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**Datasheet for the decision
of 27 September 2018**

Case Number: T 1419/15 - 3.5.03

Application Number: 11722565.6

Publication Number: 2564603

IPC: H04R25/00

Language of the proceedings: EN

Title of invention:

Hearing prosthesis having an on-board fitting system

Applicant:

Cochlear Limited

Headword:

Hearing prosthesis/COCHLEAR

Relevant legal provisions:

EPC Art. 54, 123(2)

Keyword:

Novelty - (no)

Amendments - added subject-matter (yes)



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Case Number: T 1419/15 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 27 September 2018

Appellant:
(Applicant)

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Representative:

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 10 February
2015 refusing European patent application
No. 11722565.6 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman F. van der Voort
Members: K. Schenkel
O. Loizou

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division refusing European patent application No. 11722565.6 (International Publication No. WO 2011/135547 A1).
- II. The refusal was based on the grounds that the subject-matter of claims 1 and 11 of a main request was not new having regard to the disclosure of D1 (= US 2009/0310804 A1) (Articles 52(1) and 54 EPC) and that claims 1 and 11 of each of first to third auxiliary requests contained subject-matter which extended beyond the content of the application as filed (Article 123(2) EPC).
- III. In the statement of grounds of appeal, the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of a main request or, in the alternative, one of first to fifth auxiliary requests, all requests as filed with the statement of grounds of appeal, the main request and the first to third auxiliary requests being identical to those decided on by the examining division. Further, the appellant conditionally requested oral proceedings.
- IV. In a communication pursuant to Article 15(1) RPBA accompanying a summons to oral proceedings, the board, without prejudice to its final decision, gave its preliminary opinion, *inter alia*, that the subject-matter of claims 1 and 11 of the main request and the first, third and fourth auxiliary requests did not appear to be new over the disclosure of D1, that the subject-matter of claims 1 and 11 of the second auxiliary request did not appear to involve an

inventive step when starting out from D1 and taking into account common general knowledge, and that claims 1 and 11 of the fifth auxiliary request did not appear to comply with Article 123(2) EPC.

V. In response to the board's communication, the appellant filed with a letter dated 22 August 2018 further arguments together with an amended main request and amended first to fifth auxiliary requests.

VI. Oral proceedings were held on 27 September 2018.

The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of the main request or, in the alternative, one of the first to fifth auxiliary requests, all as filed with the letter dated 22 August 2018.

At the end of the oral proceedings, after due deliberation, the chairman announced the board's decision.

VII. Claim 1 of the main request reads as follows:

"A hearing prosthesis (100) configured to operate in a sound processing mode and a fitting mode comprising:

an external component comprising:

a physically integrated input interface (222) comprising:

an operational control interface having one or more interface elements; and

a fitting control interface having one or more interface elements, wherein at least one of the fitting control interface elements comprises an operational control interface element;

a sound processor (202) configured to process received sounds based on predefined fitting data; and

an on-board fitting system (210) configured to set the fitting data in response to control inputs received via the fitting control interface."

- VIII. Claim 1 of the first auxiliary request differs from claim 1 of the main request in that the last paragraph reads as follows (added or amended text underlined by the board):

"an on-board fitting system (210) configured to determine and store in the prosthesis the fitting data in response to control inputs received via the fitting control interface during the fitting mode".

- IX. Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that at the end the following wording has been added:

"and wherein the on-board fitting system (210) is further configured to set at least a gain curve fitting data parameter".

- X. Claim 1 of the third auxiliary request differs from claim 1 of the first auxiliary request in that at the end the following wording has been added:

"and an output interface (224) that is adapted to provide indications (244) to a recipient generated by a

user interface (220) as a result of feedback (228) from the on-board fitting system (210)".

- XI. Claim 1 of the fourth auxiliary request differs from claim 1 of the main request in that at the end the following wording has been added:

"and allows fitting without the use of external fitting equipment".

- XII. Claim 1 of the fifth auxiliary request differs from claim 1 of the fourth request in that at the end in the last paragraph, the following wording has been added between "fitting control interface" and "and allows fitting ...":

", to generate stimulation signals during the fitting mode,".

Reasons for the Decision

1. Main request - claim 1 - novelty

- 1.1 The present application relates to a hearing prosthesis which is configured to operate in a sound processing mode and in a fitting mode and which comprises, *inter alia*, an input interface with an operational control interface and a fitting control interface. The fitting control interface is for setting fitting data for the hearing prosthesis on the basis of which received sound is processed.

More specifically, claim 1 comprises the features that the fitting control interface includes one or more fitting control interface elements and the operational control interface includes one or more operational

control interface elements and that at least one of the fitting control interface elements comprises an operational control interface element. The board understands the claim such that the latter operational control interface element of the fitting control interface is a dual-purpose interface element that is capable of providing both fitting control input and operational control input.

