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**Datasheet for the decision
of 6 August 2019**

Case Number: T 0472/16 - 3.5.03

Application Number: 09807215.0

Publication Number: 2329659

IPC: H04R25/00, H04R3/00, H04R1/10

Language of the proceedings: EN

Title of invention:
A SWITCH FOR A HEARING AID

Applicant:
Intricon Corporation

Headword:
Hearing aid with tap control/INTRICON

Relevant legal provisions:
EPC Art. 56
RPBA Art. 12(4)

Keyword:
Inventive step - (no)
Admissibility - auxiliary request (no)

Decisions cited:
G 0010/93



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Case Number: T 0472/16 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 6 August 2019

Appellant: Intricon Corporation
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 7 October 2015
refusing European patent application
No. 09807215.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman F. van der Voort

Members: K. Schenkel

J. Hoppe

Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division refusing European patent application No. 09807215.0 with international publication number WO 2010/019660 A2.

The refusal was based on the ground that the subject-matter of claims 1 and 5 did not involve an inventive step having regard to the disclosure of document:

D1: DE 101 45 994 A1.

- II. In its 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 application as refused (main request) or on the basis of the claims of an auxiliary request filed with the statement of grounds of appeal. Further, it conditionally requested oral proceedings.
- III. In a communication following a summons to oral proceedings, the board gave its preliminary view that the subject-matter of claims 1 and 5 of the main request did not involve an inventive step when starting out from D1 and that the auxiliary request would most likely be held inadmissible.
- IV. Apart from receiving a duly signed advice of delivery, no further response by the appellant was received.
- V. Oral proceedings were held on 6 August 2019 in the absence of the appellant.

The board understood the appellant to be requesting in writing that the decision under appeal be set aside and

that a patent be granted on the basis of the claims as decided on by the examining division (main request) or, in the alternative, on the basis of the claims of the auxiliary request filed with the statement of grounds of appeal.

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

"A device, comprising:

at least one microphone (608) for receiving an input signal (606);

a digital signal processor (626) connected to the microphone (608) for analyzing the input signal (606);

at least two parameter settings (602) for controlling the characteristics of the device;

a pattern recognition algorithm (610) implemented by the digital signal processor (626) for detecting at least one further input signal (606) which is produced when any abnormal pressure wave is generated which is above an acoustic pressure threshold; and

a pressure wave detection switching system (604) for changing between one of the at least two parameter settings (602) and the next available of the at least two parameter settings (602) in response to output from the pattern recognition algorithm (610) produced when any abnormal pressure wave above an acoustic pressure threshold is detected by the pattern recognition algorithm (610)."

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

"A device, comprising:

at least one microphone (208; 608) for receiving an input signal (606);

a speaker (210; 618) for producing an output sound (234);

a digital signal processor (226; 626) connected to the microphone (208; 608) for analyzing the input signal (606);

at least two parameter settings (202; 602) for controlling the characteristics of the device;

an external feedback path (206) between the speaker (210; 618) and the microphone (208; 608), wherein the external feedback path (206) can be selectively made abnormal by a user of the device;

an external feedback detection algorithm (236) implemented by the digital signal processor (226; 626) for ascertaining an abnormal change in the external feedback path (206);

a pattern recognition algorithm (610) implemented by the digital signal processor (226; 626) for detecting at least one further input signal (606) which is produced when any abnormal pressure wave is generated which is above an acoustic pressure threshold; and

a switch (204; 604) for changing between one of the at least two parameter settings (202; 602) and the next available of the at least two parameter settings (202; 602) in response to the external feedback detection algorithm (236) ascertaining an abnormal change in the

external feedback path (206) and the pattern recognition algorithm (610) detecting the at least one further input signal (606)."

Reasons for the Decision

1. Main request - claim 1 - inventive step

1.1 Subject-matter of claim 1

Claim 1 relates to a device with a microphone, a signal processor for processing the signal received by the microphone, and at least two parameter settings for controlling the characteristics of the device. The device further includes a pattern recognition algorithm for detecting an input signal which is produced when any abnormal pressure wave, which is above an acoustic pressure threshold, is generated, in which case the device may change between one of the parameter settings and the next available of the parameter settings.

The board notes that in the application as filed the term "an abnormal pressure wave" is referred to on numerous occasions, whereas the term "any abnormal pressure wave" is not used at all. The board interprets this term as meaning one of those pressure waves which would not occur during the normal use of the device, i.e. for its intended purpose. For example, in the case of a hearing aid device, the pressure waves resulting from speech or music would not qualify as abnormal pressure waves.

1.2 D1 is considered to represent the closest prior art. It relates to a hearing aid which can be controlled by means of tap commands in order to improve its handling (abstract).

1.3 Using the language of claim 1, D1 discloses a device ("Hörgerät", paragraph [0001]) comprising:

at least one microphone for receiving an input signal (paragraph [0016]);

a digital signal processor ("Aufnehmer" which generates digital tap data, paragraphs [0017] and [0018]) connected to the microphone for analyzing the input signal (the digital signal processor detects the tap pattern ("Klopfzeichen") which is recorded by means of the microphone already included in the device, it thus being implicit that the microphone receives both the tap pattern and the normal speech input signal and is connected to the digital signal processor, paragraphs [0016] and [0017]);

at least two parameter settings for controlling the characteristics of the device ("Hörprogramm 1" and "Hörprogramm 2", paragraph [0017], or "Telefonhörprogramm" and "Programm für Richtcharakteristik", paragraph [0019]);

a pattern recognition algorithm implemented by the digital signal processor for detecting at least one further input signal ("Klopfzeichen", paragraph [0017]) which is produced when an abnormal pressure wave is generated which is above an acoustic pressure threshold ("Klopf-Triggerpegel", paragraph [0018]); and

a pressure wave detection switching system for selecting a parameter setting in response to an output from the pattern recognition algorithm produced when an abnormal pressure wave above an acoustic pressure

threshold is detected by the pattern recognition algorithm (paragraphs [0017] and [0019]).

