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HEARING AID DEVICE

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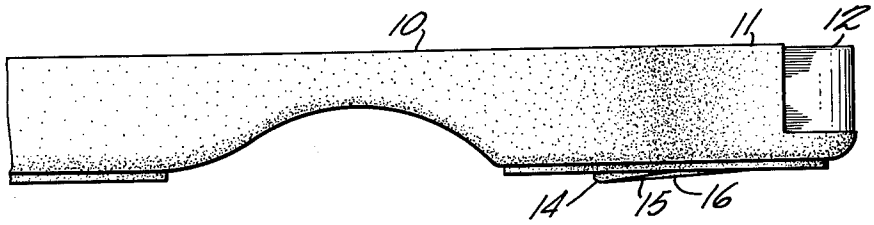


FIG. 1

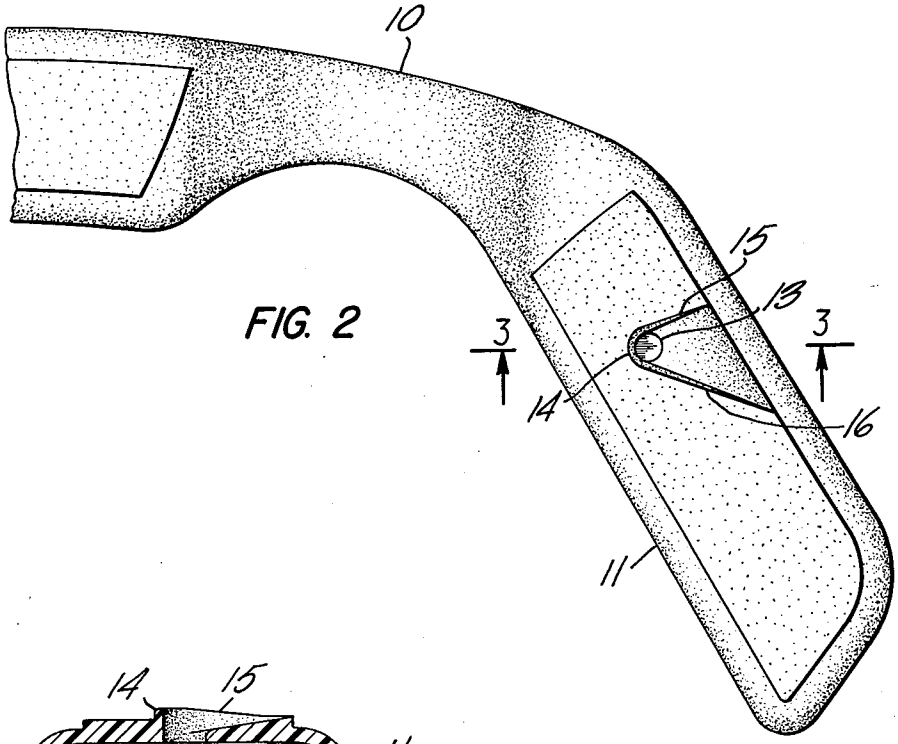


FIG. 2

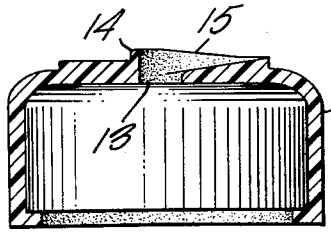


FIG. 3

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HEARING AID DEVICE

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This invention relates to hearing aids, and more particularly, to means for reducing undesirable wind noise on the microphone of a hearing aid.

Conventional hearing aids designed to be mounted on or form a part of the spectacle bow usually consist of a microphone that picks up the sound waves in the air, a multiple stage transistor amplifier and a sound reproducer. The microphone is mounted adjacent a small opening in the casing that encloses the components. It has been noticed that air moving past this opening produces undesirable noise. For example, if the wearer of such a hearing aid is riding in an automobile next to an open window, the air moving past the opening creates a rushing sound. This sound, after being amplified, is directed to the ear and is very annoying

It is the purpose of the present invention to provide a means for eliminating this rushing sound created by air moving past the opening in the casing of the hearing aid. More particularly, there is provided a hearing aid having a wind shield that substantially surrounds the opening in the casing. The wind shield is designed and disposed in such a manner that most of the air is directed away from the opening so that the turbulence at the opening is reduced, thereby eliminating the rushing sound of the air as it moves past the opening.

The invention may be more completely understood from the following detailed description taken in conjunction with the accompanying figures of the drawing, in which.

FIG. 1 is a top view of a spectacle bow having mounted thereon a hearing aid and a wind shield, constructed in accordance with the invention;

FIG. 2 is a side view of the structure shown in FIG. 1; and

FIG. 3 is a cross-sectional view taken along the line 3—3 of FIG. 2.

