A method for sensing a least physical or chemical parameter of the perilymph fluid in the central part of the box.

Abstract: The invention relates to an at least partially implantable hearing system comprising a microphone assembly (26) for capturing audio signals from ambient sound; an audio signal processing unit (32) for processing the audio signals captured by the microphone assembly; an implantable main electromechanical output transducer (46) for direct mechanical stimulation of the cochlea (24) according to the audio signals processed by the audio signal processing unit; an implantable box (20) having a central port (66) and an open flange (68) for penetrating through the cochlear wall (22) into the perilymph fluid (70), wherein the inner cross section of the central port is larger than the inner cross section of the flange; and wherein the electromechanical output transducer is for acting on the perilymph fluid in the central part of the box through a port provided at the box. The box comprises at least one of a port (82) for an implantable auxiliary electromechanical output transducer (48) for acting on the perilymph fluid in the central part of the box, a port (94) for drug application into the perilymph fluid in the central part of the box, and a port (84) for applying optical stimuli to the perilymph fluid of the cochlea, and a port (86) for at least one sensor (88) for sensing at least physical or chemical parameter of the perilymph fluid in the central part of the box.

Title: FULLY OR PARTIALLY IMPLANTABLE HEARING SYSTEM

(88) Date of publication of the international search report:
3 December 2009
### A. CLASSIFICATION OF SUBJECT MATTER

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

**INV.** H04R25/00 A61F11/04 A61N1/36

**INV.** H04R25/00 A61F11/04 A61N1/36

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols):

H04R A61N 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

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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### D

Further documents are listed in the continuation of Box C. See patent family 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.
  - **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).
  - **D** 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.

**I** 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.

**K** 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.

**V** 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.

**A** document member of the same patent family.

**Date of the actual completion of the International search**

7 October 2009

**Date of mailing of the international search report**

16/10/2009

Name and mailing address of the ISA:

European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HT THE HAGUE
Tel: (+31-70) 340-2040
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Authorized officer:

Moscu, Vi orel
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. X Claims Nos.: 12-23 because they relate to subject matter not required to be searched by this Authority, namely:
   see FURTHER INFORMATION sheet PCT/ISA/210

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).

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

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 fees, this Authority did not invite payment of additional fees.

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 and, where applicable, the payment of a protest fee.

□ The additional search fees were accompanied by the applicant’s protest but the applicable protest fee was not paid within the time limit specified in the invitation.

□ No protest accompanied the payment of additional search fees.
Continuation of Box II.1

Claims Nos.: 12-23

Claims 12-23 include different steps directed to the medical treatment of a human body, e.g. steps of fixing the device to the cochlear wall, applying a drug, taking out liquid, analysing the liquid, etc. Under the provisions of Rule 67.1(iv) PCT, claims directed to the medical treatment of a human body are exempted from International Preliminary Examination. As a consequence no search and no examination opinions have been issued with regard to these claims.
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