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TELEPHONIC RECEPTION APPARATUS

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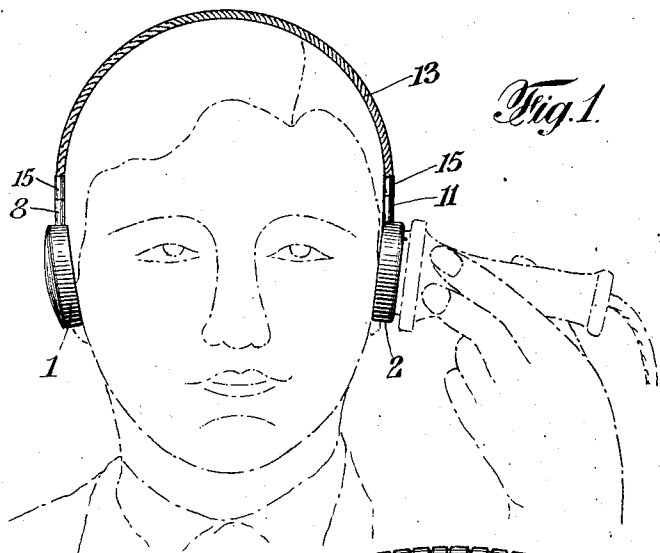
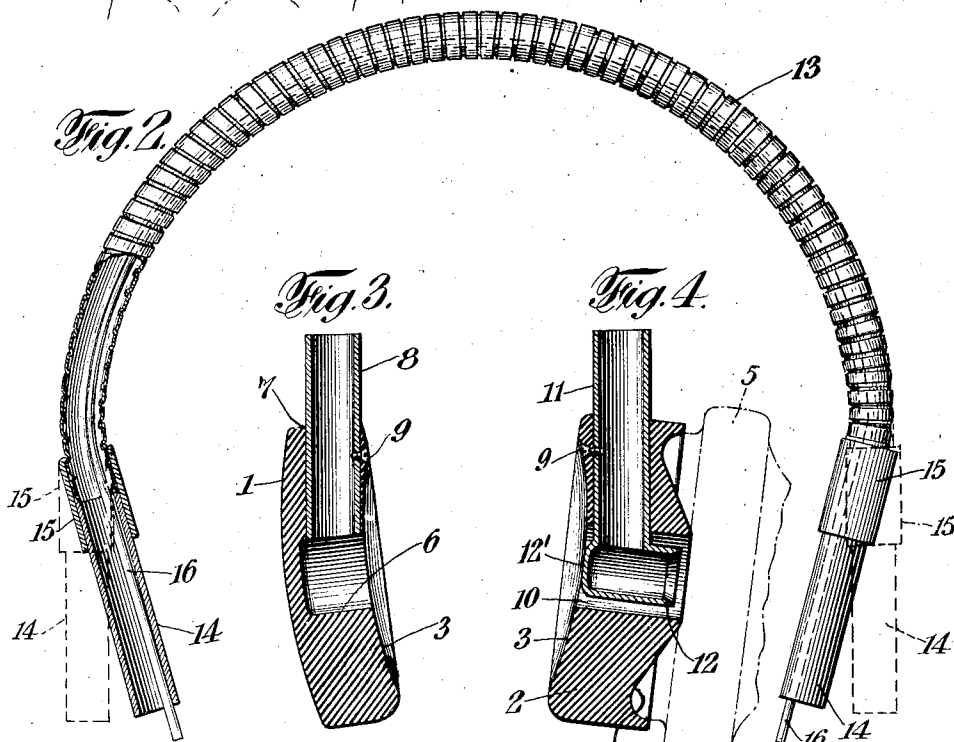


Fig. 2.



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UNITED STATES PATENT OFFICE.

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TELEPHONIC RECEPTION APPARATUS.

Application filed June 9, 1925. Serial No. 35,859.

To all whom it may concern:

Be it known that I, LOUIS S. SCHER, a citizen of the United States, and resident of borough of Bronx, New York city, county of Bronx, State of New York, have invented certain new and useful Improvements in Telephonic Reception Apparatus, of which the following is a specification.

