

July 26, 1960

R. E. JANSEN ET AL

2,946,860

HEADSET

Filed Jan. 3, 1957

Fig. 2.

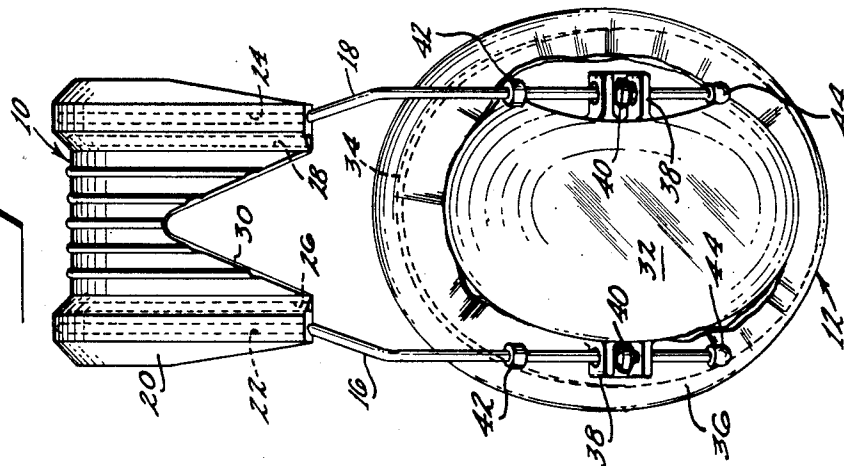
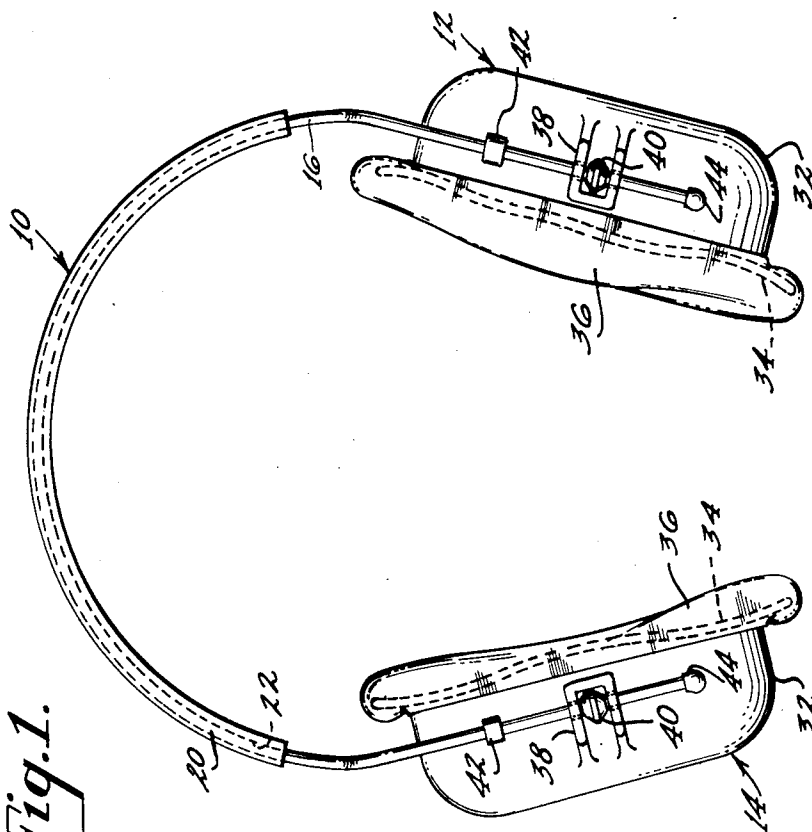


Fig. 1.



INVENTORS.
*Richard E. Jansen &
Robert E. Ulrich*
BY *Morris L. Cohen*
ATTORNEY.

1

2,946,860

HEADSET

Richard E. Jansen, Runnemede, and Robert E. Ulrich,
Riverton, N.J., assignors to Radio Corporation of
America, a corporation of Delaware

Filed Jan. 3, 1957, Ser. No. 632,363

7 Claims. (Cl. 179—156)

The present invention relates to apparatus for supporting devices to be worn on the human head, and more particularly to headsets for carrying earphones, ear protectors, or other devices.

Headsets have recently become more complex, bulky and expensive due to the need for greater noise exclusion. Where the environment in which the headset is used includes jet engines or other equipment, which generates noise of huge magnitudes, the noise exclusion capability is a primary consideration. A headset, constructed in accordance with the present invention, is capable of reducing noise, such as may be produced by a jet engine, and eliminates the disadvantages of headsets that were heretofore available.

Briefly described, the invention in an illustrative embodiment thereof includes a pair of earpieces that can encase the ear of a wearer. A headrest supports the earpieces on the head and is provided with a pair of flexible spring members shaped to fit over the top of the head. These members may be spaced laterally from each other. A band of flexible material, such as a soft plastic material, may be attached to the flexible spring members to maintain them in any desired position. The ends of the flexible members are secured, in pairs, on opposite sides of the earpieces by means which permit independent universal movement of the members with respect to the earpieces.

