

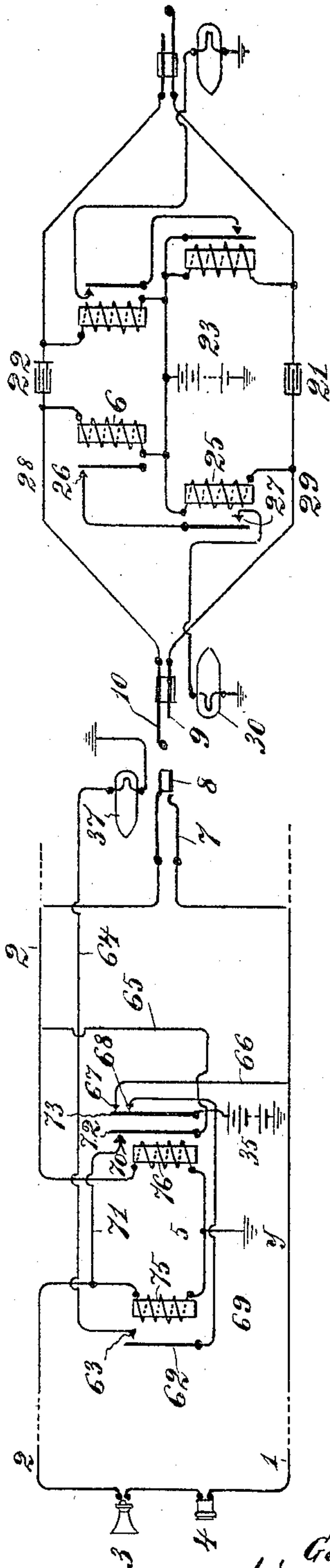
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G. M. T. PILTZ.

TELEPHONE SYSTEM WITH CENTRAL BATTERY.

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Witnesses
J. M. Kinnear
William J. Forth

Inventor
Gottlieb M.T. Piltz
By his Attorney
H. W. Bennett

UNITED STATES PATENT OFFICE.

GOTTLIEB MAGNUS TEODOR PILTZ, OF STOCKHOLM, SWEDEN, ASSIGNOR,
BY MESNE ASSIGNMENTS, TO STOCKHOLMS ALLMÄNNA TELEFON
AKTIEBOLAG, OF STOCKHOLM, SWEDEN.

TELEPHONE SYSTEM WITH CENTRAL BATTERY.

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Specification of Letters Patent.

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Application filed August 4, 1903. Serial No. 168,148.

To all whom it may concern:

Be it known that I, GOTTLIEB MAGNUS TEODOR PILTZ, a subject of the King of Sweden, and a resident of Uplandsgatan 34, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in or Relating to Telephone Systems with Central Battery, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a telephone system with central battery, said telephone system being characterized by the fact that when at the exchange or central office a connecting-plug is inserted in a jack appertaining to a subscriber's line two inductive resistances are interposed in the circuit supplying the transmitter of the subscriber's telephone apparatus with current from the central battery, one of said resistances being interposed between one pole of the battery and one conductor of the cord, which conductor is connected by means of the plug with one branch of the subscriber's line, while the other resistance is directly interposed between the other branch of the subscriber's line and the other pole of the battery, (or the earth in case the battery be grounded,) both of said inductive resistances being constructed to form relays—viz., one interposed in the line to form a cut-off relay for the calling-signal device and the other interposed in the cord to form a controlling-relay for the clearing-out signal. According to the present invention this system is applied to an exchange having two conductors in the multiple field and in the cord, and the invention is characterized by the fact that the one inductive resistance comprises two relays, the one of which is interposed between the central battery and the one-line branch and the other between said battery and the one conductor of the spring-jack belonging to this line, said two relays being connected in parallel when a plug is inserted in the spring-jack.

The figure is a diagrammatic view illustrating the invention.

At the subscriber's station the transmitter 3 and receiver 4 are connected, as usual, to the two-line branches 1 and 2 in such a manner that when the receiver is removed from the hook-switch a current can pass through them over the line.

