, or in its cradle, as in the case of a handset. A magneto-generator 14 is connected between the junction point between the secondary winding 3 and the condenser 6 and the junction point 16 with the side of the line. The bell 15 is connected between the same points of the substation circuit as the generator 14.

The line 8 extends to the central office terminating in the conventional jack 17 across the contacts of which is connected the drop 18 which is responsive to the operation of the generator 14. The cord circuit 19, which is shown in simplified form, is adapted to supply talking current to the substation by means of the battery 20, when the plug 21 is inserted in the jack 17. That cord circuit has associated with it a drop 22 which is responsive to the disconnect signal transmitted from the substation by the generator 14.

With the receiver 12 upon its hook the contacts of switch 11 will be open and the operation of the generator 14 will transmit over the line 8 the current to operate the drop 18 at the central office. The subscriber will thereupon remove his receiver from the hook of the switch 11, and thereby will close the circuit between the line

8 and the receiver 12 and transmitter 9 of the substation. Simultaneously the operator at the central office will insert the plug 21 in the jack 17, and that action will permit current from the battery 20 to flow over one side of the line 8 and through the said receiver and transmitter, and thence back to the central office over the other side of the line 8, and thus will supply the necessary talking current to the transmitter 29 at the substation. The condensers 5 and 6 prevent such current from by-passing the transmitter. The speech current set up by the transmitter 9 will be impressed upon the line 8 and transmitted thereover. Due to the fact that the circuit of the generator 14 is normally open, and the impedance of the bell 15 is very high, the speech current produced by the transmitter 9 will not be short circuited by those two paths. Upon the termination of the conversation the subscriber, upon restoring his receiver to its hook, will operate the generator 14 and thereby will cause the drop 22 to give to the operator the signal to take down the connection.

This invention not only provides magneto signaling, which is desirable upon long rural lines, but also eliminates the use of dry cells at those stations, thereby conserving zinc, which is an essential material in the war effort. Furthermore, the station maintenance costs incidental to the replacement of the local batteries may be reduced.

While this invention has been disclosed as embodied in a particular form and arrangement of parts, it is capable of embodiment in other forms without departing from the spirit and scope of the appended claims.

What is claimed is:

1. A telephone substation for connection to a telephone line comprising an induction coil one end of the primary winding and of the secondary winding being joined, a condenser individual to each of said windings and connected to the other end thereof, the said condensers being also connected to one side of the line, a transmitter connected between the junction of said windings and the said line in shunt with the primary winding and its associated condenser, a receiver connected between the said junction and the other side of said line, and a magneto-generator and a bell connected in parallel from the junction between the secondary winding and its condenser and the said other side of the line.

2. A telephone substation for magneto signaling and common battery talking comprising an induction coil having a primary and a secondary

winding, each winding of which has a condenser in series therewith, a transmitter connected in shunt with the primary winding and its associated condenser, a receiver connected in series with both of said windings and one side of the line and a magneto-generator connected between the junction of the secondary winding and its associated condenser and to the same side of the line to which the said receiver is connected.

3. A telephone substation for magneto signaling and common battery talking comprising a transmitter and a receiver normally in series with a line, an induction coil having a primary and a secondary winding, both connected between the junction of the receiver and transmitter and the opposite side of the line, the connection including a condenser in series with each winding, and a magneto-generator connected between the junction of the secondary winding and its condenser and the side of the line to which the said receiver is connected.

4. The invention defined by claim 3 further characterized by a bell connected in parallel with the said magneto-generator and also by a switch adapted to open and close the circuit between the line and the said receiver and transmitter depending upon whether the receiver is on or off the said switch.

5. In a telephone substation arranged for magneto signaling and common-battery talking, the combination with a transmitter of an induction coil having a primary winding in series with a condenser, connected in shunt across the said transmitter, a secondary winding also in series with a condenser, also connected in shunt across the said transmitter, and a receiver in series with the network comprising the said transmitter, the windings of the induction coil and the said condensers.

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