May 2, 1950 C. H. STARKEY 2,506,116

EARRING SUPPORT FOR HEARING AID TUBES

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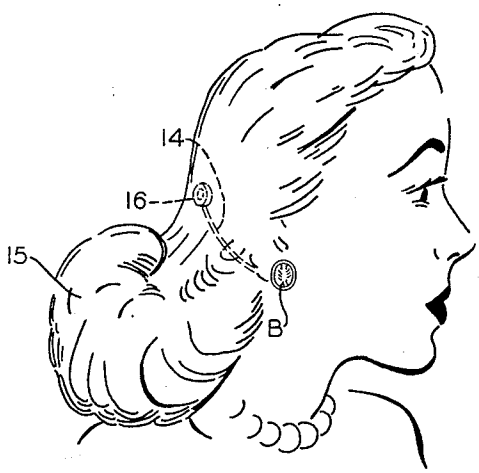


FIG. 1.

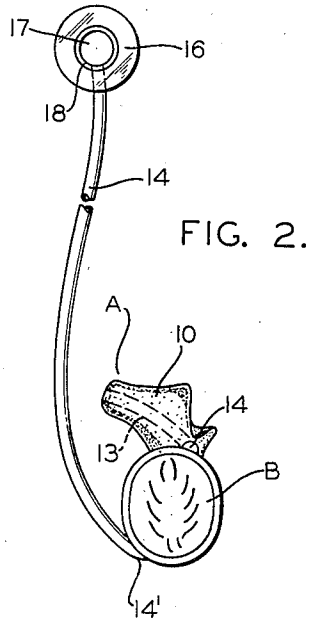


FIG. 2.

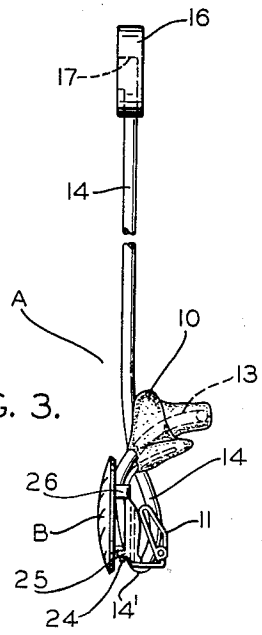


FIG. 3.

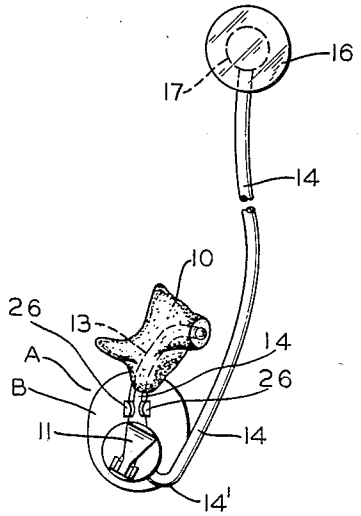


FIG. 4.

INVENTOR.
CHARLES H. STARKEY
BY

ATTORNEY

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EARRING SUPPORT FOR HEARING AID TUBES

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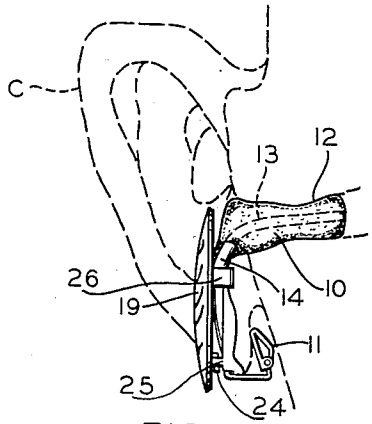


FIG. 5.

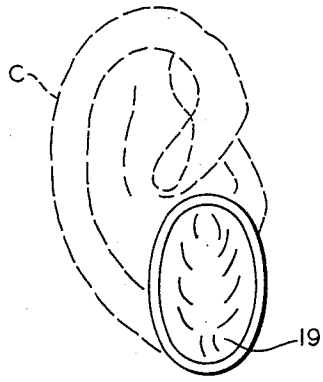


FIG. 6.

