



BRAGI

**ORAL ARGUMENT FOR
IPR2023-01204/01205
(U.S. PATENT NOS. 10,117,014 & 10,397,688)**

Before Administrative Patent Judges

- Larry J. Hume
- Stacey G. White
- Garth D. Baer

McKool Smith

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 - Combinations with Rass
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 - Rass + Aumer

The Substitute Claims Are Enabled

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The '014 Patent

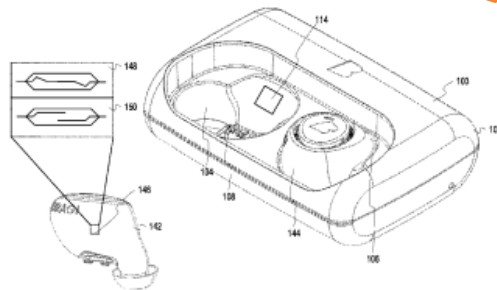
'014 Patent

- Power Control for Battery Powered Personal Area Network Device System and Method
- Priority Date: August 29, 2015

(12) United States Patent Hirsch et al.	(10) Patent No.: US 10,117,014 B2 (45) Date of Patent: *Oct. 30, 2018
(54) POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD (71) Applicant: BRAGI GmbH, München (DE) (72) Inventors: Eric Christian Hirsch, München (DE); Peter Vincent Boesen, München (DE) (73) Assignee: BRAGI GmbH, München (DE) (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer. (21) Appl. No.: 15/837,386 (22) Filed: Dec. 11, 2017 (65) Prior Publication Data US 2018/0109867 A1 Apr. 19, 2018 Related U.S. Application Data (63) Continuation of application No. 15/245,031, filed on Aug. 23, 2016, now Pat. No. 9,843,853. (Continued) (51) Int. CL H04R 1/10 (2006.01) H02J 7/00 (2006.01) (Continued) (52) U.S. CL CPC H04R 1/1041 (2013.01); H02J 7/007 (2013.01); H02J 7/0044 (2013.01); H02J 7/025 (2013.01); H02J 50/10 (2016.02); H04R 1/028 (2013.01); H04R 1/1025 (2013.01); H04W 52/0225 (2013.01); H04W 52/0229 (2013.01); (Continued)	(58) Field of Classification Search CPC H04R 1/1041; H04R 1/1025; H04R 1/028; H04R 2420/07; H04W 52/0225; H02J 7/025; H02J 7/007; H02J 50/10; H04M 1/6066 See application file for complete search history. (56) References Cited U.S. PATENT DOCUMENTS 3,934,100 A 1/1976 Harada 4,150,262 A 4/1979 Ono (Continued) FOREIGN PATENT DOCUMENTS EP 1017252 A3 5/2006 GB 2074817 4/1981 (Continued) OTHER PUBLICATIONS Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014). (Continued) <i>Primary Examiner</i> — Brenda C Bernardi (74) <i>Attorney, Agent, or Firm</i> — Goodhue, Coleman & Owens, P.C. (57) ABSTRACT A system and method for managing wireless earpieces. Circuitry of the wireless earpieces are powered utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. The power sent to the circuitry of the wireless earpieces is altered to a low power mode in response to detecting the magnetic field is applied to one or more of the wireless earpieces. 13 Claims, 5 Drawing Sheets

'014 Patent

(12) United States Patent Hirsch et al.	(10) Patent No.: US 10,117,014 B2 (45) Date of Patent: *Oct. 30, 2018
(54) POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD	(58) Field of Classification Search CPC H04R 1/1041; H04R 1/1025; H04R 1/028; H04R 2420/07; H04W 52/0225; H02J 7/025; H02J 7/007; H02J 50/10; H04M 1/6066 See application file for complete search history.
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(21) Appl. No.: 15/837,386	EP 1017252 A3 5/2006 GB 2074817 4/1981 (Continued)
(22) Filed: Dec. 11, 2017	OTHER PUBLICATIONS
(65) Prior Publication Data US 2018/0109867 A1 Apr. 19, 2018	Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014). (Continued)
Related U.S. Application Data	Primary Examiner — Brenda C Bernardi
(63) Continuation of application No. 15/245,031, filed on Aug. 23, 2016, now Pat. No. 9,843,853. (Continued)	(74) Attorney, Agent, or Firm — Goodhue, Coleman & Owens, P.C.
(51) Int. CL H04R 1/10 (2006.01) H02J 7/00 (2006.01) (Continued)	(57) ABSTRACT
(52) U.S. CL CPC H04R 1/1041 (2013.01); H02J 7/007 (2013.01); H02J 7/0044 (2013.01); H02J 7/025 (2013.01); H02J 50/10 (2016.02); H04R 1/028 (2013.01); H04R 1/1025 (2013.01); H04W 52/0225 (2013.01); H04W 52/0229 (2013.01); (Continued)	A system and method for managing wireless earpieces. Circuitry of the wireless earpieces are powered utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. The power sent to the circuitry of the wireless earpieces is altered to a low power mode in response to detecting the magnetic field is applied to one or more of the wireless earpieces.



I. Field of the Disclosure

The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.

(57)

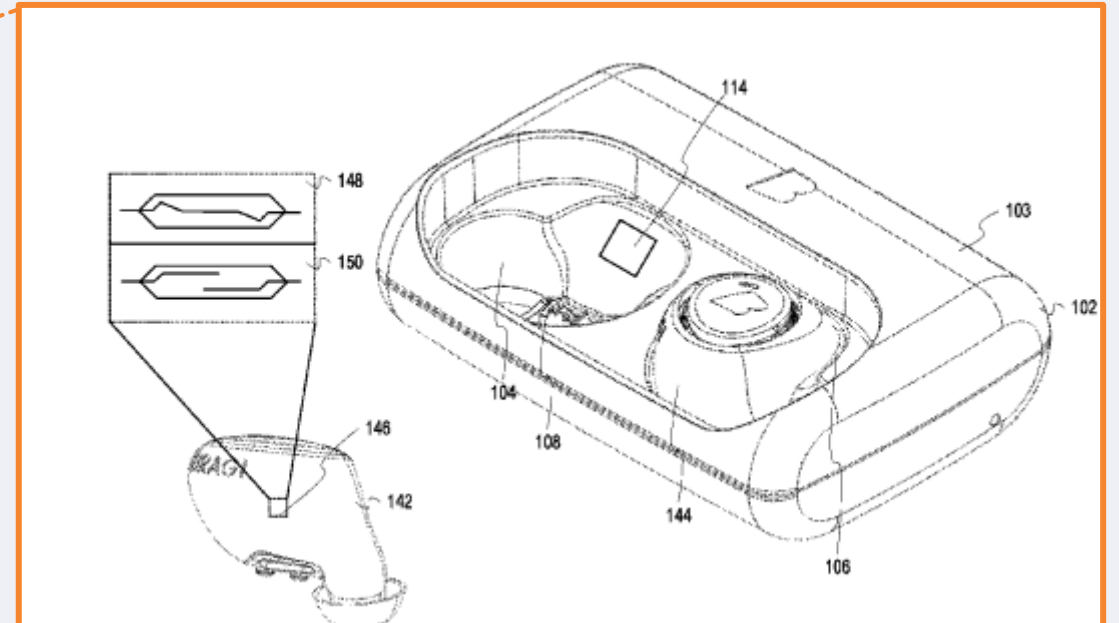
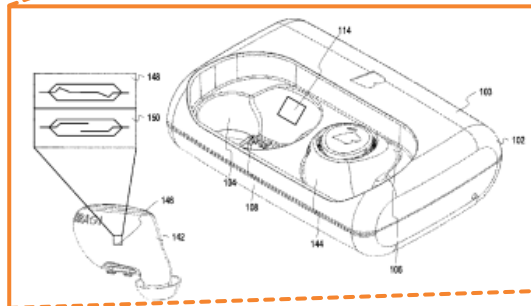
ABSTRACT

A system and method for managing wireless earpieces. Circuitry of the wireless earpieces are powered utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. The power sent to the circuitry of the wireless earpieces is altered to a low power mode in response to detecting the magnetic field is applied to one or more of the wireless earpieces.

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(12) United States Patent Hirsch et al.	(10) Patent No.: US 10,117,014 B2 (45) Date of Patent: *Oct. 30, 2018
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(52) U.S. CL CPC H04R 1/1041 (2013.01); H02J 7/007 (2013.01); H02J 7/0044 (2013.01); H02J 7/025 (2013.01); H02J 50/10 (2016.02); H04R 1/028 (2013.01); H04R 1/1025 (2013.01); H04W 52/0225 (2013.01); H04W 52/0229 (2013.01); (Continued)	A system and method for managing wireless earpieces. Circuitry of the wireless earpieces are powered utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. The power sent to the circuitry of the wireless earpieces is altered to a low power mode in response to detecting the magnetic field is applied to one or more of the wireless earpieces.

13 Claims, 5 Drawing Sheets



What is claimed is:

1. A method for managing a wireless earpiece, comprising:
powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece; and
altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

Ex. 1001 ('014 Patent) - 01204

'014 Patent Substitute Claims

Claim 14. [Proposed substitute for claim 1] A method for managing a wireless earpiece, comprising:

powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece;

wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

'014 Patent Substitute Claims

Claim 22. [Proposed substitute for claim 9] The method of claim 14, wherein the low power mode is a power saver mode and the user biometrics is utilized by the wireless earpiece to alter the power mode.

The '688 Patent

'688 Patent

(12) **United States Patent**
Hirsch et al.

(10) **Patent No.:** **US 10,397,688 B2**
(45) **Date of Patent:** ***Aug. 27, 2019**

(54) **POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD**

(71) Applicant: **BRAGI GmbH, München (DE)**

(72) Inventors: **Eric Christian Hirsch, München (DE); Peter Vincent Boesen, München (DE)**

(73) Assignee: **BRAGI GmbH, München (DE)**

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(21) Appl. No.: **16/144,338**

(22) Filed: **Sep. 27, 2018**

(65) **Prior Publication Data**
US 2019/0028795 A1 Jan. 24, 2019

Related U.S. Application Data

(63) Continuation of application No. 15/837,386, filed on Dec. 11, 2017, now Pat. No. 10,117,014, which is a (Continued)

(51) **Int. Cl.**
H02J 7/00 (2006.01)
H02J 7/02 (2016.01)
(Continued)

(52) **U.S. Cl.**
CPC **H04R 1/1041** (2013.01); **H02J 7/007** (2013.01); **H02J 7/0044** (2013.01); **H02J 7/025** (2013.01);
(Continued)

(58) **Field of Classification Search**
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(Continued)

(56) **References Cited**
U.S. PATENT DOCUMENTS
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Stretchgoal—It's Your Dash (Feb. 14, 2014), 14 pages.
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Primary Examiner — Brenda C Bernardi
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A system and method for managing wireless earpieces. Circuitry of the wireless earpieces are powered utilizing a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. The power sent to the circuitry of the wireless earpieces is altered to a low power mode in response to detecting the magnetic field is applied to one or more of the wireless earpieces.

14 Claims, 5 Drawing Sheets

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'688 Patent

(12) **United States Patent**
Hirsch et al.

