

No. 781,888.

PATENTED FEB. 7, 1905.

I. KITSEE.
TELEPHONY.

APPLICATION FILED APR. 4, 1901.

Fig. 1

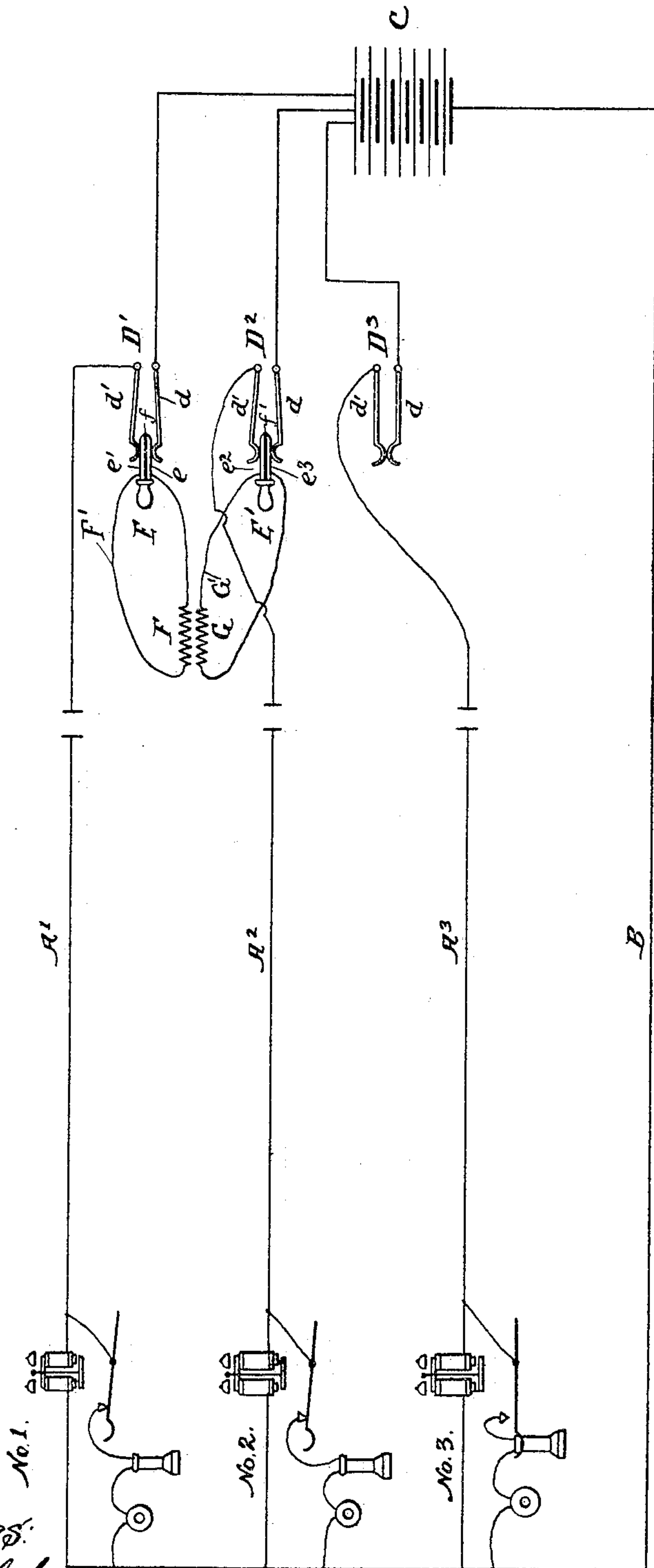
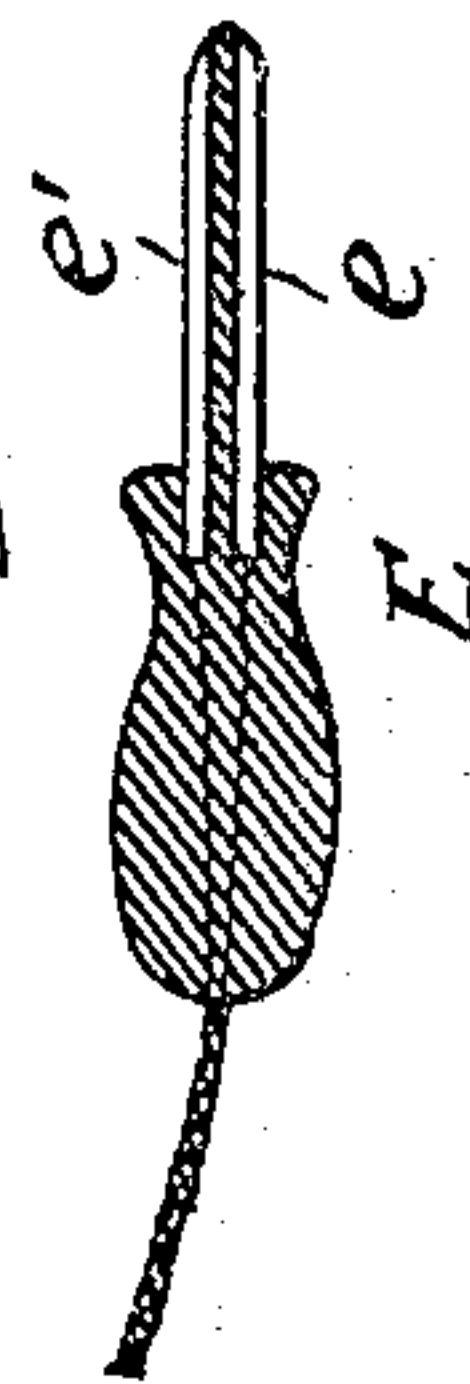


