

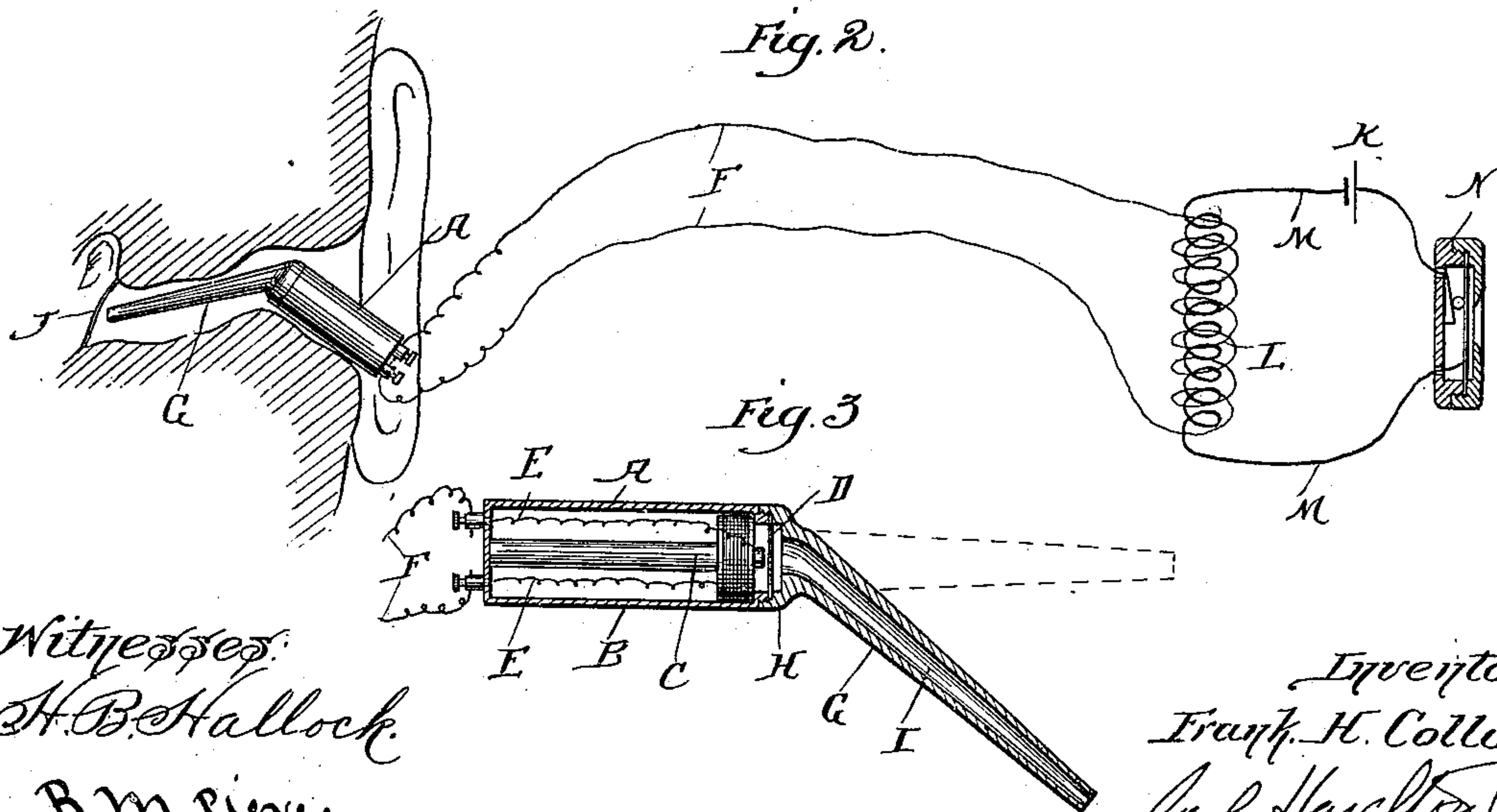