(10) **Patent No.:** US 10,397,688 B2
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(54) **POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD**

(71) Applicant: **BRAGI GmbH, München (DE)**

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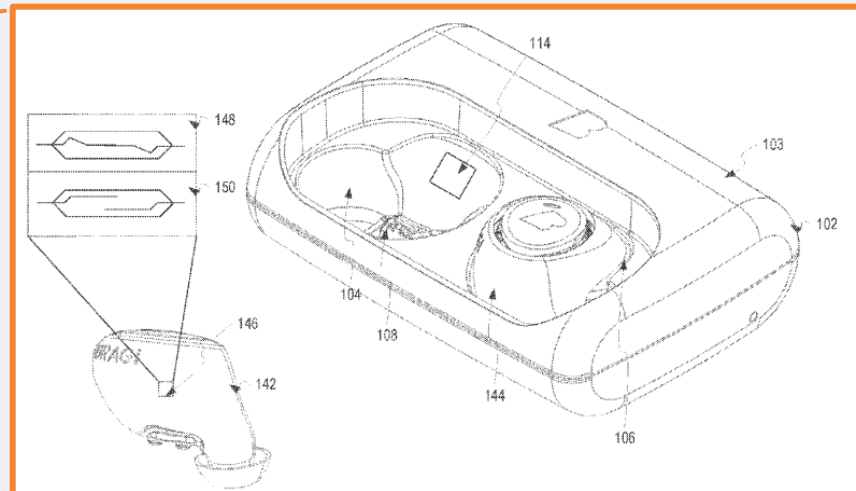
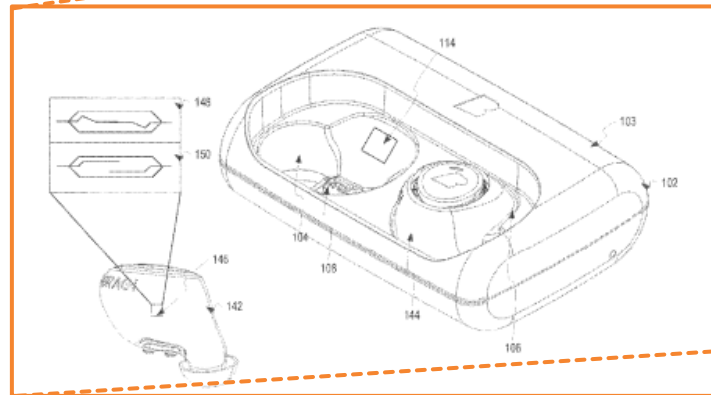
(52) **U.S. Cl.**
CPC **H04R 1/1041** (2013.01); **H02J 7/007** (2013.01); **H02J 7/0044** (2013.01); **H02J 7/025** (2013.01);
(Continued)

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Primary Examiner — Brenda C Bernardi
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(57) **ABSTRACT**
A system and method for managing wireless earpieces. Circuitry of the wireless earpieces are powered utilizing a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. The power sent to the circuitry of the wireless earpieces is altered to a low power mode in response to detecting the magnetic field is applied to one or more of the wireless earpieces.

14 Claims, 5 Drawing Sheets



What is claimed is:

1. A method for power control for a wireless earpiece, comprising:

- powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece;
- powering circuitry of the wireless earpieces utilizing a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;
- altering the power sent to the circuitry of the wireless earpiece to a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;
- altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces; and
- charging an onboard battery of the wireless earpiece in response to detecting a magnetic field is applied to the wireless earpiece.

Ex. 1001 ('688 Patent) – 01205

'688 Patent Substitute Claims

Claim 15. [Proposed substitute for claim 1] A method for power control for a wireless earpiece, comprising:

powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece;

powering circuitry of the wireless earpieces utilizing a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;

wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

altering the power sent to the circuitry of the wireless earpiece to a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;

altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces; and

charging an onboard battery of the wireless earpiece in response to detecting a magnetic field is applied to the wireless earpiece.

'688 Patent Substitute Claims

Claim 22. [Proposed substitute for claim 8] The method of claim 15, wherein the low power mode is a power saver mode and the user biometrics is utilized by the wireless earpiece to alter the power mode.

Statutory & Regulatory Requirements for Substituting Patent Claims

Requirements to Substitute Patent Claims

A motion to amend must

1. propose a reasonable number of substitute claims,
2. that respond to a ground of unpatentability involved in the trial,
3. that do not enlarge the scope of the claims or introduce new matter, and
4. are not shown by a preponderance of the evidence to be unpatentable.

Memorandum re: Guidance on Motions to Amend in view of *Aqua Products* (Nov. 21, 2017) at 2; *Lectrosonics, Inc. v. Zaxcom, Inc.*, IPR2018-01129, Paper 15 at 6-8 (PTAB Feb. 25, 2019) (precedential).

(1) PO Proposes a Reasonable Number of Substitute Claims

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Trials@uspto.gov
571-272-7822

Paper 23
Date: October 1, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K/S HIMPP,
Petitioner,

v.

BRAGI GmbH,
Patent Owner.

IPR2023-01204
Patent 10,117,014 B2

Before LARRY J. HUME, STACEY G. WHITE, and GARTH D. BAER,
Administrative Patent Judges.

HUME, *Administrative Patent Judge.*

PRELIMINARY GUIDANCE
PATENT OWNER'S MOTION TO AMEND

Does Patent Owner propose a reasonable number of substitute claims? (35 U.S.C. § 316(d)(1)(B)); 37 C.F.R. § 42.121(a)(3))

Yes. Patent Owner proposes no more than 1 substitute claim for each challenged claim. Mot. 2, A-1–A-5 (App. A). Petitioner does not argue otherwise. *See generally* Opp.

Trials@uspto.gov
571-272-7822

Paper 24
Date: September 27, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K/S HIMPP,
Petitioner,

v.

BRAGI GmbH,
Patent Owner.

IPR2023-01205
Patent 10,397,688 B2

Before LARRY J. HUME, STACEY G. WHITE, and GARTH D. BAER,
Administrative Patent Judges.

WHITE, *Administrative Patent Judge.*

PRELIMINARY GUIDANCE
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Does Patent Owner propose a reasonable number of substitute claims? (35 U.S.C. § 316(d)(1)(B)); 37 C.F.R. § 42.121(a)(3))

Yes. Patent Owner proposes no more than 1 substitute claim for each challenged claim. Mot. 2, A-1–A-5 (App. A). Petitioner does not argue otherwise. *See generally* Opp.

PO RTMA at 2; Prelim. Guidance at 4 – 01204 & 01205

(2) PO's Substitute Claims Respond to Grounds of Unpatentability Involved in the Trial

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SPECIFIC GROUNDS OF UNPATENTABILITY

6. **Claim 6:** The method of claim 1, further comprising: coupling the wireless earpiece to a smart case, wherein the smart case applies a magnetic field to the wireless earpiece.

Shaffer discloses coupling the wireless earpiece (e.g., **earbud 1010 or 1012**) to a smart case (e.g., **storage case**), wherein the **smart case** applies a magnetic field to the **wireless earpiece**. Ex-1002-Kiaei-Decl., ¶92.

First, as shown in Figure 3A, Shaffer discloses coupling **earbuds 1010 and 1012** to **storage case 11** via **electrical contacts 29 and 31**.

Ex-1003-Shaffer, Figure 3A, ¶¶39-40 (“A user may insert a rechargeable **earbud** into each of the earbud apertures 32 and 33 to provide electrical charge via the earbud **electrical contacts 29 and 31**”), 42, 47, 56-58. Ex-1002-Kiaei-Decl., ¶93.

Second, as explained for Claim 4, Shaffer’s **storage case** is a “smart case” that applies a magnetic field to one or more of the wireless earpieces. Ex-1002-Kiaei-Decl., ¶94.



Claim 14. [Proposed substitute for claim 1] A method for managing a wireless earpiece, comprising:

powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece;

wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

“A motion to amend may not present substitute claims that enlarge the scope of the claims of the challenged patent or introduce new subject matter.”

Lectrosonics, Inc. v. Zaxcom, Inc., IPR2018-01129, Paper 15 at 6-8 (PTAB Feb. 25, 2019) (precedential).

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

The substitute claims do not broaden the claim scope. They *narrow* it.

What is claimed is:

1. A method for managing a wireless earpiece, comprising:

powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece; and

altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

Claim 14. [Proposed substitute for claim 1] A method for managing a wireless earpiece, comprising:

powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece;

wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

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What is claimed is:

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powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece; and

altering the power sent to the circuitry of the wireless earpiece to a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces.

Claim 15. [Proposed substitute for claim 1] A method for power control for a wireless earpiece, comprising:

powering circuitry of the wireless earpiece utilizing a low power mode in response to detecting a magnetic field is applied to the wireless earpiece;

powering circuitry of the wireless earpieces utilizing a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;

wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and

altering the power sent to the circuitry of the wireless earpiece to a high-power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces;

altering the power sent to the circuitry of the wireless earpieces to a low power mode in response to detecting a magnetic field is applied to one or more of the wireless earpieces; and

charging an onboard battery of the wireless earpiece in response to detecting a magnetic field is applied to the wireless earpiece.

Ex. 1001 ('688 Patent); PO RTMA at 5, Appx A-1 to A-4 – 01205

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

Docket No.: BRAGI GmbH-P0017

TITLE: Power Control for Battery Powered Personal Area Network Device
System and Method

5 PRIORITY STATEMENT

This application claims priority to U.S. Provisional Patent Application No. 62/211,767, filed August 29, 2016, hereby incorporated by reference in its entirety.

BACKGROUND

10 I. Field of the Disclosure

The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.

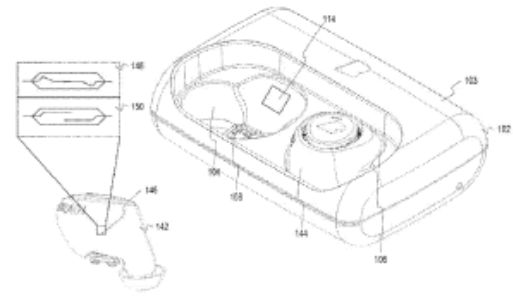
15 II. Description of the Art

The growth of wearable devices is increasing exponentially. This growth is fostered by the decreasing sizes of microprocessors, circuit boards, chips, and other components. Wearable devices are necessarily dependent upon their batteries in order to complete their desired function. The overall utility of wearable devices is directly
20 proportional to the battery life of the devices. If the battery life is poor, the user interface and user experiences suffers as too much time and attention are required for retrieving the device, recharging or replacing the battery, and repositioning the wearable device. Operation and conservation of the battery life of the wearable device may be further complicated if the there is no inclusion of an on/off button or switch to conserve precious
25 battery life.

SUMMARY OF THE DISCLOSURE

1

The '031 Application supports the elements of the substitute claims.

Claim Limitation	Proposed Substitute Claims	Support from Original U.S. Application for the '014 Patent
Wherein a portion of the wireless earpiece fits within the ear canal opening	14-26	In one embodiment, the wireless earpieces 142, 144 include a set of left and right ear pieces configured to fit into a user's ears. [4:19-20]  FIG. 1 Figure 1

Ex. 1017 ('014 Patent File History); PO RMTA at 5-6; Ex. 2006 (Dr. Young Decl.) at 24 – 01204

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

The '031 Application supports the elements of the substitute claims.

Docket No.: BRAGI GmbH-P0017	
TITLE: Power Control for Battery Powered Personal Area Network Device System and Method	
5	PRIORITY STATEMENT This application claims priority to U.S. Provisional Patent Application No. 62/211,767, filed August 29, 2016, hereby incorporated by reference in its entirety.
BACKGROUND	
10	I. Field of the Disclosure The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.
15	II. Description of the Art The growth of wearable devices is increasing exponentially. This growth is fostered by the decreasing sizes of microprocessors, circuit boards, chips, and other components. Wearable devices are necessarily dependent upon their batteries in order to complete their desired function. The overall utility of wearable devices is directly proportional to the battery life of the devices. If the battery life is poor, the user interface and user experiences suffers as too much time and attention are required for retrieving the device, recharging or replacing the battery, and repositioning the wearable device. Operation and conservation of the battery life of the wearable device may be further complicated if the there is no inclusion of an on/off button or switch to conserve precious battery life.
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SUMMARY OF THE DISCLOSURE	
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Wherein the wireless earpiece(s) . . . is configured to read user biometrics	14-26	The wireless earpieces 142, 144 may be configured to play music or audio, receive and make phone calls or other communications, read user biometrics and actions (e.g., heart rate, motion, sleeping, etc.). [4:20-4:22]
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		In another embodiment, biometric readings, such as heartbeat or temperature may be utilized by the wireless earpieces 142, 144 and smart case 102 to alter the power mode or status of the wireless earpieces 142, 144, as well as the smart case 102 (e.g., may be placed in a low power mode). For example, if the wireless earpieces 142, 144 are near the smart case 102 and no heartbeat is detected, the smart case 102 may send a command for the wireless earpieces 142, 144 to shut themselves down or enter a low power mode with minimum functionality. In one embodiment, power to onboard sensory arrays may be terminated and only essential functions remain on. For example, in the low power mode allows charging of the wireless earpieces 142, 144 and/or smart case 102 and uploads/downloads to the wireless earpieces 142, 144 while in the low power mode. [7:27-8:8]
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Ex. 1017; PO RMTA at 5-6; Ex. 2006 at 25-26 – 01204

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

The '031 Application supports the elements of the substitute claims.

