To aid 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- 
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 specification.

Heretofore in the use of telephone-receiv- ers, difficulty has been experienced from the secondary of the induction-coil of the trans- 
mitter of the same instrument being in cir- 
cuit with the receiver. The extra currents 
induced in the wire of the coil have been 
found to reduce the volume of sound received very materially.

The object of our invention is to overcome 
this difficulty, and to this end we provide 
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-res- 

tance shunt from the line around the in- 
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 circuit-controller is operated by pressure ap-
on 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 
instrument is placed an opposing contact-

piece, to which the other shunt-wire is con-
nected. If the ear-piece is pressed against the 
ear of the user, these contacts are pressed 
together against the force of a counteracting 
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 
the ear-piece and the spring forces the con-
tacts apart, so that the circuit to the line is 
again through the induction-coil. The re-
cipient 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.

Instead of using the loose ear-piece to actu-
ate 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-
pa ny ing drawings, in which Figure 1 is a dia-
ogram of a telephone and its connections em-
bodying the preferred form of our invention. 
Fig. 2 is a section of the ear-piece of the re-
ceiver thereof.

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 
induction-coil.

R is any suitable receiver, of which a is the 
inclosing-case; b, the ear-piece, and c the dia-

phragm. The neck of the ear-piece b passes 
through an opening in the case, and is free to 
move back and forth therein. As 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 SS 
is connected with ring d. Outside the case, 
around the neck of the ear-piece, is placed a 80 
coiled spring, f, between the shoulder g and 
the case.

In using the receiver, if the sound is not 

louder enough, the user simply presses the re-
cipient more closely against his ear, which 
brings the ring d against e e', and closes SS 
avoiding the induction-coil. When he is 
through listening, he removes the pressure and 
the spring f throws the ear-piece back to its 
normal position, breaking the shunt and mak-
ing the line ready for the use of the transmis-
sion. Preferably the wires SS and the line-wires 
are all run together to the recipient in a four-
ply cord.

What we claim is—

1. The combination, with a telephone trans-
mitter 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-trans-
mitter and its induction-coil, of the receiver
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.
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Witnesses:

JOHN C. TOMLINSON,
FRANK E. DONOHUE.