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(54) Title: METHOD AND APPARATUS FOR TAGGING PATIENT SESSIONS FOR FITTING HEARING AIDS

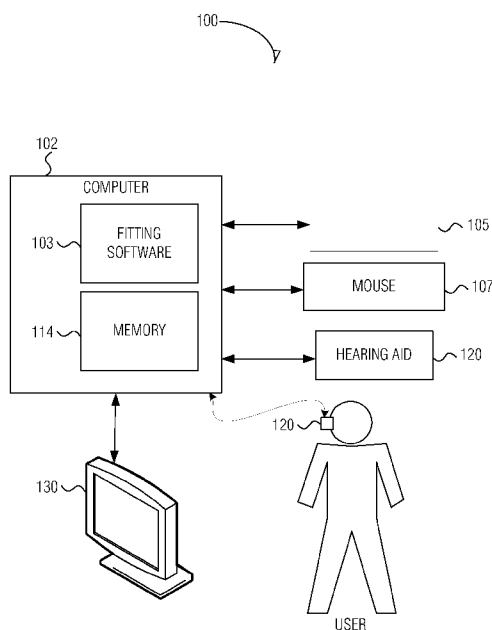


FIG. 1

(57) Abstract: The present subject matter relates generally to the method and apparatus for storing tags during a fitting session. The tags may be used to store information useful for an audiologist, a manufacturer of hearing aids, and a manufacturer of fitting software. The software adapted to provide searching based on tags. The software able to provide pre-programmed tags for use by the user. In various applications the software programmable to automatically generate tags upon occurrence of one or more conditions.

METHOD AND APPARATUS FOR TAGGING PATIENT SESSIONS FOR FITTING HEARING AIDS

5

RELATED APPLICATION

The present application claims priority to U.S. Patent Application Serial
No. 12/543,139, filed on August 18, 2009, which is incorporated herein by
10 reference in its entirety.

FIELD OF THE INVENTION

The present subject matter relates generally to fitting hearing aids, and in
particular to method and apparatus for tagging patient sessions for fitting hearing
15 aids.

BACKGROUND

Wearers of hearing aids undergo a process called “fitting” to adjust the
hearing aid to their particular hearing and use. In such fitting sessions the wearer
20 may select one setting over another, much like selecting one setting over another
in an eye test. Other types of selections include changes in level, which can be a
preferred level. A hearing aid fitting session may involve several attempts at
fitting the aids or may be uneventful. The clinician or audiologist may
experience some events or conditions that would be useful to know for later
25 fittings. Thus, there is a need in the art for improved communications for
performing fitting.

SUMMARY

Disclosed herein, among other things, are methods and apparatus for
30 method and apparatus for tagging patient sessions for fitting hearing aids. The
tags may be used to store information useful for an audiologist, a manufacturer
of hearing aids, and a manufacturer of fitting software. In various applications,
the system is adapted to provide searching based on tags. The software able to
provide pre-programmed tags for use by the user. In various applications the
35 software programmable to automatically generate tags upon occurrence of one or

more conditions. In various embodiments tag information can be stored on one or more databases and can be analyzed.

This Summary is an overview of some of the teachings of the present application and not intended to be an exclusive or exhaustive treatment of the present subject matter. Further details about the present subject matter are found
5 in the detailed description and appended claims. The scope of the present invention is defined by the appended claims and their legal equivalents.

BRIEF DESCRIPTION OF THE DRAWINGS

10 FIG. 1 shows a fitting system providing tagging according to various embodiments of the present subject matter.

DETAILED DESCRIPTION

The following detailed description of the present subject matter refers to
15 subject matter in the accompanying drawings which show, by way of illustration, specific aspects and embodiments in which the present subject matter may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the present subject matter. References to “an”, “one”, or “various” embodiments in this disclosure are not necessarily to the
20 same embodiment, and such references contemplate more than one embodiment. The following detailed description is demonstrative and not to be taken in a limiting sense. The scope of the present subject matter is defined by the appended claims, along with the full scope of legal equivalents to which such claims are entitled.

25 The present subject matter of the invention relates generally to method and apparatus for tagging patient sessions when fitting hearing aids. A hearing aid fitting system is typically controlled via standard mouse and keyboard input. These audiologist or dispenser has access to a mouse and keyboard while tending to a patient.