The general flexibility of the headset and the adjustability of the earpieces with respect to the headrest makes it possible for a headset provided by the present invention to fit substantially all human heads regardless of shape. The degree of noise exclusion provided by a headset is dependent upon the fit of the headset on the head. The present invention provides a headset which is universally adjustable so that a proper fit may be readily obtained. It has been found that the headset of this invention is automatically adjusting according to the working position of the wearer and fits properly regardless of working position. Comfort to the wearer is concomitant with proper adjustment in the case of a headset. The present invention therefore provides for greater noise exclusion and comfort to the wearer of the headset than possible with heretofore available headsets.

It is an object of the present invention to provide improved headsets for carrying telephone receivers, ear protectors, and other devices to be worn on the head for cooperation with the ears of the wearer.

It is a further object of the present invention to provide an improved headset which is universally and automatically adjusting without complicated adjustment devices.

It is a still further object of the present invention to provide an improved headset which is less bulky, lighter and lower in cost than headsets heretofore available.

Other objects and advantages of the present invention will, of course, become apparent and immediately suggest themselves to those skilled in the art to which the inven-

2

tion is directed from a reading of the following description in connection with the accompanying drawing, in which:

Fig. 1 is a front view of a headset constructed in accordance with the present invention; and

Fig. 2 is a side view of the headset shown in Fig. 1.

Referring to the drawings, it will be observed that the headset consists of a headrest 10 and a pair of earpieces 12 and 14. The headrest is constructed of a pair of spring wires 16 and 18. These wires may be made of stainless steel. The wires are shaped to conform to the shape of the head and are maintained in general arcuate parallel relationship. A headband 20 is attached to each of the wires 16 and 18 to provide a unitary structure, and maintains the wires in proper spaced relationship. It is desirable that the headband be formed of some soft, flexible material. The band may be extruded, if desired, and provided with parallel holes 22, 24, 26 and 28 running longitudinally therethrough. The wires 16 and 18 may be inserted through the outer ones of these holes 22 and 24. The inner ones of these holes 26 and 28 may be used as conduits for electrical wiring to be connected to telephone receivers which may be included in the earpieces 12 and 14. The headband may be ribbed on its upper surface, as shown in the drawing, for decorative purposes. In order to increase the flexibility of the headband and the consequent adjustability of the headset, a V-shaped notch 30 may be cut in the headband 20 at the opposite ends thereof. The end portions of the wires 16 and 18 are oppositely disposed from each other. The earpieces 12 and 14 are slidably mounted on the end portions of the wires.

Each of the earpieces 12 and 14 is provided by a cup-shaped case 32 having a flange 34 formed integrally with the edge thereof. The flange 34 is provided with a plurality of convolutions so as to generally conform to the region surrounding the human ear. The case 32 may be molded from a suitable plastic resin such as that sold under the trade name "Cyclocac" by the Marbon Chemical Company. Earcaps 36 of soft, flexible material may be attached to the flanges 34 of each of the earpieces 12 and 14.

In order to provide the features of automatic and universal adjustment of the earpieces on the ear, novel means are provided for attaching the headrest 10 to each of the earpieces 12 and 14. Appendages 38, which may be molded integrally with the case 32 of the earpieces 12 and 14, are used. These appendages extend laterally from the earpieces and are in the form of projections which provide cup-like cavities. A washer element 40 is disposed in the cavity of each of the appendages 38. This washer, it may be noted, is universally movable with respect to the earpieces and may be readily inserted and removed from the cavity. The hole in the washer 40 is of slightly smaller diameter than the diameter of the wires 16 and 18. The top and bottom projections, which form the appendages 38, are provided with holes. The diameter of these holes is considerably larger than the diameter of the holes in the washers 40. However, the holes are smaller than the outside diameter of the washer 40 so that the washer cannot drop out of the cavity through the holes in the projections.

The wires 16 and 18 are inserted through the cavities and extend through the holes in the washers 40. The washers may be made from some flexible plastic material such as "Teflon." Consequently, the wires are slidable in the washers. Other washers 42 may be securely fastened, as by cementing, to the wires 16 and 18. A cup washer 44 may be fastened to the bottom of the ends of each of the wires 16 and 18.

The fit of the wires in the washers 40 is such as to

3

permit the earpieces to be slidably adjusted in a longitudinal direction on the wires 16 and 18. The washers 42 and 44 limit the motion of the earpieces 12 and 14 with respect to the wires 16 and 18 and prevent the earpieces 16 and 18 from dropping from the wires. Since two wires 16 and 18 are used, the earpieces may be rotated about their axes to an appreciable degree. The loose fit of the washer 40 in the cavity also permits the earpieces 12 and 14 to be pivoted about the transverse axis running laterally thereof. The flexibility in the headband 20 and the wires 16 and 18 also permits the earpieces 12 and 14 to pivot about a longitudinal axis. Thus, it can be seen that the earpieces are universally adjustable. It has been found that the earpieces are automatically adjusting with the working position of the wearer.

