

United States Patent

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[54] **HEADSET DEVICE**
5 Claims, 4 Drawing Figs.

[52] **U.S. Cl.**..... **181/31,**
181/24
[51] **Int. Cl.**..... **A61b 7/02,**
G10k 13/00
[50] **Field of Search**..... **181/31,**
31.1, 24

ABSTRACT: A headset device of the stethoscope type, provided with rotatable earpieces permitting adjustment to the ear canal angles of the listener. The earpieces are provided with amplifier cavities. A plug of improved construction is used to connect the hearing tubes to a sound supply main's outlet, whereby the full sound passes unimpeded to the earpieces.

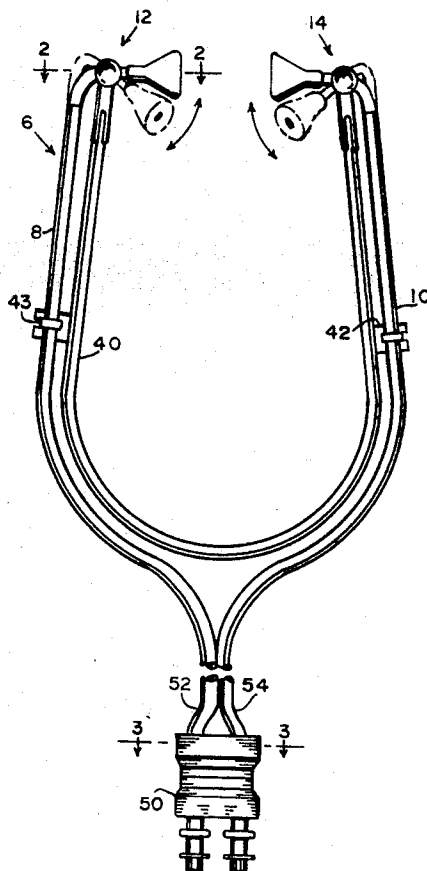


FIG. 1

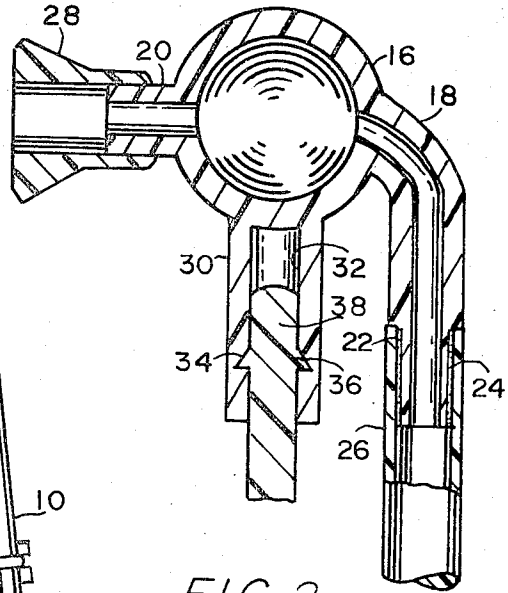
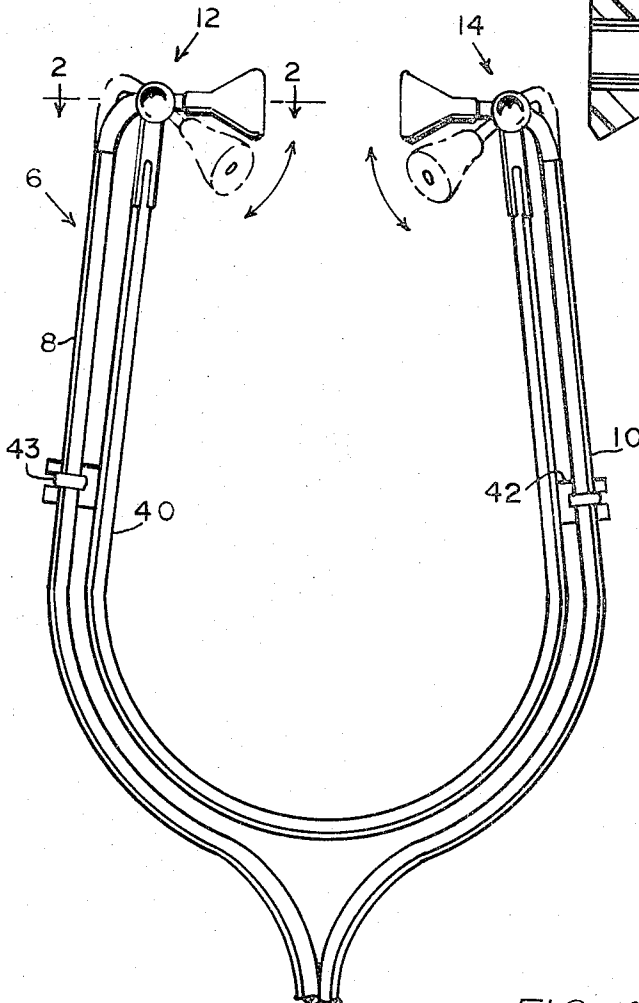