30 FIG. 1 shows a fitting system with gesture sensing according to various embodiments of the present subject matter. Computer 102 is adapted to execute fitting software 103 that takes typical inputs from devices such as keyboard 105 and mouse 107 for fitting one or more hearing aids 120. It is understood that the user may be the wearer of one or more hearing aids or can be a clinician,

audiologist or other attendant assisting with the use of the fitting system 100. The system 100 includes memory 114 which stores and displays on display 130 one or more tags for the fitting system. It is understood that the configuration shown in FIG. 1 is demonstrative and is not intended in an exhaustive or
5 exclusive sense. Other configurations may exist without departing from the scope of the present subject matter. For example, it is possible that the memory 114 may be encoded in firmware, software, or combinations thereof. It is possible that the system may omit a mouse or a keyboard or may include additional input/output devices without departing from the scope of the present
10 subject matter. Other variations are possible without departing from the present subject matter.

The present subject matter allows an end user to associate one or more word tags to a fitting session in hearing aid fitting software. In various embodiments, these tag values may be used by the fitting software manufacturer,
15 the hearing aid manufacturer, the hearing aid fitting professional, and others to evaluate the effectiveness of a fitting for patients and/or the efficacy of the hearing aid itself. In various embodiments, the tag values are associated to different aspects of the hearing aid product being fit. For example, such associations include, but are not limited to, one or more of the particular hearing
20 aid being fit, the adjustments made, the audiogram of the patient, fitting formula and/or other fitting session parameter values. It is understood that the information may be made anonymous to protect the privacy of the patient.

In various applications, the tags are pre-populated with values including, but not limited to, examples such as: Effective, Ineffective, Follow Up Visit,
25 First Visit, Requires Follow Up, 1 Star Rating, 2 Star Rating, 3 Star Rating, 4 Star Rating, 5 Star Rating, Easy Fit, and/or Difficult Fit.

In various embodiments of the present subject matter, the user is prompted to tag the fitting at the time they save the fitting session. In various embodiments of the present subject matter, the user can save tags as desired and
30 at any time. In various embodiments of the present subject matter, the system is programmable to automatically tag when certain conditions occur. For example, an automatic tag can be generated when a hearing aid is not fitted within a certain predetermined amount of time. For example, if a particular fitting screen is active for over 20 minutes, the system can automatically tag the fitting as

involving potentially improper hearing aid selection. Other automatic tags are possible, such as if an Active Feedback Intercept is used more than a predetermined number of times, the aid can be flagged as being a high return risk. For example, the system can automatically flag the fitting session and the aid if Active Feedback Intercept is used more than two times. These examples
5 are given to demonstrate the present subject matter. It is understood that other fitting parameters, limits, settings, and conditions may be used to automatically tag a fitting session and/or hearing aid, and the present subject matter is not limited by the examples given herein.

10 In various embodiments the user can search fittings based on their tags. The open session screen will be augmented with a tag list that allows the end user to look at fittings that were tagged with their tags.

The user can also opt in to a "Customer Improvement Program" where their tags and anonymous fitting session data will be uploaded to the hearing aid
15 manufacturer via the Internet to assist the hearing aid manufacturer in improving the fitting software for future releases.

In various applications the tags are used to alert the user to other high rated fitting sessions based on fitting session variables. This alert system is programmable to save time spent with a patient and allow an audiologist to
20 create libraries of good fittings that they can apply to their patient base.

The tags can also be used to store feedback from the users of the fitting software.

In various embodiments, a fitting system is adapted to perform the present subject matter disclosed herein. In various embodiments, the tagging is
25 performed by an interface for a fitting system for performing the tagging discussed herein. It is understood that the present subject matter can be used with a variety of fitting systems including present systems and future fitting systems.

In various embodiments, the tag information is stored in storage,
30 including, but not limited to one or more databases. In various embodiments, the tag information can be statistically studied for a single patient or across a population of patients. In various embodiments, data mining of tags and/or tag information in general is performed. Such statistical information can provide

information, including, but not limited to, information about devices, about patient populations, and/or about use and/or failure modes of devices.