The board further notes that the application in suit gives as an example of operational data the sound volume of the device (cf. the sentence bridging pages 9 and 10) and, as examples of fitting data, parameters for setting the directionality of the device, a gain curve, and the gain for lower frequencies (paragraph [0067], first two lines, and paragraph [0075]).

- 1.2 Document D1 relates to a bone conduction hearing prosthesis (see the abstract, "a bone conduction device for enhancing a recipient's hearing"). The embodiments of the hearing prosthesis which are disclosed in D1 include a user interface for changing fitting data in the hearing prosthesis ("to alter various settings", paragraph [0027], lines 4 to 9) and may be implemented in a bone conduction device which is shown in Fig. 1 (cf. paragraph [0016]) and which includes an external component to be attached to the user (paragraph [0031], lines 1 to 4, "housing 125").

The board notes that Figs. 2A, 2B and 3 together with the corresponding paragraphs [0033] to [0055] refer to the same embodiment (see paragraphs [0017] to [0019]) and that Figs. 4 to 8 together with the corresponding paragraphs [0056] to [0069] refer to exemplary interface modules which may be used in this embodiment.

In this embodiment, sound may be received and converted into an electrical signal (paragraph [0033], lines 3 to 7) by sound input elements which may be selected (paragraph [0034], lines 1 to 6). The selected signal is converted into an adjusted electrical signal or, in other words, is processed by a sound processor ("electronics module 204", see paragraph [0035], lines 1 to 3) and is output to the user (paragraph [0036], lines 1 to 4). The mode in which the aforementioned steps are performed thus constitutes a sound processing mode.

The hearing prosthesis according to this embodiment of D1 further includes an interface ("interface module 212", see paragraph [0038], lines 1 to 6) with interface elements ("buttons" and "dials", see paragraph [0046]) which allow the user to set an operational control parameter ("to adjust the volume", see paragraph [0038]) and, hence, constitutes an operational control interface.

Figs. 4 to 8 show exemplary interface modules which may be used in the aforementioned embodiment (paragraph [0056], lines 1 to 3). The exemplary interface shown in Fig. 4 and described in paragraphs [0057] to [0060] is physically integrated (see Fig. 4) and comprises first interface elements ("side buttons 404", see paragraph [0057], lines 8 to 20) for adjusting the volume and second interface elements ("side buttons 406", *ibid.*) for adjusting control settings, for example "maximum power output", "damping of certain resonance frequencies" or "noise reduction" (*ibid.*) or, in other words, for controlling fitting data and, hence, constitutes a fitting control interface. The control settings are organised in menus (paragraph [0058], lines 1 to 5). In order to access a control setting, by

pressing a third interface element ("button 405", see paragraph [0058], lines 12 to 15, and paragraph [0059], lines 1 to 4), the user may enter a top menu through which he can navigate. The user can access the desired setting by means of one of the first interface elements ("button 404", see paragraph [0059], lines 15 to 21). Hence, this first interface element ("button 404") is for setting an operational control parameter, namely the "volume", and for setting fitting data, namely the "other control data", and is therefore, using the language of claim 1, a fitting control interface element comprising an operational control interface element. In the board's view, the mode in which the control settings are adjusted constitutes a fitting mode. The "electronics module 204" which receives the user input via the "interface module 212" (paragraph [0038], lines 3 to 7, and Fig. 2A) thus constitutes an on-board fitting system configured to set the fitting data in response to control inputs received via the fitting control interface.

Taking into account the kind of the control data ("maximum power output", "damping of certain resonance frequencies" and/or "noise reduction"), it is implicit that the sound processor processes the electrical signal derived from the received sound based on the fitting data. In the board's view, it goes without saying that the sound processing can only be based on already defined fitting data, i.e. predefined fitting data.

1.3 D1 therefore discloses a hearing prosthesis which includes all the features of claim 1.

1.4 Arguments of the appellant

1.4.1 The appellant argued that the process of fitting meant adjusting a hearing prosthesis to the needs of a patient, for example with respect to the frequency range, and that it was usually done with a computer and based on feedback from the user. In the fitting mode, stimulation signals were provided to the user which could also include artificial sound sources. This argument was based on the last sentence in paragraph [0035] of the application which reads "That is, during the fitting mode, data that is used to process sound, generate stimulation signals, etc., are determined and stored in the prosthesis". D1, on the other hand, did not disclose the artificial sound sources, nor did it use the term "fitting". It only disclosed settings which were predefined choices which could be selected, but were not the result of a fitting process. In support of this argument, the appellant pointed to paragraph [0060] of D1 and, in particular, to the wording "... the recipient may then select the menu for selecting predetermined settings or manual adjustments" and "... rather than manually adjusting the amplification settings, the recipient may select from the predefined settings menu to select from amongst a plurality of predetermined amplification settings".

