



(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
15.03.2006 Bulletin 2006/11

(51) Int Cl.:
H04R 25/00 (2006.01)

(43) Date of publication A2:
09.11.2005 Bulletin 2005/45

(21) Application number: 05405460.6

(22) Date of filing: 03.08.2005

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI
SK TR
Designated Extension States:
AL BA HR MK YU

(72) Inventor: **Stirnemann, Alfred**
8702 - Zollikon (CH)

(74) Representative: **Frei Patent Attorneys**
Frei Patentanwaltsbüro
Postfach 1771
8032 Zürich (CH)

(71) Applicant: **PHONAK AG**
8712 Stäfa (CH)

(54) **Method of obtaining acoustical characteristics, hearing instrument and manufacturing method thereof**

(57) According to the invention, a hearing instrument comprising at least one inner microphone (6) operable to determine a sensing signal representative of an acoustic signal at a position in front of the user's eardrum - which may be an acoustic signal at a position between an ITE (or ITC or CIC) hearing instrument and the eardrum or between an earpiece and the eardrum - is used. In accordance with the invention, in front of the eardrum an acoustic signal is produced. The inner microphone creates a sensing signal representative of the acoustic

signal, and the signal processing unit of the hearing instrument determines a characteristic of the user's ear canal based thereon and memorizes values indicative of the characteristic. According to a preferred embodiment, the characteristic is an acoustic coupling transfer characteristic, which is determined based on a comparison of a signal representative of the input signal of the hearing instrument's receiver and the sensing signal. In contrast to the state of the art, no control loop is necessary to adapt the gain to the ear canal characteristic, but the memorized values may be used therefor.

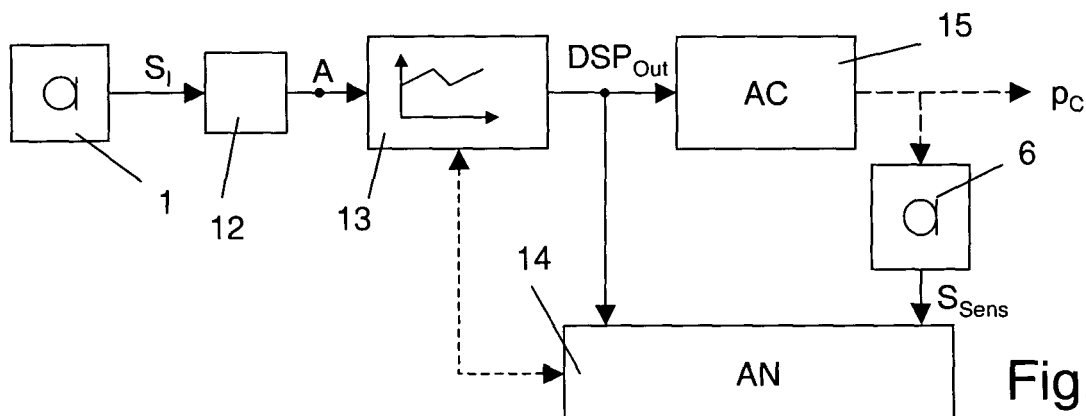


Fig. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 40 5460

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 41 28 172 A1 (ROBERT BOSCH GMBH, 7000 STUTTGART, DE; ASCOM AUDIOSYS AG, FLAMATT) 4 March 1993 (1993-03-04) * columns 1-3 * * figures 1,2 * X * the whole document *	1,2,4-6, 8-12, 15-18, 21-23,25	H04R25/00
D,X	----- US 6 658 122 B1 (WESTERMANN SOREN ERIK ET AL) 2 December 2003 (2003-12-02) * column 1, lines 8-10,35-54 * * column 1, line 64 - column 2, line 6 * * column 2, lines 9-36 * * column 3 * * column 4, lines 3-8,33-39 * * column 8, lines 48-51 * * figures 1-4 * X * the whole document *	1,2,4-6, 8-11, 15-18, 20,26	TECHNICAL FIELDS SEARCHED (IPC)
X		3,7, 12-14,19 21-25,27	H04R
A			
D,A	----- CH 678 692 A (PHONAK AG) 31 October 1991 (1991-10-31) * column 1, lines 1-6,49-60 * * column 1, lines 49-51 * * column 4, lines 48-60 * * figure 4 *	1,15	
A	----- DE 28 08 516 A1 (ROBERT BOSCH GMBH) 6 September 1979 (1979-09-06) * the whole document * -----	1,15	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 January 2006	Examiner Fachado Romano, A
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

2
EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 40 5460

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

18-01-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 4128172	A1	04-03-1993	NONE

US 6658122	B1	02-12-2003	AT 276634 T 15-10-2004
		AU 754741 B2	21-11-2002
		AU 1233899 A	29-05-2000
		CA 2344871 A1	18-05-2000
		DE 69826331 D1	21-10-2004
		DE 69826331 T2	17-02-2005
		WO 0028784 A1	18-05-2000
		EP 1129600 A1	05-09-2001
		JP 2002530034 T	10-09-2002

CH 678692	A	31-10-1991	NONE

DE 2808516	A1	06-09-1979	NONE