5 The present subject matter is demonstrated in the fitting of hearing aids, including but not limited to, behind-the-ear (BTE), in-the-ear (ITE), in-the-canal (ITC), or completely-in-the-canal (CIC) type hearing aids. It is understood that behind-the-ear type hearing aids may include devices that reside substantially behind the ear or over the ear. Such devices may include hearing aids with receivers associated with the electronics portion of the behind-the-ear device, or hearing aids of the type having receivers in the ear canal of the user. The present
10 subject matter can also be used in hearing assistance devices generally, such as cochlear implant type hearing devices. It is understood that other hearing assistance devices not expressly stated herein may be used in conjunction with the present subject matter.

15 This application is intended to cover adaptations or variations of the present subject matter. It is to be understood that the above description is intended to be illustrative, and not restrictive. The scope of the present subject matter should be determined with reference to the appended claims, along with the full scope of legal equivalents to which such claims are entitled.

What is claimed is:

1. A method for fitting a hearing aid worn by a wearer with a fitting system, comprising:
programming an interface of the fitting system adapted to input and store a plurality of tags by a user of the system during a fitting session.
2. The method of claim 1, further comprising searching on one or more of the plurality of tags.
3. The method of any one of the preceding claims, further comprising downloading tag information to a manufacturer of the hearing aid.
4. The method of any one of the preceding claims, further comprising downloading anonymous tag information to a manufacturer of the hearing aid.
5. The method of any one of the preceding claims, further comprising downloading tag information to a maker of the fitting software.
6. The method of any one of the preceding claims, further comprising downloading anonymous tag information to a maker of the fitting software.
7. The method of any one of the preceding claims, wherein the tags are pre-populated.
8. The method of claim 7, wherein the pre-populated tags include one or more of Effective, Ineffective, Follow Up Visit, First Visit, Requires Follow Up, 1 Star Rating, 2 Star Rating, 3 Star Rating, 4 Star Rating, 5 Star Rating, Easy Fit, and/or Difficult Fit.
9. The method of any one of the preceding claims, further comprising prompting the user to tag the fitting session.

10. The method of any one of the preceding claims, further comprising programming the interface to automatically generate a tag upon occurrence of one or more programmed conditions.
11. The method of any one of the preceding claims, further comprising downloading tag information over the INTERNET.
12. The method of any one of the preceding claims, further comprising using the tags to alert the user to one or more successful fittings.
13. The method of any one of the preceding claims, further comprising storing user feedback from use of the fitting software using the tags.
14. The method of any one of the preceding claims, further comprising storing tag information in one or more databases and analyzing the tag information.
15. A fitting system for fitting a hearing aid, the fitting system executing on a computer, the system comprising:
 - an input device for entries of one or more tags by a user of the fitting system during a fitting session;
 - memory to store the one or more tags; and
 - a display of the one or more tags for the users of the fitting system, wherein the computer is adapted to store and display the one or more tags.
16. The system of claim 15, wherein the computer is adapted to communicate the one or more tags over the INTERNET.
17. The system of any one of claims 15 to 16, wherein the system is adapted to provide pre-populated tags to the user for tagging a patient session, to prompt the user to enter the one or more tags, and/or to automatically produce tags upon occurrence of one or more conditions.

18. The system of any one of claims 15 to 17, further comprising storing tag information in one or more databases and analyzing the tag information.

