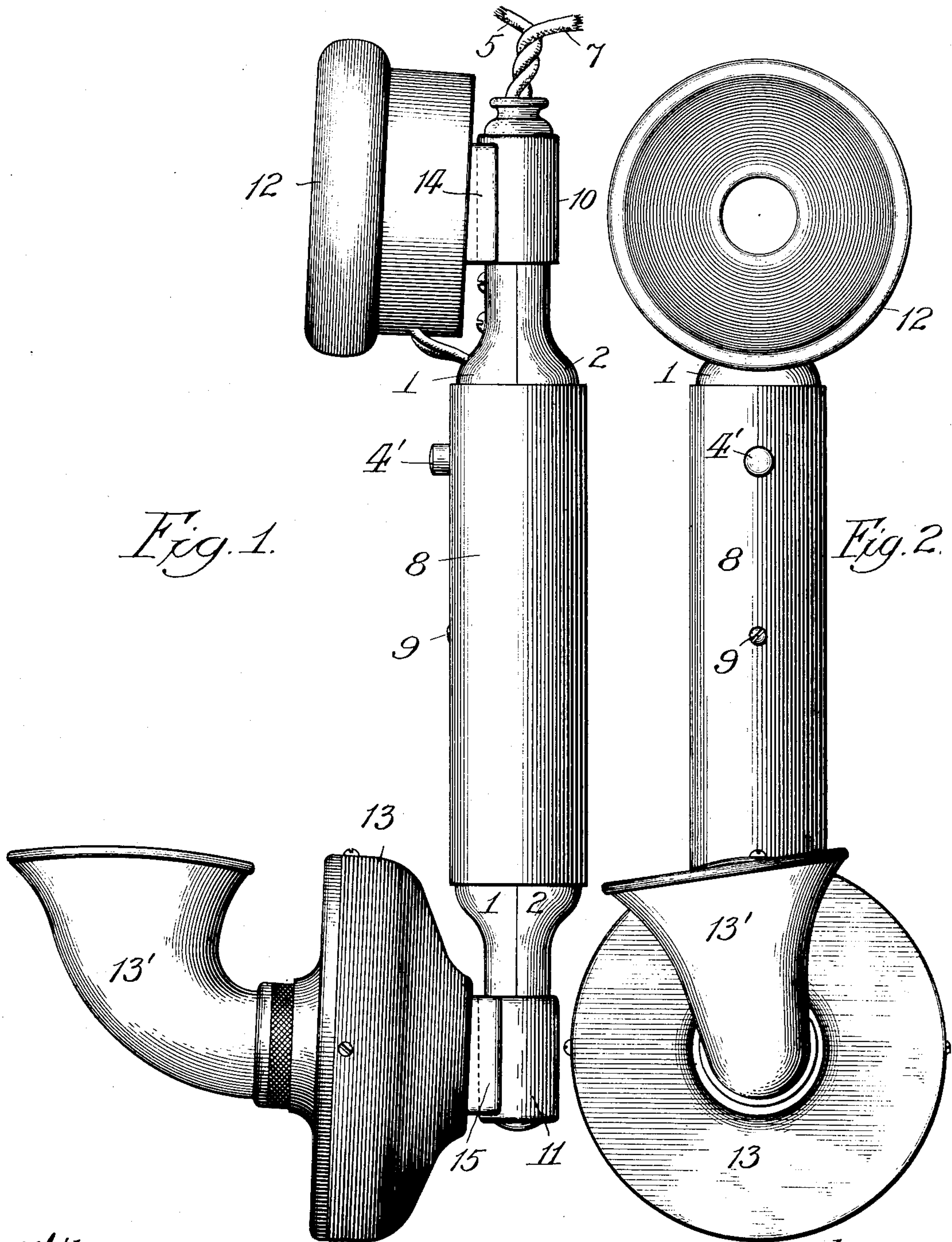


967,276.

J. N. WALLACE.
MICROTELEPHONE.
APPLICATION FILED MAR. 22, 1909.

Patented Aug. 16, 1910.

2 SHEETS—SHEET 1.



Witnesses:
John Enders
Chas. H. Bull.

Inventor:
John N. Wallace,
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J. N. WALLACE.

