

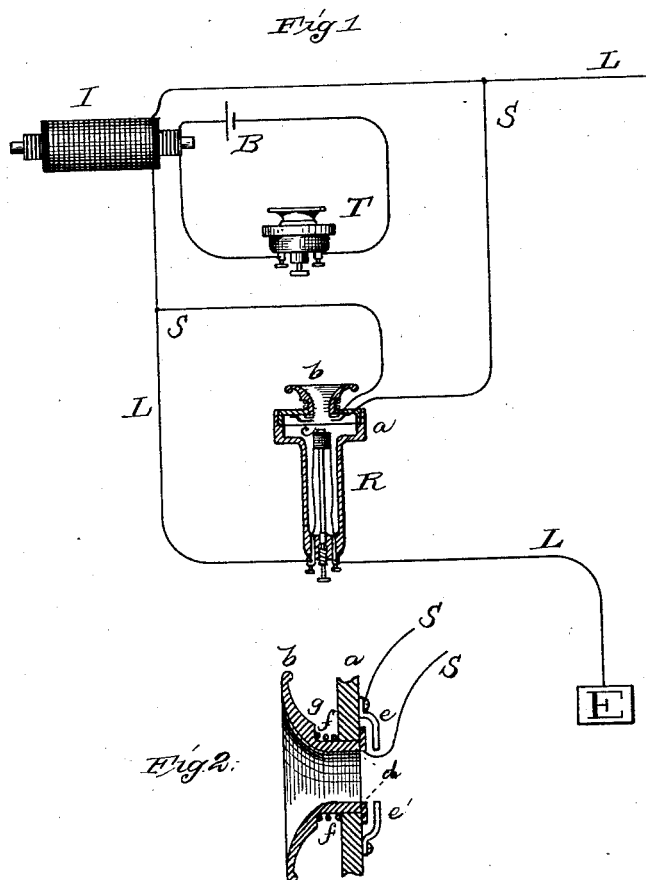
(No Model.)

T. A. EDISON & E. T. GILLILAND.

TELEPHONE CIRCUIT.

No. 340,709.

Patented Apr. 27, 1886.



ATTEST:
E. Rowland
H. Middle

INVENTORS.
Thomas A. Edison
E. T. Gilliland
By D. J. ...

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY, AND EZRA T. GILLI-
LAND OF BOSTON, MASSACHUSETTS.

TELEPHONE-CIRCUIT.

SPECIFICATION forming part of Letters Patent No. 340,709, dated April 27, 1886.

Application filed October 14, 1885. Serial No. 179,864. (No model.)

To all whom it may concern:

Be it known that we, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, and EZRA T. GILLI-
5 LAND, of Boston, in the county of Suffolk and State of Massachusetts, have invented a certain new and useful Improvement in Telephone-Circuits, of which the following is a specifica-
tion.

10 Heretofore in the use of telephone-receivers, difficulty has been experienced from the secondary of the induction-coil of the transmitter of the same instrument being in circuit with the receiver. The extra currents
15 induced in the wire of the coil have been found to reduced the volume of sound received very materially.

The object of our invention is to overcome this difficulty, and to this end we provide
20 means whereby the induction-coil may be cut out of circuit when the receiver is in use and restored to the circuit when the transmitter is to be used. Such means consist of a low-resistance shunt from the line around the in-
25 duction-coil and a circuit-controller in said shunt, said circuit-controller being mounted upon the receiver.

In the preferred form of our invention the
30 circuit-controller is operated by pressure upon the ear-piece of the receiver. Such ear-piece is supported loosely, and is provided with a contact-piece, to which a wire of the shunt is connected; and within the case of the
35 instrument is placed an opposing contact-piece, to which the other shunt-wire is connected. If the ear-piece is pressed against the ear of the user, these contacts are pressed together against the force of a counteracting
40 spring with which the ear-piece is provided. Circuit is thus closed from the line around the induction-coil. When the user wishes to use this transmitter, he removes the pressure from
45 the ear-piece and the spring forces the contacts apart, so that the circuit to the line is again through the induction-coil. The receiver may be so arranged that the ear-piece pushes into the case, or so that a portion of the case pushes into the ear-piece to close the shunt.

50 Instead of using the loose ear-piece to actuate the circuit-controller, we may in some cases employ a simple push-button, mounted on the receiver, so it can be readily operated when the instrument is held in the hand.

Our invention is illustrated in the accom-
55 panying drawings, in which Figure 1 is a diagram of a telephone and its connections embodying the preferred form of our invention. Fig. 2 is a section of the ear-piece of the receiver thereof.

60 T is any suitable transmitter, and B is the battery in the primary circuit of induction-coil I.

L is the line including the secondary of the
65 induction-coil.

R is any suitable receiver, of which *a* is the inclosing-case; *b*, the ear-piece, and *c* the diaphragm. The neck of the ear-piece *b* passes through an opening in the case, and is free to
70 move back and forth therein. At its inner end within the case the ear-piece carries a metal ring, *d*. Inside the case, attached to the front wall thereof, is the metal contact *e*, to which is connected a wire of the shunt SS from the line around the induction-coil I. A
75 corresponding metal piece, *e'*, is also attached to the case, to keep the ear-piece straight when it is pressed in. The other wire of shunt S S is connected with ring *d*. Outside the case,
80 around the neck of the ear-piece, is placed a coiled spring, *f*, between the shoulder *g* and the case.

In using the receiver, if the sound is not
loud enough, the user simply presses the receiver more closely against his ear, which
85 brings the ring *d* against *e e'*, and closes S S around the induction-coil. When he is through listening, he removes the pressure and the spring *f* throws the ear-piece back to its
90 normal position, breaking the shunt and making the line ready for the use of the transmitter. Preferably the wires S S and the line-wires are all run together to the receiver in a four-
ply cord.

What we claim is—

95 1. The combination, with a telephone transmitter and receiver and an induction-coil in the line, of a shunt around the induction-coil

and a circuit-controller in said shunt carried by the receiver, substantially as set forth.

2. The combination, with a telephone-transmitter and its induction-coil, of the receiver
5 having a loose ear-piece and a shunt-circuit around the induction-coil controlled by the movement of said ear-piece, substantially as set forth.

This specification signed and witnessed this 2d day of January, 1885.

THOMAS A. EDSON.
EZRA T. GILLILAND.

Witnesses:

JOHN C. TOMLINSON,
FRANK E. DONOHOE.