Docket No.: BRAGI GmbH-P0017	
TITLE: Power Control for Battery Powered Personal Area Network Device System and Method	
5	PRIORITY STATEMENT This application claims priority to U.S. Provisional Patent Application No. 62/211,767, filed August 29, 2016, hereby incorporated by reference in its entirety.
BACKGROUND	
10	I. Field of the Disclosure The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.
15	II. Description of the Art The growth of wearable devices is increasing exponentially. This growth is fostered by the decreasing sizes of microprocessors, circuit boards, chips, and other components. Wearable devices are necessarily dependent upon their batteries in order to complete their desired function. The overall utility of wearable devices is directly
20	proportional to the battery life of the devices. If the battery life is poor, the user interface and user experiences suffers as too much time and attention are required for retrieving the device, recharging or replacing the battery, and repositioning the wearable device. Operation and conservation of the battery life of the wearable device may be further complicated if the there is no inclusion of an on/off button or switch to conserve precious
25	battery life.
SUMMARY OF THE DISCLOSURE	
1	

wherein the smart case comprises a rechargeable battery configured to charge the wireless earpieces	17, 19-20	The smart case 102 encloses a battery, and various other circuitry (not shown). The battery of the smart case 102 may be utilized to charge the wireless earpieces 142, 144 through direct contact or wirelessly. As a result, the smart case 102 may act as a custom charger for ensuring the proper power management and functionality of the wireless earpieces 142, 144. For example, the battery of the smart case 102 may be utilized to charge the wireless earpieces 142, 144 any number of times before the smart case 102 and corresponding battery may require charging. In one embodiment, the smart case 102 may include one or more solar panels, or surfaces configured to charge the smart case 102 utilizing ambient or direct sunlight. The smart case 102 ensures that the duty cycle of the wireless earpieces 142, 144 are maximized by properly maintaining power
		levels. For example, the smart case 102 may keep the wireless earpieces 142, 144 fully charged during a time period of inactivity, such as before being purchased (e.g., on a shelf or as part of inventory) or once purchased. [5:3-15]

Ex. 1017; PO RMTA at 5-6; Ex. 2006 at 26-27 – 01204

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

The '031 Application supports the elements of the substitute claims.

Docket No.: BRAGI GmbH-P0017

TITLE: Power Control for Battery Powered Personal Area Network Device
System and Method

5 **PRIORITY STATEMENT**

This application claims priority to U.S. Provisional Patent Application No. 62/211,767, filed August 29, 2016, hereby incorporated by reference in its entirety.

BACKGROUND

10 **I. Field of the Disclosure**

The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.

15 **II. Description of the Art**

The growth of wearable devices is increasing exponentially. This growth is fostered by the decreasing sizes of microprocessors, circuit boards, chips, and other components. Wearable devices are necessarily dependent upon their batteries in order to complete their desired function. The overall utility of wearable devices is directly proportional to the battery life of the devices. If the battery life is poor, the user interface and user experiences suffers as too much time and attention are required for retrieving the device, recharging or replacing the battery, and repositioning the wearable device. Operation and conservation of the battery life of the wearable device may be further complicated if there is no inclusion of an on/off button or switch to conserve precious battery life.

SUMMARY OF THE DISCLOSURE

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The smart case includes interfaces 108, 110 within the receptacles 104, 106. The interfaces 108, 110 are hardware interfaces for electrically connecting the wireless earpieces 142, 144 to the smart case 102. The interfaces 108, 110 may include any number of contact points, busses, wires, or other physical connectors for interfacing the wireless earpieces 142, 144, with the smart case 102. The interfaces 108, 110 may alternatively include inductive chargers for charging the wireless earpieces 142, 144. In one embodiment, the interfaces 108, 110 are magnetic for automatically coupling with contact points or interfaces of the wireless earpieces 142, 1144. In another embodiment, the interfaces 108, 110 may represent male (or alternatively female) connectors for interfacing with the wireless earpieces 142, 144, such as micro-USB, or other developing miniature external connectors. The interfaces 108, 110 may be utilized to charge the wireless earpieces 142, 144. Wireless charging is also contemplated utilizing an inductive charger integrated in the smart case 102 or other charging devices compatible with the wireless earpieces 142, 144. The interfaces 108, 110 may also be utilized to synchronize data between the wireless earpieces 142, 144.

[6:6-20]

Ex. 1017; PO RMTA at 5-6; Ex. 2006 at 27 – 01204

(3) PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter

The '031 Application supports the elements of the substitute claims.

Docket No.: BRAGI GmbH-P0017	
TITLE: Power Control for Battery Powered Personal Area Network Device System and Method	
5	PRIORITY STATEMENT This application claims priority to U.S. Provisional Patent Application No. 62/211,767, filed August 29, 2016, hereby incorporated by reference in its entirety.
BACKGROUND	
10	I. Field of the Disclosure The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.
15	II. Description of the Art The growth of wearable devices is increasing exponentially. This growth is fostered by the decreasing sizes of microprocessors, circuit boards, chips, and other components. Wearable devices are necessarily dependent upon their batteries in order to complete their desired function. The overall utility of wearable devices is directly proportional to the battery life of the devices. If the battery life is poor, the user interface and user experiences suffers as too much time and attention are required for retrieving the device, recharging or replacing the battery, and repositioning the wearable device. Operation and conservation of the battery life of the wearable device may be further complicated if the there is no inclusion of an on/off button or switch to conserve precious battery life.
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SUMMARY OF THE DISCLOSURE	
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		The smart case 102 may also include a port 112. The port 112 may be utilized to interface with the
		smart case 102. For example, the port 112 may be utilized with a connector to charge the battery of the smart case 102. The port 112 may also be utilized to download or upload data stored by the smart case 102 that may have previously been stored in the wireless earpieces 142, 144. The port 112 may be a miniaturized port, such as USB Type C, micro-USB, or other miniaturized port suitable for connecting to another electronic device, such as a wall charger, desktop computer, laptop, or wireless device (e.g., smart phone, tablet, etc.) In another embodiment, the smart case 102 may include a dedicated port for charging, such as for receiving a male direct-current (DC) connector. [7:5-13]

Ex. 1017; PO REPLY at 12; Ex. 2006 at 28 – 01204

(4) PO's Substitute Claims Are Patentable Over Petitioner's Obviousness Grounds

- (A) Combinations with Rass
- (B) Combinations with Aumer
- (C) Aumer + Rass

(4) PO's Substitute Claims Are Patentable Over Petitioner's Obviousness Grounds

Prior Art Combinations

		Petition Grounds and References				
		Hain +	Steinbrecher +	Shaffer + Hain, Steinbrecher, Sorensen, and/or	Shaffer + Hain, Sorensen, and/or	Shaffer + Hain +
New References	Rass	'014, '688	'014	'014	'688	'014, '688
	Aumer	'014, '688	'014	'014	'688	
	Rass + Aumer					'014, '688

(4) PO's Substitute Claims Are Patentable Over Petitioner's Obviousness Grounds

Grounds		Substitute Claims – '014 Patent	Substitute Claims – '688 Patent
Rass Grounds	Hain + Rass	Claims 14-16 and 18	Claims 15, 16 and 18
	Steinbrecher + Rass	Claims 23-24	
	Shaffer in view of Hain, Sorensen, and/or Rass		Claims 15-21 and 23-28
	Shaffer in view of Hain, Sorensen, Steinbrecher, and/or Rass	Claims 14-21 and 23-26	
	Shaffer, Hain, and Rass	Claim 22	Claim 22
Aumer Grounds	Hain + Aumer	Claims 14-16 and 18	Claims 15, 16 and 18
	Steinbrecher + Aumer	Claims 23-24	
	Shaffer in view of Hain, Sorensen, and/or Aumer		Claims 15-21 and 23-28
	Shaffer in view of Hain, Sorensen, Steinbrecher, and/or Aumer	Claims 14-21 and 23-26	
Rass + Aumer Grounds	Shaffer, Hain, Aumer, and Rass	Claim 22	Claim 22

(A) Combinations with Rass

Hain + Rass

PO's Substitute Claims Are Patentable Over Hain + Rass

Certified English translation of DE Patent Application No.102007039455 ("Hain")

(19) Federal Republic of Germany German Patent and Trademark Office

(10) DE 10 2007 039 455 A1 02/26/2009

(12) Patent Application

(21) Reference number: 10 2007 039 455.3
(22) Filing date: 09/21/2007
(43) Publication date: 02/26/2009

(51) Int Cl.⁸: H04R 25/00 (2006.01)

(71) Applicant:
Siemens Audiologische Technik GmbH, 91058 Erlangen, DE

(72) Inventor:
Hain, Jens, 91077 Kleinsendelbach, DE

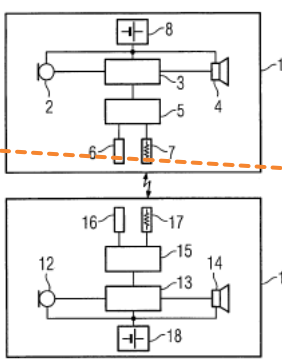
(74) Counsel:
Maier, D., Dipl.-Ing. Univ., Pat.-Ass., 85221 Dachau

(56) Documents considered for the assessment of patentability:
EP 13 98 994 A2
EP 09 41 014 A2
DE 31 09 049 C2

The following information is derived from the documents submitted by the applicant
Examination request pursuant to § 44 PatG [Patentgesetz (German Patent Act)] has been filed.

(54) Title: Hearing aid system with magnetic field sensors

(57) Abstract: In a hearing aid system with two hearing aids (1, 11) that can be worn on the head, an automatic detection of the hearing situation "telephoning" and an automatic switching off of the hearing aids (1, 11) when they are removed from the head should be implemented. According to the invention, the hearing aids (1, 11) have sensor devices (6, 16) for this purpose, which are used in order to detect whether the relevant hearing aid (1, 11) is in a magnetic field that exceeds a specific field strength. Relevant data in this regard can be exchanged between the hearing aids (1, 11) by means of wireless signal transmission (5, 7; 15, 17). If only one of the two hearing aids (1, 11) detects a magnetic field, it can be deduced that the hearing situation is "telephoning". On the other hand, if both hearing aids (1, 11) detect a magnetic field at the same time, then both hearing aids (1, 11) are located in a storage box equipped with a permanent magnet and are switched off automatically.



The diagram shows two hearing aids, 1 and 11, each with a microphone (2, 12), an amplifier (3, 13), a speaker (4, 14), and a battery (8, 18). Each hearing aid also includes a sensor device (6, 16) and a control unit (5, 15). The hearing aids are connected to each other via a wireless signal transmission system (5, 7; 15, 17). The hearing aids are shown in a storage box (11) which is equipped with a permanent magnet (18).