FIG. 2

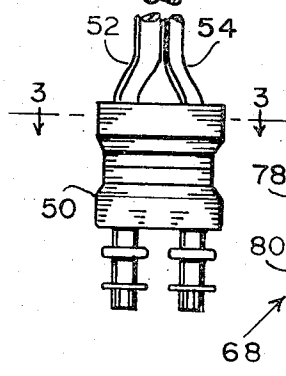


FIG. 4

FIG. 3

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HEADSET DEVICE

BACKGROUND OF THE DISCLOSURE

This invention relates to headset devices in general, and in particular to a headphone assembly of the stethoscope type for use with sound systems wherein the sound is conducted or "piped" from a sound source through sound tube mains.

Such sound systems are employed in aircraft provided with motion pictures and stereo music, while the aircraft is in flight. The sound is piped through tubular mains extending along the walls of the aircraft. The tubular mains are provided with outlets adjacent the rows of the passengers' seats. The headset devices are plugged into these outlets and the sound is conducted to the passengers' ears through earpieces connected by flexible tubing to the tubular mains by means of plugs received in the outlets.

It is an object of the present invention to provide a headset device of the above character, wherein the earpieces can be rotated in a desired direction for maximum comfort to the listener's ears.

A further object of the invention is to provide a device of the above described character wherein a sound chamber of novel construction is employed to amplify the sound.

Yet another object of the invention is to provide a connecting plug of improved construction which will make possible the unimpeded passage of the full volume of sound "piped" through the sound mains.

Still another object of the invention is to provide a device of the above described character, having an improved construction of components resulting in substantial saving of time and cost in the course of assembly thereof.

A further object of the invention is to provide a device of the above described character which is simple in construction and efficient in operation.

The application of the headset device, according to the invention, is not limited to the use with aircraft sound reproducing systems but may find application wherever a headphone device of the stethoscope type can be used.

The above and other objects of the invention will become apparent from the following description and the accompanying drawing, illustrating a preferred embodiment of the invention.

It is to be understood, however, that these are given by way of illustration and that various changes in the details of construction may be made within the scope of the inventive concept.

In the drawing:

FIG. 1 is a front elevational view of the device;

FIG. 2 is a cross section taken on line 2-2 of FIG. 1;

FIG. 3 is a cross section taken on line 3-3 of FIG. 1; and

FIG. 4 is a cross section of a sound receptacle, not forming a part of the invention, but shown to illustrate the method of using the plug of FIG. 3.