The device of D1 changes to a specific one of multiple parameter settings in response to the detection of a specific tap pattern which corresponds to the parameter setting to be selected (paragraph [0017]).

- 1.4 The claimed device thus differs from the device disclosed in D1 in that it is capable of selecting the next available parameter setting upon detection of any abnormal pressure wave.
- 1.5 A technical effect of switching to the next available parameter setting upon detection of an abnormal pressure wave is that with only one and the same switching command a specific parameter setting may be selected by cycling through the available parameter settings. This simplifies the device control, in particular the pattern recognition algorithm, as it is no longer required to be able to distinguish between different tap patterns, as in the device of D1.
- 1.6 Starting out from D1, the technical problem underlying the claimed subject-matter may thus be seen in simplifying the device control. The formulation of this problem does not contribute to inventive step, since it was a common technical objective at the priority date to simplify devices.
- 1.7 Further, at the priority date, it was well-known to cycle through different settings of an electronic device by repeatedly applying one and the same control action in order to simplify the control of the device. Examples are selecting the next CD track or the next

TV/radio channel and cycling through the different options in a settings menu of, for example, a TV.

Applying this well-known measure to the device of D1, one and the same control action would, applied repeatedly, be sufficient to change to any of the control settings and it would no longer be necessary to distinguish between different tap pattern inputs in order to arrive at the desired setting. Rather, it is sufficient to detect the mere fact that one of the tap patterns, each of which qualify as an abnormal pressure wave, has occurred or, in other words, that any abnormal pressure wave within the above-mentioned meaning (see point 1.1) is generated.

1.8 In view of the above, the skilled person, when starting out from D1 and faced with the above-mentioned problem, would, based on common general knowledge, modify the device such that upon detection of any abnormal pressure wave the next available parameter setting is selected. The skilled person would thereby arrive at a device which includes all the features of claim 1, without exercising any inventive skill.

1.9 Appellant's arguments

The appellant argued that D1 specifically disclosed that the object was to provide improved control to hearing aids and that this was done by requiring that hearing aid parameters each had a defined tap pattern. Given this expressly-stated objective, it was inconceivable that the skilled person would have contemplated a modification of the device of D1 in a manner which was contrary to this expressly-stated objective. To allege otherwise would require an impermissible *ex post facto* analysis.

The board is not convinced by this argument for the following reasons:

In the light of the board's interpretation of "any abnormal pressure wave", the difference between the device of D1 and the device of claim 1 with respect to the tap signals is not that instead of a defined tap pattern an undefined tap pattern may be used, but that one tap pattern is used. The limitation to only one tap pattern in case of a plurality of settings follows from using the well-known cycling-through approach for selecting one of different parameter settings. It is thus not contrary to the objective of D1, i.e. to improve the control of hearing aids (D1, paragraph [0004], "Die Aufgabe der vorliegenden Erfindung besteht somit darin, die Steuerung von Hörgeräten, insbesondere IdO-Hörgeräte, zu verbessern."), to change to a cycling-through approach and accordingly to reduce the number of required tap patterns to one.

The board further notes that, in order to select a specific parameter setting when applying the cycling-through approach to the known device disclosed in D1, the abnormal pressure wave has to be generated a certain number of times until the desired parameter setting is reached. The overall tap pattern to reach a specific parameter setting starting from a currently selected one is thus defined in terms of how often the abnormal pressure wave has to be generated. It follows that the tap signal employed in the resulting device in order to select a specific parameter setting would also constitute a defined tap signal.

- 1.10 The subject-matter of claim 1 of the main request does not therefore involve an inventive step (Articles 52(1)

and 56 EPC). The main request is therefore not allowable.

2. *Auxiliary request - admissibility (Article 12(4) RPBA)*

2.1 It is at the discretion of the board to hold inadmissible requests which could and should have been presented in the first instance proceedings (cf. Article 12(4) RPBA).

2.2 In the present case, claim 1 of the auxiliary request includes additional features relating to an external feedback path which can be made abnormal by the user and to an algorithm for detecting an abnormal change in the external feedback path, which is a further condition for a change in the parameter settings. The appellant's arguments in support of inventive step essentially relied on these additional features.

2.3 The board notes that these additional features were not in any of claims 8 to 12 as published, which were the claims on the basis of which the search and the following substantive examination were carried out (see the European search report dated 29 December 2011 and the amendments made by the applicant dated 26 July 2012). The additional features thus create a new factual framework which has never been discussed before with the examining division ("fresh case"). If the auxiliary request were admitted, the board would have to rule on these matters for the first time or be forced to remit the case to the examining division. The primary purpose of ex parte appeal proceedings is however to examine the correctness of the decision (cf. G 10/93, OJ 1995, 172, point 4 of the reasons) and not to give the applicant/appellant the opportunity to present an entirely fresh case for examination.

Therefore, the applicant should have filed a request with these features already during the examination proceedings (Article 12(4) RPBA).

2.4 The board therefore used its discretion not to admit the auxiliary request into the appeal proceedings.

3. *Conclusion*

As there is no allowable request, it follows that the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



G. Rauh

F. van der Voort

Decision electronically authenticated