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Hearing protection earplug

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(56) Related Art
FR 1340726
US 5044463
WO 2005/023147

ABSTRACT

5 In a hearing protection earplug for insertion into the ear canal ear
composed of a soft material, especially a foam material, having a cavity
that is open toward the outside, it is provided, with a view to achieving
10 additionally increased wearing comfort accompanied with easy handling
during insertion into and removal from the ear, that the cavity, as seen in
the cross-section, has an approximately cross-shaped configuration.

- Fig. 1 -

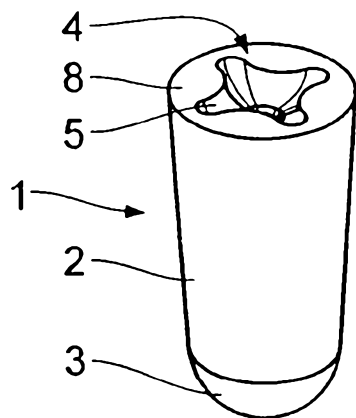


Fig. 1

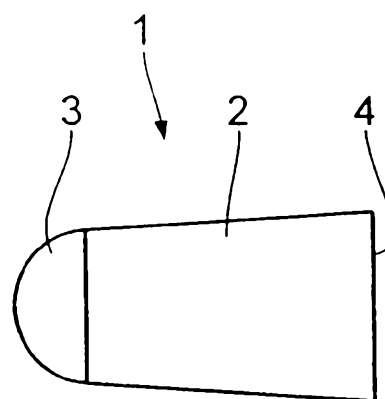


Fig. 2

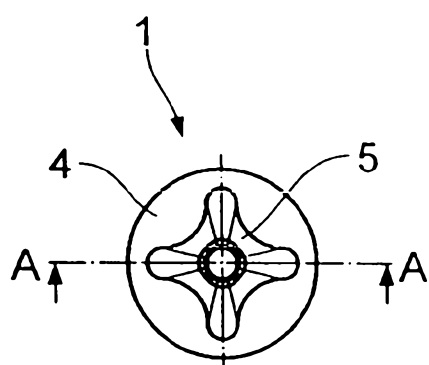


Fig. 3

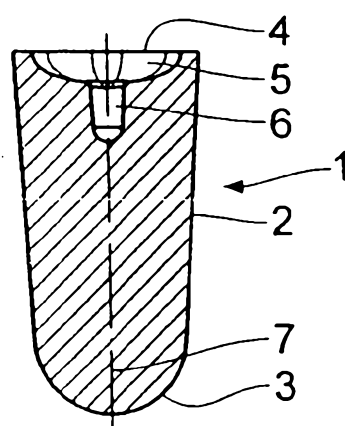


Fig. 4

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Patents Act

COMPLETE SPECIFICATION
(ORIGINAL)

	Class	Int. Class
Application Number:		
Lodged:		
Complete Specification Lodged:		
Accepted:		
Published:		
Priority		
Related Art:		

Name of Applicant:

Uvex Arbeitsschutz GmbH

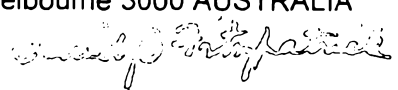
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Invention Title:


HEARING PROTECTION EARPLUG

Our Ref : 774129
POF Code: 1611/307228

The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

HEARING PROTECTION EARPLUG

This application claims priority from German Application No. 20 2005 009 132.4 filed on 10 June 2005, the contents of which are to be taken as incorporated herein by this reference.

Field of the Invention

The invention is directed to a hearing protection earplug for insertion into the ear canal composed of a soft material, especially a foam material, having a cavity that is open toward the outside.

Background of the Invention

A reference herein to a patent document or other matter which is given as prior art is not to be taken as an admission that that document or matter was, in Australia, known or that the information it contains was part of the common general knowledge as at the priority date of any of the claims.

One hearing protection earplug of this type known to the applicant is disclosed in US 5,044,463. The earplug includes a longitudinal cavity that is intended to increase the wearing comfort of the earplug.

A further hearing protection ear plug known to the applicant is disclosed in WO 02/43633 A1, which is provided with a handle composed of a harder, more dimensionally stable material. Indentations are provided at the end of the handle, for affixing a cord.

WO 2005/023 147 A2, describes a further hearing protection earplug known to the applicant having a main body of a soft foam material and a harder core that is intended to facilitate the insertion. An X-shaped recess at the front end serves to remove the hard end of the core to increase the wearing comfort.

It is therefore desirable to provide an alternative or improve a hearing protection earplug. It is preferable that the hearing protection earplug provides increased

wearing comfort. It is also preferable that the hearing protection earplug can be easily handled during the insertion into and removal from the ear.

Summary of the Invention

5 According to the present invention there is provided a hearing protection earplug for insertion into the ear canal of an ear consisting of a soft material and including a cavity provided at a flat outer end of the earplug and which cavity is open toward the outside, the cavity having a generally cross-shaped cross-sectional configuration, and in which the soft material that the ear plug consists of is a foam material.

10 As a result of the inventive configuration of the cavity, a higher degree of softness and elasticity is attained on the flat upper side or outside of the plug with the relatively hard edges that are present there, thus further increasing the wearing comfort compared with a cylindrical longitudinal cavity, because the edge as a whole
15 becomes more pliable.

