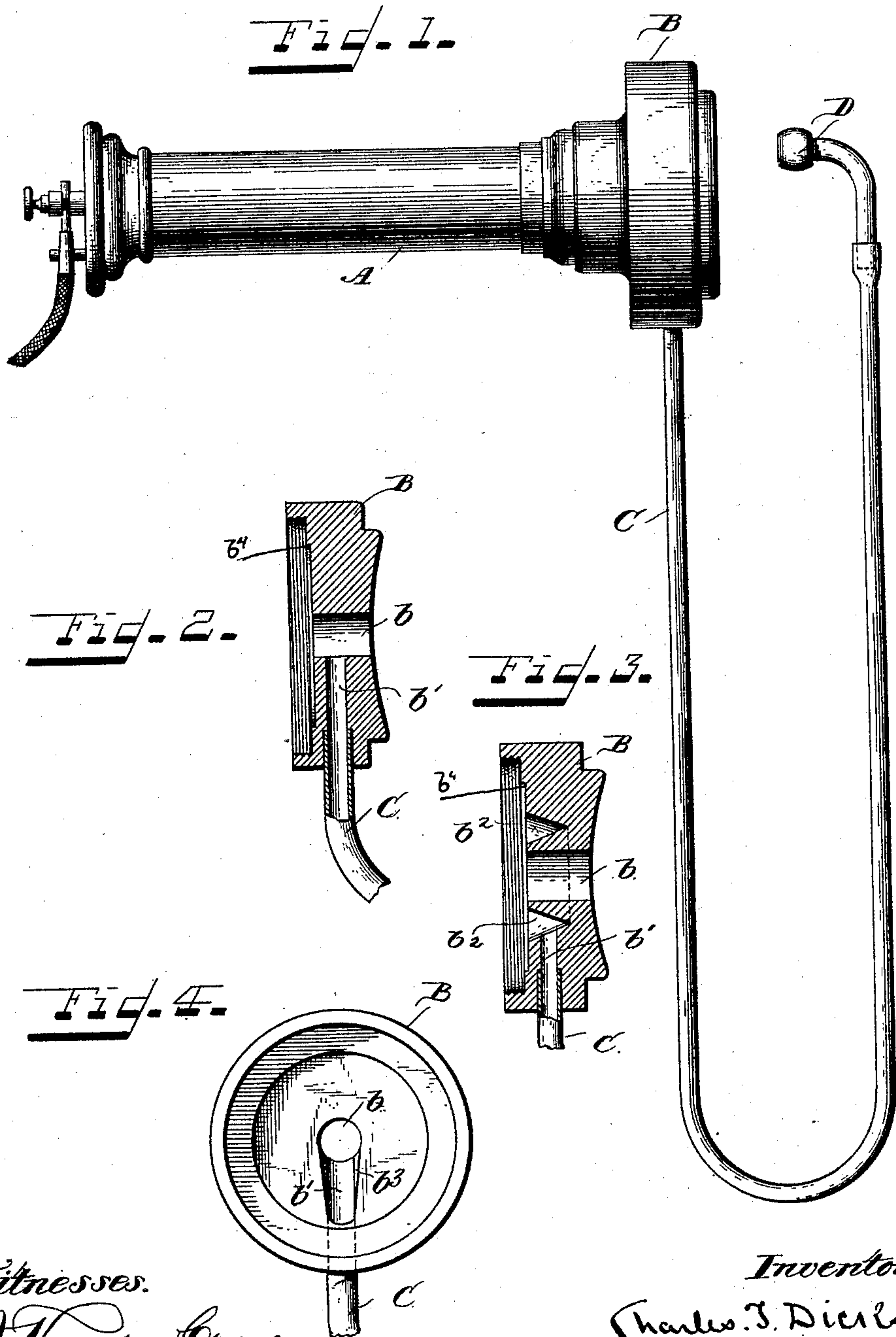


(No Model.)

C. T. DICKSON.
TELEPHONE RECEIVER.

No. 452,775.

Patented May 26, 1891.



Witnesses.
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CHARLES T. DICKSON, OF CINCINNATI, OHIO.

TELEPHONE-RECEIVER.

SPECIFICATION forming part of Letters Patent No. 452,775, dated May 26, 1891.

Application filed August 14, 1890. Serial No. 361,956. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. DICKSON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Telephone-Receivers, of which the following is a specification.

