(No Model.)

J. H. ROGERS.

TELEPHONY.

No. 251,292. Patented Dec. 20, 1881.

Fig. 1.

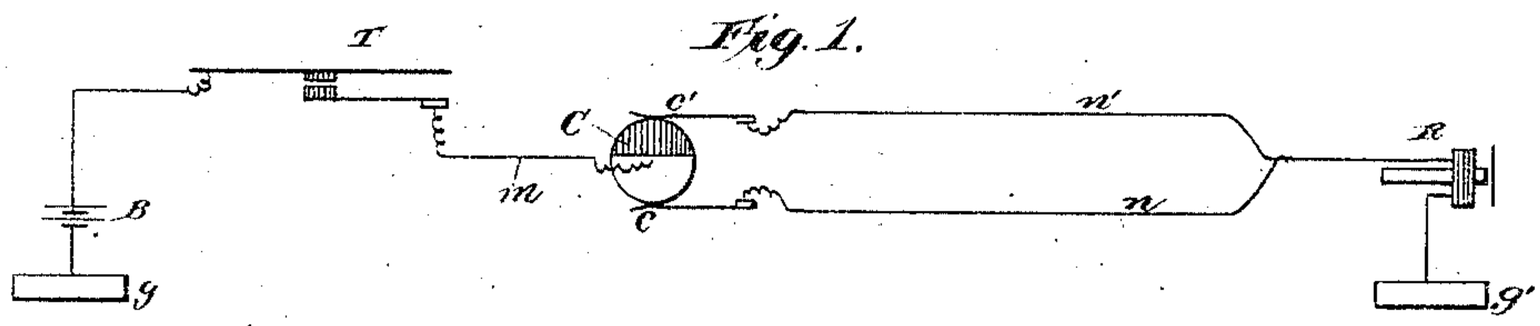


Fig. 2.

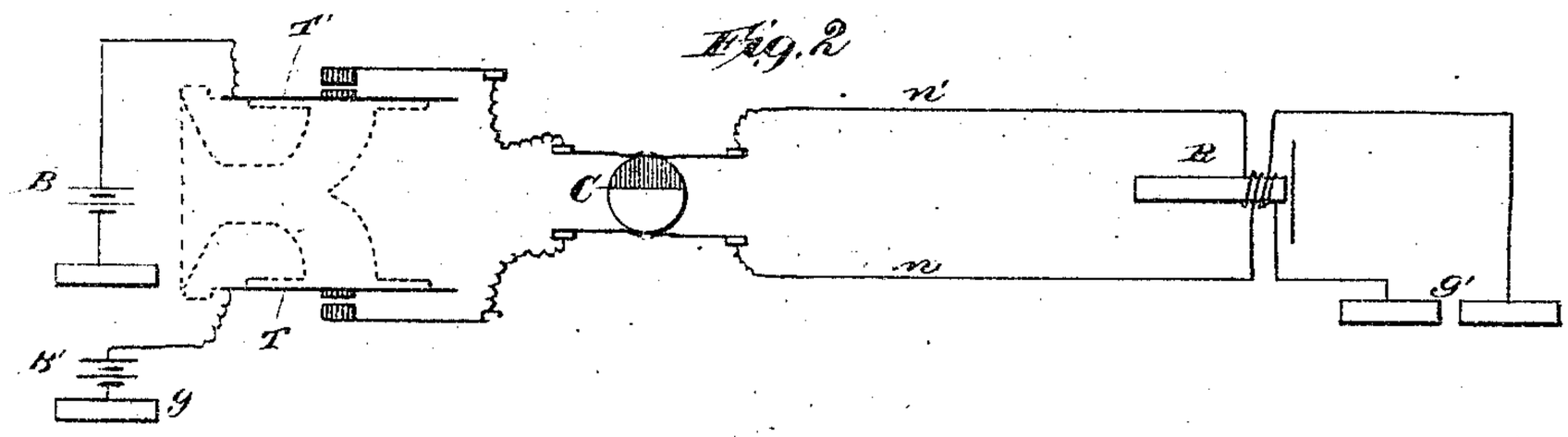
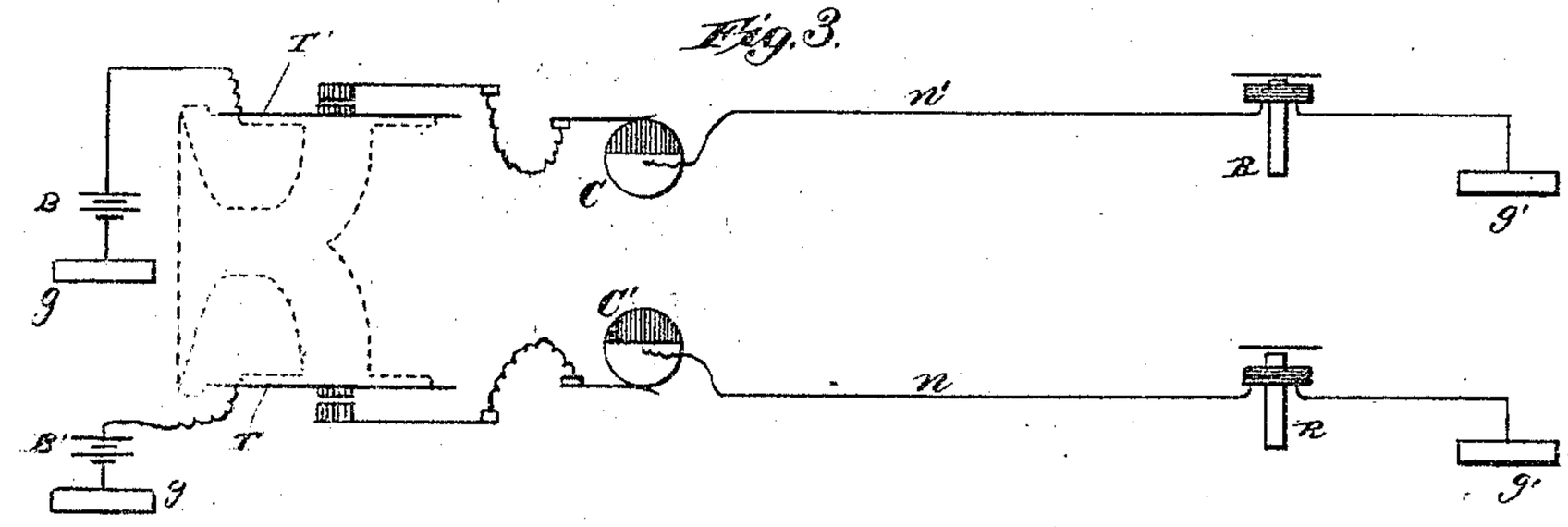