Referring now to the drawing in detail, the headset device, generally indicated by the numeral 6, comprises a pair of hearing tubes 8 and 10. The hearing tubes are bent towards each other at their upper ends. The hearing tubes are made of a flexible plastic material. The ear piece assemblies of similar construction, generally indicated as 12 and 14 are secured to the respective hearing tubes 8 and 10. One of these assemblies is shown in cross section in FIG. 2. It comprises a hollow spherical amplifying sound chamber 16 provided with tubular members 18 and 20 communicating therewith. Tubular member 18 is formed with a reduced end portion 22 secured by an adhesive 24 to one end 26 of the hearing tube. Ear pieces 28 are shaped to fit snugly into the ear cavities of the listener. The ear pieces are secured to members 20.

A tubular resilient plastic member 30 extends downwardly

of the sound chamber 16. The inner wall 32 has an annular recess 34 defined by 30° slanted face and a 90° bottom face, for receiving an annular flange 36 formed on each end portion 38, of an U-shaped resilient member 40. The end portions 38 are inserted into the tubular member 30 until the flange 36 engages in the recess 34, while fastening resilient clamps 42, 43 integral with resilient member 40 are secured to the tubes 8 and 10 of the device. The U-shaped resilient member 40 thus biases the chamber assemblies 12 and 14 towards one another so that the device may be held in place against the listener's ears. Each of the flanges 36 is likewise formed with a 30° slanted face and a 90° bottom face. Thus, once these flanges are seated in the recesses, such as 34, the end such as 38, can not be separated from the respective member 30.

The flanges 36 seated in recesses 34 permit the rotation of the sound assemblies about an angle of 90° and more, due to the resiliency of hearing tubes 8 and 10, made of plastic, thus making it possible for the listener to adjust the hearing tubes to his or her particular ear canal angle.

Secured in the bores 46, 48 of a plug 50 are the ends 52, 54 of the hearing tubes 8 and 10. A pair of tubes 56, 58 communicate with the bores and are provided with retaining flanges such as 60, 62, as shown in FIG. 3, and are formed with semicylindrical portions 64, 66.

In operation, the plug is connected to a sound outlet 68 by inserting the tubes 56, 58 in the bores 70, 72 thus opening the valves 74, 76, normally closed by springs 78, 80. Due to the semicylindrical portions 64, 66 the passage of the full volume of sound from the outlet 68 into the hearing tubes 8 and 10 is made possible.

It will be understood that the device is not limited to use with motion picture sound but is adaptable for stereo sound and many other applications.

I claim:

1. A headset device for use with a sound producing system of the type wherein the sound is to be confined to the ears of an individual listener, comprising in combination, a pair of flexible hollow hearing tubes, each having at one end thereof an ear piece assembly including an ear piece, shaped to fit snugly into the ear cavities of the listener, a U-shaped spring-like member for biasing the ear piece assemblies towards the listener's ears and means rotatably mounting said ear piece assemblies on the end portions of said U-shaped member for enabling an alignment of said ear pieces with the listener's ear canal angle, each said ear piece assembly including a hollow spherical chamber for amplifying the sound entering through a respective hearing tube.

2. A device as claimed in claim 1, wherein said means rotatably mounting said ear piece assemblies comprise a tubular resilient member extending downwardly of each said hollow spherical chamber, the inner wall of said tubular resilient member having a circular recess defined by a slanted face of 30° and a bottom face of 90° relative to said wall, said end portion being formed with a circular flange conforming in cross section to said faces, said end portion and said flange being received in said tubular member and said recess, respectively.

3. A device as claimed in claim 1, further provided with a plug for connecting the other ends of said hearing tubes to a sound source outlet.

4. A device as claimed in claim 3, wherein said plug comprises a pair of externally mounted tubes adapted for insertion into a sound source outlet, the ends of said tubes being of semicircular cross section to permit the unobstructed passage of sound from the sound source when inserted in said outlet.

5. The device according to claim 1, wherein said U-shaped member is formed with integral clamp elements on each leg thereof for securing the respective hearing tubes to said U-shaped member.