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Stumpf et al.

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[54] **MUSIC STETHOSCOPE**

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[52] **U.S. Cl.** **181/135**; 181/131

[51] **Int. Cl.**[2] **A61B 7/02**

[58] **Field of Search** ..... 181/135, 131, 137, 129; 179/1 ST, 182 A, 156

[56] **References Cited**

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Primary Examiner—Stephen J. Tomsky

[57] **ABSTRACT**

A stethoscope composed of a one-piece frame or body of molded plastic adapted to support a pair of flexible sound tubes, the frame including a pair of spaced flexible legs V-shaped in cross section to receive the sound tubes therein with retaining lugs integral with the body and overlying portions of the sound tube to removably secure the latter, the V-shaped legs being provided with longitudinal stiffening ribs at their external apical portions to lessen the likelihood of leg breakage when they are flexed.

5 Claims, 5 Drawing Figures

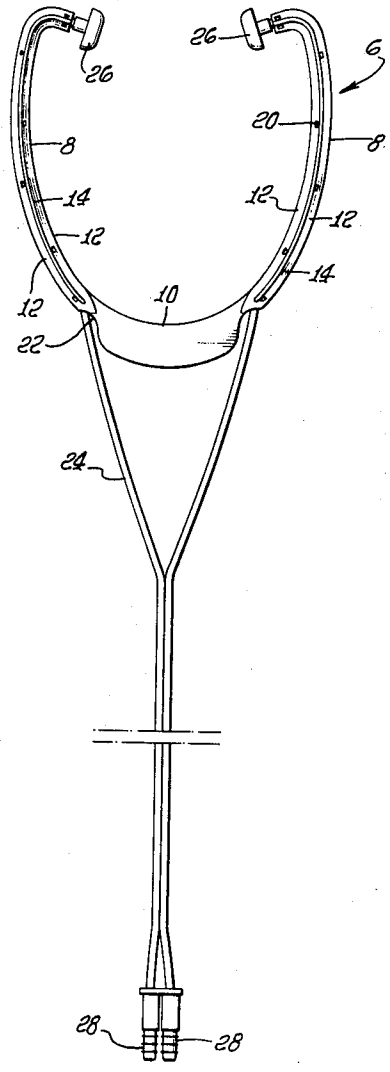


FIG. 1.

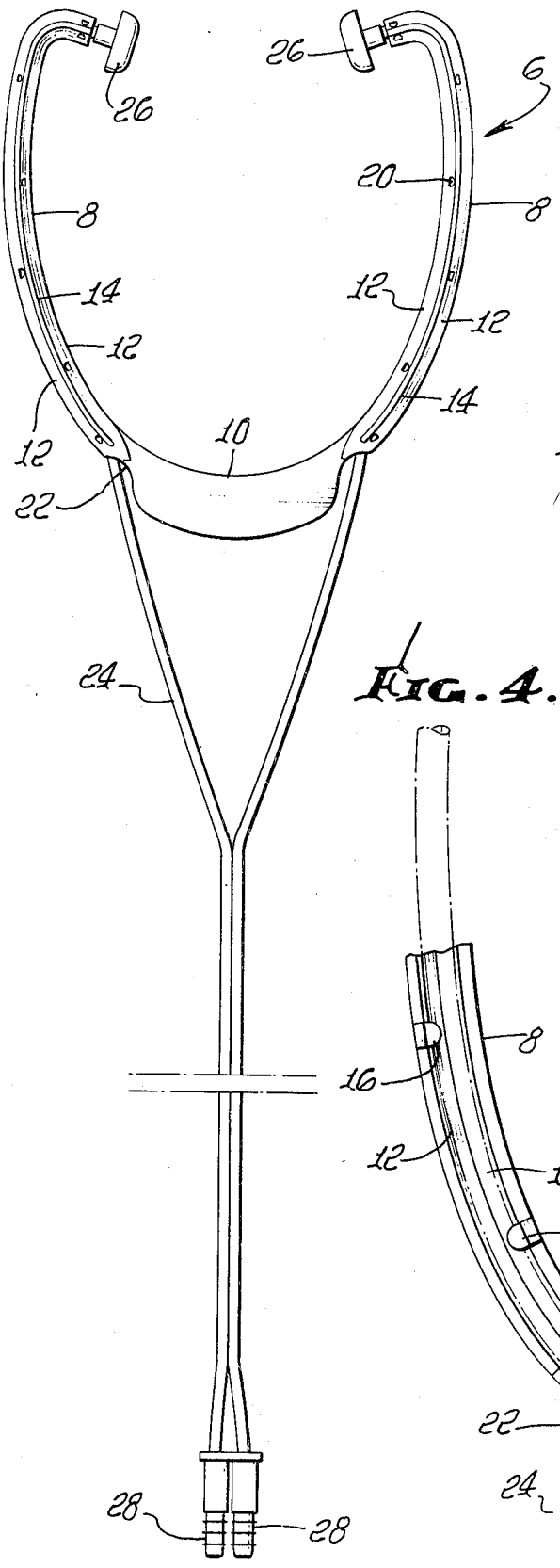


FIG. 2.