(54) Title: Hearing aid system with magnetic field sensors

(57) Abstract: In a hearing aid system with two hearing aids (1, 11) that can be worn on the head, an automatic detection of the hearing situation "telephoning" and an automatic switching off of the hearing aids (1, 11) when they are removed from the head should be implemented. According to the invention, the hearing aids (1, 11) have sensor devices (6, 16) for this purpose, which are used in order to detect whether the relevant hearing aid (1, 11) is in a magnetic field that exceeds a specific field strength.

Ex. 1004 (Hain) – 01204

PO's Substitute Claims Are Patentable Over Hain + Rass

U.S. Patent No. 7,522,739 ("Rass")

(12) United States Patent Rass et al.	(10) Patent No.: US 7,522,739 B2 (45) Date of Patent: Apr. 21, 2009
(54) HEARING AID WITH A SWITCHING DEVICE FOR SWITCHING ON AND OFF AND CORRESPONDING METHOD	5,187,746 A * 2/1993 Narisawa 381/323 7,151,838 B2 * 12/2006 Galler et al. 381/312 7,406,179 B2 * 7/2008 Ryan 381/328 2002/0057805 A1 * 5/2002 Kato et al. 381/56 2004/0008854 A1 * 1/2004 Sauer 381/321 2005/0226446 A1 * 10/2005 Luo et al. 381/312
(75) Inventors: Uwe Rass , Nürnberg (DE); Riku Sinkkälä , Erlangen (DE)	
(73) Assignee: Siemens Audiologische Technik GmbH , Erlangen (DE)	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 571 days.	
(21) Appl. No.: 11/126,088	
(22) Filed: May 10, 2005	
(65) Prior Publication Data US 2005/0254676 A1 Nov. 17, 2005	
(30) Foreign Application Priority Data May 11, 2004 (DE) 10 2004 023 049	
(51) Int. Cl. H04R 25/00 (2006.01)	
(52) U.S. Cl. 381/323; 381/60; 381/312; 381/318; 381/321; 381/328	
(58) Field of Classification Search 381/318, 381/56, 60, 320, 324, 104, 107, 312, 321, 381/323, 328; 73/587	
See application file for complete search history.	
(56) References Cited U.S. PATENT DOCUMENTS 4,955,729 A * 9/1990 Marx 381/322	
	FOREIGN PATENT DOCUMENTS DE 36 42 828 A1 8/1987 DE 38 04 526 C1 10/1988 EP 1 301 060 A1 4/2003 JP 11-275694 A 10/1999 * cited by examiner Primary Examiner—Garth Kuntz Assistant Examiner—Jesse A Elbin
	(57) ABSTRACT It is intended that the switching on and off of a hearing aid (I) should be made more user-friendly. To this end the hearing aid (I) is fitted with a temperature sensor (TS) to detect the body heat of the hearing aid wearer and therefore that the hearing aid is inserted in the auditory canal. The hearing aid is then switched on and off again based on the temperature signal. As an alternative to the temperature sensor, it is possible to use a pressure sensor to detect contact pressure of the hearing aid housing on the auditory canal, a resistance sensor to detect an electrical load resistance as a function of volume or an acoustic sensor to detect a sound level. It is also possible to switch the hearing aid (I) on and off wirelessly using a remote control.
	15 Claims, 1 Drawing Sheet

(57)

ABSTRACT

It is intended that the switching on and off of a hearing aid (I) should be made more user-friendly. To this end the hearing aid (I) is fitted with a temperature sensor (TS) to detect the body heat of the hearing aid wearer and therefore that the hearing aid is inserted in the auditory canal. The hearing aid is then switched on and off again based on the temperature signal. As an alternative to the temperature sensor, it is possible to use a pressure sensor to detect contact pressure of the hearing aid housing on the auditory canal, a resistance sensor to detect an electrical load resistance as a function of volume or an acoustic sensor to detect a sound level. It is also possible to switch the hearing aid (I) on and off wirelessly using a remote control.

Ex. 1033 (Rass) – 01204

PO's Substitute Claims Are Patentable Over Hain + Rass

The Combination of Hain + Rass Does Not Render '014 Claims 14-16 and 18 or '688 Claims 15, 16, and 18 Obvious.

Petitioner's alleged motivation to combine rests on the following factors:

- (1) Same field of endeavor
- (2) Predictable results
- (3) Perceived benefits

Rass Is Not Analogous Art

PO's Substitute Claims Are Patentable Over Hain + Rass

Test for Analogous Art

“Prior art is analogous where either (1) ‘the art is from the same field of endeavor, regardless of the problem addressed’ or (2) even if the reference is not within the same field of endeavor, ‘the reference still is reasonably pertinent to the particular problem with which the inventor is involved.’”

In re Ethicon, Inc., 844 F.3d 1344, 1349 (Fed. Cir. 2017)
(quoting *In re Clay*, 966 F.2d 656, 658-59 (Fed. Cir. 1992)).

PO's Substitute Claims Are Patentable Over Hain + Rass

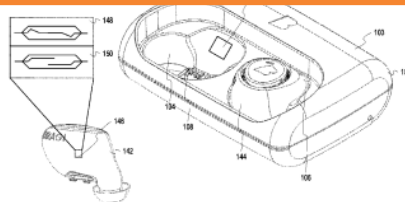
Rass Is Not Analogous Art to the '014 and '688 Patents.

'014 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 10,117,014 B2 (45) Date of Patent: *Oct. 30, 2018
(54) POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD	(58) Field of Classification Search CPC H04R 1/1041; H04R 1/1025; H04R 1/028; H04R 2420/07; H04W 52/0225; H02J 7/025; H02J 7/007; H02J 50/10; H04M 1/6066 See application file for complete search history.	
(71) Applicant: BRAGI GmbH, München (DE)	(56) References Cited	
(72) Inventors: Eric Christian Hirsch, München (DE); Peter Vincent Boesen, München (DE)	U.S. PATENT DOCUMENTS	
(73) Assignee: BRAGI GmbH, München (DE)	3,934,100 A 1/1976 Harada 4,150,262 A 4/1979 Ono (Continued)	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.	FOREIGN PATENT DOCUMENTS	
(21) Appl. No.: 15/837,386	EP 1017252 A3 5/2006 GB 2074817 4/1981 (Continued)	
(22) Filed: Dec. 11, 2017	OTHER PUBLICATIONS	
(65) Prior Publication Data US 2018/0109867 A1 Apr. 19, 2018	Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014). (Continued)	
Related U.S. Application Data		
(63) Continuation of application No. 15/245,031, filed on Aug. 23, 2016, now Pat. No. 9,843,853. (Continued)	Primary Examiner — Brenda C Bernardi (74) Attorney, Agent, or Firm — Goodhue, Coleman &	

I. Field of the Disclosure

The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.

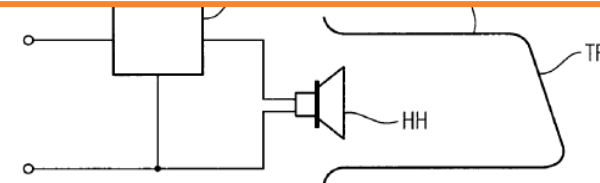


Rass

(12) United States Patent Rass et al.		(10) Patent No.: US 7,522,739 B2 (45) Date of Patent: Apr. 21, 2009
(54) HEARING AID WITH A SWITCHING DEVICE FOR SWITCHING ON AND OFF AND CORRESPONDING METHOD	5,187,746 A * 2/1993 Narisawa 381/323 7,151,838 B2 * 12/2006 Galler et al. 381/312 7,406,179 B2 * 7/2008 Ryan 381/328 2002/0057805 A1 * 5/2002 Kato et al. 381/56 2004/0008854 A1 * 1/2004 Sauer 381/321 2005/0226446 A1 * 10/2005 Luo et al. 381/312	
(75) Inventors: Uwe Rass, Nürnberg (DE); Riku Sinikallio, Erlangen (DE)	(73) Assignee: Siemens Audiologische Technik GmbH, Erlangen (DE)	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 571 days.	FOREIGN PATENT DOCUMENTS	
(21) Appl. No.: 11/126,088	DE 36 42 828 A1 8/1987 DE 38 04 526 C1 10/1988 EP 1 301 060 A1 4/2003 JP 11-275694 A 10/1999	
(22) Filed: May 10, 2005	* cited by examiner	
(65) Prior Publication Data US 2005/0254676 A1 Nov. 17, 2005	Primary Examiner—Curtis Kuntz Assistant Examiner—Jesse A Elbin	
(30) Foreign Application Priority Data May 11, 2004 (DE) 10 2004 023 049	(57) ABSTRACT	
(51) Int. Cl. H04R 25/00 (2006.01)	It is intended that the switching on and off of a hearing aid (1) should be made more user-friendly. To this end the hearing aid (1) is fitted with a temperature sensor (15) to detect the body heat of the hearing aid wearer and therefore that the hearing aid is inserted in the auditory canal. The hearing aid is	
(52) U.S. Cl. 381/323; 381/60; 381/312		

FIELD OF INVENTION

The present invention relates to a hearing aid unit with a switching device for switching the hearing aid on and off. The present invention also relates to a corresponding method for switching a hearing aid on and off.



Ex. 1001 ('014 Patent); Ex. 1033 (Rass); PO REPLY at 2-5; Ex. 2006 ¶¶ 65-67 – 01204

PO's Substitute Claims Are Patentable Over Hain + Rass

Hain and Rass Are Not Analogous.

Hain

(19) Federal Republic of Germany German Patent and Trademark Office
(10) DE 10 2007 039 455 A1 02/26/2009

(12) Patent Application

(21) Reference number: 10 2007 039 455.3
(22) Filing date: 08/21/2007
(51) Int Cl.⁸: H04R 25/00 (2006.01)

(54) Title: **Hearing aid system with magnetic field sensors**

(57) Abstract: In a hearing aid system with two hearing aids (1, 11) that can be worn on the head, an automatic detection of the hearing situation "telephoning" and an automatic switching off of the hearing aids (1, 11) when they are removed from the head should be implemented. According to the invention, the hearing aids (1, 11) have sensor devices (6, 16) for this purpose, which are used in order to detect whether the relevant hearing aid (1, 11) is in a magnetic field that exceeds a specific field strength. Relevant data in this regard can be exchanged between the hearing aids (1, 11) by means for wireless signal transmission (5, 7; 15, 17). If only one of the two hearing aids (1, 11) detects a magnetic field, it can be deduced that the hearing situation is "telephoning". On the other hand, if both hearing aids (1, 11) detect a magnetic field at the same time, then both hearing aids (1, 11) are located in a storage box equipped with a permanent magnet and are switched off automatically.

Not the same field of endeavor and not directed to the same problem.

Rass

(12) United States Patent
Rass et al.
(10) Patent No.: US 7,522,739 B2
(45) Date of Patent: Apr. 21, 2009

(54) FIELD OF INVENTION

(75) Inv The present invention relates to a hearing aid unit with a switching device for switching the hearing aid on and off. The present invention also relates to a corresponding method for switching a hearing aid on and off.

(21) Appl. No.: 11/126,088
(22) Filed: May 11, 2004
(65) US
(30) May 11, 2004
(51) Int. Cl.⁸: H04R 25/00 (2006.01)
(52) U.S. Cl.: 380/100 (2006.01)
(58) Field of Invention: Hearing aids; switching devices

(56) SUMMARY OF INVENTION

The said sensors are however relatively expensive, sensitive to interference or require additional objects for switching purposes.

An object of the present invention is therefore to improve or simplify the automatic switching on and off of hearing aids. According to the invention this object is achieved by a hearing aid unit with a switching device for switching the hearing aid on and off, the switching device having one or more of the, following devices: a temperature sensor to detect the body heat of a hearing aid wearer, a pressure sensor to detect contact pressure of the hearing aid housing on the auditory canal, a resistance sensor to detect an electrical load resistance as a function of volume, an acoustic sensor to detect a sound level, a remote control for the wireless transmission of a switch signal.

