

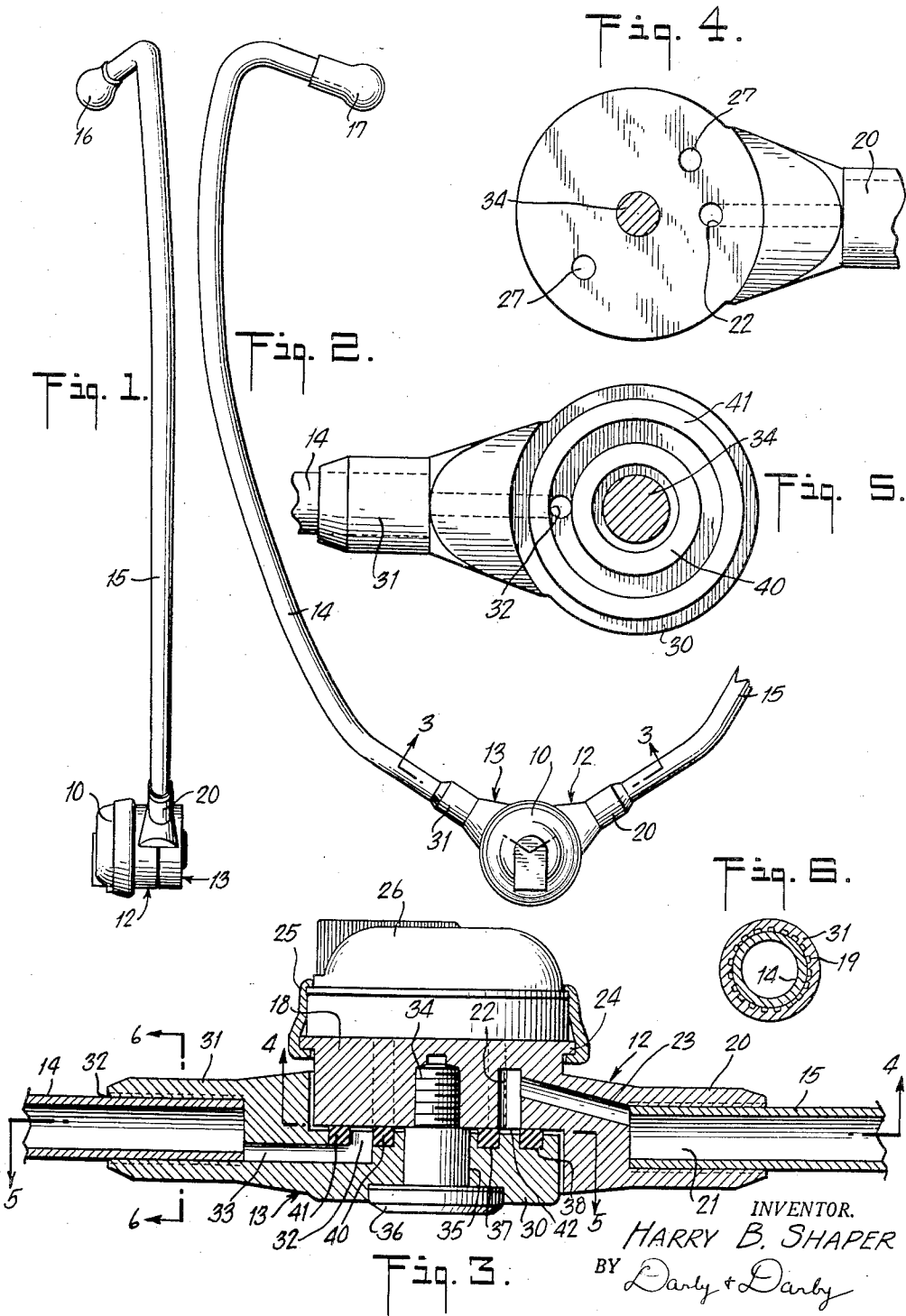
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EARPHONES FOR USE WITH DICTATING MACHINES AND THE LIKE

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EARPHONES FOR USE WITH DICTATING
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The present invention relates to earphones and particularly to earphones having separate ear engaging members connected to a common sound source such as are commonly used in the transcription of dictating machine records.

More particularly still the invention relates to earphones of the type mentioned so arranged that the earpieces may be readily adjusted as respects the spacing therebetween and will remain in their adjusted position without in any way affecting the volume of sound transmitted to the ears.

It is an object of the invention to provide a set of earphones having a common small speaker element mounted at the junction of a pair of tubes leading to the individual ears of a user, the tubes being provided with ear pieces at their terminal ends.

It is another object of the invention to provide such earphones which are pivotally mounted at their juncture and thus adjustable to accommodate for different distances between the ears of individual users.

It is another object of the invention to provide a frictional engagement of the relatively rotatable elements so that the earpieces may be readily adjusted to and retained in their adjusted position.

It is a still further object of the invention to provide such earphones in which the sound from the common speaker element is equally distributed to the two ear tubes and to the ears of the user.

Other objects and features of the invention will be apparent when the following description is considered in connection with the annexed drawings, in which,

Figure 1 is a side elevation of the earphones of my invention;

Figure 2 is a front elevation of the device of Figure 1, one branch being broken away;

Figure 3 is a cross-sectional view of the device of Figure 2, the section being taken on the plane of the line 3—3 of Figure 2;

Figure 4 is a horizontal cross-sectional view of the device of the preceding figures, the section being taken on the plane of the line 4—4 of Figure 3;

Figure 5 is a second horizontal cross-sectional view, this view being taken on the plane of the line 5—5 of Figure 3; and

Figure 6 is a vertical cross-sectional view taken on the plane of the line 6—6 of Figure 3, illustrating the mode in which the tubes are held in position in the pivotally mounted tube receptacles.

