

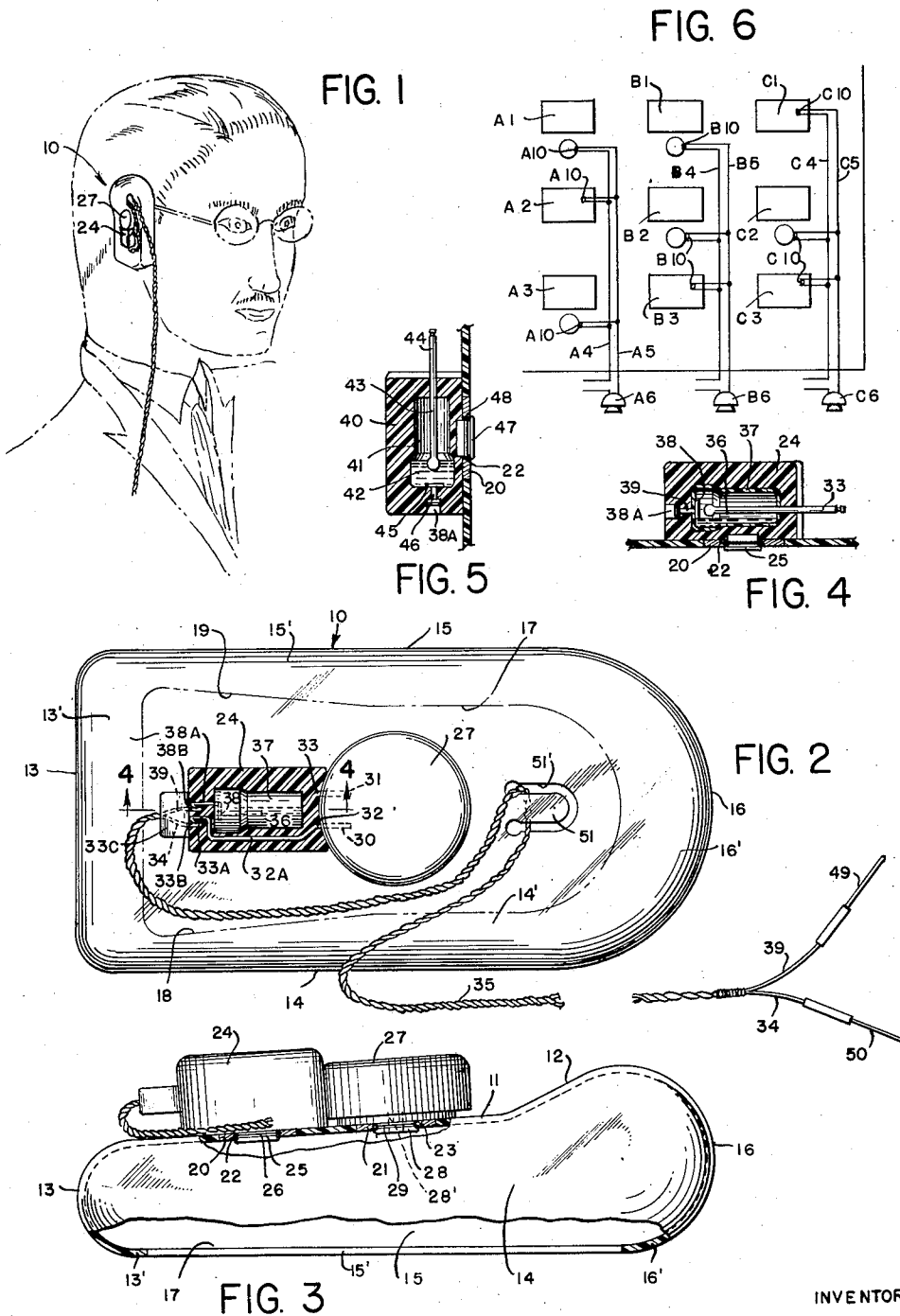
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B. EICHWALD

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HEARING DEVICE

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INVENTOR
B. EICHWALD

BY *A. J. Dowell*
ATTORNEY

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HEARING DEVICE

Bernard Eichwald, New York, N.Y.

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The present invention relates to sound equipment and more particularly to a hearing device, particularly useful in large assemblies where information is transmitted in different languages such as in the General Assembly of the United Nations.