Fig. 2



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UNITED STATES PATENT OFFICE.

ISIDOR KITSEE, OF PHILADELPHIA, PENNSYLVANIA.

TELEPHONY.

SPECIFICATION forming part of Letters Patent No. 781,888, dated February 7, 1905.

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To all whom it may concern:

Be it known that I, ISIDOR KITSEE, of the city and county of Philadelphia, State of Pennsylvania, have invented certain new and
5 useful Improvements in Telephony, of which the following is a specification.

My invention relates to an improvement in telephony, and has more special reference to the method of and arrangement for connect-
10 ing two subscribers' stations at the central or exchange for the purpose of intercommunication.

It is well known by persons versed in the art that to connect two subscribers' stations ac-
15 cording to the practice of to-day the subscribers' circuits are disconnected from the so-called "common battery" and are connected through a cord with each other and with a
20 second source of current and that at least four operations are necessary before two subscribers are disconnected and connected again.

It is the aim of my invention to facilitate the work at the central.

Referring to the drawings, Figure 1 is a
25 diagrammatic view of a telephone system, showing three subscribers' stations and a central station, subscriber No. 1 and No. 2 being connected so as to communicate with each other. Fig. 2 is a sectional view of one of
30 the plugs.

$A^1 A^2 A^3$ are the subscriber-lines of the different stations No. 1, No. 2, and No. 3. These stations are illustrated in conventional signs; but it is understood that other devices may be
35 placed in these stations, and, in fact, as my invention does not relate to the same, I thought it unnecessary to give in detail the devices usually placed at outlying telephonic stations.

B is a common return for the three stations.
40 I have illustrated here this system as consisting for each subscriber of one line-wire connected to one common return; but it is obvious that a metallic circuit may be substituted without departing from the scope of my in-
45 vention.

At the central, C is the common battery; D^1 , D^2 , and D^3 , the wires connecting one pole of the battery to one spring-jack of the three circuits, respectively. $d d'$ are the spring-jacks.
50 F and G are the two coils of an inductorium.

The terminal of the coil F terminates in the cord F' and the terminal of the coil G terminates in the cord G'. The ends of the cord F' are connected to the plug E, which plug
55 consists of the conducting parts e and e' , insulated from each other by the insulating material f . The ends of the cord G' are connected to the plug E', which plug consists of the conducting parts e'' and e''' , insulated from
60 each other by the insulating material f'' . Both plugs are in construction alike.

