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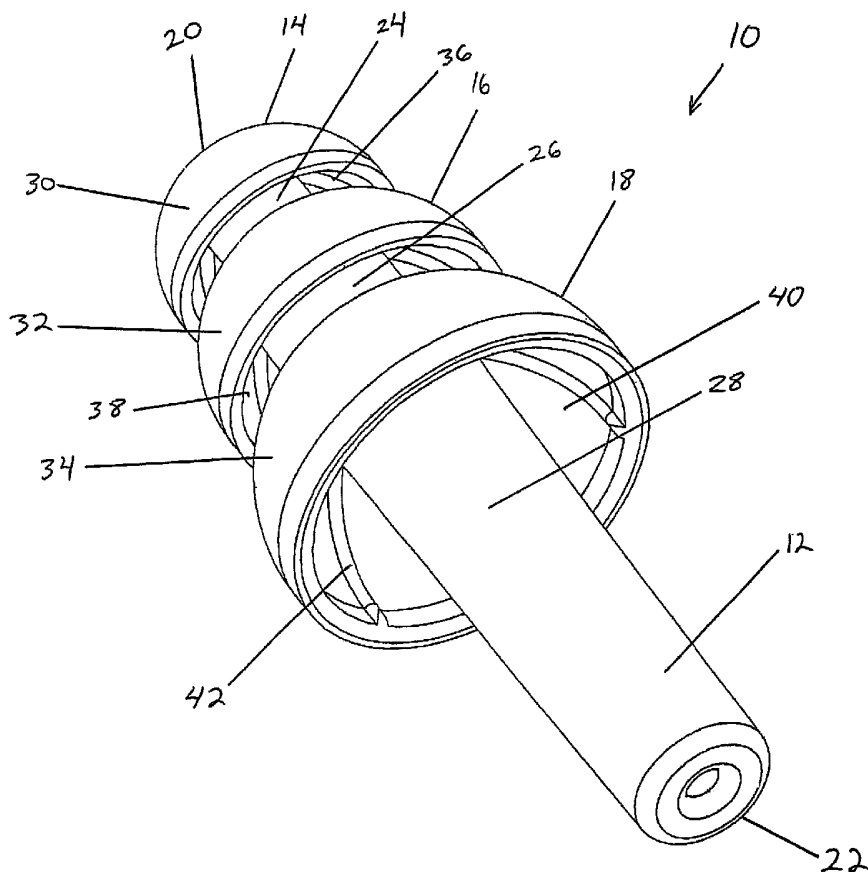
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(54) Title: HEARING PROTECTION DEVICE



(57) Abstract: An earplug is provided including an elongate stem component having a first end and an opposite second end, a first flange disposed on the stem proximate the first end, a second flange disposed on the stem adjacent the first flange, a third flange disposed on the stem adjacent the second flange, opposite the first flange, and proximate the second end, a rib support element formed on the first, second, and third flanges, wherein, the first, second, and third flanges comprise generally hemispherical flange elements extending from the stem in a direction toward the second end such that a generally annular space is formed between inner surfaces of the first, second, and third flanges and the stem, and wherein the rib support element is formed on the inner surfaces.

WO 2003/063744 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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INTERNATIONAL SEARCH REPORT

International Application No

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61F11/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 244 979 A (SAFER SAFETY LTD) 11 November 1987 (1987-11-11) claims; figures ---	1-14
A	EP 0 847 736 A (DALLOZ SAFETY AB) 17 June 1998 (1998-06-17) claims; figures ---	1-14
X	US 4 867 149 A (FALCO ROBERT N) 19 September 1989 (1989-09-19) column 4, line 25 - line 40 claims; figures ---	15, 16
A	US 6 286 622 B1 (TIEMANN RUDI PETER) 11 September 2001 (2001-09-11) column 7, line 15 - line 29 claims; figure 5 ---	15, 16
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 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
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- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

19 December 2003

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/02412

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 671 265 A (ANDERSSON LARS-GUNNAR L) 9 June 1987 (1987-06-09) column 3, line 39 -column 4, line 18 claims; figure 3 -----	17-20
X	US 4 314 553 A (WESTERDAL ROLAND) 9 February 1982 (1982-02-09) claims; figures -----	17-20

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-14

An earplug, comprising:

an elongate stem component having a first end and an opposite second end;

a first flange disposed on the stem proximate the first end;
a second flange disposed on the stem adjacent the first flange;

a third flange disposed on the stem adjacent the second flange, opposite the first flange, and proximate the second end;

a rib support element formed on the first, second, and third flanges;

wherein, the first, second, and third flanges comprise generally hemispherical flange elements extending from the stem in a direction toward the second end such that generally annular spaces are formed between inner surfaces of the first, second, and third flanges and the stem, and

wherein the rib support element is formed on the inner surfaces.

2. Claims: 15,16

An earplug, comprising:

an elongate stem component having a first end and an opposite second end;

a plurality of substantially hemispherical flanges connected to the stem at respective attachment points and extending from the stem in a direction toward the second end such that respective annular spaces are formed between inner surfaces of the plurality of flanges and the stem; and

a plurality of annular recessed portions corresponding to the plurality of flanges formed circumferentially in the stem in the annular spaces proximate the attachment points.

3. Claims: 17-20

An earplug comprising:

an elongated stem including opposite first and second ends;

a flange element disposed circumferentially on the stem and

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

extending from the stem toward the second end delimiting a space between the flange element and the stem; and

a rib support element formed on an outer surface of the earplug for providing rigidity to the earplug.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/02412

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/02412

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