Ex. 1004 (Hain); Ex. 1033 (Rass); PO REPLY at 4; Ex. 2007 ¶ 67 – 01204

Hain + Rass Does Not Yield Predictable Results

PO's Substitute Claims Are Patentable Over Hain + Rass

Hain + Rass does not yield predictable results because their teachings are not combinable.

Second, implementing a magnetic-field hearing aid system as taught by Hain to include a temperature sensor would not have been a “predictable result” because, as discussed above, Rass is not in the same field of endeavor as Hain. *See In re Clay*, 966 F.2d at 658. A POSITA would not have been motivated to incorporate a temperature sensor in Hain because of the interference signal imposed on the temperature sensor and sensor electronics due to the magnetic field emitted by the telephone when it is being held next to the user’s ear during conversation. *See Ex. 2006 ¶ 68.* The interference signal can produce a wrong temperature reading, thus, causing the hearing aid to shut down. *See id.*

PO's Substitute Claims Are Patentable Over Hain + Rass

Hain + Rass does not yield predictable results because their teachings are not combinable.

Petitioner's Surreply: Attorney Argument

Third, PO appears to contend that a temperature sensor is incompatible with Hain's telephone mode. PO Reply at 4 (alleging an "interference signal" from "the magnetic field emitted...when [the telephone] is being held next to the user's ear" causing "a wrong temperature reading"). As an initial matter, PO provides no support or further explanation for how or why a magnetic field would interfere with a temperature sensor, other than citing to an expert declaration that merely parrots the Reply language verbatim. Ex-2006, ¶68. Furthermore, Hain's telephone mode is irrelevant because at no point during this proceeding did Petitioner rely on Hain's telephone mode for its obviousness positions or otherwise.

PO's Substitute Claims Are Patentable Over Hain + Rass

Hain + Rass does not yield predictable results because their teachings are not combinable.

Petitioner's Surreply: Attorney Argument

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PO's Substitute Claims Are Patentable Over Hain + Rass

Hain + Rass does not yield predictable results because their teachings are not combinable.

Petitioner's Surreply: Attorney Argument

Third, PO appears to contend that a temperature sen

(12) United States Patent
Rass et al.

(10) Patent No.: US 7,522,739 B2
(45) Date of Patent: Apr. 21, 2009

Hain's telephone mode. PO Reply a
magnetic field emitted...when [the t

An automatic hearing aid switch is also known from the publication FR 27 0088 7 A3. This operates on a magnetic basis. If an object containing a magnet moves into the vicinity of the hearing aid, the hearing aid is switched accordingly.

(21) Appl. No.: 11/126,088

causing "a wrong temperature read

support or further explanation for ho

a temperature sensor, other than citi

the Reply language verbatim. Ex-2000, ¶¶ 00. Furthermore,

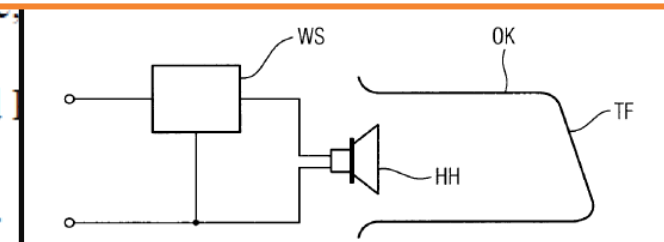
is irrelevant because at no point during this proceeding did I

telephone mode for its obviousness positions or otherwise.

SUMMARY OF INVENTION

The said sensors are however relatively expensive, sensitive to interference or require additional objects for switching purposes.

An object of the present invention is therefore to improve or simplify the automatic switching on and off of hearing aids.



Ex. 1033 (Rass); Petitioner Surreply at 6 – 01204

No Reasonable Expectation of Success

PO's Substitute Claims Are Patentable Over Hain + Rass

Combining Hain and Rass Does Not Render Substitute Claims 14-16 and 18 of the '014 Patent, and Substitute Claims 15, 16 and 18 '688 Patent Obvious.

No Reasonable Expectation of Success Because There's No Motivation to Combine Besides Hindsight.

Third, a POSITA would not have had a reasonable expectation of success in combining Hain and Rass because there was no motivation to combine these references besides Petitioner's hindsight.

Steinbrecher + Rass

PO's Substitute Claims Are Patentable Over Steinbrecher + Rass

Certified English translation of EP Patent Application No. 1727395 (“Steinbrecher”)

(19)  (11)  EP 1 727 395 B1

(12) EUROPEAN PATENT APPLICATION

(45) Publication date and disclosure of reference to granting of patent: 08/20/2008 Patent Bulletin 2008/34 (51) Int. Cl.: H04R 25/00 (2006.01)

(21) Application number: 06002561.6

(22) Filing date: 02/08/2006

(54) **Verfahren und Vorrichtung zum induktiven Laden von Hörgeräten**
Method and apparatus for charging hearing aids inductively
Procédé et dispositif pour le chargement de prothèses auditives de manière inductive

(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

(30) Priority: 05/25/2006 DE 102006024227

(43) Publication date of application: 11/29/2006 Patent Bulletin 2006/48

(73) Proprietor: Audia Akustik GmbH 99610 Sömmerda (DE)

(72) Inventor(s):
• Steinbrecher, Helmut
99625 Kölleda (DE)

(74) Counsel: Liedtke, Klaus
Liedtke & Partner
Patent Attorneys
Elisabethstrasse 10
99096 Erfurt (DE)

(56) Citations:
EP-A-0 909 113 EP-A2-0 984 641
DE-TL-29 718 104 US-A-4 379 986
US-B1-6 291 968

EP 1 727 395 B1

Note: Within nine months of the publication of the notification of the grant of the European patent in the European Patent Bulletin, anyone may file an opposition to this patent with the European Patent Office pursuant to the Implementing Regulations. The opposition is not deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

[0001] The invention relates to a procedure and a device for the contactless loading of an accumulator battery in a hearing aid which, during the charge process, is located in a charging shell.

Ex. 1006 (Steinbrecher); PO REPLY at 5; Ex. 2006 ¶¶ 70-71 – 01204

PO's Substitute Claims Are Patentable Over Steinbrecher + Rass

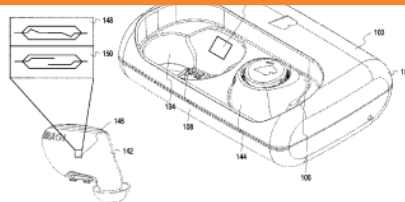
Rass Is Not Analogous Art to the '014 and '688 Patents.

'014 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 10,117,014 B2 (45) Date of Patent: *Oct. 30, 2018
(54) POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD	(58) Field of Classification Search CPC H04R 1/1041; H04R 1/1025; H04R 1/028; H04R 2420/07; H04W 52/0225; H02J 7/025; H02J 7/007; H02J 50/10; H04M 1/6066	
(71) Applicant: BRAGI GmbH, München (DE)	See application file for complete search history.	
(72) Inventors: Eric Christian Hirsch, München (DE); Peter Vincent Boesen, München (DE)	(56) References Cited	
(73) Assignee: BRAGI GmbH, München (DE)	U.S. PATENT DOCUMENTS	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.	3,934,100 A 1/1976 Harada 4,150,262 A 4/1979 Ono (Continued)	
	FOREIGN PATENT DOCUMENTS	
(21) Appl. No.: 15/837,386	EP 1017252 A3 5/2006 GB 2074817 4/1981 (Continued)	
(22) Filed: Dec. 11, 2017	OTHER PUBLICATIONS	
(65) Prior Publication Data US 2018/0109867 A1 Apr. 19, 2018	Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014). (Continued)	
Related U.S. Application Data		
(63) Continuation of application No. 15/245,031, filed on Aug. 23, 2016, now Pat. No. 9,843,853. (Continued)	Primary Examiner — Brenda C Bernardi (74) Attorney, Agent, or Firm — Goodhue, Coleman &	

I. Field of the Disclosure

The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.

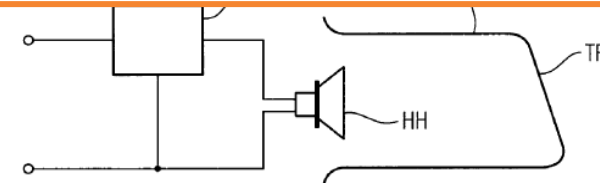


Rass

(12) United States Patent Rass et al.		(10) Patent No.: US 7,522,739 B2 (45) Date of Patent: Apr. 21, 2009
(54) HEARING AID WITH A SWITCHING DEVICE FOR SWITCHING ON AND OFF AND CORRESPONDING METHOD	5,187,746 A * 2/1993 Narisawa 381/323 7,151,838 B2 * 12/2006 Galler et al. 381/312 7,406,179 B2 * 7/2008 Ryan 381/328 2002/0057805 A1 * 5/2002 Kato et al. 381/56 2004/0008854 A1 * 1/2004 Sauer 381/321 2005/0226446 A1 * 10/2005 Luo et al. 381/312	
(75) Inventors: Uwe Rass, Nürnberg (DE); Riku Sinikallio, Erlangen (DE)		
(73) Assignee: Siemens Audiologische Technik GmbH, Erlangen (DE)	FOREIGN PATENT DOCUMENTS	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 571 days.	DE 36 42 828 A1 8/1987 DE 38 04 526 C1 10/1988 EP 1 301 060 A1 4/2003 JP 11-275694 A 10/1999	
(21) Appl. No.: 11/126,088	* cited by examiner	
(22) Filed: May 10, 2005	Primary Examiner—Curtis Kuntz Assistant Examiner—Jesse A Elbin	
(65) Prior Publication Data US 2005/0254676 A1 Nov. 17, 2005	(57) ABSTRACT	
(30) Foreign Application Priority Data May 11, 2004 (DE) 10 2004 023 049	It is intended that the switching on and off of a hearing aid (1) should be made more user-friendly. To this end the hearing aid (1) is fitted with a temperature sensor (15) to detect the body heat of the hearing aid wearer and therefore that the hearing aid is inserted in the auditory canal. The hearing aid is	
(51) Int. Cl. H04R 25/00 (2006.01)		
(52) U.S. Cl. 381/323; 381/60; 381/312		

FIELD OF INVENTION

The present invention relates to a hearing aid unit with a switching device for switching the hearing aid on and off. The present invention also relates to a corresponding method for switching a hearing aid on and off.



Ex. 1001 ('014 Patent); Ex. 1033 (Rass); PO REPLY at 2-5; Ex. 2006 ¶¶ 65-67 – 01204

PO's Substitute Claims Are Patentable Over Steinbrecher + Rass

No Motivation to Combine Steinbrecher and Rass.

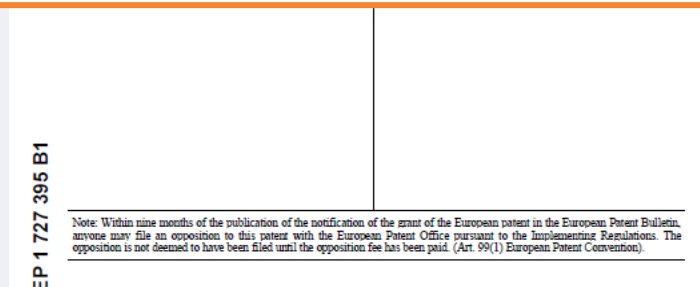
Steinbrecher



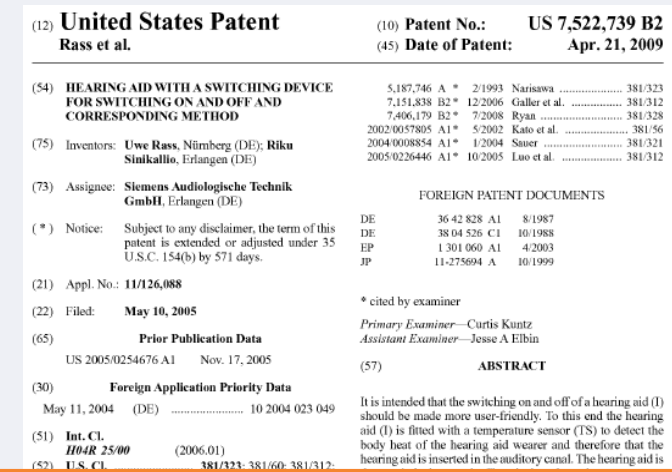
Not the same field of endeavor and not directed to the same problem.

