

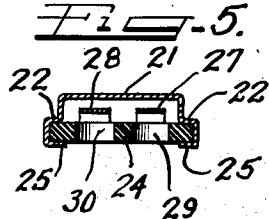
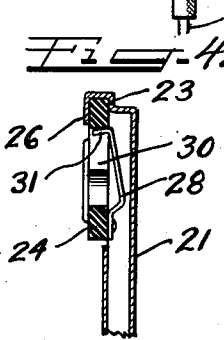
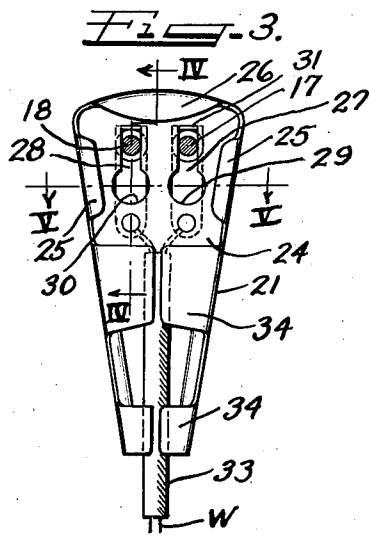
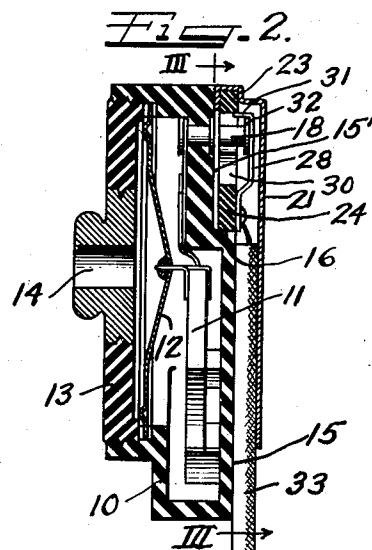
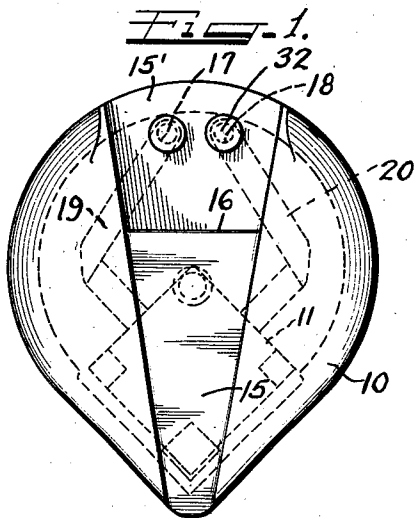
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CIRCUIT CONNECTING MEANS FOR EAR PIECES OF HEARING AIDS

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CIRCUIT CONNECTING MEANS FOR EAR-PIECES OF HEARING AIDS

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2 Claims. (Cl. 173—328)

This invention relates to hearing aids usually used by persons having defective hearing, the invention concerning particularly improved means for connecting the electrical circuit from the microphone assembly with the earpiece usually inserted in the ear.

An important object of the invention is to provide a connector piece separate from the earpiece but readily attachable or detachable, and provided with terminals for the earpiece circuit for engagement with terminals on the earpiece when the connector member is applied to the earpiece.

A further object of the invention is to provide locking means effective by the application of the connecting member to the earpiece for locking it in service position thereon.

A further object of the invention is to provide means on the connecting member for protecting against breakage of the circuit wires extending thereinto.

The various features of my invention are incorporated in the structure shown on the accompanying drawing, in which drawing

Figure 1 is a rear elevation of the earpiece to which my improved connector is applicable;

Figure 2 is an enlarged vertical section of the earpiece with the connector applied thereto;

Figure 3 is a section on plane III—III of Fig. 2;

Figure 4 is a section on plane IV—IV of Fig. 3; and

Figure 5 is a section on plane V—V of Fig. 4.

My improved circuit connecting means is particularly adaptable to the type of earpiece shown on Fig. 1, but may be adapted for efficient application to other types of earpieces.

Briefly describing the earpiece shown, it comprises the body 10 of suitable insulating material and of generally circular shape. Within this body is mounted the crystal 11 which is connected with the diaphragm 12 secured between the body and the detachable cover 13 which is provided with the outlet orifice 14.

On its rear side the body 11 has a vertically extending V-shaped channel whose lower portion 15 is comparatively shallow but whose upper portion 15' is deeper to leave a transverse shoulder 16. Projecting from the body 10 into the deeper channel near the upper end thereof are the contact pins 17 and 18 which at their inner ends are connected by leads 19 and 20 with the crystal.

The connector member comprises a shell 21 which may be of sheet metal or other suitable

material, this shell being of V-shape to fit the channel 15, 15' in the earpiece. The connector shell is of U-shaped cross-section, its side walls at their outer portion being offset laterally outwardly a distance to provide shoulders 22, and the top wall of the shell being offset upward a distance to provide a shoulder 23 in alignment with the shoulders 22. These shoulders support a terminal plate 24 of insulating material and the plate is held to the shoulders by wings 25 on the side walls of the shell deflected over against the front of the plate, a wing 26 extending from the top wall of the shell against the front of the plate, as clearly shown on Fig. 3.