The invention relates to improvements in telephone reception apparatus and particularly to a device which may be used to enhance and improve the reception of telephone messages. The device is entirely separate from and independent of the telephone receiver, but is adapted to be used in connection therewith.

It comprises a pair of ear pieces which may be mounted in position against the ears of the user with a flexible sound conducting tube connecting the same and extending over the head of the wearer. One of the ear pieces has its outer surfaces formed to provide a seat against which the telephone receiver may be pressed when a message is to be received over the telephone, in which case the sound will be received by both ears of the wearer whereby the clearness of the sound reception is greatly enhanced. With such a device the ear piece against which the telephone receiver is pressed, by one hand of the user, may be mounted against either ear of the wearer as desired, the other hand then being free for making a memorandum, etc.

Objects of the present invention comprise the provision of improved devices of the character referred to. In accordance with one feature of the invention the ear pieces are pressed into position against the ears of the wearer by a removable spring member; when the spring member is removed the sound conducting tube connecting the two ear pieces is entirely flexible. In such case the device may be used by two persons at once, one of whom holds one of the ear pieces against his ear with the telephone receiver pressed there against, while the other person may press the other ear piece against one of his ears and thereby listens in on the conversation.

Preferably the construction embodies a flexible tubing (which may be provided with a U-shaped spring member as described), this flexible tubing being connected to the ear pieces by an improved form of connection whereby the tubing may be adjusted in length to fit the head of the wearer and whereby the ear pieces may be caused to comfortably fit against the ears in a simple and effective manner. Preferably this is accomplished by the provision of telescopic connections between the tubing and the ear pieces.

Other objects of the invention comprise the provision of various improved features of construction and combination of parts whereby an effective device of simple construction and neat appearance may be produced in an economical manner. The invention will be more fully described in the following specification and be particularly pointed out in the appended claims.

In order that the invention may be more clearly understood attention is hereby directed to the accompanying drawings illustrating one embodiment of the invention.

In the drawings Figure 1 is a front elevation of the device in position, with the two ear pieces against the ears of a person receiving a telephone message;

Fig. 2 is a front elevation of the flexible tubing connecting the ear pieces partly broken away and in section, together with the rigid end tubes connected to the flexible tubing, the spring member extending through the tubing also being shown; and

Figs. 3 and 4 are vertical sections of the two ear pieces, together with the short rigid tubes secured thereto.

Referring to the drawings the device comprises ear pieces 1 and 2, these ear pieces being provided each with a smooth concave surface 3 adapted to bear against one of the ears of the wearer. The ear piece 2 is provided on its opposite side with a surface 4 against which the end of a telephone receiver, indicated by dotted lines at 5, is adapted to be pressed. This surface 4 is preferably so shaped that the telephone receiver will be centered in position there-

by, when it is pressed against the same by the user.

The ear piece 1 is provided with an axial recess 6 opening from the face 3 thereof, this recess extending only part way through the ear piece. A passage 7 extends from the recess 6 through the upper face of ear piece 1 and a short rigid tube 8 is mounted in this passage to communicate with recess 6 at the one end to extend for a short distance above the upper surface of ear piece 1 at its other end. This short tube may be secured in position within opening 7 by any suitable means such as the set screw indicated at 9.

The other ear piece 2 is provided with an axial opening 10 which extends through the same from one face to the opposite face thereof. This ear piece is provided with an upwardly extending passage similar to the passage 7 in ear piece 1 in which is mounted a short rigid tube 11 having its upper portion extended a short distance above the ear piece 2 in the same manner as has been described in connection with tube 8. At its lower end tube 11 is provided with an angular cup-like extension 12 which is mounted within the axial opening 10 of the ear piece. This extension 12 has its mouth directed towards the surface of the ear piece against which the telephone receiver is to be seated. Accordingly, the sound waves produced by the diaphragm of the telephone receiver will in part enter the extension 12 and pass therefrom through the tube 11. The extension 12 of tube 11 is preferably cylindrical in section and of a diameter somewhat less than that of the axial passage 10 of the ear piece so that an annular passage is provided extending around the extension portion 12 of tube 11, by which a portion of the sound waves produced by the telephone receiver will pass directly into that ear of the user against which the ear piece 2 is positioned. The ear pieces may be formed of any suitable material, such as hard rubber, phenolic condensation product or the like.