As a result of the cross-shaped configuration, the plug can be optimally compressed during the insertion, so that the insertion process is facilitated. For the removal, the plug can be grasped with one's fingernails in the region of the cavity and held
20 securely.

Preferably, the outer contour of the cavity has a rounded cross-section.

25 Preferably, the hearing protection earplug includes a longitudinal cavity that extends inwards of the axial direction cross-shaped cavity. In some embodiments, the axial length of the cross-shaped cavity is relatively shallow in comparison to the axial length of the longitudinal cavity.

30 An additional longitudinal cavity that extends away from the base permits a targeted adjustment of the attenuation properties, e.g., in such a way that a residual ability to hear remains despite the attenuation of the general sound level.

Brief Description of the Drawings

The invention will be explained in more detail below based on a preferred embodiment, in conjunction with the drawing, in which:

Fig. 1 shows a perspective view of an inventive hearing protection earplug at an angle from above,

Fig. 2 shows a side view of the hearing protection earplug of Fig. 1.

Fig. 3 shows a top view of the outer end surface of the hearing protection earplug of Fig. 1, and

Fig. 4 shows a section along the line A-A in Fig. 3.

Detailed Description

Referring now to Figures 1 to 4, there is depicted a hearing protection earplug incorporating one preferred embodiment of the present invention. The illustrated hearing protection earplug 1 is composed of a slow recovery polyurethane foam and is produced by casting.

The hearing protection earplug 1 comprises a main body 2, which narrows conically toward the inside, a rounded inner end 3, and a flat outer end 4.

Provided at the flat outer end 4 is a cavity 5, which has a cross-shaped basic shape with rounded transitions, as is apparent in Fig. 3.

Adjoining the relatively shallow cavity 5 is a longitudinal cavity 6, which extends along the longitudinal axis 7 of the main body 2.

The cross-shaped cavity 5 serves to make the edge region 8 of the end surface at the end 4 more pliable and to that effect increase the wearing comfort. At the same time the end 4 can be compressed easily during the insertion of the plug, owing to the configuration of the cavity 5, thereby facilitating the insertion and, on the other hand, ensuring an even, defined fit in the ear after the insertion. The cavity 5 is also helpful when removing the hearing protection earplug 1, as it significantly facilitates grasping of the plug.

Those skilled in the art will appreciate that the invention described herein is susceptible to variations and modifications other than those specifically described. It is understood that the invention includes all such variations and modifications that all within the spirit and scope.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A hearing protection earplug for insertion into the ear canal of an ear consisting of a soft material and including a cavity provided at a flat outer end of the earplug and which cavity is open toward the outside, the cavity having a generally cross-shaped cross-sectional configuration, and in which the soft material that the ear plug consists of is a foam material.
2. A hearing protection earplug according to claim 1, wherein the cavity has an outer contour having a rounded cross-section.
3. A hearing protection earplug according to claim 1 or 2, further including a longitudinal cavity which extends inwardly in the axial direction from the base of the cross-shaped cavity.
4. A hearing protection earplug according to claim 3, wherein the cross-shaped cavity has a relatively shallow axial length in comparison to the axial length of the longitudinal cavity.
5. A hearing protection earplug substantially as described hereinbefore with reference to the drawings.

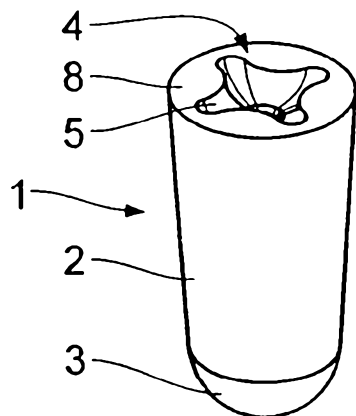


Fig. 1

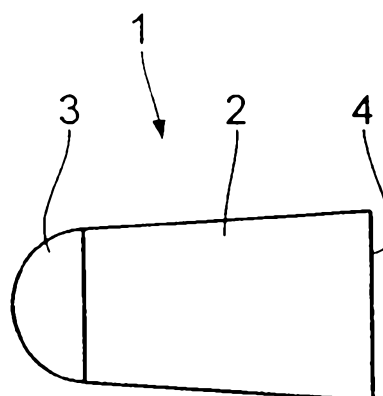


Fig. 2

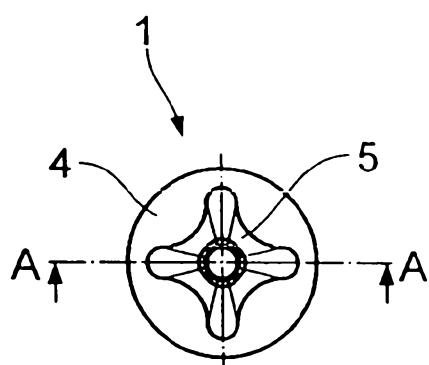


Fig. 3

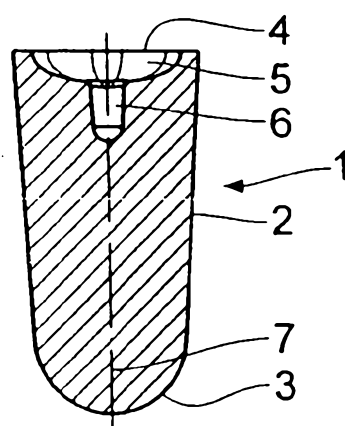


Fig. 4