

Oct. 18, 1966

D. W. FLYGSTAD ETAL

3,280,273

SELF-SUPPORTING OPERATOR'S HEADSET

Filed Sept. 11, 1963

2 Sheets-Sheet 1

FIG. 1

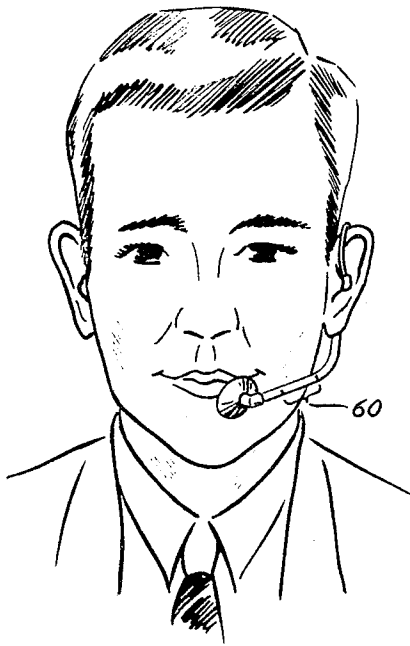


FIG. 2

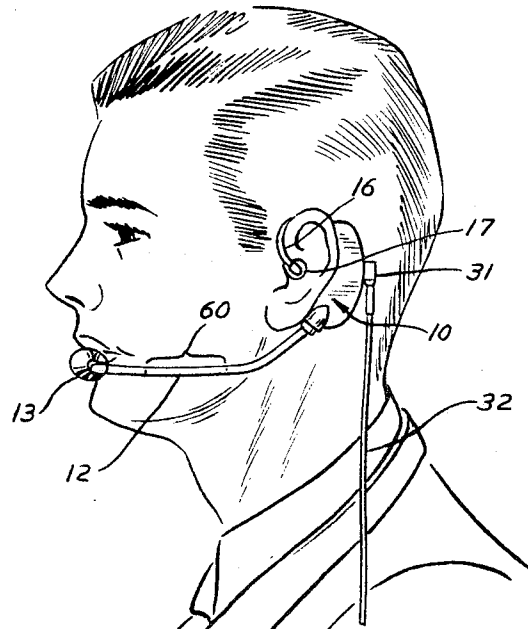


FIG. 3

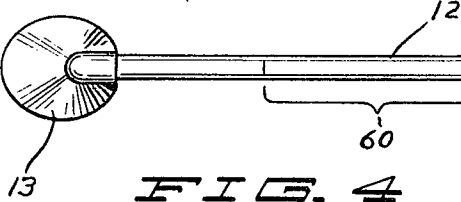
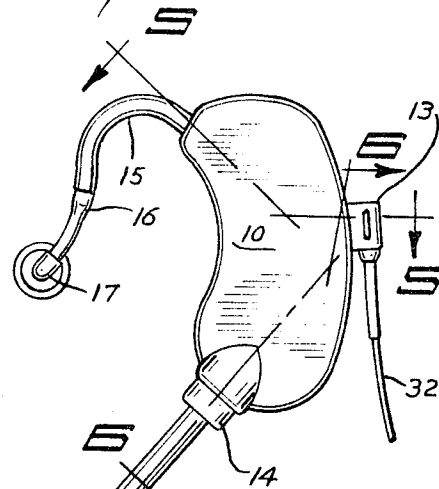
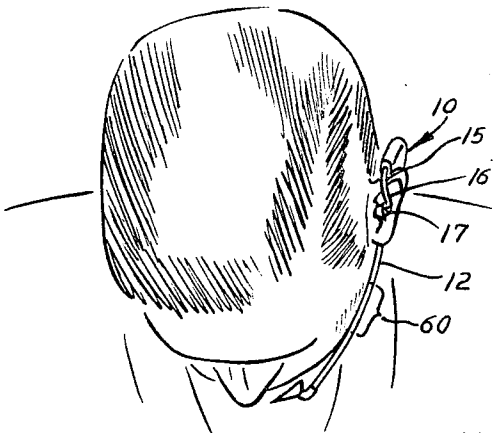