The sound conducting tube 13 is preferably formed of a flexible metallic cable, although, of course, other flexible tubing may be used. Short rigid tubes 14, 14 are secured to the ends of the flexible tubing 13, as by means of the coupling sleeves 15, 15. A spring member of approximately U-shape, preferably a suitable length of spring wire 16, is removably mounted within the flexible tubing, preferably with its ends extending slightly beyond the ends of the rigid tubes 14 at the ends of the flexible tubing, so that this spring member may be readily grasped and removed if desired.

The rigid tubes 14 and 8 and 11 are adapted to telescope when the device is used, short tubes 14 being adapted to slidably engage within the short tubes 8 and 11 of the two

ear pieces. When the device is in use the upper ends of the tubes 8 and 11 may abut against the lower ends of the coupling sleeves 15, as shown in Figure 1. If, however, a somewhat longer connection is required to pass over the head of the user tubes 8 and 11 may be moved downwardly, relatively to the coupling sleeves 15, a sufficient distance to lengthen the tubing the necessary amount. Preferably the tubes 14 fit rather closely within the short tubes 8 and 11 so that the ear pieces will be held frictionally in position upon the tubes 14 in any desired adjusted position.

With the device described a telescopic connection is provided between the sound conduit and the ear pieces as described. Rotation of the ear pieces about the axes of short tubes 14 is also permitted by this connection because of the relative rotation which is permitted between tubes 14 and tubes 8 and 11. Lateral movement of the ear pieces is thereby permitted sufficiently to enable the ear pieces to fit comfortably against the ears. No rotational movement of the ear pieces in a vertical plane, relative to the tubing 13, is provided in the preferred embodiment of the invention since such movement is not necessary with this construction, in order to enable the ears to be comfortably fitted. The short tubes 8 and 11 preferably enter the ear pieces 1 and 2 at angles to the vertical center lines of the ear pieces, sufficient to enable the ear pieces to slant somewhat upwardly and outwardly when the tubes 14 at the end of the flexible conduit are in approximately vertical positions, (this position of tube 14, in use, being shown in dotted lines at the right of Fig. 2). With the average user of the device the sides of the heads and ears slant upwardly and outwardly to a sufficient extent, so that the angularity of the ear pieces, as described, will enable them to fit comfortably against the ears of the average user. If in any individual case a somewhat different vertical angle of the ear pieces is required, the spring member 16 may be removed from the tubing and bent into the necessary shape to enable the ear pieces to fit comfortably against the ears when the spring member 16 has been replaced in the tubing.

It will be noted that a portion of the sound vibrations entering ear piece 2 from the telephone receiver is deflected by the extension 12 into the tubing extending to the other ear piece. This extension 12 is preferably of a cross sectional area greater than that of the annular passage extending around the outside of this extension 12, whereby sound is conducted directly to the ear against which ear piece 2 is used. The object of this construction is to provide as far as possible for approximately equal reception of sound by both ears. A greater

volume of sound is deflected into the tube 11 for transmission to the opposite ear because of the fact that a certain amount of this sound will be dissipated in the course of its travel in the tubing to the opposite ear, and the sound passage 12 is made sufficiently larger than the annular passage surrounding the same, to compensate for such loss of sound in the tubing. The extension member 10 or sound receiving cup 12 faces in the direction in which the sound waves produced by the telephone receiver are travelling. The base portion 12' of cup or extension member 12 is preferably approximately aligned with the rear wall of tube 11, since I have found that this arrangement causes the sound waves to be propagated in tube 11 with the best efficiency.