Each operator is provided with a series of inductoriums, the primaries as well as the secondaries of which are preferably wound
65 in like manner—that is, the resistance and inductive capacity of one coil should equal the resistance and inductive capacity of the other coil. These coils preferably are, as usual, provided with a soft-iron core. The terminals of
70 each of these coils are connected to a cord, which cord terminates in a plug. These plugs are so arranged that an operator, if called upon to connect two subscribers' stations, has to in-
75 sert one of these plugs in the circuit calling and the other of these plugs in the circuit to be called.

Normally the spring-jacks d and d' are in contact with each other, and the lines are thereby in electrical contact with the battery C. If now a subscriber wishes to be con-
80 nected with a second subscriber for the purpose of intercommunication, the operator places one plug of one pair of cords between the spring-jacks of the circuit calling and
85 the second plug of the same pair of cords between the spring-jacks of the circuit of the subscriber to be called. Through this operation one coil is placed in series with the calling-circuit and the second coil is placed in series with the circuit to be called. Suppos-
90 ing subscriber No. 1 calls for subscriber No. 2, one plug is inserted between spring-jacks of A^1 and the second plug is inserted between the spring-jacks of A^2 . If subscriber No. 1 talks to subscriber No. 2, then the varying
95 current flowing through coil F will induce impulses in coil G, and these impulses will be received by the subscriber No. 2, and if subscriber No. 2 answers subscriber No. 1 then the varying impulses flowing through
100

coil G will induce impulses in coil F and the same will be received with the aid of the receiver by subscriber No. 1.

It is preferred to make the plug of such construction that the operator has always to place the same in a position so that one of its conducting parts shall be in contact with the upper part of the spring-jack and the other of its conducting parts shall be in contact with the lower part, if inserted between the same.

I have not shown in the drawings any of the indicating devices, such as lamps, &c., or any of the calling-up or ringing-up devices. I also have not shown the switchboard or operator's phone, as the functions of these devices are well understood and do not form part of my invention. These devices may be placed between the breaks in the circuit. I have also given only conventional signs for the subscribers' stations, as the arrangement of the same is not part of my invention. I purposely abstain from illustrating in detail the devices and arrangements of same placed at the subscribers' stations, or the necessary parts, signal devices, &c., as placed to-day at the central station, for the reason that my invention is applicable to any of the systems used to-day.

The main feature of my invention is the introduction of an inductorium between two subscribers' lines for the purpose of intercommunication, such inductorium not being normally in the line, and after communication has ceased the inductorium is again disconnected from said lines. With this device it is not necessary to cut off the lines from the calling-battery and connecting the same to another so-called "speaking-battery." To persons versed in the art the underlying principle will be readily understood, and in my experiments, repeatedly made, I have always found that, for the purpose of intercommunication between two lines, the introduction of the cord-coil,

such as described, results in far better receiving the speech than when the coil was omitted from the cord and both lines connected in series as to each other. This arrangement has also the great advantage that the two lines are left in multiple, and the resistance, therefore, is far less than if placed in series, as is the case to-day. On an average, it may be stated, that the resistance is nearly half, taking into consideration that the length of the lines differ. As to the number of operations to connect two lines, this arrangement necessitates less than half the operations now required.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is--

In a telephonic system wherein two or more outlying or subscriber circuits center in one exchange, a common battery in said exchange, movable means for one terminal of each of said circuits, a series of movable means connected to one terminal of the battery-circuit, the movable means of the outlying circuits connected each electrically to one of the series of said movable battery means, means to connect two of the outlying circuits with each other, said connecting means consisting of two plugs, an electric circuit for each of said plugs, a coil for each of said circuits, the coils of both circuits in inductive relation with each other, each of the plugs embracing two conducting parts insulated from each other, each of the conducting parts in electrical contact with one terminal of its own circuit.

In testimony whereof I hereby sign my name, in the presence of two subscribing witnesses, this 22d day of March, A. D. 1901.

ISIDOR KITSEE.

Witnesses:

EDITH R. STILLEY,
CHAS. KRESSENBUCH.