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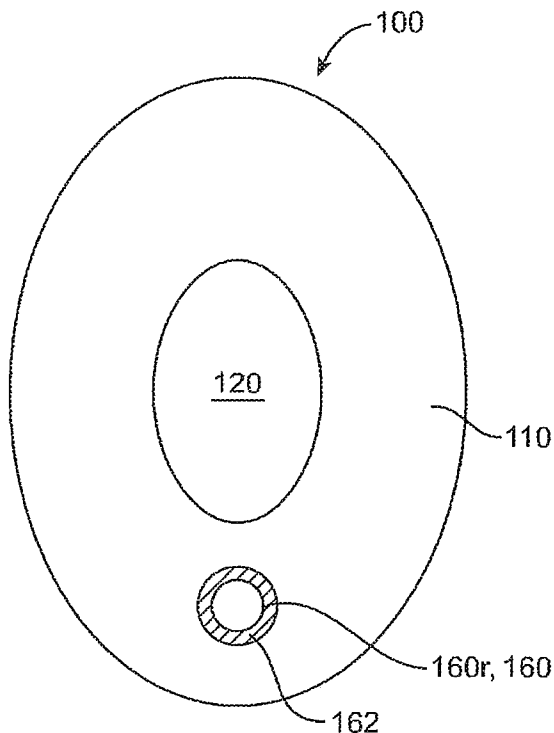
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- (71) Applicant (for all designated States except US): **IN-SOUND MEDICAL, INC.** [US/US]; 37500 Central Court, Newark, California 94560 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **URSO, Richard, Carl** [US/US]; 15 Bennet Road, Redwood City, California 94062 (US). **SHENNIB, Adnan** [US/US]; 39440 Civic Center Drive #422, Fremont, California 94538 (US). **ANDERSON, Gregory, F.** [US/US]; 36338 Carnation Way, Fremont, California 94536 (US). **RAM, Sunder** [US/US]; 538 South Park Drive, San Jose, California 95129 (US). **SCHINDLER, Robert** [US/US]; 32 States Street, San Francisco, California 94114 (US). **DAY, Ian , Michael**

- [CA/US]; 34437 Gove Terrace, Fremont, California 94555 (US). **BUCKLEY, James** [US/US]; 5180 Makati Circle, San Jose, California 95123 (US).
- (74) Agents: **HARRIS, Joel** et al.; Two Embarcadero Center, 8th Floor, San Francisco, California 94111-3834 (US).
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[Continued on next page]

(54) Title: SEALING RETAINER FOR EXTENDED WEAR HEARING DEVICES



(57) Abstract: An embodiment provides a seal for retaining a hearing device within the ear canal comprising a curved shell having an opening at a shell apex portion. The shell defines a cavity for retention of a device component. An interior surface of a shell wall has a scalloped shape configured to distribute compressive forces applied to the shell perimeter such that when the shell is positioned in the canal, the shell wall conforms to the shape of the canal to maintain an acoustical seal between a shell exterior surface and the canal walls. The scalloped shape can be configured to produce a substantially constant amount of inward deformation of a shell wall independent of a force application point on a shell perimeter. The shell can include a coating to retain the seal in the canal and/or to promote asparagine growth into the coating to fastenly retain the seal in the canal.

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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US06/37971

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC(8) - H04R 25/00 (2007.01)  
 USPC - 381/328  
 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(8) - H04R 25/00 (2007.01)  
 USPC - 381/328

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 practicable, search terms used)  
 MicroPatent

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,473,513 B1 (SHENNIB et al) 29 October 2002 (29.10.2002) entire document	1-3,5-10,12-15,17-22,24-30,32-36 ----- 4,11,16,23,31,37-42
Y	US 6,205,227 B1 (MAHONEY et al) 20 March 2001 (20.03.2001) column 18 lines 4-12	4
Y	US 2004/0161445 A1 (BULK et al) 19 August 2004 (19.08.2004) paragraphs 12, 19, and 20	11, 37, 38
Y	US 2004/0165742 A1 (SHENNIB et al) 26 August 2004 (26.08.2004) entire document	16,23,31,39-42
A	US 5,701,438 A (BANNS) 23 December 1997 (23.12.1997) entire document	1-42

Further documents are listed in the continuation of Box C.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 08 June 2007	Date of mailing of the international search report <b>03 AUG 2007<sup>1</sup></b>
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Blaine R. Copenheaver  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774
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## Continuation of Box III: Lack of Unity of Invention

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-42 drawn to a seal with a curved shell for retaining a hearing aid and providing an acoustic seal.

Group II, claims 43-50 drawn to a seal which induces the growth of biological tissue to retain a hearing aid device.

Group III, claims 51-62 drawn to a seal for retaining a hearing aid with a force which does not exceed the capillary venous return pressure of the ear canal epithelial layer.

The inventions listed as Groups I, II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special technical feature of the Group I invention: a seal with a curved shell as claimed therein is not present in the invention of Groups II and III. The special technical feature of the Group II invention: a seal which induces the growth of biological tissue as claimed therein is not present in the invention of Groups I and III. The special technical feature of the Group III invention: a seal with a force which does not exceed the capillary venous return pressure of the ear canal epithelial layer as claimed therein is not present in the invention of Groups I and II.

The mere recitation of a seal for retaining a hearing aid and which provides an acoustic seal is not considered a special technical feature as this limitation is clearly disclosed by Shennib et al. (US 6,473,513 B1), claim 1, as published on 29 October 2002.

Since none of the special technical features of the Group I, II or III inventions are found in more than one of the inventions, unity of invention is lacking.