The board is not convinced by these arguments. The application in suit uses the term "stimulation" in the context of providing signals which can be detected by the user. Depending on the nature of the hearing loss concerned, this stimulation may, for example, be electrical stimulation directly to the cochlea, the auditory nerve or the brain, or mechanical stimulation by means of vibrating the user's skull (paragraphs [0004] and [0006]). The term "stimulation signals" does not therefore imply a specific source. Further, in the board's view, the skilled reader would understand the

above-cited wording referred to by the appellant to mean that, during the fitting mode, data is determined and stored, which may subsequently be used to process sound and to generate the stimulation signals, in which the data defines settings on the basis of which the stimulation signals are to be generated.

With respect to paragraph [0060] of D1 and the argument based on it, the board firstly notes that claim 1 does not exclude settings which are chosen from a plurality of predetermined settings. Further, it is noted that in the application in suit too, some fitting data parameters are chosen from a plurality of predetermined settings, for example the side fitting data parameter, which is chosen from the left or the right (paragraph [0065]), or the functionality parameter, which is either on or off.

1.4.2 The appellant further argued that "fitting" was an individual process for adjusting a hearing prosthesis to an individual recipient in order to match the hearing loss, and that, for instance, the ANSI S3.21-1978 (R1997) standard disclosed a test environment in which artificial test tones were used to determine the individual's hearing threshold. The board notes however that the ANSI document relates to a measurement for determining the individual hearing loss, which is different from determining fitting data parameter. The document therefore does not provide a definition for the term "fitting" which would imply the generation of test tones in a fitting mode.

1.4.3 The appellant further argued that there was no difference in terms of information content between operational parameters and fitting data. However, operational parameters were adjusted in real time

during operation, whereas fitting data was permanently stored in the prosthesis, and this was not disclosed in D1. The board notes, however, that claim 1 does not specify whether fitting data is permanently or non-permanently stored and that the description does not mention this either. The board further notes, for the sake of argument, that the application in suit discloses fitting data parameters directed to a directionality of the hearing prosthesis or a filtering (see the beginning of paragraph [0067] and paragraph [0075]) which are advantageously permanently stored. However, D1 discloses the same settings (paragraph [0057], lines 12 to 20) in respect of which the same consideration applies.

1.4.4 The appellant further argued that the hearing prosthesis according to claim 1 could switch between the sound processing mode and the fitting mode, which implied that some kind of switch was present. The board notes, however, that claim 1 only requires the hearing prosthesis is to be configured to operate in a sound processing mode and in a fitting mode, without mutually excluding each other. Hence, this does not imply a switch for switching between the two modes. The board further notes for the sake of argument that D1 also discloses a switch for entering a mode for setting fitting data (see paragraph [0058], lines 12 to 15, "button 405").

1.4.5 Further, the appellant argued that the hearing prosthesis was capable of sound processing, which implied computing capacity. The board notes, however, that claim 1 does not require digital sound processing and that sound may also be processed in an analog manner. The board further notes that, in D1, the sound processor ("electronics module 204") may include a

signal processor which may comprise a digital signal processor (paragraph [0041]).

1.5 The board therefore concludes that the subject-matter of claim 1 of the main request lacks novelty (Articles 52(1) and 54 EPC). The main request is therefore not allowable.

2. *First auxiliary request - claim 1 - novelty*

2.1 Claim 1 of the first auxiliary request adds to claim 1 of the main request the feature that the on-board fitting system, instead of being configured to set the fitting data, is configured to determine and store in the prosthesis the fitting data during the fitting mode.

2.2 D1 discloses with respect to the exemplary interface shown in Fig. 8 that a control setting or, in other words, fitting data may be adjusted and may be saved in the hearing prosthesis ("The recipient may then adjust the control settings, volume, etc., ..." and "... the recipient may select to save the setting ...", paragraph [0067], lines 7 to 9, and paragraph [0069], lines 2 to 11). In the board's view, adjusting a setting implicitly includes determining the setting, it being noted that storing a setting requires a specific value for the setting which is then stored.

Since the fitting mode distinguishes itself from the sound processing mode in that fitting data are set in this mode, it follows that it is implicit that the on-board fitting system of D1 is configured to determine and store the fitting data during the fitting mode.

2.3 The appellant further argued that claim 1 referred to the determination of fitting data, which referred to the generation of the data from scratch. In contrast, in D1 settings were only chosen from predetermined settings. Determining fitting data was different from selecting a setting, since it gave the user full freedom to select the values.

In the board's judgement, the wording "to determine ... data" in claim 1 in the present context is to be understood as determining specific values, but does not mean that these specific values must be selected from an undefined large number of possibilities. In this respect, the board notes that the side fitting data parameter mentioned in the application in suit as an example of fitting data allows two different values only, namely left and right.