Heretofore various types of individual hearing aids have been supplied to delegates in international conventions where a number of languages are being used simultaneously and the information is simultaneously translated from the originating speech for reception by persons who do not understand the language of the original speaker. Individual ear phones have been used and when all of the ear phones are in use there is no particular problem. However, some of the delegates arrive late and other delegates are not always present and when the ear phones are set down on a desk or other support, such ear phones continue to emit sound and since a desk acts as a sounding board and since the language being emitted from different ear phones is different, the resulting jumble of noises appreciably disturbs the meeting and also results in undue tiring of the delegates because of the added confusion, thereby reducing the efficiency.

An object of the present invention is to overcome the defects of the prior art and to provide a hearing device which may be readily supported from a person's ear and which will automatically discontinue emitting sound when it is removed from the ear.

Another object is to provide a speech translating system which will involve the least confusion in an assembly.

A further object is to provide a hearing device with an automatically operating switch which will stop the emission of sound as soon as the ear phone is changed from the position in which sound is to be heard to a different position.

A further object is to provide a supporting receptacle which is readily and removably supported from an ear and will fit all persons without adjustment.

Other and further objects will be apparent as the description proceeds and upon reference to the accompanying drawing wherein;

Fig. 1 is a perspective view of the hearing aid assembly of the present invention in operative position on a person's ear;

Fig. 2, a side view of a hearing device showing the switch in section;

Fig. 3, an elevational view from the front of the hearing device with parts broken away to show the structure;

Fig. 4, a sectional view taken on line 4—4 of Fig. 2 showing one form of switch with the switch in a position to break the circuit to the sound emitting device;

Fig. 5, a section similar to Fig. 4 of modification in which the switch liquid receiving cavity is formed in a plastic mass molded around an attaching stud and showing the switch in operative circuit making position; and

Fig. 6, a diagrammatic illustration of a fragment of a wiring diagram illustrating the use of the invention.

Briefly, the present invention in a hearing device comprises an elongated receptacle with an open side and in-

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turned flanges on the periphery of the open side with the opening between said flanges sufficiently elongated to permit ready application of the receptacle to a person's ear. On the receptacle a sound emitting device and switch therefor are mounted with the switch being of a type such as a mercury switch with a cavity in which the mercury is received and said switch being so designed as to break the circuit to the sound emitting device when the hearing device is tilted at an appreciable angle from its normal position of use. The invention also contemplates the use of a number of hearing devices of this type in an assembly so that when one of the persons in the assembly sets down his hearing device it will immediately "go dead" whereby noises in a room are reduced to a minimum.

Referring more particularly to the drawing, the hearing device 10 includes a receptacle having a side wall with a lower side wall portion 11 and an upwardly and outwardly flaring side wall portion 12 which side wall is surrounded by a trough shaped peripheral wall forming a bottom wall 13, a front wall 14, a rear wall 15 and a curved top wall 16 which peripheral wall includes inwardly extending flange portions 13', 14', 15' and 16' respectively which provide an ear receiving opening 17 shaped as shown in Fig. 5 to permit easy application to and removal from a person's ear. The lower portion of the flanges 14' and 15' being tapered along the edges 18 and 19 respectively.

Mounted on the lower side wall portion 11 and molded into such side wall during the process of manufacture are annular rings 20 and 21, respectively, each having a groove on its inner periphery which receives a split locking ring 22 and 23 respectively for supporting a switch and an ear phone. The switch includes a solid plastic mass 24 in which is imbedded a stud 25 around which the plastic mass 24 is molded, the stud 25 also being provided with a groove 26 which receives the split locking ring 22 in a well known manner to retain the switch in position. An ear phone 27 of conventional design includes sound emitting structure and a supporting stud 28 projecting therefrom such stud 28 being provided with a groove 29 for locking ring 23' and a passage 28' and such sound emitting device 27 includes a pair of female contact receiving openings 30 and 31, respectively, for receiving contact pins 32 and 33, respectively, which project from the switch body 24. The prong 32 is connected by a wire 32A to a spring contact 33A which is engaged by one of the prongs 33B of a plug 33C, the prong 33B being connected to one of the leads 34 of a flexible 2-wire extension cord 35. The other prong 33 is connected to or integral with an electrode 36 projecting into a cavity within a capsule 37 being of insulating material and the cavity of said capsule containing a second electrode 38 connected to a spring contact 38A which is engaged by a prong 38B of the plug 33C, the prong 38B being connected to the other wire 39 of the extension 35. It will be noted that the plug 33C may be inserted in the end of the switch 24 in a well known manner and this permits replacement of the switch as required in the event of failure and also prevents danger of the switch being damaged by a pull on the cord since the plug will become disengaged from the switch without any damage to the parts. The switch as shown in Figs. 2, 3 and 4 is in open condition while the same switch is shown in its closed operative vertical position in Fig. 5. Referring to the modification shown in Fig. 5, a solid mass of plastic 40 forming a switch housing is provided with a cavity 41 therein with a supply of mercury 42 sealed within such cavity. Projecting into the cavity is an electrode 43 having a prong 44 similar to prong 33 for reception in the contact receiving openings 31 of the ear phone 27 while a fixed contact 45 is connected by a lead 46 to a spring contact 38A. The switch housing 40 is held by a stud