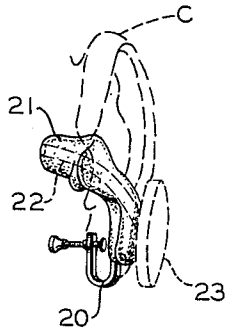


FIG. 7.

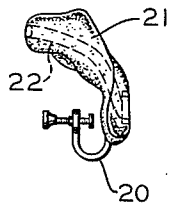


FIG. 8.

INVENTOR.
CHARLES H. STARKEY
BY Howard Richey
ATTORNEY

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EARRING SUPPORT FOR HEARING AID TUBES

Charles H. Starkey, Minneapolis, Minn.

Application January 16, 1947, Serial No. 722,359

4 Claims. (Cl. 181—23)

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My invention relates to a "Hear-Ring" aid unit designed to provide an inconspicuous hearing unit for people hard of hearing and who normally wear some kind of hearing aid.

A feature resides in providing an ear unit portion which is formed by taking an impression of an individual's ear cavity, then molding the ear portion of the unit as small and inconspicuous as possible, with a hollow passageway extending through the same. The ear portion is designed to be secured to the lobe of the ear by a screw or spring clamp means which holds the ear portion within the cavity of the ear in a very inconspicuous manner.

It is also a feature to provide an ear member for my hearing aid which, when worn by a lady, is designed with an earring of sufficient size to virtually cover the exposed portion of the ear member, thus concealing the ear member of the unit behind the earring.

A further feature of primary importance in my hearing aid unit resides in attaching a hollow flexible tube leading from the member which is positioned within the cavity of the ear, having a receiving head formed on the free end of the flexible tube of the member and is positioned or concealed under the lady's hair. This receiver unit positioned under the hair is concealed and is in such a position that the cord leading to the battery may extend down the back of the neck of the wearer to the battery unit. Thus I provide a hearing aid unit for women which is so completely concealed that all that is visible to the eye is a decorative earring.

The decorative earring plates may be of different styles and they are removable, thus permitting the wearer to select a style to match other jewelry of the wearer if desired. This makes my hearing aid unit very desirable for women who heretofore were unable to conceal the hearing aid and provides an attractive ear ornament, the style of which may be changed from time to time.

The end of the flexible tube which extends under the hair, removably supports the receiver.

It is of primary importance to provide a member which is "tailor made," so to speak, being molded to the exact cavity of the ear of the wearer which permits the reduction of the size of the ear member and makes it easier to conceal the same. This feature with the means of clamping this small ear member in the cavity of the ear is also important because it prevents any danger of the ear member falling away from the ear. A spring clamp or screw clamp is designed to hold the ear member firmly in place within the cavity

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of the ear, and this also increases the efficiency of my hearing aid unit.

Thus my hearing aid unit may be in the simple form which includes the member projecting into the ear and held firmly in place to increase the efficiency thereof, or the unit may include the ear member with the clamp for holding the same in place together with the flexible tube on the free end of which is provided means for the receiver. This last type is more adapted for women where the receiver unit may be concealed under the wearer's hair. In the present old forms of hearing aids, the receiver is retained at the ear cavity and as a result the ear piece is bulky and conspicuous. In my unit for women the receiver is located away from the ear and under the wearer's hair and thus the total size of the unit at the ear is materially reduced, making the unit invisible to the casual observer.

These and other features of my invention will be fully and clearly defined throughout the specification and claims.

In the drawings forming part of the specification:

Figure 1 illustrates my hearing aid unit worn by a lady to show the manner in which the entire unit is practically concealed.

Figure 2 illustrates my unit with the ear portion removed and showing a flexible hollow tube leading to the button to which the receiver is attached.

Figure 3 is a side view of my hearing aid unit with the flexible tube extending upward therefrom.

Figure 4 is a perspective of my hearing aid unit looking toward the inner side of the earring clamp and showing the ear unit from the inside.

Figure 5 is a cross section of a person's ear showing the ear member of my unit projecting into the cavity of the ear, illustrating the earring which conceals the ear member from view and also showing the clamp for securing the ear member firmly within the ear.