Referring now to the drawings, the earphone set of the present invention comprises a small sound reproducing element 10 on which are pivotally mounted two members 12 and 13 each of which has a tube 14 or 15 fixed thereto, these tubes terminating in earpieces 16 and 17 adapted to be placed in the outer ears of a user.

The members 12 and 13 are rotatable with respect to each other through a substantial arc thus permitting insertion of the earpieces 16 and 17 in the ears and retention therein during use. Moreover, by virtue of this ad-

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justability the instrument is adapted for use by persons having varying inter-ear distances.

Referring now to Figures 3 and 4, the element 12 comprises a generally cylindrical body portion 18 having a generally cylindrical member 20 extending at right angles thereto at one side thereof, the extension 20 being formed with a bore 21 therein. Also, there is formed in the body 13 a vertically extending passageway 22 which is intercepted by a passageway 23 which slopes downwardly and communicates with the bore 21.

Body portion 18 is also provided with a rim 24 which cooperates with a clamping ring 25 to hold a reproducing unit 26 in position as shown, this unit being connected by the usual cable to a source of electrical sound signals such for example as a record player and being provided with the usual diaphragm for converting the electrical signals to sound waves.

Extending through the body portion 18 of the member 12 in a vertical direction as seen in Figure 3 are two bores 27 through which sound reproduced in the unit 26 is transmitted through the unit 12 and into a groove shortly to be described.

Member 13 is comprised of a generally cylindrical body portion 30 having a cylindrical extension 31 at its left as seen in Figure 3. Extension 31 is provided with a bore 32 into which a tube 14 may be inserted, this tube terminating in the earpiece 17. A blind bore 32 extends downwardly from the upper surface of the body portion 30 and joins a horizontal bore 33 which terminates at its left end within the outlines of the bore 31 thus providing a passageway for sound from the reproducer 26 through the openings 27 and out to the earpiece 17.

As is clearly shown in Figure 6, the bores 21 and 32 of the tube extensions 20 and 31 are provided with splines 19 thus assuring a tight fit of the tubes in the bores and preventing undesired rotation of the tubes while permitting desired rotational adjustment.

The body portion 18 of member 12 and the body portion 30 of member 13 are provided with aligned bores 34 and 35 respectively, the bore 34 in member 12 being threaded. Thus a shouldered screw 36 inserted through the hole 35 and threaded into the threaded opening 34 holds the portions 12 and 13 together while permitting them to rotate relatively to each other.

Formed in the body portion 30 of member 13 are two grooves 37 and 38, the inner one of these grooves having its outer edge in substantial alignment with the inner edge of the bores 22, 27 and 32 and the outer one of the grooves having its inner edge in substantial alignment with the outer edges of the bores 22, 27 and 32. Mounted in the circular grooves 37 and 38 are washers 40 and 41 respectively preferably of neoprene, which washers extend above the upper horizontal surface of the member 13 providing a confined circular channel which communicates with the bores 27, 22 and 32. Thus sound waves produced by the unit 26 pass through the bores 27 into the annular space between the washers 40 and 41 and the opposed surfaces of the body portions 18 and 30 of the members 12 and 13 respectively. From this space designated 42 in Figures 3, the sound waves pass through bores 22 and 23 to the ear tube 15 and thence to the earpiece 16 and in similar manner through passages 32 and 33 and the ear tube 14 to the earpiece 17.

The neoprene washers 40 and 41 are of such a thickness and so related to the shouldered screw 36 that they exert a frictional resistance to the rotational movement of the portions 13 and 14 relative to each other. Thus these washers, in addition to forming an annular sound channel also provide means for retaining the earpieces 16 and 17 at a fixed distance relative to each other. This assures that the device may be readily and comfortably adjusted to a particular wearer and that once adjusted it

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will retain its adjusted position. It further assures that irrespective of the adjustment made the sound originating in the reproducer 26 will be equally distributed to the earpieces 16 and 17 and to the ears of a wearer.

While I have described a preferred embodiment of my invention, it will be understood that I wish to be limited not by the foregoing description, but solely by the claims granted to me.

What is claimed is:

1. An earphone device of the type in which sound from a single sound source is conveyed through separate tubes to the ears of a user, comprising, in combination, a pair of sound conveying tubes extending at an angle to each other in a substantially common plane, a body member fixed to each said tube, the axes of said members extending at right angles to the axis of the associated tubes, means pivotally mounting said members for rotational movement relative to each other about their common axis, said ear tubes extending outwardly from opposite sides of said members, an annular sound channel between said members, said channel being formed by concentric washers extending between the adjacent faces of said members, and sound passages extending through said members and joining said tubes with said annular channel said passages at the end adjacent said annular channel extending parallel to the common axis of said members.

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2. A device as claimed in claim 1, wherein said body members are generally cylindrical and said ear tubes extend radially outward therefrom.

3. A device as claimed in claim 1, in which a pair of concentric grooves is provided in the face of one of said body members, said washers being mounted in said grooves, said washers extending beyond the face of said one body member and bearing against the opposed face of the other body member, thereby forming said annular sound channel.

4. A device as claimed in claim 3, wherein said concentric washers are of material having a high coefficient of friction and serve to retain said body members in an adjusted rotational position relative to one another.

5. A device as claimed in claim 3, in which a converter of electrical signals to sound waves is mounted on one of said body members, said body member being provided with passages therethrough for conveying sound from said source to said annular sound channel.

6. A device as claimed in claim 4, in which said washers are formed of neoprene.

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