Fig. 3.



Witnesses
Robt. Everett.
J. A. Rutherford

Inventor.
James Harris Rogers.
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UNITED STATES PATENT OFFICE.

JAMES H. ROGERS, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF TO FRANK HUME AND L. G. HINE, OF SAME PLACE.

TELEPHONY.

SPECIFICATION forming part of Letters Patent No. 251,292, dated December 20, 1881.

Application filed November 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, JAMES HARRIS ROGERS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Telegraphy or Telephony, of which the following is a specification.

My invention consists in a method of secret telephony or telegraphy in which I use two or more circuits in such a manner that any one tapping but one of the circuits is unable to obtain anything but a confused and unintelligible series of signals.

My invention consists in throwing a message sent from any transmitting-instrument through two or more circuits alternately in rapid succession. A receiver is placed in each circuit, so that the two receivers together give a continuous series of signals, the one supplying what the other omits. I throw the current conveying the message alternately on each circuit by means of a circuit-breaker, which makes and breaks contact with each circuit in succession.

Instead of having two receivers, I may have each circuit actuate the same receiver, in which case the message would be correctly reproduced by such receiver.

It is obvious from the above that any one tapping but one of the lines would only receive what would be absolutely unintelligible to him.

In the accompanying drawings, which represent my invention as adapted to telephony and various modifications thereof, Figure 1 is a diagram, in which T is a transmitter; C, a circuit-breaker revolving between the two contact-springs *c* and *c'*; R, a receiver; B, a battery, and *g g'* the ground. The circuit passes from ground, through battery B, transmitter T, line *m*, the uninsulated part of the circuit-breaker, through contact-point *c*, line *n*, receiver R, to ground again. The circuit-breaker C, on breaking circuit with *c*, completes it with *c'*, when the circuit passes through *n'*, receiver R, and ground, as before. In this case it is evident that a message transmitted at T will alternately pass through lines *n* and *n'*, yet both will be received at R and delivered consecutively and sensibly.