FIG. 4

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FIG. 7

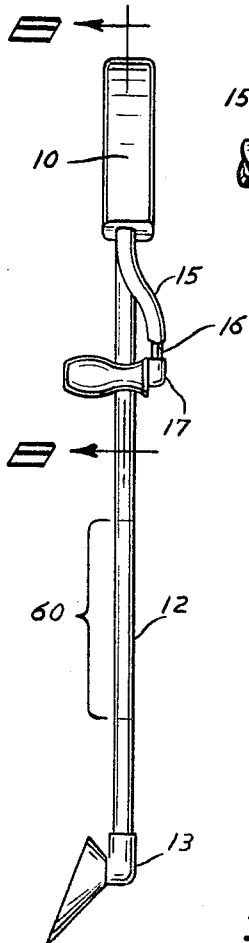


FIG. 5

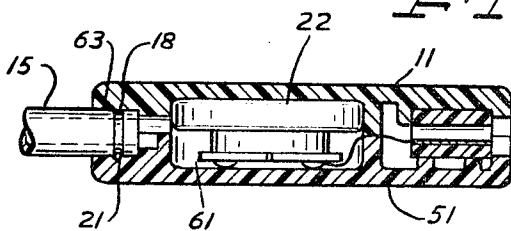


FIG. 6

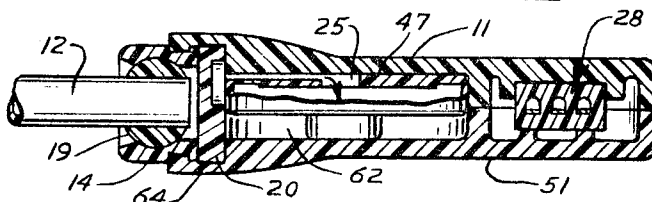


FIG. 8

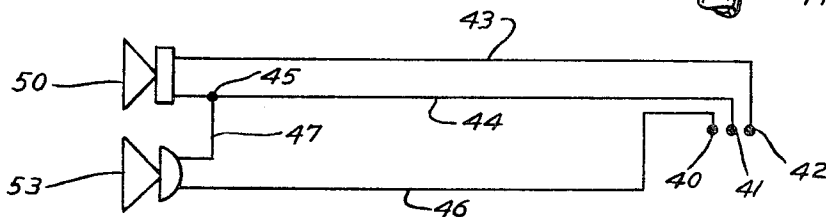
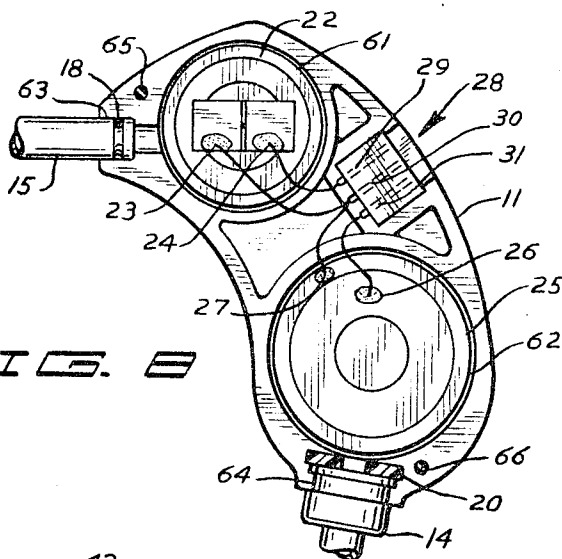


FIG. 9

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**SELF-SUPPORTING OPERATOR'S HEADSET**

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 Filed Sept. 11, 1963, Ser. No. 308,240  
 8 Claims. (Cl. 179—156)

This invention relates generally to two-way communication apparatus and is more particularly related to apparatus containing a receiver and a microphone that is intended to be worn by an operator.

In the prior art with which this invention is concerned, much effort has been directed to provide lightweight, comfortable and efficient headsets to be used, for example, by telephone operators. One common feature found in the prior art is an intermediate supporting structure to hold a receiver in sound transmitting relationship with an operator's ear and a microphone in sound receiving relationship with an operator's mouth. One recent example of such supporting structure is a headband which extends up and across a substantial portion of the top of an operator's head. Another example supports the necessary apparatus on the bow, or templar member, of a pair of eyeglasses. In still another example, a receiver may be supported on a headband and a microphone may be supported in structure adapted to be suspended around the operator's neck. These and other examples of the prior art may be found lacking in one or more of the desirable features noted above.

In our invention, we have provided a novel and useful improvement in providing a self-supporting headset. Briefly, our apparatus includes a housing that has depending sound conducting members, for supporting and stabilizing the headset on the head of an operator, and a suitably mounted receiver and microphone, all of which coact to provide a combination of elements that is lightweight, comfortable and efficient.