Description

[0001] The invention relates to a procedure and a device for the contactless loading of an accumulator battery in a hearing aid which, during the charge process, is located in a charging shell.

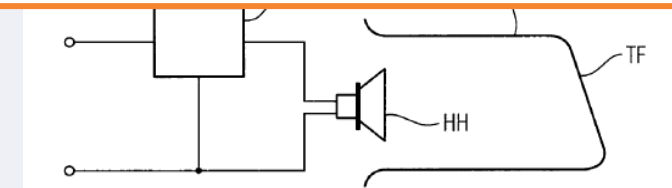


Rass



FIELD OF INVENTION

The present invention relates to a hearing aid unit with a switching device for switching the hearing aid on and off. The present invention also relates to a corresponding method for switching a hearing aid on and off.



Ex. 1006 (Steinbrecher); Ex. 1033 (Rass); PO REPLY at 4; Ex. 2006 ¶¶ 70-71 – 01204

Shaffer in view of Hain, Sorensen, Steinbrecher, and/or Rass & Shaffer, Hain, and Rass

PO's Substitute Claims Are Patentable Over Shaffer in View of Hain, Sorensen, Steinbrecher, and/or Rass, and Shaffer, Hain, and Rass

U.S. Patent Application Publication No. 2015/0245126 ("Shaffer")

(19) **United States**
(12) **Patent Application Publication** (10) Pub. No.: **US 2015/0245126 A1**
Shaffer (43) Pub. Date: **Aug. 27, 2015**

(54) **EARBUD CHARGING CASE FOR MOBILE DEVICE** (60) Provisional application No. 61/942,698, filed on Feb. 21, 2014.

(71) Applicant: **Alpha Audiotronics, Inc.**, New York, NY (US)

(72) Inventor: **Jonathan Everett Shaffer**, Huntingdon Valley, PA (US)

(21) Appl. No.: **14/510,539**

(22) Filed: **Oct. 9, 2014**

Related U.S. Application Data

(63) Continuation-in-part of application No. 14/306,736, filed on Jun. 17, 2014, now Pat. No. 8,891,800.

Publication Classification

(51) Int. Cl. **H04R 1/10** (2006.01)
(52) U.S. Cl. **1040.1/0020 (2019.07)**
CPC

(57) **ABSTRACT**
A case for a mobile electronic device includes a portion configured to receive power via induction charging, an aperture configured to receive an earbud, and circuitry configured to simultaneously charge the earbud and the mobile electronic device.

(57)

ABSTRACT

A case for a mobile electronic device includes a portion configured to receive power via induction charging, an aperture configured to receive an earbud, and circuitry configured to simultaneously charge the earbud and the mobile electronic device.

PO's Substitute Claims Are Patentable Over Shaffer in View of Hain, Sorensen, Steinbrecher, and/or Rass, and Shaffer, Hain, and Rass

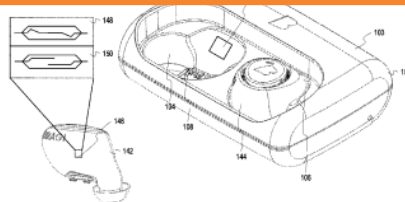
Rass Is Not Analogous Art to the '014 and '688 Patents.

'014 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 10,117,014 B2 (45) Date of Patent: *Oct. 30, 2018
(54) POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD	(58) Field of Classification Search CPC H04R 1/1041; H04R 1/1025; H04R 1/028; H04R 2420/07; H04W 52/0225; H02J 7/025; H02J 7/007; H02J 50/10; H04M 1/6066	
(71) Applicant: BRAGI GmbH, München (DE)	See application file for complete search history.	
(72) Inventors: Eric Christian Hirsch, München (DE); Peter Vincent Boesen, München (DE)	(56) References Cited	
(73) Assignee: BRAGI GmbH, München (DE)	U.S. PATENT DOCUMENTS	
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(21) Appl. No.: 15/837,386	FOREIGN PATENT DOCUMENTS	
(22) Filed: Dec. 11, 2017	EP 1017252 A3 5/2006 GB 2074817 4/1981 (Continued)	
(65) Prior Publication Data US 2018/0109867 A1 Apr. 19, 2018	OTHER PUBLICATIONS	
Related U.S. Application Data (63) Continuation of application No. 15/245,031, filed on Aug. 23, 2016, now Pat. No. 9,843,853, (Continued)	Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014). (Continued)	
	Primary Examiner — Brenda C Bernardi (74) Attorney, Agent, or Firm — Goodhue, Coleman &	

I. Field of the Disclosure

The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.

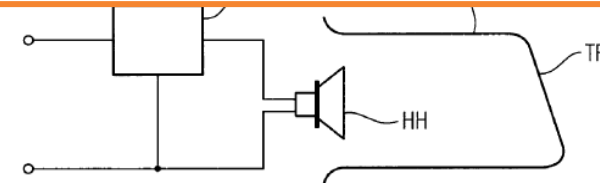


Rass

(12) United States Patent Rass et al.		(10) Patent No.: US 7,522,739 B2 (45) Date of Patent: Apr. 21, 2009
(54) HEARING AID WITH A SWITCHING DEVICE FOR SWITCHING ON AND OFF AND CORRESPONDING METHOD	(58) Field of Classification Search CPC H04R 1/1041; H04R 1/1025; H04R 1/028; H04R 2420/07; H04W 52/0225; H02J 7/025; H02J 7/007; H02J 50/10; H04M 1/6066	
(71) Inventors: Uwe Rass, Nürnberg (DE); Riku Sinikallio, Erlangen (DE)	See application file for complete search history.	
(73) Assignee: Siemens Audiologische Technik GmbH, Erlangen (DE)	(56) References Cited	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 571 days.	U.S. PATENT DOCUMENTS	
(21) Appl. No.: 11/126,088	FOREIGN PATENT DOCUMENTS	
(22) Filed: May 10, 2005	DE 36 42 828 A1 8/1987 DE 38 04 526 C1 10/1988 EP 1 301 060 A1 4/2003 JP 11-275694 A 10/1999	
(65) Prior Publication Data US 2005/0254676 A1 Nov. 17, 2005	* cited by examiner Primary Examiner—Curtis Kuntz Assistant Examiner—Jesse A Elbin	
(30) Foreign Application Priority Data May 11, 2004 (DE) 10 2004 023 049	(57) ABSTRACT	
(51) Int. Cl. H04R 25/00 (2006.01)	It is intended that the switching on and off of a hearing aid (1) should be made more user-friendly. To this end the hearing aid (1) is fitted with a temperature sensor (15) to detect the body heat of the hearing aid wearer and therefore that the hearing aid is inserted in the auditory canal. The hearing aid is	
(52) U.S. Cl. 381/323; 381/60; 381/312		

FIELD OF INVENTION

The present invention relates to a hearing aid unit with a switching device for switching the hearing aid on and off. The present invention also relates to a corresponding method for switching a hearing aid on and off.



Ex. 1001 ('014 Patent); Ex. 1033 (Rass); PO REPLY at 2-5; Ex. 2006 ¶¶ 65-67 – 01204

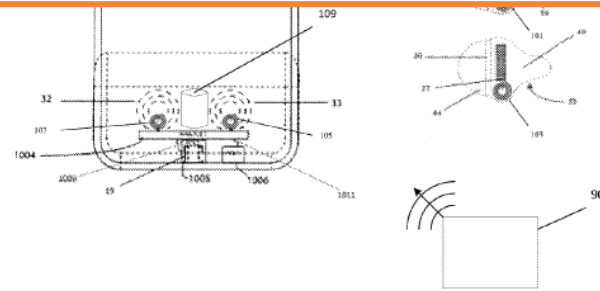
PO's Substitute Claims Are Patentable Over Shaffer in View of Hain, Sorensen, Steinbrecher, and/or Rass, and Shaffer, Hain, and Rass

No Motivation to Combine Shaffer and Rass.

Shaffer

(19) United States		
(12) Patent Application Publication		
(43) Pub. Date: Aug. 27, 2015		
(54) EARBUD CHARGING CASE FOR MOBILE DEVICE		
(60) Provisional application No. 61/942,698, filed on Feb. 21, 2014.		
(71) Applicant: Alpha Audiotronics, Inc., New York, NY (US)		
(72) Inventor: Jonathan Everett Shaffer, Huntingdon Valley, PA (US)		
(21) Appl. No.: 14/510,539		
(22) Filed: Oct. 9, 2014		
(63) Continuation-in-part of application No. 14/306,736, filed on Jun. 17, 2014, now Pat. No. 8,891,800.		
Publication Classification		
(51) Int. CL. H04R 1/10 (2006.01)		
(52) U.S. CL. CPC H04R 1/025 (2013.01)		
ABSTRACT		
A case for a mobile electronic device includes a portion configured to receive power via induction charging, an aperture configured to receive an earbud, and circuitry configured to simultaneously charge the earbud and the mobile electronic device.		

[0002] This patent document relates to a mobile device case that serves as an electrical charger and storage dock for rechargeable wireless audio earbuds.

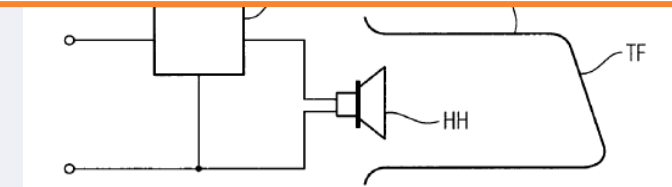


Rass

(12) United States Patent		(10) Patent No.: US 7,522,739 B2
(43) Pub. Date: Aug. 27, 2015		(45) Date of Patent: Apr. 21, 2009
(54) HEARING AID WITH A SWITCHING DEVICE FOR SWITCHING ON AND OFF AND CORRESPONDING METHOD		5,187,746 A * 2/1993 Narisawa 381/323
(75) Inventors: Uwe Rass, Nürnberg (DE); Riku Sinikallio, Erlangen (DE)		7,151,838 B2 * 12/2006 Galler et al. 381/312
(73) Assignee: Siemens Audiologische Technik GmbH, Erlangen (DE)		7,406,179 B2 * 7/2008 Ryan 381/328
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 571 days.		2002/0057805 A1 * 5/2002 Kato et al. 381/56
(21) Appl. No.: 11/126,088		2004/0008854 A1 * 1/2004 Sauer 381/321
(22) Filed: May 10, 2005		2005/0226446 A1 * 10/2005 Luo et al. 381/312
(65) Prior Publication Data		FOREIGN PATENT DOCUMENTS
US 2005/0254676 A1 Nov. 17, 2005		DE 36 42 828 A1 8/1987
(30) Foreign Application Priority Data		DE 38 04 526 C1 10/1988
May 11, 2004 (DE) 10 2004 023 049		EP 1 301 060 A1 4/2003
(51) Int. CL. H04R 25/00 (2006.01)		JP 11-275694 A 10/1999
(52) U.S. CL. 381/323; 381/60; 381/312		
ABSTRACT		
It is intended that the switching on and off of a hearing aid (1) should be made more user-friendly. To this end the hearing aid (1) is fitted with a temperature sensor (TS) to detect the body heat of the hearing aid wearer and therefore that the hearing aid is inserted in the auditory canal. The hearing aid is		

FIELD OF INVENTION

The present invention relates to a hearing aid unit with a switching device for switching the hearing aid on and off. The present invention also relates to a corresponding method for switching a hearing aid on and off.