7 and 8 are the two conductors in the spring-jack, each of them connected with each branch of the line. Interposed in the line branch 2 are the windings of two relays 75 76, both of which when connected in parallel together form the inductive resistance 5. One end of the winding of the relay 75 and the corresponding end of the winding of the other relay 76 are connected together with each other and to earth at *y*. The other end of the winding of the relay 75 is connected through the conductor 71 with the contact-anvil 70, and the other end of the winding of the relay 76 is connected through the conductor 65 with his own armature 72. The relay 75 is provided with an armature 62, which when attracted comes into contact with the contact-anvil 63, connected through the conductor 64 with the calling-signal lamp 37. The relay 76 is provided with two armatures 72 73, the one of which when attracted is brought into contact with the contact-anvil 70. The other armature 73 normally bears on two contact-anvils 67 68, one of which, 67, is connected through the conductor 66 with the line branch 1 and the other, 68, through the conductor 69 with the armature 62. The armature 73 itself is connected with the battery 35.

Both the conductors of the line 28 and 29 include two condensers 22 and 21. Both the half parts of the cord on each side of the condensers are identical, and it will be sufficient to describe the left half part.

9 and 10 are the contacts of the plug with which the conductors of the cord 28 and 29 are combined. Between the battery 23 and the tip-strand 28 is connected the other inductive resistance 6. This resistance is also constructed as a relay, the armature of which normally bears on the contact-anvil 26, which is combined with the armature of another relay 25, which is interposed between the battery 23 and the sleeve-strand 29. The clearing-out signal-lamp 30 is connected with a contact-anvil 27, which normally is out of contact with the armature of the relay 25.

Referring now to the drawing, when the operator has inserted a connecting-plug into the spring-jack of a calling subscriber a circuit is established in the following way: battery 35, armature 73, contact 67, conductor 66, line branch 1, receiver 4, transmitter 3,

line branch 2, winding of relay 75, earth, (circuit 1.) The armature 62 is attracted and the following circuit completed: battery 35, armature 73, contact 68, conductor 69, 5 armature 62, contact 63, conductor 64, calling-signal lamp 37, earth, circuit (2.) The lamp 37 is thus illuminated. When the plug is then inserted in the corresponding jack, the following circuit is established: central 10 battery 23, winding of relay 25, conductor 29, plug-conductor 9, sleeve 8, line branch 2, winding of relay 76, earth, (circuit 3.) On account of this circuit the two armatures 72 73 are attracted in consequence of the armature 15 73 being attracted and the circuits 1 and 2 are broken, so that the lamp 37 is extinguished. The attraction of the armature 72 completes the following circuit: central battery 23, winding of relay 6, conductor 28, plug-con- 20 ductor 10, line-spring 7, line branch 1, receiver 4, transmitter 3, line branch 2, partly through the winding of the relay 75, partly through conductor 71, contact 70, armature 72, conductor 65, winding of the relay 76, 25 earth, (circuit 4.) The windings of the relays 75 and 76 thus become connected in parallel and form together the inductive resistance connected with one line branch. When the conversation is finished, the circuit 4 is 30 broken, whereas the circuit 3 is maintained, and the relay 6 therefore releases its armature, while the relays 25 and 76 still keep their armatures attracted. In consequence thereof a circuit is completed from the cen- 35 tral battery 23 through contacts 26 27, clearing-out signal-lamp 30, and earth, so that the

said lamp is illuminated and continues to glow until the plug 10 has been removed from the jack.

Having thus described my invention, I 40 claim—

A telephone system having a central battery, line branches connected therewith, a jack appertaining to the line, a plug therefor, and two inductive resistances, one, connected 45 with one branch of a subscriber's line, comprising two relays, one which (75) is included between the central battery and the subscriber's station and the other (76) between the said battery and the spring-jack, so that 50 the former is energized when the subscriber calls the exchange and the latter when a plug is inserted in the answering-jack, by which operation the latter connects the two relays in parallel in such a manner that they will act to- 55 gether as an inductive resistance, the other inductive resistance being connected with a conductor in the cord in such a manner that, when the plug is inserted in the jack, the said resistance will be interposed between the cen- 60 tral battery and the other line branch, said resistance forming relays, one of which serves to cut out the calling-signal and the other the clearing-out signal of the system, substantially as described. 65

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GOTTLIEB MAGNUS TEODOR PILTZ.

Witnesses:

ERNST SVANGVIST,
AUG. SORENSSEN.