Fig. 2 is a diagram view representing two circuits, *n* and *n'*, each provided with a battery, B B', receiver R, and grounded, as in the previous case, at *g* and *g'*. In this instance both circuits pass around the receiver R, and the circuit-breaker C alternately breaks *n* and makes *n'*, and vice versa, thus throwing any message uttered at T alternately over the two lines into receiver R.

Fig. 3 is a diagram of two distinct circuits, similar to the former in every respect, except that each has a circuit-breaker of its own, C and C'. The terminals of these lines are in close proximity to each other, and their circuit-breakers are so ordered that circuit-breaker C makes line *n* when C' breaks *n'*, and vice versa. Consequently any message uttered in proximity to the two transmitters T and T will be transmitted over their respective lines and the message be jointly reproduced by the two receivers.

The relation of the mouth-pieces to the diaphragms in Figs. 2, 3, 4 is shown in dotted lines in those figures.

It will be observed, that although the message being transmitted is broken up, as it were, and part of it sent over one line and part over the other, the disjointed fragments from the two lines unite harmoniously at the receiver. Thus any sound uttered at the transmitter will be sent over the two lines in fragmentary manner, but will be faithfully reproduced at the receiving-instrument.

From the above it will be noted that any interruption of one of the lines would be instantly noted by the person receiving the message, but no benefit could be derived by the person tapping the line, as the signals he would hear would be unintelligible. When two receivers are used it will, of course, be impossible to receive intelligible signals over one of them; but when a receiver is placed to each ear the disjointed sounds are carried by the auditory nerve so as to unite in the sensorium and produce articulate speech. A third receiver might be employed on a third circuit and applied to the teeth to act in conjunction with a receiver at each ear.

Any two of the well-known receivers in general use may be used in my system of transmission; but, as above described with reference to Figs. 1 and 2, I can use a single receiver for any number of lines by including the magnet of the receiver in each circuit.

It has heretofore been attempted to transmit articulate speech by rapidly throwing currents from opposite poles of a battery upon a single line; but such a plan is entirely and distinctly different, as will be obvious, from that described herein.

The two or more lines over which a signal is transmitted according to my plan may be carried to a common terminus by widely different routes, and thus it will be impossible for any person wishing to do so to make connections or tap both lines at the same time.

Thus it will be seen that by my invention absolute secrecy in the transmission of signals is insured—a desideratum long sought, but, so far as I am aware, now for the first time accomplished.

Of course the circuits in my system should be connected up in the best and most approved ways for the transmission of articulate speech. For instance, induction-coils may be used, as will be well understood.

Circuit-breakers of any suitable construction may be employed in connection with my invention.

Having fully described my invention, what I claim is—

1. The improvement in the art of electric telephony or telegraphy which consists in throwing portions of the message being transmitted upon one line and other portions upon another line and reproducing such fragmentary portions in the regular order of time in which they are transmitted upon receiving apparatus at the common receiving-station of the lines, whereby the message transmitted is continuously and intelligently reproduced.

2. The improvement in the art of electric telephony or telegraphy which consists in sending portions of the message being transmitted over different lines, as set forth, and reproducing such fragmentary portions in the regular order of time in which they are transmitted upon receiving apparatus at the common receiving-station of the lines, whereby the message transmitted is continuously and intelligently reproduced.

3. The combination of a telephonic receiver the magnet of which is included in two or more electric circuits, a transmitting apparatus, and a circuit-breaker, substantially as set forth.

4. The electric circuit herein described for the transmission of telephonic messages, consisting of two main lines, in combination with transmitting apparatus common to both lines at the transmitting-station and receiving apparatus at the receiving-terminals of said lines, so arranged that portions of the message being transmitted are thrown at the transmitting station upon one line and portions upon the other, such fragmentary parts of the message being united in the receiving apparatus and the message intelligently reproduced at the receiving-station, as set forth.

5. The combination, substantially as set forth, of two or more electric circuits, transmitting apparatus at one common terminus of said lines, receiving apparatus at the other, and a circuit-breaker common to the lines at the transmitting-station, whereby a portion of a continuous message being transmitted is thrown upon one line and a portion upon the other in rapid succession and the message fully and intelligently reproduced at the receiving-station.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAS. H. ROGERS.

Witnesses:
JAMES L. NORRIS,
ALBERT H. NORRIS.