Ex. 1003 (Shaffer); Ex. 1033 (Rass); PO REPLY at 5-6; Ex. 2006 ¶ 73 – 01204

(B) Combinations with Aumer

PO's Substitute Claims Are Patentable Over Petitioner's Aumer Combinations

Combinations of Aumer with Hain, Steinbrecher, Shaffer, and/or Sorenenson Do Not
Render '014 Claims 14-26 or '688 Claims 15-28 Obvious.

Petitioner's alleged motivation to combine rests on the following factors:

- (1) Same field of endeavor
- (2) Predictable results
- (3) Increased consumer interest in personal health
- (4) POSITA's knowledge

PO's Substitute Claims Are Patentable Over Combinations with Aumer

U.S. Patent Application Publication No. 2016/0094899 ("Aumer")

(19) **United States**
(12) **Patent Application Publication**
Aumer et al.

(10) Pub. No.: **US 2016/0094899 A1**
(43) Pub. Date: **Mar. 31, 2016**

(54) **METHODS AND APPARATUS FOR IMPROVING SIGNAL QUALITY IN WEARABLE BIOMETRIC MONITORING DEVICES**

(71) Applicant: **Valencell, Inc., Raleigh, NC (US)**

(72) Inventors: **Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)**

(21) Appl. No.: **14/829,032**

(22) Filed: **Aug. 18, 2015**

Related U.S. Application Data

(60) Provisional application No. 62/056,510, filed on Sep. 27, 2014, provisional application No. 62/110,655, filed on Feb. 2, 2015.

Publication Classification

(51) Int. Cl. **H04Q 9/00** (2006.01)
H04R 1/10 (2006.01)
G08B 21/18 (2006.01)

(52) U.S. Cl. **H04Q 9/00** (2013.01); **G08B 21/18** (2013.01); **H04R 1/1091** (2013.01)

ABSTRACT

A wearable biometric monitoring device is configured to assess the biometric signal quality of one or more sensors associated with the monitoring device, determine how the user should adjust the device to improve the biometric fit, and instruct the user to wear the biometric monitoring device a certain way. Communicating instructions to a user may include instructing the user to execute a testing regimen while wearing the biometric monitoring device. The testing regimen facilitates an estimation of a signal quality that can be used to provide feedback to the user that he/she needs to adjust the device to improve the biometric fit and the biometric signal quality.

100

INSTRUCT USER
INSTRUCT USER TO START
QUALITY TEST (SUCH AS A
REGIMEN WHERE THE USER
"RUNS IN PLACE" FOR A FEW
SECONDS)

110

DETERMINE BIOMETRIC SIGNAL QUALITY
- IS THE SENSOR BEING WORN?
- WHAT IS Q_0 (SIGNAL QUALITY)?
- IS THE USER REALLY FOLLOWING THE REGIMEN (CHECKING THE
ACCELEROMETER READINGS)

120

DETERMINE COMMUNICATION FOR USER
- DETERMINE WHETHER THE FIT IS OK
- DETERMINE IF THE USER MUST READJUST THE EARBUD, BAND, ETC.
- TELL THE USER TO FIND A DIFFERENT EAR GEL, BAND ADJUSTMENT, ETC.

130

COMMUNICATE WITH USER
- COMMUNICATE MESSAGE AUDIBLY AND/OR VISUALLY
- COMMUNICATE MESSAGE WITH ACTUATION (VIBRATION)
- AUTOMATICALLY ADJUST THE EAR BUD, BAND, ETC WITH A BUILT-IN
ACTUATOR
- AUTOMATICALLY ADJUST THE PULSING, PULSING GAIN INTENSITY, ETC.
OF THE EMITTERS OR DETECTORS TO INCREASE THE Q_0 (CUSTOMIZE THE
 Q_0) FOR THE USER'S SPECIFIC PHYSIOLOGICAL CHARACTERISTICS
- INSTRUCT USER TO ADJUST THE EARBUD OR TO REPEAT A QUALITY TEST

(57)

ABSTRACT

A wearable biometric monitoring device is configured to assess the biometric signal quality of one or more sensors associated with the monitoring device, determine how the user should adjust the device to improve the biometric fit, and instruct the user to wear the biometric monitoring device a certain way. Communicating instructions to a user may include instructing the user to execute a testing regimen while wearing the biometric monitoring device. The testing regimen facilitates an estimation of a signal quality that can be used to provide feedback to the user that he/she needs to adjust the device to improve the biometric fit and the biometric signal quality.

FIELD OF THE INVENTION

[0002] The present invention relates generally to monitoring devices and methods, more particularly, to monitoring devices and methods for measuring physiological information.

PO's Substitute Claims Are Patentable Over Combinations with Aumer

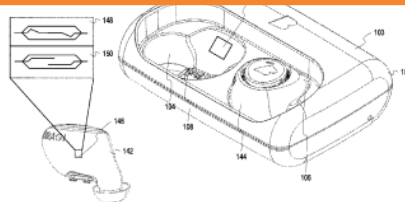
Aumer Is Not Analogous Art to the '014 and '688 Patents.

'014 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 10,117,014 B2 (45) Date of Patent: *Oct. 30, 2018
(54) POWER CONTROL FOR BATTERY POWERED PERSONAL AREA NETWORK DEVICE SYSTEM AND METHOD	(58) Field of Classification Search CPC H04R 1/1041; H04R 1/1025; H04R 1/028; H04R 2420/07; H04W 52/0225; H02J 7/025; H02J 7/007; H02J 50/10; H04M 1/6066 See application file for complete search history.	
(71) Applicant: BRAGI GmbH, München (DE)	(56) References Cited	
(72) Inventors: Eric Christian Hirsch, München (DE); Peter Vincent Boesen, München (DE)	U.S. PATENT DOCUMENTS	
(73) Assignee: BRAGI GmbH, München (DE)	3,934,100 A 1/1976 Harada 4,150,262 A 4/1979 Ono (Continued)	
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.	FOREIGN PATENT DOCUMENTS	
(21) Appl. No.: 15/837,386	EP 1017252 A3 5/2006 GB 2074817 4/1981 (Continued)	
(22) Filed: Dec. 11, 2017	OTHER PUBLICATIONS	
(65) Prior Publication Data US 2018/0109867 A1 Apr. 19, 2018	Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014). (Continued)	
Related U.S. Application Data		
(63) Continuation of application No. 15/245,031, filed on Aug. 23, 2016, now Pat. No. 9,843,853. (Continued)	Primary Examiner — Brenda C Bernardi (74) Attorney, Agent, or Firm — Goodline, Coleman &	

I. Field of the Disclosure

The present invention relates to wireless electronics and battery systems. More specifically, but not exclusively, the present invention relates to wireless earpieces that manage and extend battery life.

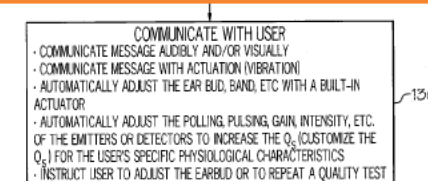


Aumer

(19) United States		(10) Pub. No.: US 2016/0094899 A1
(12) Patent Application Publication		(43) Pub. Date: Mar. 31, 2016
Aumer et al.		
(54) METHODS AND APPARATUS FOR IMPROVING SIGNAL QUALITY IN WEARABLE BIOMETRIC MONITORING DEVICES		Publication Classification
(71) Applicant: Valencell, Inc., Raleigh, NC (US)	(51) Int. Cl. H04Q 9/00 (2006.01) H04R 1/10 (2006.01) G08B 21/18 (2006.01)	(52) U.S. Cl. CPC H04Q 9/00 (2013.01); G08B 21/18 (2013.01); H04R 1/1091 (2013.01)
(72) Inventors: Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)		
(57) ABSTRACT		
A wearable biometric monitoring device is configured to assess the biometric signal quality of one or more sensors associated with the monitoring device, determine how the user should adjust the device to improve the biometric fit, and instruct the user to wear the biometric monitoring device a certain way. Communicating instructions to a user may include instructing the user to execute a testing regimen while wearing the biometric monitoring device. The testing regimen facilitates an estimation of a signal quality that can be used to provide feedback to the user that he/she needs to adjust the device to improve the biometric fit and the biometric signal quality.		
(21) Appl. No.: 14/829,032		
(22) Filed: Aug. 18, 2015		
Related U.S. Application Data		
(60) Provisional application No. 62/056,510, filed on Sep. 27, 2014, provisional application No. 62/110,655, filed on Feb. 2, 2015.		

FIELD OF THE INVENTION

[0002] The present invention relates generally to monitoring devices and methods, more particularly, to monitoring devices and methods for measuring physiological information.



PO's Substitute Claims Are Patentable Over Combinations with Aumer

Hain + Aumer does not yield predictable results because there is no motivation to combine them.

Hain

Aumer

(19) Federal Republic of Germany German Patent and Trademark Office

(10) DE 10 2007 039 455 A1 02/26/2009

(12) Patent Application

(21) Reference number: 10 2007 039 455.3
(22) Filing date: 08/21/2007

(51) Int Cl.⁸: H04R 25/00 (2006.01)

(54) Title: Hearing aid system with magnetic field sensors

(57) Abstract: In a hearing aid system with two hearing aids (1, 11) that can be worn on the head, an automatic detection of the hearing situation "telephoning" and an automatic switching off of the hearing aids (1, 11) when they are removed from the head should be implemented. According to the invention, the hearing aids (1, 11) have sensor devices (6, 16) for this purpose, which are used in order to detect whether the relevant hearing aid (1, 11) is in a magnetic field that exceeds a specific field strength. Relevant data in this regard can be exchanged between the hearing aids (1, 11) by means for wireless signal transmission (5, 7; 15, 17). If only one of the two hearing aids (1, 11) detects a magnetic field, it can be deduced that the hearing situation is "telephoning". On the other hand, if both hearing aids (1, 11) detect a magnetic field at the same time, then both hearing aids (1, 11) are located in a storage box equipped with a permanent magnet and are switched off automatically.

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(54) METHODS AND APPARATUS FOR IMPROVING SIGNAL QUALITY IN WEARABLE BIOMETRIC MONITORING DEVICES

(71) Applicant: Valencell, Inc., Raleigh, NC (US)

(72) Inventors: Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)

(21) Appl. No.: 14/829,032

(22) Filed: Aug. 18, 2015

Publication Classification

(51) Int. Cl.
H04Q 9/00 (2006.01)
H04R 1/10 (2006.01)
G08B 21/18 (2006.01)

(52) U.S. CL.
CPC H04Q 9/00 (2013.01); G08B 21/18 (2013.01); H04R 1/1091 (2013.01)

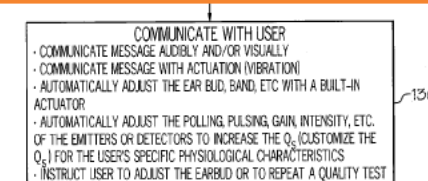
(57) ABSTRACT
A wearable biometric monitoring device is configured to assess the biometric signal quality of one or more sensors associated with the monitoring device, determine how the user should adjust the device to improve the biometric fit, and instruct the user to wear the biometric monitoring device a certain way. Communicating instructions to a user may include instructing the user to execute a testing regimen while wearing the biometric monitoring device. The testing regimen facilitates an estimation of a signal quality that can be used to provide feedback to the user that he/she needs to adjust the device to improve the biometric fit and the biometric signal quality.

Related U.S. Application Data

(60) Provisional application No. 62/056,510, filed on Sep. 27, 2014, provisional application No. 62/110,655, filed on Feb. 2, 2015.