Figure 6 is a view looking at the outside of a person's ear, showing the manner in which the earring virtually conceals the member of the unit which is held in the ear by the clamp.

Figure 7 illustrates the ear member held positioned within the ear which is shown in dotted outline.

Figure 8 is a side view of the ear member removed from the ear and showing a screw clamp for attaching the ear member to the ear to hold it firmly in place.

My hearing aid unit A is illustrated in perspec-

tive in Figure 2, showing the ear portion 10 connected to a decorative earring B which is formed with a spring clamp on the back of the same. The ear member 10 is usually "tailor made" to fit the ear of the wearer. This is accomplished by taking an impression of the person's ear and then molding the ear member 10 in conformity to the mold. The ear member 10 may also be formed of transparent plastic material or it may be flesh colored to make it less conspicuous.

It will be obvious that the ear member 10 is extremely small and is attached to fit into the ear cavity 12 shown in Figure 5. The member 10 is formed with a passageway 13 extending through the same and which is connected to the hollow flexible tube 14. The tube 14 may be of any desired length and usually is not very long as it is only necessary to run this tube to a position beneath the hair 15 of the wearer as illustrated in Figure 1. The outer end of the tube 14 connects to the plastic button 16 which is formed with a central recess 17. The recess 17 is adapted to receive a metal ring 18 which may be molded into the plastic button 16 when it is made. The hollow tube 14 connects with the chamber 17 and this provides a passageway from the chamber 17 through the tube 14 and directly to the passageway 13 of the ear member 10. Thus sound may travel from the button 16 through the tube 14 and through the passageway 13 into the inner cavity of the ear C.

The button 16 is adapted to support a hearing aid receiver (not illustrated in the drawings) which receiver may be of any suitable type and which is concealed beneath the hair 15 of the wearer.

With my unit A a lady may wear a hearing aid having virtually the appearance of an ordinary earring and thus the fact that she is wearing a hearing aid will go practically without notice. The electric cord running from the receiver in this unit may extend down the back of the neck of the wearer, being hidden by the hair and thus it is almost entirely concealed from sight.

It is of primary importance to provide a small hearing member 10 and that this member be held firmly within the ear cavity 12. To hold the ear member 10 within the ear cavity 12 in a manner so that it will not slip out of the ear or come loose therein, I provide the clamp 11 which engages under the lobe of the ear in a similar manner as the clamp on an earring.

By my method of forming the ear member 10 to the exact formation of the cavity of the ear of the wearer, I am able to insure the wearer of a comfortable ear member which will remain firmly in the ear by means of the clamp 11. Furthermore, when the ear member 10 is molded in accordance with my method it requires very little force to hold the same in the ear, and thus I do not require a clamp on the lobe of the ear which would cause discomfort or strain to annoy the wearer.

It would appear from Figure 1 that my hearing aid unit A is virtually entirely concealed and thus provides a very desirable form for women who require the aid of a hearing device. It will also be apparent from Figure 6 that the earring plate 19 may be large enough to entirely conceal any portion of the ear member 10. The decorative plate 19 of the earring may be in accordance with the selection of the wearer.

In Figures 7 and 8 I have illustrated a screw type of clamp 20. The ear member 21 illustrated in Figures 7 and 8 is made of plastic and is molded

from an impression of the wearer's ear which permits the ear member 21 to be made very small as heretofore set forth. Ear member 21 has a passageway 22 extending through the same to direct the sound into the inner cavity of the ear. In the form 21 of the ear member the receiver 23 may be attached as illustrated in Figure 7 to the lower outer end of the ear member 21 overlying the lobe of the ear of the wearer. In this form the receiver 23 may appear as an earring and the cord to the battery (not shown) may extend down back of the ear to connect with the battery unit in any suitable manner.

It will be apparent that this last form of the ear member illustrated in Figures 7 and 8 may be worn by men and the wearer is assured of the firm holding of the ear member 21 by means of the clamp 20.