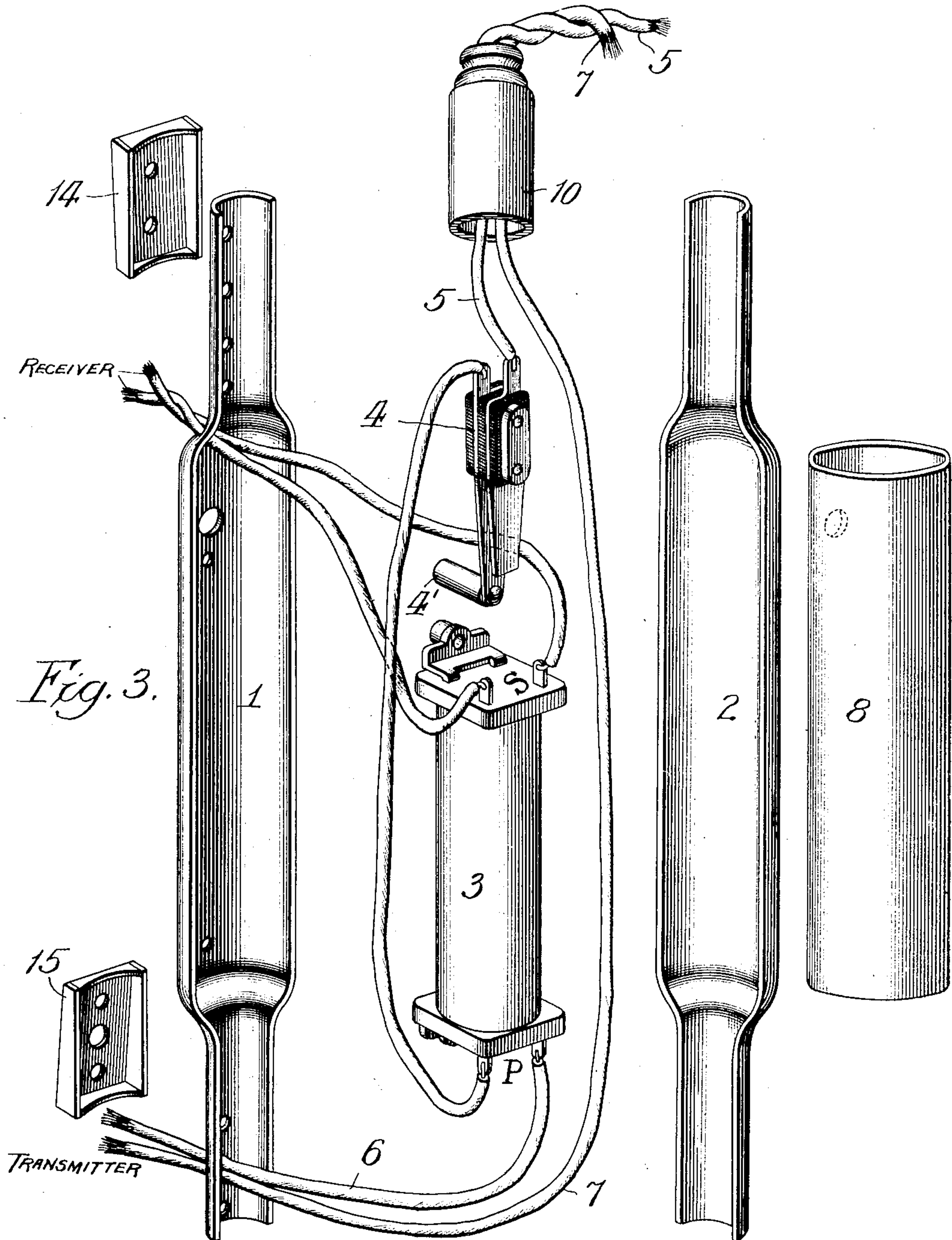
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UNITED STATES PATENT OFFICE.

JOHN N. WALLACE, OF LA CROSSE, WISCONSIN, ASSIGNOR TO VOTE-BERGER COMPANY,
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MICROTELEPHONE.

967,276.

Specification of Letters Patent.

Patented Aug. 16, 1910.

Application filed March 22, 1909. Serial No. 484,870.

To all whom it may concern:

Be it known that I, JOHN N. WALLACE, a subject of the King of England, and a resident of La Crosse, county of La Crosse, and State of Wisconsin, have invented a new and useful Improvement in Microtelephones, of which the following is a specification.

My invention pertains to microtelephones. By this term is meant an integral device comprising a microphonic telephone transmitter and an electromagnetic telephone receiver.

My improvement in microtelephones consists of introducing an additional element of the telephone set into the integral structure of the microtelephone, thereby enabling my device to be a complete speech-receiving and speech-transmitting set, conforming to the rigid requirements of modern common battery telephone practice.