2.4 The additional features in claim 1 of the first auxiliary request are therefore known from D1.

2.5 For these reasons and the reasons set out in point 1 above, the board concludes that the subject-matter of claim 1 of the first auxiliary request lacks novelty (Articles 52(1) and 54 EPC). The first auxiliary request is therefore not allowable.

3. *Second auxiliary request - claim 1 - novelty*

3.1 Claim 1 of the second auxiliary request adds to claim 1 of the first auxiliary request the feature that the on-board fitting system is further configured to set at least a gain curve fitting data parameter.

3.2 According to the application in suit, the gain curve fitting data data parameter is used, for example, in

order to increase the gain curve (paragraph [0071], lines 3 to 5).

D1 discloses with respect to the exemplary interface shown in Fig. 4 that the fitting data may include a parameter for damping at certain resonance frequencies, for example by using electronic notch filters (see paragraph [0057]), which, in the board's view, is equivalent to setting the gain for at least a part of the frequency range.

- 3.3 The appellant argued that a notch filter did not set the gain of the gain curve over the entire frequency range. The board notes, however, that claim 1 of the second auxiliary request is not limited to a parameter setting the gain for the entire frequency range and thus encompasses setting of the gain for only a part of the frequency range.
- 3.4 The additional features in claim 1 of the second auxiliary request are therefore known from D1.
- 3.5 For these reasons and the reasons set out in point 2 above, the board concludes that the subject-matter of claim 1 of the second auxiliary request lacks novelty (Articles 52(1) and 54 EPC). The second auxiliary request is therefore not allowable.

4. *Third auxiliary request - claim 1 - novelty*

- 4.1 Claim 1 of the third auxiliary request adds to claim 1 of the first auxiliary request the feature that the prosthesis includes an output interface which is adapted to provide indications to a recipient generated by a user interface as a result of feedback from the on-board fitting system.

4.2 The board notes that the interface module of the embodiment shown in Fig. 2B of D1 further includes components that allow the user to receive information from the hearing prosthesis, such as, for example, a screen, and hence includes a user interface with an output interface which is adapted to provide indications generated by a user interface to the recipient (paragraph [0046]).

According to Fig. 2B, the interface module is coupled to the on-board fitting system ("electronics module 204") via a double-headed arrow 228, which indicates that the on-board fitting system provides input data or, in other words, feedback to the interface module, on the basis of which the latter generates the indications to the user. The board further points to the interface shown in Fig. 8 of D1 which includes a display for use by the recipient to navigate through a menu of control settings, on which icons, including an icon 818a for settings, or buttons may be displayed (paragraph [0068], lines 1 to 9).

4.3 The additional features in claim 1 of the third auxiliary request are therefore known from D1.

4.4 For these reasons and the reasons set out in point 2 above, the board concludes that the subject-matter of claim 1 of the third auxiliary request lacks novelty (Articles 52(1) and 54 EPC). The third auxiliary request is therefore not allowable.

5. *Fourth auxiliary request - claim 1 - novelty*

5.1 Claim 1 of the fourth auxiliary request (see point XI above) adds to claim 1 of the main request essentially

the feature that setting the fitting data is possible without the use of external fitting equipment.

5.2 D1 discloses that the user interface allows the user to adjust the settings stored in the hearing prosthesis and therefore to set the fitting data stored therein, without the need of an external device or fitting equipment (paragraph [0027]).

5.3 The additional feature in claim 1 of the fourth auxiliary request is therefore known from D1.

5.4 For these reasons and the reasons set out in point 1 above, the board concludes that the subject-matter of claim 1 of the fourth auxiliary request lacks novelty (Articles 52(1) and 54 EPC). The fourth auxiliary request is therefore not allowable.

6. *Fifth auxiliary request - claim 1 - added subject-matter*

6.1 Claim 1 of the fifth auxiliary request includes the feature that the on-board fitting system is further configured to generate stimulation signals during the fitting mode.

6.2 The application as filed, however, does not disclose that stimulation signals are generated during the fitting mode. The appellant referred to the following sentence in paragraph [0035] as the basis for this feature: "That is, during the fitting mode, data that is used to process sound, generate stimulation signals, etc., are determined and stored in the prosthesis". In the board's view, this sentence merely expresses the fact that data is determined during the fitting mode and that this data may be used to generate stimulation

signals (see also the considerations made in points 1.4.1 and 1.4.2 above).

The board did not find a basis for this feature in other parts of the application as filed either.

6.3 Hence, there is no clear and unambiguous disclosure of the subject-matter of claim 1 in the application documents as filed.

6.4 The board therefore concludes that claim 1 of the fifth auxiliary request includes subject-matter which extends beyond the content of the application as filed (Article 123(2) EPC). The fifth auxiliary request is therefore not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



S. Lichtenvort

F. van der Voort

Decision electronically authenticated