It is therefore an object of our invention to provide a novel operator's headset.

It is a further object of our invention to provide a self-supporting operator's headset.

These and other more detailed and specific objects will be disclosed in the course of the following specification, reference being had to the accompanying drawings, in which—

FIGS. 1-3 illustrate a preferred embodiment in position on an operator's head.

FIG. 4 is a side elevational view of the preferred embodiment of our invention.

FIG. 5 is a sectional view taken along section lines 5-5 in FIG. 4.

FIG. 6 is a sectional view taken along section lines 6-6 in FIG. 4.

FIG. 7 is a plan view of the preferred embodiment of our invention.

FIG. 8 is a sectional view taken along section lines 8-8 in FIG. 7.

FIG. 9 is an illustrative electrical schematic drawing of the electrical portion of our invention.

Referring now to the drawings in which like reference numerals have been applied to like elements of our invention, there is shown a self-supporting operator's headset comprised of a housing 10 which may contain a receiver 22 and a microphone 25 that are appropriately positioned to coact with a forwardly extending tube member 15 and a second forwardly extending tube member 12. Tube member 15 is in turn connected to a further tube member 16 that is adapted to carry an ear insert 17. Tube member 12 is mounted in a ball 19 and socket 14 and extends forwardly from the lower end of housing

10 and carries at its forward end a megaphone 13. Tube 12 is adapted to engage the cheek of an operator at a point or points along its length as indicated by bracket 60.

As will be apparent from the drawings, housing 10 is comprised of a pair of substantially identical members 11 and 51 which, when suitably disposed, combine and coact to define a pair of acoustically independent transducer mounting chambers 61 and 62 at opposite ends of the assembled housing 10. A further chamber is provided intermediate the acoustically independent chambers for mounting a three-terminal jack, indicated generally by the reference character 28.

Chamber 61 is adapted to receive and hold a receiver 22 having a pair of input terminals 23 and 24 that are connected through suitable conducting means to a further pair of terminals 29 and 30 on jack member 28. Chamber 61 also includes a forwardly extending aperture 63 which is adapted to receive the end of tube member 15.

Chamber 62 is adapted to receive and mount a microphone 25 which is provided with a pair of output terminals 26 and 27 that are connected through suitable conductors to terminals 30 and 31 on jack member 28. Chamber 62 also includes a generally forwardly extending aperture 64 for receiving socket 14 and sound baffling member 20. A further sound baffling member 47 is shown positioned at the bottom of chamber 62 on member 11. Sound baffling member 20 includes a first slot extending completely through and a second groove extending partly through member 20 to define an opening which is adapted to coact with a radially extending channel on the lower surface of baffling and gasket member 47, which in turn is in communication with a centrally located aperture for transmission of sound to microphone 25.

Member 11 also includes upwardly extending locating pin members 65 and 66 which are adapted to coact with similarly positioned apertures in member 51 to provide suitable registration of members 11 and 51 for assembling the apparatus. Members 11 and 51 may be assembled to form housing 10 after receiver 22, microphone 25, baffles 47 and 20 and jack 28 are positioned and suitably interconnected and may be cemented together through the use of any suitable adhesive which will provide the desirable acoustical insulating properties to ensure acoustical isolation between chambers 61 and 62.

Tube 15, which may be comprised of any suitable semi-rigid plastic material, is provided with a groove 18 which may coact with a pin member 21 mounted in member 51 so as to allow rotation of tube member 15 in aperture 63. Tube member 15 is, in turn, connected to a further tube member 16, which may be of a pliable material. An earplug 17 is shown mounted on the end of tube 16 and may be of suitable shape and compliancy to be comfortably inserted in the auditory canal of an operator.

Tube member 12 is held in ball 19 through the use of a suitable adhesive. Ball member 19 is in turn rotatably journaled in a socket 14 which is in turn positioned and held in aperture 64 at the lower end of housing 10. Tube member 12 may also be comprised of a semi-rigid plastic material and has mounted at its forward end a megaphone 13 that is adapted to receive sound from the mouth of an operator and may be of any suitable size and shape.

In FIG. 4 of the drawing a suitable three-conductor plug member 31 is shown in position on jack 28 and is in turn connected to a suitable cable 32 that may be connected to suitable communication equipment which includes a source of signal and signal utilization means.