It is the requirement in modern practice that a telephone receiver shall not be affected by direct current flowing over the telephone line. Many circuits have been suggested, and some of them have been adopted, and have been used successfully, to effect this result. One of the most widely used of these circuits is that in which the transmitter and the primary winding of an induction coil are connected in series with each other, and in the line circuit, and the receiver is then connected to the secondary of the induction coil mentioned. I have adapted this type of circuit for illustration to the integral microtelephone of my invention by including the induction coil within the microtelephone structure.

One of the important advantages attained by my improved microtelephone is that it requires but two conductors in its flexible cord, while at the same time it attains the desirable feature of the circuit above outlined.

In the drawings, Figures 1 and 2 show two views of the complete microtelephone of my invention, taken in directions at right angles to each other. Fig. 3, which comprises an entire sheet of drawings, shows all of the parts of the microtelephone, separated from each other, but arranged in such relative positions that their assembly may be understood. In Fig. 3, the telephone receiver and the telephone transmitter have been omitted, since no features of invention

to be claimed in this application are involved in those elements.

Like numbers refer to similar parts throughout the several views.

The frame upon which all parts are assembled comprises a split tubular part, of which the part 1 may be considered a base part and the part 2 a cover part. Upon the part 1 are mounted induction coil 3 and switch 4. Switch 4 comprises two contact springs, normally separated, one having a push button 4', which when pressed closes the parts together electrically. The line circuit of the device enters through conductor 5, thence through switch 4, through primary of coil 3 and conductor 6 to transmitter, thence returning over conductor 7. The secondary, having terminals at S, is connected to the receiver. The cover 2 now may be placed loosely upon the part 1, and the surface member, or finishing member 8, is slipped over the cylindrical structure formed by the parts 1 and 2, the button 4' projecting therethrough, and the set screw 9 holding the part 8 in position. End caps 10 and 11 close the ends of the cylindrical structure formed by parts 1 and 2, and receiver 12 and transmitter 13 are attached by screws, which pass through the end caps and into the part 1. Taper bushings 14 and 15 are interposed between the receiver and the end cap, and the transmitter and the end cap respectively. These bushings, by offering one curved face and one plane face, afford a rigid mounting for the receiver and transmitter respectively, and by their tapered form control the angle which the face of the receiver and the face of the transmitter make with each other. It is found by experiment that when a short mouth piece or funnel, such as is shown at 13', is used upon a microtelephone, that the mouth piece cannot be held in front of the mouth and the receiver held closely upon the ear by the average telephone user when the parts are mounted parallel to the axis of the handle. For this reason, the angles attained by the taper bushings are found desirable.

The end cap 10 has an open end for exit of flexible conductors 5 and 7; the end cap 11 has a closed end. The end cap 10 may be placed upon either the receiver end or the transmitter end of the microtelephone handle, thereby permitting the flexible cord to

make exit from the upper or lower end, as the user may desire; end cap 11, of course, is placed on the other end of the receiver.

It is essential that the device 3, which is shown as an induction coil, shall have the characteristics of passing between its terminals P all currents from the transmitter, and shall differentiate the currents, or the energy of the currents, to pass from its terminals S as great a part as possible of the varying currents or of the varying component of the currents, and a negligible quantity or none of the direct currents. The device 3, therefore, may be any current separating means.

It is obvious that many modifications, either in electrical circuits or minor mechanical details, are possible in the device herein described without departing from the spirit or scope of my invention.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

1. A microtelephone comprising a handle member, a receiver and a transmitter, said handle member being composed of two half tubular members and two binding members adapted to hold said half tubular handle members together.

2. A microtelephone comprising a handle member, a receiver and a transmitter, said

handle member being composed of two half tubular members and two binding members adapted to hold said half tubular handle members together; said receiver and transmitter being attached to one of said half tubular handle members.

3. A microtelephone comprising a handle member, a receiver and a transmitter, said handle member being composed of two half tubular members and two binding members adapted to hold said half tubular handle members together, said receiver and transmitter being attached to one of said half tubular handle members with their diaphragms in different and parallel planes.

4. In a microtelephone a handle composed of two separable members jointly forming a tubular structure; a tube surrounding and uniting said members; means for attaching a transmitter and receiver to one of said members and an induction coil contained within the tubular structure formed by said members.

Signed by me at La Crosse, county of La Crosse, and State of Wisconsin, in the presence of two witnesses.

JOHN N. WALLACE.

Witnesses:

GUS. LUNDGREN,
LOREN S. REES.