47 similar to the stud 25 and is retained in the same manner as that previously described by the split spring 22 which extends into a groove 48 around the stud 47.

It is understood that the other contact pin similar to pin 32, wire 32A and spring contact 33A, previously described, is also used in the structure of Fig. 5.

At the ends of wires 39 and 34 a pair of connecting prongs 49 and 50 of conventional design are provided for making electrical contact with a suitable main line supplying the electrical impulses to be received as sound by the ear phones 27 as is well known in the art. The flexible extension cord 35 is retained in position without strain on the connection to switch 24 by means of a tongue 51 formed by U-shaped slot 51' formed in the side wall portion 12 which U-shaped slot 51' and the tongue 51 are of proper size to retain the flexible cord 35.

In Fig. 6 a plurality of desks A-1, A-2 and A-3 are provided with hearing devices A-10, A-10 and A-10 which have their flexible extensions connected to main lines A-4 and A-5 respectively connected to a transmitter A-6 into which a translator speaks so that the sound thereof is received by the respective hearing devices, hearing devices shown at A-1 and A-3 being in use and the hearing device at A-2 as being out of use and supported on the desk. Similarly the set of desks B-1, B-2 and B-3 are provided with hearing devices connected to main lines B-4 and B-5 connected to the transmitter B-6 and the hearing device associated with desks C1, C2, and C3 are connected to another set of main lines C-4 and C-5, connected to a transmitter C-6. It will be apparent that different translators may speak into the different transmitter A-6, B-6 and C-6 in different languages and that the persons assigned to the various desks can receive the message being transmitted and when a desk is vacant such as that shown at A-2, B-3, C-1 and C-3 the hearing devices will be laid on the desk and in such condition the switch 24 will be in the open position shown in Fig. 4 where the circuit is broken thereby preventing electrical energy from passing to the ear phone 27 and therefore the ear phones 27 of the hearing devices which are not used will be "dead" and consequently there will be no objectionable noise introduced into the room from the unused hearing devices. Further, without any attention by the delegate assigned to a desk he may merely pick up the hearing device and apply it to his ear and the sound will begin immediately, thereby substantially reducing any explanation required to inexperienced delegates.

The switches are preferably designed so that a tilt of 45 degrees from the vertical position shown in Figs. 1 and 5 will result in breaking the circuit, and consequently electrical power will be saved as well as the annoyance of having objectionable noises introduced into a room.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof and therefore the invention is not limited by that which is illustrated in the drawing and described in the specification, but only as indicated in the accompanying claims.

What is claimed is:

1. A hearing device for support in depending position from a person's ear, said device comprising a light-weight receptacle elongated along its vertical axis and of a height and width sufficient to encompass a human ear snugly, said device being of limited depth and having a continuous outer wall, a continuous peripheral wall and an open inner wall, the upper edge of said peripheral wall being arcuate and the outer wall having an upper and outwardly flaring portion communicating with said arcuate upper edge whereby said device may be supported upon the helix of a person's ear and will encompass the entire ear, means for supporting an electrical receiving device substantially centrally of said outer wall, and electrical conduit retaining means on said outer wall for adjustable retention of the electrical conduit associated with said receiving device.

2. In a hearing device as set forth in claim 1, an automatic switch carried by said receptacle and connected to said receiver so that movement of said receptacle from the vertical position in which it is supported will interrupt emission of sound from the receiving device.

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