Therefore it will be apparent that I provide a novel method of molding the ear member to the exact form of the wearer's ear, which provides a lightweight ear member owing to the small amount of material required to form the same. This also permits the ear member to be formed so that it is virtually invisible when worn in the ear as heretofore set forth. Further, my unit A enables a lady to wear the same virtually as an earring and with the same appearance. The clamp means set forth in important to hold the ear member firmly in the ear cavity which increases the efficiency of the ear member because it is always held in the proper position within the ear to direct the sound from the receiver to the inner cavity of the ear.

With my style of Hear-Ring mold I provide all of the advantages of the old forms of hearing aids with the added advantage of a smaller earring ornament as it does not need to cover the receiver in the form of the unit A. In this form the receiver is worn behind the ear under the hair.

I secure good conduction of hearing without filling the whole outer part of the ear as must be done with the conventional older form of mold. The ear mold in this case is held in by a clamp similar to that used in other earrings, such as 11 or 20, which are adapted to engage the lobe of the ear of the wearer. This allows circulation of air and reduces perspiration as well as making the wearing of a hearing aid unnoticeable. A pair of matching earrings is all that is noticeable to an observer.

The flexible tube 14 curves at 14' as it leads away from the earring B, which permits this curve to extend around and under the lobe of the ear and virtually entirely conceals the tube 14 from the earring B to the button 16 which supports the receiver under the hair, as illustrated in Figure 1.

An important feature of my hearing aid unit resides in providing a removable or replaceable decorative earring plate B or 19 which permits the wearer to change the style of the plate B or 19 whenever desired.

The plates B and 19 are adapted to be held at the bottom by a short lug 24 which hooks into the loop 25 while the upper portion of the plate is held by the spring fingers 26 which engage around the tube 14. Thus the decorative plate B or 19 is removably held closely adjacent the outer lower end of the ear member 10 or 12, and may be readily replaced by the wearer of the hearing aid unit at any time.

This removable decorative plate for my hearing aid unit is important as the plate acts to conceal

the ear member of the hearing aid when the same is in the ear, and it also provides a means for covering the clamp member 11 and 20. Anyone, particularly a lady, is rather self-conscious about wearing a hearing aid, therefore it will be apparent that the decorative plates B or 19 provide a very essential part of my hearing aid unit. Furthermore, the fact that the decorative plates B and 19 may be changed at will by the wearer enhances the value of my hearing aid unit. It will also be apparent that an earring with a removable decorative plate B or 19 may be worn on the opposite ear to that supporting the hearing aid.

I claim:

1. An ear member for a hearing aid unit comprising a tubular sound transmitting member adapted to project into the ear of the wearer, substantially rigid means adapted to extend outwardly and downwardly from said tubular member over the front of the lobe of the ear of the wearer, and means including movable means connected to said rigid means and adapted to extend behind the lobe of the ear of the wearer to clamp the lobe of the ear of the wearer to said rigid means.

2. A hearing aid unit comprising an ear member adapted to project into the ear of the wearer, a sound passageway extending through said ear member, substantially rigid means adapted to extend outwardly and downwardly from said ear member over the front of the lobe of the ear of the wearer, and means including movable means connected to said rigid means and adapted to extend behind the lobe of the ear of the wearer to clamp the lobe of the ear of the wearer to said rigid means.

3. A hearing aid unit comprising an ear member adapted to project into the ear of the wearer, said ear member including an integral portion adapted to extend outwardly and downwardly over the front of the lobe of the ear of the wearer, a sound passageway extending through said ear member, and means including movable means connected to said integral portion and adapted to extend behind the lobe of the ear of the wearer to clamp the lobe of the ear of the wearer to said integral portion.

4. A hearing aid unit comprising an ear member adapted to project into the ear of the wearer, a sound passageway extending through said ear member, a flexible tube having one of its ends connected to said sound passageway, a support for a receiver connected to the other end of said flexible tube, substantially rigid means adapted to extend outwardly and downwardly from said ear member over the front of the lobe of the ear of the wearer, and means including movable means connected to said rigid means and adapted to extend behind the lobe of the ear of the wearer to clamp the lobe of the ear of the wearer to said rigid means.

CHARLES H. STARKEY.

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