As stated the spring wire 16 is merely held frictionally within the tubing and can readily be removed therefrom by pulling one end of the same. When the wire has been removed the tube 13 becomes entirely flexible. In this case the apparatus may be used for enabling two persons to receive a message over the telephone at the same time, as stated; one person holding ear piece 2 against one of his ears with telephone receiver 5 pressed against the same, while the other person stands beside him with the other ear piece 1 pressed against one of his ears.

It will be noted that the construction described provides an extremely simple, durable and compact device, and one which is very readily adjusted and which will fit any size of head. With the use of a flexible metallic cable for the tube 13 as described, and with the spring member 16 associated therewith, there cannot possibly be any kinking of the cable and there will be no possibility of deterioration as in constructions in which rubber tubing is used.

It should be understood that the invention is not limited to the exact details of construction which have been particularly described, but that the same is as broad as is indicated by the accompanying claims.

I claim:

1. In telephone reception apparatus, the combination of a pair of ear pieces, one of the same having its opposite surfaces adapted to fit the ear, and to form a seat against which the end of a telephone receiver may be pressed, respectively, sound conduit means comprising a flexible sound-conducting tube connected to said ear pieces to connect the interiors thereof, means for adjusting the effective length of said sound conduit means, and a U-shaped spring member extending through the interior of said tube, adapted to hold said ear pieces adjustably against the head of a wearer.

2. In telephone reception apparatus, the combination of a pair of ear pieces, one of

the same having its opposite surfaces adapted to fit the ear, and to form a seat against which the end of a telephone receiver may be pressed, respectively, said ear pieces having short rigid cylindrical tubes extending therefrom and opening into the interiors thereof, and a sound-conducting tube having rigid cylindrical end portions adapted to engage telescopically with a frictional fit, with said short tubes.

3. In telephone reception apparatus, the combination of a pair of ear pieces, one of the same having its opposite surfaces adapted to fit the ear, and to form a seat against which the end of a telephone receiver may be pressed, respectively, said ear pieces having short rigid cylindrical tubes extending therefrom and opening into the interiors thereof, a flexible sound conducting tube having rigid cylindrical end portions adapted to engage telescopically with said short tubes, and spring means associated with said flexible tube to hold said ear pieces against the head of a wearer.

4. In telephone reception apparatus, the combination of a pair of ear pieces, one of the same having its opposite surfaces adapted to fit the ear, and to form a seat against which the end of a telephone receiver may be pressed, respectively, said ear pieces having short rigid cylindrical tubes extending from the upper edges thereof and communicating with the interiors thereof, the said short tube of the ear piece against which the telephone receiver rests having an angular extension of substantial cross section directed towards the receiver-seating surface of said ear piece and adapted to receive part of the sound produced by the telephone receiver, and a sound-conducting tube having rigid cylindrical end portions adapted to engage telescopically with said short rigid tubes.

5. In telephone reception apparatus, the combination of a pair of ear pieces, one of the same having its opposite surfaces adapted to fit the ear, and to form a seat against which the end of a telephone receiver may be pressed, respectively, said ear piece having an axial opening therethrough, a sound-receiving member positioned within said axial opening, the mouth of which is directed towards said receiver-seating surface, a portion of the cross section of said axial opening being unobstructed by said member, and a sound-conducting tube extending from the interior of said member to said other ear piece.

6. In telephone reception apparatus, the combination of a pair of ear pieces, one of the same having its opposite surfaces adapted to fit the ear, and to form a seat against which the end of a telephone receiver may be pressed, respectively, sound conduit means comprising a flexible sound-conducting tube connected to said ear pieces to con-

nect the interiors thereof, means for adjusting the effective length of said conduit means, and a U-shaped spring member removably mounted within and bearing frictionally against an inner surface of said flexible tube, to secure the ear pieces against the ears of a single user, when said spring member is in position, said tube being sufficiently flexible to permit the ear pieces being used by two persons, when said spring member is removed. 10

In testimony whereof I have signed my name to this specification.

LOUIS S. SCHER.