In FIG. 9 an electrical schematic representative of circuitry that may be employed with our invention is shown. A three-terminal plug represented generally by

reference characters 40, 41 and 42 is shown connected in circuit with a microphone 53 and a receiver 50, each of which has a pair of terminals. One of the terminals on receiver 50 is connected to terminal 41 through conductor 44 and is also connected to one of the terminals on microphone 53 through terminal 45 on conductor 44 and conductor 47. The other terminal on receiver 50 is connected to terminal 42 through conductor 43. The second terminal on microphone 53 is connected to terminal 40 through conductor 46.

It may thus be seen that our invention broadly includes a housing 10 which may have a first forwardly extending tube member 15 and a second forwardly extending tube member 12 and a jack 28 for connection to suitable communications equipment through cable 32.

Referring now to FIGS. 1, 2 and 3, our invention is shown in position on the head of an operator. Housing 10 is positioned directly behind the ear of the operator and tube member 15 extends forwardly to lie on the top of the ear and thence downwardly to provide a coupling to the auditory canal of the operator. Tube member 12 extends forwardly into engagement with the cheek of the operator along the area indicated by reference numeral 60 and the megaphone 13 is positioned in proximity to the mouth of the operator in a position which will provide for the most efficient transfer of intelligible sound energy from the particular operator using our apparatus.

It is understood that suitable modifications may be made in the structure as disclosed, provided such modifications come within the spirit and scope of the appended claims. Having now therefore fully illustrated and described our invention, what we claim to be new and desire to protect by Letters Patent is:

1. An operator's headset comprised of an elongated hollow housing containing a receiver and a microphone, said housing being shaped to lie behind the ear of an operator, said housing also having a tubular portion extending forwardly from its top over the ear of an operator and into proximity of the auditory canal, said housing also having a tubular portion extending forwardly from its lower end into contact with the face of the operator and into proximity of the mouth of the operator whereby the housing is supported solely by the ear and face of the operator.

2. An operator's headset comprising: a housing having a portion adapted to engage the back of the ear of an operator, said housing being vertically elongated and having separate chambers in proximity to the top and bottom ends thereof, each of said chambers having an aperture extending generally forwardly thereof; a microphone in the bottom chamber; a receiver in the top chamber; a tube extending forwardly of the aperture in said top chamber to lie on top of the ear and downwardly to extend into the auditory canal of an operator; a further tube extending generally forwardly of the aperture in said bottom chamber, said tube being adapted to lie on the cheek and extend into proximity of the mouth of an operator.

3. The apparatus of claim 2 in which the further tube is pivotally mounted in the aperture in said bottom chamber.

4. The apparatus of claim 3 in which the tube extend-

ing from the top chamber is rotatably journaled in the aperture.

5. The apparatus of claim 2 in which first and second resilient gaskets, each having sound energy transmitting channels and apertures, coact to provide a conduit for the transmission of sound from the aperture on the bottom end of the housing to the diaphragm of the microphone mounted therein.

6. An operator's headset comprising in combination: a hollow housing including terminal means for connection to a source of signal and a signal utilization means, said housing being of generally arcuate shape to lie behind and engage the ear of an operator; a first forwardly and downwardly extending tube member at the top of said housing, said tube member being adapted to engage the ear of an operator along a portion of its length and cooperating therewith to support the housing on said ear; sound receiving means electrically associated with said terminal means, and associated with said tube member to supply sound energy to the auditory canal of an operator; a second forwardly extending tube member at the bottom of said housing, said tube member being adapted to engage the side of the face of an operator and having an opening adapted to be positioned in sound receiving relationship to the mouth of an operator; and microphone means electrically associated with said terminal means and associated with said second tube member to receive sound energy from the mouth of an operator.

7. An operator's headset comprised of a housing member adapted to abut the rear portion of an operator's ear; a forwardly extending tube member adapted to extend over the top of an operator's ear; a further tube member extending forwardly into proximity with the mouth of an operator and adapted to lie in engagement with the cheek of an operator, said housing and tube members cooperating to support and stabilize the headset on the ear of an operator.

8. Improved self-supporting communication apparatus comprising in combination: a microphone and receiver; a hollow housing including forwardly extending sound conducting members, one of said members being adapted to engage the top of the ear of an operator and to apply sound energy to said ear, and the other of said members extending into proximity of the mouth of an operator and being adapted to engage the cheek of an operator whereby said hollow housing is supported only by said sound conducting members; and means mounting said microphone and said receiver in said housing in acoustically independent relationship so that said one member provides sound energy to the ear of an operator and said further member receives sound energy from the mouth of the operator.

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