Secured to the lower end of the plate and against the back thereof are two contact springs 27 and 28, these springs being located behind keyhole slots 29 and 30 in the plate 24. At their outer ends the springs have the deflected ends 31 extending into the outer ends of the slots and serving to hold the springs in proper alignment.

Referring to Fig. 2, the outer ends of the contact pins 17 and 18 on the earpiece terminate in circular heads 32. The circular inner ends of the keyhole slots in the plate 24 are of a diameter to receive the contact pin heads when the connector member is applied in the channel in the back of the earpiece. After such application, a downward shift of the connector member will bring the outer narrower ends of the keyhole slots into engagement with the earpiece terminal pins behind the heads 32 thereon and the connector member will then be locked to the earpiece, the connector body fitting accurately against the sides of the channel 15, 15' and with the terminal plate 24 of the connector within the deeper outer portion 15' of the channel, with the lower end of the plate 24 against the shoulder 16, as clearly shown on Fig. 2. The contact springs 27 and 28 are normally inclined outwardly and when they are engaged by the heads of the earpiece terminal pins, the springs will be deflected and the spring pressure will hold them in intimate electrical contact with the pins.

The wires *w* for connecting the earpiece with the microphone set extend through the lower end of the connector frame 21 and are secured at their ends to the contact springs 27 and 28. The wires preferably extend through a rubber protecting tube 33 which is held in place within the connector shell by wings 34 on the shell. When the connector member is secured on the earpiece, the rubber tube 33 will be enclosed

and the tube preferably extends a distance beyond the lower end of the shell so as to function as a flexible bushing to prevent abrupt bending or breakage of the wires where they enter the tube. To remove the connector from the earpiece, a slight upward longitudinal pressure will shift it to bring the large ends of the keyhole slots in registration with the ends of the earpiece terminals, and the connector may then be readily lifted off the earpiece. It will be noted, that due to the normal inclination of the connector contact springs 27 and 28, they will have a wiping pressure engagement with the ends of the earpiece terminals when the connector member is applied so that clean contact and connection is assured.

I thus provide simple and efficient circuit connecting means for earpieces of hearing aids in which the earpiece wires terminate in a compact connector member which can be readily attached to or detached from the earpiece and from which the wires will extend directly downwardly causing a more sightly appearance and affording the best protection for the wires.

Although I have shown a practical and efficient embodiment of the features of my invention, I do not desire to be limited to the exact construction and arrangement shown and described as changes and modifications may be made without departing from the scope of the invention.

I claim as follows:

1. Circuit connecting means for the earpiece of a hearing aid outfit comprising terminal pins extending from the rear side of the earpiece, said earpiece having a V-shaped channel in and across its outer side in the upper portion of which channel said terminal pins are located, a connector member comprising a shell of V-shape for fitting into said channel, an insulating terminal plate supported in said shell and having longitudinally extending keyhole slots therethrough with circular lower portions and narrower rectangular upper portions, contact springs secured to said plate behind said slots, circuit wires extending from said contact springs downwardly through and from the lower end of said shell, said terminal pins having heads at their outer ends engageable through the circular ends of said slots and behind said plate at the narrower upper portions of said slots when said con-

necting member is applied to the said channel and shifted downwardly therein whereby said connector member will then be held by the pins against the earpiece with its contact springs in engagement with said terminal pins, said V-shaped shell, after such engagement of the pins with said springs, intimately fitting in said V-shaped channel to be held against lateral and downward displacement from said earpiece whereby to take up any pull on said wires to relieve the pins from strain.

2. Circuit connecting means for the earpiece of a hearing aid outfit comprising terminal pins extending from the rear side of said earpiece, said earpiece having a V-shaped channel extending downwardly across the outer side thereof, the upper portion of said channel being of greater depth than the lower portion thereof whereby to leave an abutment shoulder between these channel portions, a connector member comprising a shell of V-shape for fitting in said channel, an insulating terminal plate supported in said shell and extending forwardly therefrom for fitting into the upper portion of said channel, said terminal plate having vertically extending keyhole slots therethrough with circular lower portions and narrower rectangular upper portions, contact springs secured to said terminal plate behind said slots, circuit wires extending from said contact springs downwardly through and from the lower end of said shell, said terminal pins having heads at their outer ends engageable through the circular ends of said slots and behind said plate at the narrower portions of said slots when said connector member is applied in said channel and shifted downwardly therein whereby said connecting member will then be held by said pin heads against said earpiece with the pins in engagement with said terminal springs, the lower end of said terminal plate, after such application of said connector member in said channel, abutting against said shoulder before the ends of said slots reach said pins and said connector member intimately engaging in said channel throughout the extent therein to be held against lateral and downward displacement on said earpiece whereby to prevent pull on said circuit wires from being communicated to said pins.

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