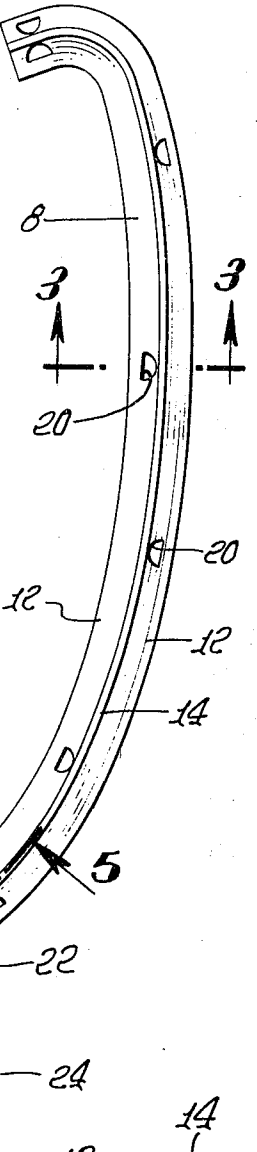


FIG. 3.

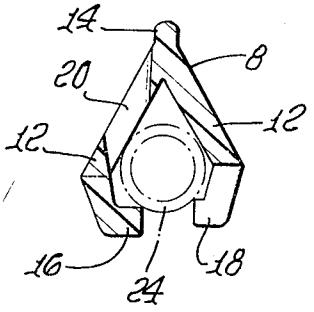


FIG. 4.

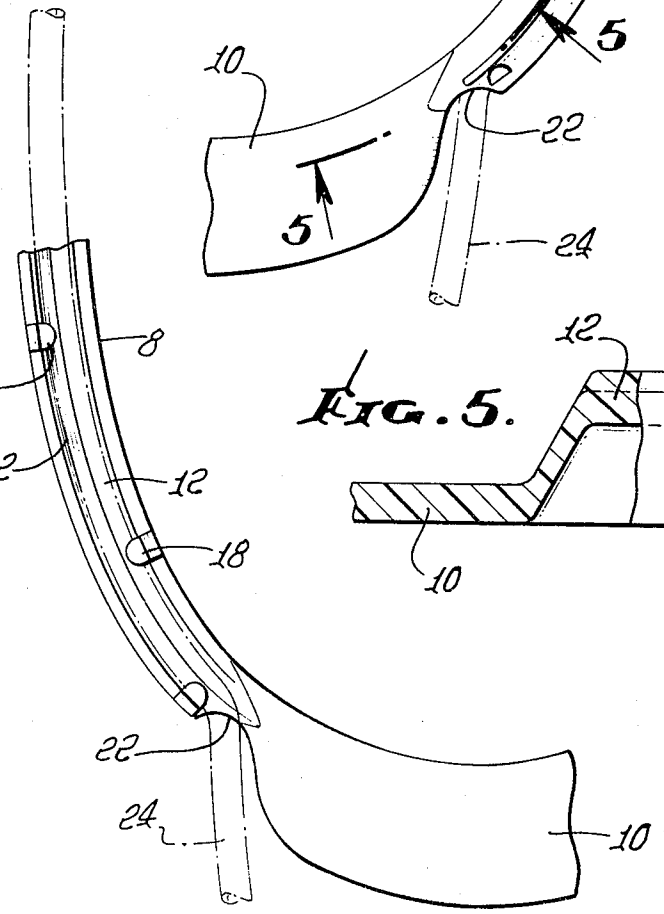


FIG. 5.

MUSIC STETHOSCOPE

This invention relates to stethoscopes and more particularly of inexpensive light weight and comfortable music stethoscopes such as are used on aircraft and which are inexpensive enough to be disposed of after a single use.

One of the objects of the invention is to provide a generally U-shaped molded body of somewhat resilient plastic material wherein the legs of the U-shaped body which carry portions of the flexible sound tubes, are V-shaped in cross section, thereby defining a sound tube trough with a minimum of material, the sound tube being held in the trough by lugs spaced apart longitudinally of the legs and alternating from one side of the trough to the other in staggered relationship. Another object is to provide a stethoscope whose V-shaped legs comprise a pair of walls joined along adjacent edges and lying at an acute angle with one wall wider than the other and with sound tube retaining lugs along the edges of both walls in such arrangement as to efficiently yet removably hold the sound tube in place.

Other objects and advantages of the invention will more fully appear from the following description in connection with the accompanying drawing.