The object of my improvement is to secure a more distinct and natural enunciation from the telephone-receiver and avoid the mechanical, confused, and blurred articulation which makes the use of the telephone disagreeable as well as often causing error or uncertainty in the communication. The ordinary receiver conveys the sound-producing vibrations to one ear while no corresponding vibrations reach the other ear, which is at the same time receiving and transmitting to the aural nerves such sensations as are due to the sound-waves prevailing in the room and derived from independent sources. Efforts have been made to remedy the unnatural and confused transmission due to this by extending a tube from one side of the receiver-diaphragm to one ear and a tube from the other side of this diaphragm to the other ear; but this tends to convey not the same vibrations to both ears, but rather converse vibrations to the two ears, causing some indistinctness or lack of clear articulation in the sounds heard. I find that these difficulties can be remedied by transmitting concurrently to each ear the same vibrations or waves of sound conducted from the same side of the diaphragm, and I accordingly construct my telephone-receiver so that the vibrations of the diaphragm affect both ears alike, while other sounds are equally excluded from both ears. I also add to the distinctness of the reproduction and transmission to both ears by the peculiar construction of the receiver hereinafter more particularly described.

In the drawings, Figure 1 is a side elevation of a telephone-receiver having attached thereto my improved device. Fig. 2 is a cross-section of the ear-piece of the telephone-receiver. Fig. 3 is a cross-section, and Fig. 4 a rear view, of the ear-piece, showing modified forms.

A represents the receiver of a telephone, B the ear-piece, and *b* an aperture through which sound is communicated to one ear. A

passage *b'*, preferably extending from the aperture to the circumference of the ear-piece, admits one end of a tube or flexible connection C, having at its other end a second ear-piece D. On the inner side of the ear-piece an annular recess *b¹* may be formed, the end of which is adapted to form one wall of an air-space, the other wall of which is formed by the diaphragm of the receiver. The air in this space is caused to vibrate by the diaphragm producing sound-waves which are conveyed to one ear through the aperture in the ear-piece and to the other through the tube. It is desirable to establish communication between the tube and the air-space at a point between the diaphragm and the outer end of the aperture conveying the sound to the one ear in order to direct the sound-waves to the other ear before they have been diffused or dissipated by expansion in the air-space or elsewhere. The use of a flexible tube depending from the ear-piece on the receiver as the means of communication between the air-space and the other ear permits the operator to use the receiver in the ordinary way without being hindered or annoyed by cumbrous attachments thereto. The tube may hang at his side when not in use, and can be readily placed to the ear if it should be found that the articulation is indistinct or the operator be annoyed by extraneous sounds. The ear-piece D may be of any desired construction; but I have illustrated it as consisting of a short bent tube having its outer end enlarged to form a bulb adapted to fit into and be retained in the orifice of the ear.

As a means of regulating the relative volume of sound conveyed to each ear and effectively transmitting it, I form a circumferential groove *b²*, preferably having converging sides, on the inner side of the ear-piece B adjacent to the diaphragm of the telephone, as shown in Fig. 3. This converging circumferential groove receives the sound-vibrations and conducts them into the passage *b'* and through the tube C to the ear-piece D. By varying the size of this groove I convey a greater or less volume of sound through the tube C.

Fig. 4 shows a modification which has some

of the advantages of the circumferential groove; but I do not consider it as desirable.

As shown in this figure, part of the wall of the passage b' adjacent to the diaphragm of the telephone is cut away, forming a depression b^3 , connecting with the passage b' .

I claim—

1. The combination, in a telephone-receiver, of an ear-piece adjacent to the diaphragm of the receiver, an air-space between the diaphragm of the receiver and the ear-piece, an aperture communicating with the air-space and transmitting sound to one ear, a tube depending freely from the ear-piece, communicating with the air-space, and having at its free end a second ear-piece whereby sound is transmitted to the other ear, the tube being so arranged that the sound-waves caused by the vibration of the diaphragm will be admitted to it before passing out of the aperture, substantially as and for the purpose specified.

2. The combination, in a telephone-receiver,

of an ear-piece, an aperture transmitting sound to one ear, a channel in the inner wall of the ear-piece adjacent to the diaphragm of the telephone and adapted to receive the sound-vibrations caused thereby, a passage communicating with the channel into which the sound-vibrations may be conducted, a tube communicating with the passage, and a second ear-piece at the free end of the tube, constructed and arranged substantially as and for the purpose described.

3. The combination, in a telephone, of the receiver A, the ear-piece B, provided with the circumferential groove b^2 , the aperture b , the passage b' , the tube C, and the second ear-piece D, substantially as and for the purpose specified.

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Witnesses:

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