In FIGS. 1 and 2, there is disclosed a conventional spectacle bow 10 of the type designed for use with a hearing aid. The portion 11 of the bow that fits behind the ear has a hollowed out section that is adapted to receive the hearing aid unit 12. The hearing aid unit includes a sound transducer, for example, a microphone (not shown), that is positioned just beneath an opening 13 in the bow and is sensitive to variations in the air pressure. Sound waves pass through the opening 13 and impinge on the sound transducer, which in turn generates a varying electrical signal represenative of the sound waves. This signal is amplified and then sent to a sound reproducer which directs the sound to the ear.

As stated previously, when the air moves very rapidly past the opening 13 of a conventional hearing aid, the air creates a rushing sound which is very annoying to the wearer. There is provided, therefore, a shield which is fastened on and preferably integral with the bow and comprises an outwardly extending forward portion 14 and two outwardly extending wing portions 15 and 16. The forward portion 14 is disposed immediately in front of the opening in the direction of the oncoming air and the two wings 15 and 16 are oriented at an angle to the oncoming air and have a gradually diminishing outward extension.

It is apparent that a novel and useful wind shield for a hearing aid has been provided. The wind shield directs and controls the flow of air past the opening in such a manner that little turbulence is created at the entrance

to the opening. Thus the annoying rushing sound is eliminated.

While a representative embodiment of the invention has been shown and described for purposes of illustration, it is apparent that the embodiment is susceptible of change and modification without departing from this invention in its broader aspects. Therefore, the invention described herein is not to be construed as limited to the embodiment described but is intended to encompass all modifications thereof coming within the scope of the following claims.

I claim:

1. A hearing aid device comprising a housing having an exposed face, said exposed face having an opening therethrough through which sound waves may pass to a hearing aid unit supported within said housing, and a wind shield for said opening formed on said housing and rising from said exposed face and extending partially around and close to said opening and having ends extending in substantially the same direction away from said opening.

2. In a hearing aid of the type for use with a spectacle bow having a hearing aid unit mounted therein, the combination of said bow having an exposed face and an opening in said face through which sound waves impinging on said exposed face may pass and activate said hearing aid unit, and a wind shield formed on said bow adjacent said opening and rising from said exposed face and extending partially around and close to said opening and having ends extending in substantially the same direction away from said opening.

3. In a hearing aid of the type for use with a spectacle bow having a hearing aid unit mounted therein, the combination of said bow having an exposed face and an opening in said face through which sound waves impinging on said face may pass and activate said hearing aid unit, and a wind shield formed on said bow and disposed adjacent said opening on the side of said opening facing a direction from which rapidly moving air is expected and rising from said exposed face and extending partially around and close to said opening and having ends extending in substantially the same direction away from said opening.

4. In a hearing aid of the type wherein a hearing aid unit is mounted within a spectacle bow, the combination of said bow having a pair of oppositely disposed sides and an exposed face bridging said sides and an opening in said face through which sound waves impinging on said face may pass and activate said hearing aid unit, and shield means formed on said bow and disposed adjacent said opening and rising from said face and extending partially around and close to said opening and having ends extending away from said opening substantially toward one of said sides of said bow, said shield means having an arcuate convex forward means that is disposed on the side of said opening substantially toward the other one of said sides of said bow.

5. A hearing aid as recited in claim 4, wherein said ends of said shield means diverge away from each other as they extend away from said opening toward said one side of said bow.

6. A hearing aid as recited in claim 4, wherein said ends of said shield means gradually diminish in height relative to said exposed face as they extend away from said opening.

7. A hearing aid device comprising a housing with a face exposed to sound waves and having a sound wave passage therein approximately normal to and opening through said exposed face, said housing supporting a hearing aid unit that is activated by sound waves passing through said passage, said housing having a shield means rising from said exposed face and extending partially around and close to the opening into said passage from

said face and having ends diverging from one another in directions away from said passage.

8. A hearing aid device according to claim 7, wherein said shield means has an arcuate convex nose means which extends partially around said passage and said diverging ends extend in substantially straight paths.

9. A hearing aid device according to claim 7, wherein said shield means forms a substantially streamlined barrier against air moving toward said passage at the side thereof around which said shield means extends.

10. A hearing aid device comprising a housing having therein a chamber for containing and mounting a hearing aid unit and also a passage having an outer entrance leading from an exposed face thereof to said chamber for delivering sound waves thereto, a shield means extending outwardly from said face and partially around said outer entrance to said passage and having ends that extend in

diverging directions away from said passage, whereby said shield means will divert air currents away from the outer entrance to said passage and thereby reduce turbulence and noise of the passing air from entering said passage.

11. The hearing aid according to claim 10, wherein said diverging shield means ends decrease in height relative to said exposed face with their distance from said passage.

References Cited in the file of this patent

UNITED STATES PATENTS

D. 185,034	Mullin et al.	Apr. 28, 1959
2,325,424	Rettinger	July 24, 1943
2,533,516	Schwalm	Dec. 12, 1950
2,894,076	Posen	July 7, 1959