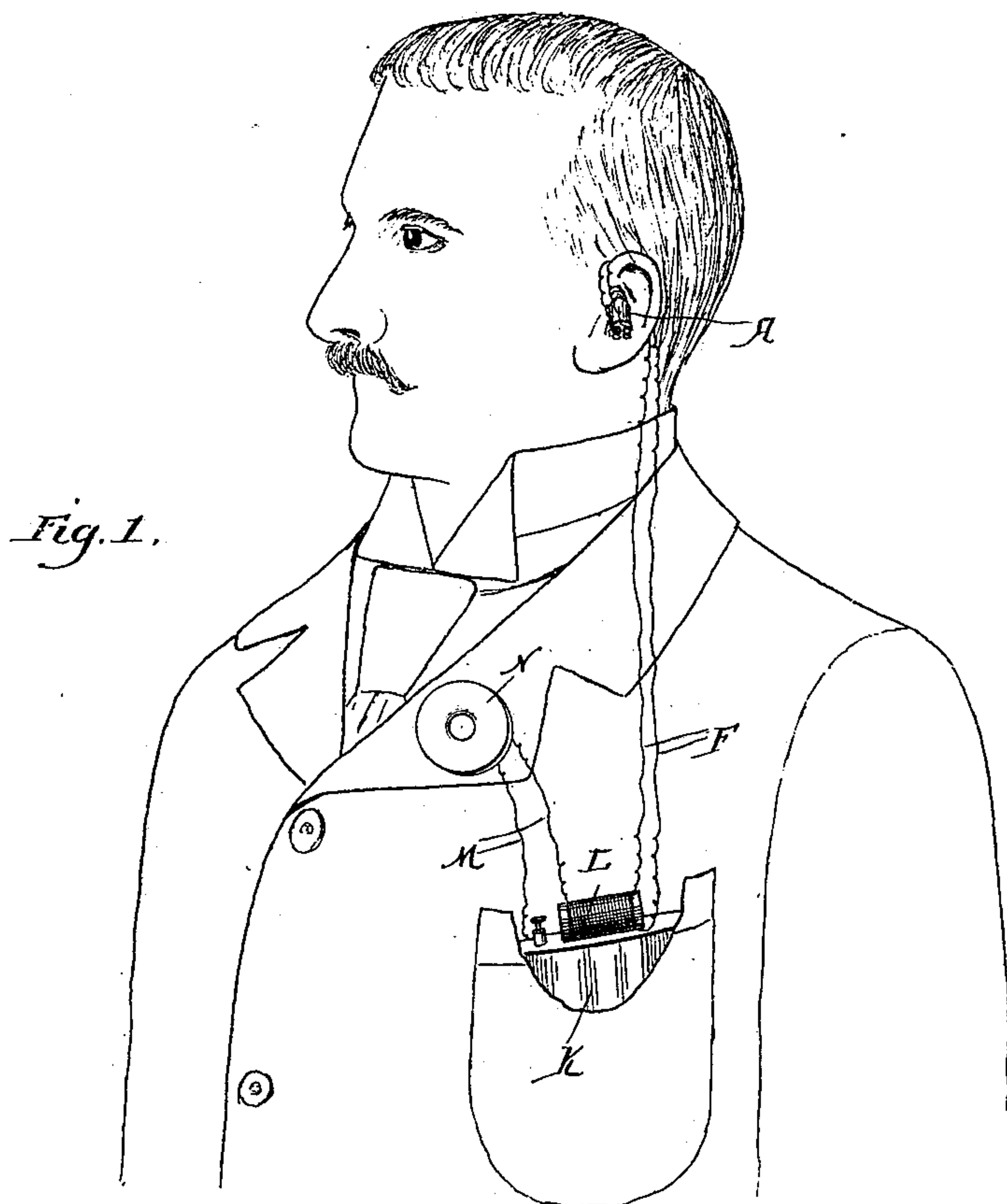
No. 622,328.