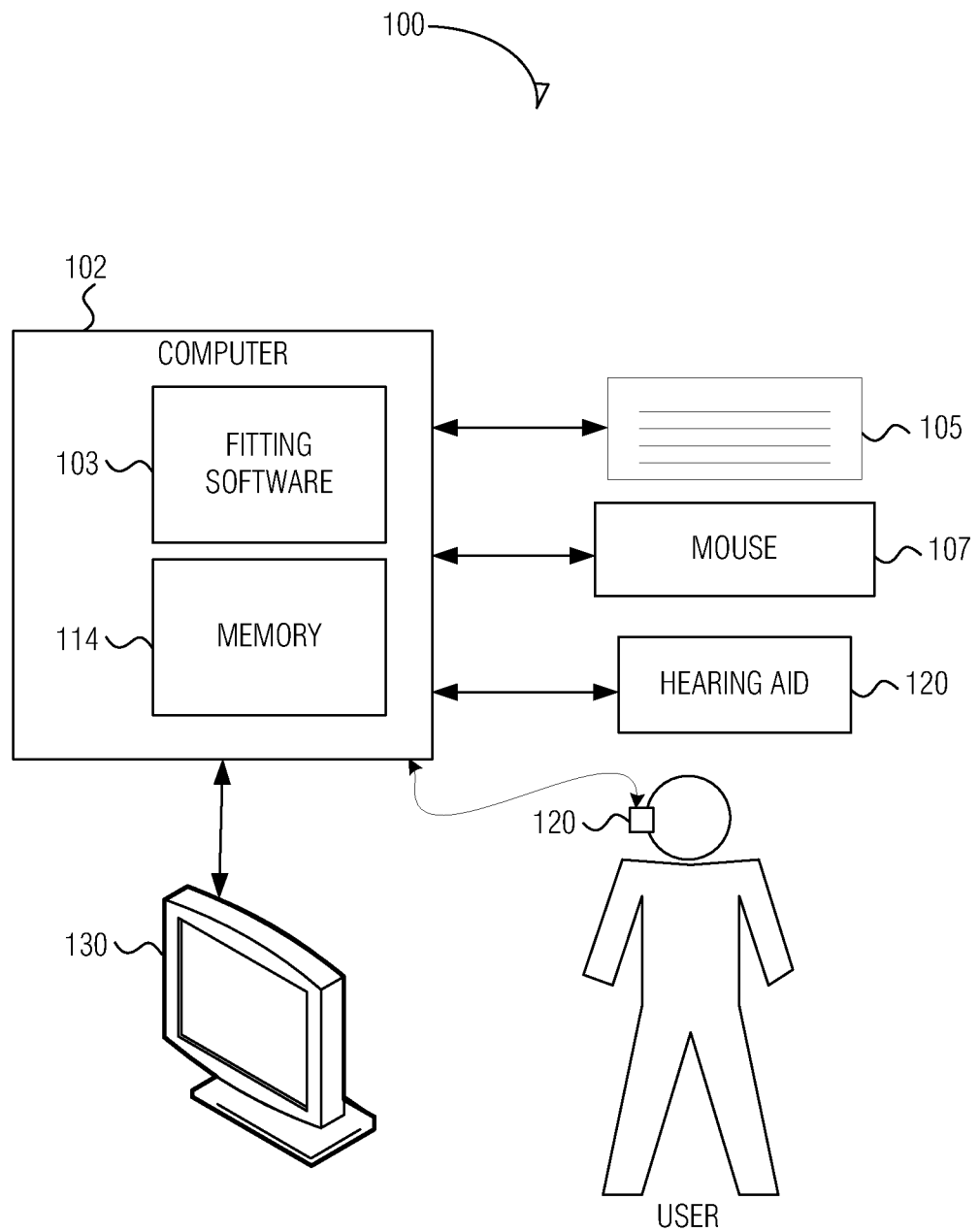


FIG. 1

INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTERINV. H04R25/00 A61B5/12
ADD.

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)

H04R A61B

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, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/136616 A2 (PHONAK AG [CH]; BAECHLER HERBERT [CH]; LAUNER STEFAN [CH]; WALDMANN BE) 28 December 2006 (2006-12-28) page 1, line 5 - page 16, line 7 page 18, line 8 - page 38, line 7 -----	1-18
X	US 2006/093997 A1 (KEARBY GERALD W [US] ET AL) 4 May 2006 (2006-05-04) paragraph [0037] - paragraph [0170] paragraph [0002] - paragraph [0009] -----	1-18
X	WO 2005/125282 A2 (JOHNSON & JOHNSON CONSUMER [US]; BURROWS MARK [US]; CRONIN JOHN [US];) 29 December 2005 (2005-12-29) page 1, line 24 - page 12, line 8 page 12, line 21 - page 26, line 33 ----- -/--	1-18

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2008/151625 A1 (WIDEX AS [DK]; NORGAARD PETER MAGNUS [DK]; RANK MIKE LIND [DK]; NIELSE) 18 December 2008 (2008-12-18) page 1, line 1 - page 4, line 12 page 4, line 21 - page 11, line 9 -----	1-18
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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