Dec. 8, 1925. 1,564,474

C. FENSKY

AUDIPHONE

Filed Feb. 4, 1924

Fig. 1

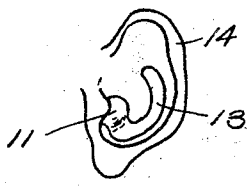


Fig. 5

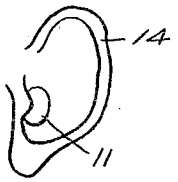


Fig. 4

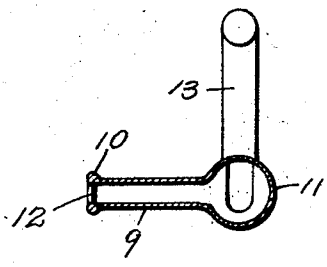


Fig. 3

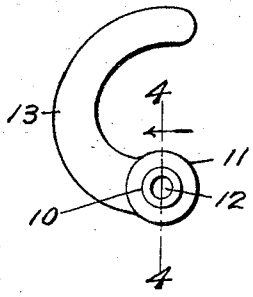


Fig. 2

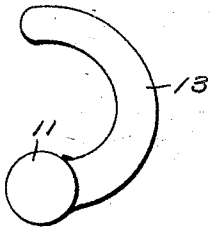


Fig. 7

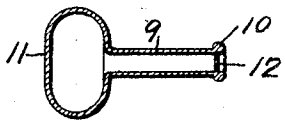


Fig. 6

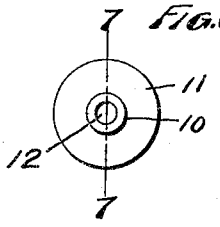
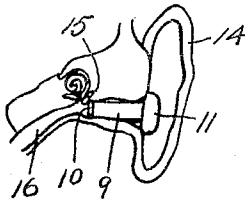


Fig. 8



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UNITED STATES PATENT OFFICE.

CHARLES FENSKY, OF ST. LOUIS, MISSOURI.

AUDIPHONE.

Application filed February 4, 1924. Serial No. 690,642.

To all whom it may concern:

Be it known that I, CHARLES FENSKY, a citizen of the United States, and resident of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Audiphones, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in audiphones, and has for its primary object a device for improving the hearing which is designed to lie wholly within the interior and exterior ear thereby rendering it practically invisible and eliminating the necessity of any fastening or supporting means other than the ear itself.

A further object is to construct an audiphone which is supported entirely by the ear and which when in position is in direct contact with the bony structure of the ear so that any sound wave striking the audiphone will set it in vibration, and this vibration be imparted to the bony structure of the ear, from whence it is transferred to the auditory nerves.

This device is an improvement on applications filed by me for improvements in audiphones, filed May 2, 1923, Serial No. 636,067, and filed October 4, 1923, Serial No. 666,477. respectively.

In the drawings:

Fig. 1 is a view of the concha or external ear showing my device in position;

Fig. 2 is a side elevation viewing the same from the outer or exposed side;

Fig. 3 is a similar view of the opposite side;

Fig. 4 is a section taken on the line 4—4 of Fig. 3 viewed in the direction of the arrow;

Fig. 5 is a view of the concha showing a modified form of audiphone;

Fig. 6 is an end elevation of the same viewing the same from the inside side;

Fig. 7 is a longitudinal section taken on the line 7—7 of Fig. 6; and

Fig. 8 is a sectional view of an ear showing one of my devices in position therein.

In the construction of my device I employ a hollow or tubular member 9 which is provided at one end with an external bead 10. This bead is primarily for the purpose of eliminating sharp edges, but also assists in holding the device in position. The opposite end of the member 9 is provided with a hollow enlargement 11, which member is entirely closed. The end of the member 9 adjacent the bead is also closed by means of a diaphragm 12. This diaphragm when in position is secured in such a manner that the members 9 and 11 are hermetically sealed. Secured to the enlargement 11 is a hollow curved member 13. This member is secured at one end to the enlargement 11 and has communication with the interior thereof (see Fig. 4), the free end however is closed. This curved portion is adapted to lie within the concha or outer ear as illustrated in Fig. 1 and assists materially in holding the device in position.

I may however if desired, eliminate the curved hollow portion 13 and close the member 11 entirely, as illustrated in Figs. 5, 6 and 7. This form may be desired by some persons as only a minimum amount of the device is visible.

In Fig. 8 I have shown a diagrammatic view in which 14 is the concha or outer ear, 15 the malleus and 16 the Eustachian tube. It will be noted from this view that the end 10 of the member 9 bears against the malleus 15 so that any vibrations set up in the audiphone and especially the material out of which it is constructed, will be imparted directly to the malleus and from there to the auditory nerves and so on to the organs of hearing. This makes my device especially useful where the ear drum is entirely or partially destroyed, as it prevents the sound waves from passing down through the Eustachian tube without vibrating the auditory nerves.

My device is also useful where the ear drum is perfect but has become thickened through illness or disease to such an extent that it does not vibrate properly.

It is also possible to charge my device with radium or place radium salts within the hollow member previous to sealing it. This charging the device with radium, it is believed, will prove very beneficial in certain ear troubles and possibly lead in time to the curing thereof so as to restore normal hearing.

The enlargement 11 on the end of the member 9 and the curved portion 13, when used, not only serves to support the device in the ear, but limit the depth of insertion of the member 9 and also presents a large surface for the reception of the sound vibrations.

It is to be especially noted that my device while hollow, is entirely closed so that there is no possibility whatever of any air currents being formed within the device and setting up false vibrations thereby causing unnecessary and disturbing noises.

While I have shown my device as constructed of metal, still it is possible to use other materials for its construction without departing from the spirit of my invention. The essential feature being to construct the audiphone or rather use a material which will readily vibrate in sympathy with the sound waves striking it and impart these vibrations to certain portions of the interior ear so that they will be readily transferred to the auditory nerves.

My device is essentially rigid in that it is not collapsible, but however, is constructed of material which is sufficiently elastic to be sensitive to sound vibrations and vibrate in unison therewith so that all sound waves transmitted thereby will be taken up by the auditory nerves without distortion.

Having fully described my invention, what I claim is:—

1. An audiphone comprising a rigid hermetically sealed elongated hollow member having an integral enlargement at one end, the end of said member opposite said enlargement adapted to be inserted in the interior ear and terminate at or near the malleus, said hollow member capable of vibrating in unison with sound waves striking the enlargement.

2. An audiphone comprising a single hollow elongated hermetically sealed member having an integral enlargement on one end, the opposite end provided with an external projecting bead, said last mentioned end adapted to the inserted in the interior ear so that said bead establishes communication with the malleus of the ear, said hollow member being sufficiently elastic to vibrate in unison with sound waves striking the enlargement.

3. An audiphone comprising a hollow member hermetically sealed, said hollow member having a curved portion formed at an angle thereto, and an enlargement interposed between the curved portion and the remainder of the member, said member being adapted to vibrate in unison with sound waves striking the curved and enlarged portions, the remainder of said member adapted to be inserted in the ear and establish communication with the malleus, whereby said malleus receives the vibration imparted to the hollow member.

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

CHARLES FENSKY.