Patented Apr. 4, 1899.

F. H. COLLINS.
MAGNETO EAR PHONE.

(No Model.)

(Application filed Feb. 21, 1898.)



Witnesses:
H. B. Hallock
R. M. Pierce

Inventor.
Frank H. Collins
By W. C. Hayston Jr.
Attorney.

UNITED STATES PATENT OFFICE.

FRANK H. COLLINS, OF EVERETT, MASSACHUSETTS.

MAGNETO EAR-PHONE.

SPECIFICATION forming part of Letters Patent No. 622,328, dated April 4, 1899.

Application filed February 21, 1898. Serial No. 671,031. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. COLLINS, a citizen of the United States, residing at Everett, county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Magneto Ear-Phones, of which the following is a specification.

My invention relates to a new and useful improvement in appliances for facilitating the hearing of persons affected with partial deafness, and has for its object to so construct and arrange an apparatus of this description as to overcome the many disadvantages which have heretofore been attendant upon the use of ear-trumpets and the like and bring the user in easy communication with his surroundings without annoyance to himself or undue prominence being given to the appliance.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claim.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents my improvement as applied; Fig. 2, a diagrammatical view illustrating the arrangement thereof, and Fig. 3 a section of the receiver or that portion of the apparatus which is adapted to be placed within the ear.

In carrying out my invention as here embodied I provide a receiver A, which consists of a cylindrical casing B, having therein the electromagnet C, which is properly wound as a telephone-magnet and has placed in conjunction therewith the diaphragm D. The wires E lead to and from the bobbin of this magnet and are connected with suitable binding-posts, from which lead the wires F of the battery and transmitter, to be hereinafter described.

G represents the deflected tube, which is provided with a base H, having threads therein for attachment to the cylindrical casing,

and this base is so arranged as to secure the diaphragm in place and has a passage I therein, which is here shown as gradually tapering toward its outer end. In practice this receiver is so placed within the ear and passage as to bring the end of the tube G in close proximity to the ear-drum, (indicated at J,) while the cylindrical portion thereof lies within the funnel-shaped entrance to the ear, and thus attracts but little attention and easily remains in place without inconvenience to the user, so that ordinary motions of the body or head will not displace the same.

A suitable battery K, preferably composed of dry cells and of such shape as to be easily placed within the coat-pocket, is provided and has in connection therewith the ordinary induction-coil L, with which the wires F connect, and from this battery and coil lead the wires M to a transmitter N, which latter is here shown as of circular shape, resembling a button and having means for attachment to the lapel of the coat or other portion of the wearing-apparel of the person, the transmitter being of such construction and adjustment to receive the air-waves created by sound and convert them into electric waves, thus transmitting said sound to the receiver and concentrating it upon the ear-drum after the manner of the ordinary electric telephone.

Of course I do not wish to be limited to any particular construction of the battery, receiver, or transmitter, since these may be varied without departing from the spirit of my invention, the gist of which rests in the broad idea of providing an apparatus which will receive sound-waves and transmit the same into close proximity to the ear-drum, so as to enable those affected with partial deafness to clearly hear.

The transmitter and receiver may be adjusted to each individual case, so as to make the hearing normal—that is to say, the sound-waves may be magnified more or less, according to the defectiveness of the hearing—thus enabling the user of the appliance to understand ordinary speech or sounds with the same degree of accuracy as persons of normal hearing, and it has been found in practice that this can be readily accomplished and that the

afflicted persons experience but little inconvenience in receiving communications from the surrounding world.

Having thus fully described my invention,
5 what I claim as new and useful is—

In an ear-phone a battery and coil, a transmitter connected with said battery, said transmitter being adapted to be secured to the apparel of the user, a receiver also connected
10 with said battery and coil, said receiver consisting of a suitable casing in which is con-

tained an electromagnet, a deflected tube secured to the end of the casing and a diaphragm secured between the casing and tube, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

FRANK H. COLLINS.

Witnesses:

E. M. HALL,

F. N. DAVIS.