The invention therefore, provides a headset that can be worn with greater comfort than headsets heretofore available. The simplicity of construction and the limited number of parts also provide a headset that is lower in cost than headsets heretofore available.

What is claimed is:

1. A headset comprising a pair of earpieces, each of said earpieces having a pair of cavities therein, said cavities being spaced from each other, a pair of elements smaller than said cavities and individually disposed therein, each of said elements being universally movable with respect to said earpieces, each of said elements having a hole extending therethrough, and a headrest having pairs of laterally spaced members at opposite ends thereof, said members being slidably inserted through said holes in different ones of said elements so as to frictionally engage said elements whereby said earpieces are attached to said headrest so as to be pivotally and slidably adjustable with respect thereto.

2. A headset comprising a pair of earpieces, a headrest for supporting said earpieces near the opposite ends of said headrest, universally adjustable means on each of said earpieces whereby said earpieces are attached to said headrest, said means including a pair of pivotal elements mounted in each of said earpieces at laterally spaced positions thereon, said elements each having a hole extending therethrough, said headrest having a pair of spaced members extending in the same direction at each of said opposite ends thereof, said end members in one of said pairs thereof being slidably inserted through said holes in said elements of one of said earpieces, said end members of the other of said pairs thereof being slidably inserted through the holes of the elements of the other of said earpieces, and said elements frictionally engaging each of said end members so as to attach said earpieces on said headrest.

3. A headset comprising a pair of earpieces, a headrest including a pair of spring members shaped to conform to the head, said spring members having central portions, a flexible headband connecting the central portions of said spring members, said earpieces being supported by said headrest at opposite ends of said pair of spring members, means included in said earpieces for attaching said earpieces to said opposite ends of said pairs of spring members whereby said earpieces are universally adjustable with respect to said headrest, said means comprising laterally spaced appendages extending from said earpieces, said appendages each defining a cavity, washer elements each having a hole therethrough disposed in each of said cavities, said appendages being formed with holes therein communicating with opposite sides of said cavities, said ends of said spring members in one pair thereof extending through said holes in said

4

appendages and being slidably inserted through said holes in said washer elements, and said washer elements frictionally engaging said members to secure said members to said earpieces.

4. A headset comprising a pair of earpieces, each of said earpieces having a pair of laterally extending projections, said pairs of projections being laterally spaced from each other, each of said projections in said pair being longitudinally displaced from the other, a washer element having a hole therethrough positioned between the projections in each of said pair thereof, each of said projections having aligned holes therein of larger diameter than the hole in said washer element, a headrest having laterally spaced wires at opposite ends thereof, one of the opposite ends of said wires in one of said pairs thereof being inserted through said holes in said projections of one of said earpieces and said holes in said elements therein, and the others of the opposite ends of said wires in the other of said pairs thereof being inserted through said holes in said projections in the other of said earpieces and said washer elements therein, the cross-section of said wires being larger than the cross-section of said holes in said washers whereby said wires are frictionally held in said washers for supporting said earpieces on said headrest.

5. A headset comprising a headrest including a pair of spring wires having arcuate central portions extending to oppositely disposed end portions, said wires being laterally spaced from each other, a headband of solid flexible material for maintaining said central portions of said wires in parallel arcuate relationship, a pair of earpieces supported in opposed relationship at said end portions of said wires, a pair of cup-like appendages projecting laterally from each of said earpieces, washer elements each having a hole therein being disposed in each of said cup-like appendages, said washer elements being smaller than said cup-like appendages, and said wires extending through a different one of said appendages and through said hole in said washer element therein, said washers frictionally engaging said wires for adjustably supporting said earpieces on said headrest.

6. The headset according to claim 5 wherein said headband is provided with a pair of longitudinally, laterally spaced holes therethrough, each of said wires being disposed in a different one of said holes, said headband also having generally V-shaped notches therein at the ends thereof.

7. A headset comprising an earpiece, said earpiece having a pair of cavities therein, said cavities being spaced from each other, a pair of elements smaller than said cavities and disposed individually in said cavities, each of said elements being universally movable with respect to said earpiece, each of said elements having a hole extending therethrough, and a headrest having a pair of laterally spaced members extending from one end thereof, said members being slidably inserted through said holes in said element to frictionally engage said elements whereby said earpiece is attached to said headrest so as to be pivotally and slidably adjustable with respect thereto.

References Cited in the file of this patent

UNITED STATES PATENTS

1,452,851	Schmidt	Apr. 24, 1923
1,616,491	Green	Feb. 8, 1927
2,149,341	Garrison	Mar. 7, 1939
2,408,720	Alger	Oct. 8, 1946