FIG. 1 is an elevational view of an embodiment of the invention;

FIG. 2 is an enlarged view of one of the legs of the plastic body illustrated in FIG. 1;

FIG. 3 is a section on the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary view of the lower portion of one of the legs on the side opposite to that shown in FIGS. 1 and 2.

FIG. 5 is an enlarged fragmentary sectional view taken on the line 5—5 of FIG. 2.

The device includes a U-shaped body 6 comprising a pair of spaced legs 8 and a bottom connector or bridge 10. The body 6 is preferably made of a somewhat resilient plastic material so that the upper ends of the legs can be moved apart for placement of the body partially about the head of the wearer, the resilient characteristics of the plastic causing the body to create a light gripping action at opposite sides of the head of the wearer.

As best seen in FIG. 2, the legs 8 are V-shaped in cross section, the angle of the side walls 12 of each leg being less than 90° as illustrated. Along the apical edge of the angled legs 8, is a rib 14 which comprises a strengthening rib. With light plastic material shaped at an angle, such as illustrated, flexing of the legs 8 could cause cracking and fracturing of the legs. The reinforcing rib 14 is provided to prevent such cracking and fracturing in normal use of the stethoscope.

At spaced points along each side wall 12 of each leg 8 are sound tube retaining lugs 16 and 18. The lugs 16 are formed in the inner of the walls 12 which is somewhat wider than the outer wall. The principal reason for this is the facilitation of removal of the article from its mold. To further facilitate the molding operation and removal of the mold, we provide openings 20 through each wall in back of the lugs 16. Openings 20 accommodate molded pins which assist in forming the underside of the lugs 16 and 18.

At the lower end of each leg 8 is a cutout 22 to provide for convenient entry of a sound tube 24 into the bottom of the V-shaped groove defined by the side walls of the legs 8. The sound tube 24 is flexible and can be snapped into the V-shaped groove past the lugs 16 and 18 to be removably retained in the groove by the lugs.

The upper end of each leg 8 is curved inwardly generally toward the other and at said upper end, are lugs 16 and 18 which are directly opposite each other in the two walls 12 to firmly anchor the upper end of the sound tube 24 which is adapted to be protruded somewhat beyond the end of the leg in order to removably receive a soft ear pad 26 as is well known in the music stethoscope field.

The bridge 10 which connects the lower ends of legs 8 is relatively wide and flat and lies in a plane coincident with a plane through the longitudinal axis of the arms 8. The bridge 10 not only forms a spacing connector for said legs 8 but because of the manner in which it is positioned, renders the bridging portion inflexible when the arms 8 are moved away from and toward each other. Thus, the flexible arms 8 have sufficient resilience to permit them to be opened and to cause them to close toward each other on the ears of the user but the bridge 10 provides a sufficiently rigid intermediate structure to give the arms sufficient strength to remain in position on the ears.

The two flexible sound tubes 24, as is usual in music stethoscopes, can be joined below the body 6. As is customary, they are provided with integral molded jacks 28 for insertion into receptacles built into the aircraft seat.

From the foregoing it will be seen that we have provided a music stethoscope which can be made economically enough to permit it to be disposed of after a single use. The two walls of the body set at an acute angle, with the aid of the retaining lugs, provide effective means for holding the sound tubes with a minimum of material. Yet, by reason of the reinforcing rib, the resilient legs of the U-shaped body are strong enough to withstand ordinary usage without damage.

It will of course be understood that various changes can be made in the form, details, arrangement and proportions of the various parts without departing from the spirit of the invention.

I claim:

1. A stethoscope comprising a generally U-shaped body having spaced legs and a connecting bridge, each leg comprising a resilient element V-shaped in cross section to provide a sound tube trough, each leg being composed of two acutely angled wall elements joined at their inner side edges and having free outer side edges, a series of lugs disposed at spaced points along the outer side edges and extending laterally inwardly therefrom so as to extend partially over the V-shaped trough, said bridge being flat in plane substantially the same as the plane defined by the longitudinal axis of said legs, the bridge constituting a stiffening element between the flexible legs, and sound tubes lying in the V-shaped trough and partially beneath said lugs.

2. The structure in claim 1, and an integral flexible reinforcing rib along the external apical portion of said V-shaped trough.

3. The structure in claim 1, and said lugs being disposed alternately on opposite sides of said V-shaped trough longitudinally thereof.

4. The structure in claim 1, one of said wall elements being wider than the other, said lugs being staggered from one wall element to the other and spaced lengthwise of the legs, and the lugs on the wider of said wall elements being disposed a greater distance than those on the other of said wall elements from the apex of the angle defined by said wall elements.

5. The structure in claim 4, and an integral flexible reinforcing rib along the external apical portion of said V-shaped trough.

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