FIELD OF THE INVENTION

[0002] The present invention relates generally to monitoring devices and methods, more particularly, to monitoring devices and methods for measuring physiological information.



Ex. 1004 (Hain); Ex. 1027 (Aumer); PO REPLY at 6-8; Ex. 2006 ¶¶ 77-92 – 01204

PO's Substitute Claims Are Patentable Over Combinations with Aumer

Shaffer + Aumer does not yield predictable results because there is no motivation to combine them.

Shaffer

(19) **United States**
(12) **Patent Application Publication**
(43) **Pub. No.:** US 2015/0245126 A1
(43) **Pub. Date:** Aug. 27, 2015

(54) **EARBUD CHARGING CASE FOR MOBILE DEVICE**
(60) Provisional application No. 61/942,698, filed on Feb. 21, 2014.

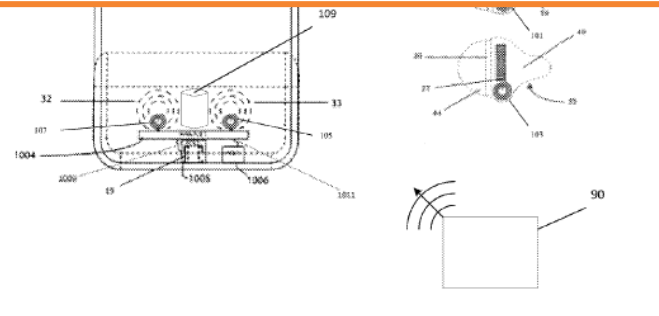
(71) Applicant: Alpha Audiometrics, Inc., New York, NY (US)
(72) Inventor: Jonathan Everett Shaffer, Huntingdon Valley, PA (US)

(21) Appl. No.: 14/510,539
(22) Filed: Oct. 9, 2014

Related U.S. Application Data
(63) Continuation-in-part of application No. 14/306,736, filed on Jun. 17, 2014, now Pat. No. 8,891,800.

Publication Classification
(51) Int. CL. H04R 1/10 (2006.01)
(52) U.S. CL. G08B 21/18 (2006.01)
(57) **ABSTRACT**
A case for a mobile electronic device includes a portion configured to receive power via induction charging, an aperture configured to receive an earbud, and circuitry configured to simultaneously charge the earbud and the mobile electronic device.

[0002] This patent document relates to a mobile device case that serves as an electrical charger and storage dock for rechargeable wireless audio earbuds.



Aumer

(19) **United States**
(12) **Patent Application Publication**
(43) **Pub. No.:** US 2016/0094899 A1
(43) **Pub. Date:** Mar. 31, 2016

(54) **METHODS AND APPARATUS FOR IMPROVING SIGNAL QUALITY IN WEARABLE BIOMETRIC MONITORING DEVICES**
(60) Provisional application No. 62/056,510, filed on Sep. 27, 2014, provisional application No. 62/110,655, filed on Feb. 2, 2015.

(71) Applicant: Valencell, Inc., Raleigh, NC (US)
(72) Inventors: Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)

(21) Appl. No.: 14/829,032
(22) Filed: Aug. 18, 2015

Publication Classification
(51) Int. CL. H04Q 9/00 (2006.01)
(52) U.S. CL. H04R 1/10 (2006.01)
(57) **ABSTRACT**
A wearable biometric monitoring device is configured to assess the biometric signal quality of one or more sensors associated with the monitoring device, determine how the user should adjust the device to improve the biometric fit, and instruct the user to wear the biometric monitoring device a certain way. Communicating instructions to a user may include instructing the user to execute a testing regimen while wearing the biometric monitoring device. The testing regimen facilitates an estimation of a signal quality that can be used to provide feedback to the user that he/she needs to adjust the device to improve the biometric fit and the biometric signal quality.

FIELD OF THE INVENTION

[0002] The present invention relates generally to monitoring devices and methods, more particularly, to monitoring devices and methods for measuring physiological information.

130

COMMUNICATE WITH USER

- COMMUNICATE MESSAGE AUDIBLY AND/OR VISUALLY
- COMMUNICATE MESSAGE WITH ACTUATION (VIBRATION)
- AUTOMATICALLY ADJUST THE EAR BUD, BAND, ETC WITH A BUILT-IN ACTUATOR
- AUTOMATICALLY ADJUST THE POLLING PULSING GAIN INTENSITY, ETC. OF THE EMITTERS OR DETECTORS TO INCREASE THE Q₁ (CUSTOMIZE THE Q₁) FOR THE USER'S SPECIFIC PHYSIOLOGICAL CHARACTERISTICS
- INSTRUCT USER TO ADJUST THE EARBUD OR TO REPEAT A QUALITY TEST

Ex. 1003 (Shaffer); Ex. 1027 (Aumer); PO REPLY at 6-8; Ex. 2006 ¶¶ 77-92 – 01204

PO's Substitute Claims Are Patentable Over Combinations with Aumer

Steinbrecher + Aumer does not yield predictable results because there is no motivation to combine them.

Steinbrecher

(19)  (11) EP 1 727 395 B1

(12) EUROPEAN PATENT APPLICATION

(45) Publication date and disclosure of reference to granting of patent: 08/20/2008 Patent Bulletin 2008/34 (51) Int. Cl.: H04R 25/00 (2006.01)

(21) Application number: 06002561.6

(22) Filing date: 02/08/2006

(54) Verfahren und Vorrichtung zum induktiven Laden von Hörgeräten
Method and apparatus for charging hearing aids inductively
Procédé et dispositif pour le chargement de prothèses auditives de manière inductive

(84) Designated contracting states:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU LV MC NL PL PT RO SE SI

• Kupper, Lutz
99636 Ostramondra (DE)
• Pasitzsch, Frank
99615 Burgweiden (DE)

Description

[0001] The invention relates to a procedure and a device for the contactless loading of an accumulator battery in a hearing aid which, during the charge process, is located in a charging shell.

EP 1 727 395 B1

Note: Within nine months of the publication of the notification of the grant of the European patent in the European Patent Bulletin, anyone may file an opposition to this patent with the European Patent Office pursuant to the Implementing Regulations. The opposition is not deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Aumer

(19) United States
(12) Patent Application Publication (10) Pub. No.: US 2016/0094899 A1
Aumer et al. (43) Pub. Date: Mar. 31, 2016

(54) METHODS AND APPARATUS FOR IMPROVING SIGNAL QUALITY IN WEARABLE BIOMETRIC MONITORING DEVICES

(71) Applicant: Valencell, Inc., Raleigh, NC (US)

(72) Inventors: Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)

(21) Appl. No.: 14/829,032

(22) Filed: Aug. 18, 2015

Publication Classification

(51) Int. Cl. H04Q 9/00 (2006.01); H04R 1/10 (2006.01); G06B 21/18 (2006.01)

(52) U.S. CL. CPC H04Q 9/00 (2013.01); G06B 21/18 (2013.01); H04R 1/1091 (2013.01)

(57) ABSTRACT
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Related U.S. Application Data

(60) Provisional application No. 62/056,510, filed on Sep. 27, 2014, provisional application No. 62/110,655, filed on Feb. 2, 2015.

FIELD OF THE INVENTION

[0002] The present invention relates generally to monitoring devices and methods, more particularly, to monitoring devices and methods for measuring physiological information.

130

COMMUNICATE WITH USER

- COMMUNICATE MESSAGE AUDIBLY AND/OR VISUALLY
- COMMUNICATE MESSAGE WITH ACTUATION (VIBRATION)
- AUTOMATICALLY ADJUST THE EAR BUD, BAND, ETC WITH A BUILT-IN ACTUATOR
- AUTOMATICALLY ADJUST THE PULSING GAIN, INTENSITY, ETC. OF THE EMITTERS OR DETECTORS TO INCREASE THE Q₁ (CUSTOMIZE THE Q₁) FOR THE USER'S SPECIFIC PHYSIOLOGICAL CHARACTERISTICS
- INSTRUCT USER TO ADJUST THE EARBUD OR TO REPEAT A QUALITY TEST

Ex. 1006 (Steinbrecher); Ex. 1027 (Aumer); PO REPLY at 6-8; Ex. 2006 ¶¶ 77-92 – 01204

PO's Substitute Claims Are Patentable Over Combinations with Aumer

Any supposed consumer interest is irrelevant.

Third, “increased consumer interest in personal health and advances in miniaturizing sensors,” *see* Opp. at 17, is irrelevant. A POSITA concerned with the problems described in Hain would not have been motivated to add biometric monitoring to the magnetic-field hearing aid system of Hain. This would not have helped with improving the magnetic field to adjust power modes disclosed by Hain. Ex. 2006 ¶ 81.

(C) Aumer + Rass

PO's Substitute Claims Are Patentable Over Combinations with Rass + Aumer

“[A] POSITA would not have been motivated to combine Aumer and Rass with Shaffer for the same seasons a POSITA would not have combined Hain or Steinbrecher with Aumer and Rass.”

The Substitute Claims Are Enabled

Substitute Claims Are Enabled

“The specification of a patent must teach [a POSITA] how to make and use the full scope of the claimed invention without *undue* experimentation.”

Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (emphasis added); 35 § 112 (a).

When a patent specification has a broad disclosure, ““it may suffice to give an example (or a few examples) if the specification also discloses some general quality . . . running through the class that gives it a ‘peculiar fitness for the particular purpose.’”

Amgen Inc. v. Sanofi, 598 U.S. 594, 611 (2023).

Substitute Claims Are Enabled

Wands Factors

“Factors to be considered in determining whether a disclosure would require undue experimentation . . . include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.”

In re Wands, 858 F.2d 731, 736–37 (Fed. Cir. 1988).

Substitute Claims Are Enabled

1

- ***The breadth of the claims***
- “[A] POSITA would know that only a limited set of biometrics would be suitable for an earpiece worn within the ear and for performing associated functions, which would include controlling various power modes, and would not logically include things like endoscopic pill, bone implants, etc.”
- “In my opinion, a POSITA would not implement Petitioner’s examples for reading biometrics in a wireless earpiece system, such as retina scan and facial recognition because these examples relate to the face and eyes, while the claims earpieces are worn within the ear.”

2

- ***The nature of the claims***
- “[T]he suitable user biometrics are limited by the structure of the earpiece because it is worn in the ear.”
- Petitioner is incorrect to state that the only point of novelty is related to user biometrics because “[t]he invention is all of the claimed elements in their entirety, of which reading biometrics is one aspect.”

3

- ***The presence or absence of working examples***
- “The specification provides a working example of the invention being used to read biometrics to alter the power mode.”

4

- ***The state of the prior art***
- “The ‘evolving’ research Petitioner points to relating DNA sequencing, facial recognition, and retinal scans is irrelevant as these techniques would not be employed in an earpiece, particularly to adjust the power mode.”

Substitute Claims Are Enabled

5

- ***The skill of those in the art***
- “In my opinion, a POSITA would understand how to implement the techniques disclosed in the specification within a wireless earpiece system.”

6

- ***The predictability or unpredictability of the art***
- “[T]echniques to read biometrics that would be implemented in an earpiece, such as heartbeat or temperature, were known in the art and within the skill level of a POSITA to implement as of the priority date.”

7

- ***The quantity of experimentation necessary***
- “Little experimentation would be needed to make or use the claimed earpiece system because the types of biometrics that can be read by an earpiece [. . .] were known to a POSITA.”
- “[T]he specification further describes how embodiments would use the biometric readings to alter the power mode of the claims earpieces.”

8

- ***The amount of direction or guidance presented***
- “The specification provides detailed guidance for how to implement the claims in an embodiment of an invention.”
- “Given the claimed structure is limited to wireless earpieces and the purpose of the invention is providing for power mode adjustments, the specification provides sufficient guidance for using the invention.”

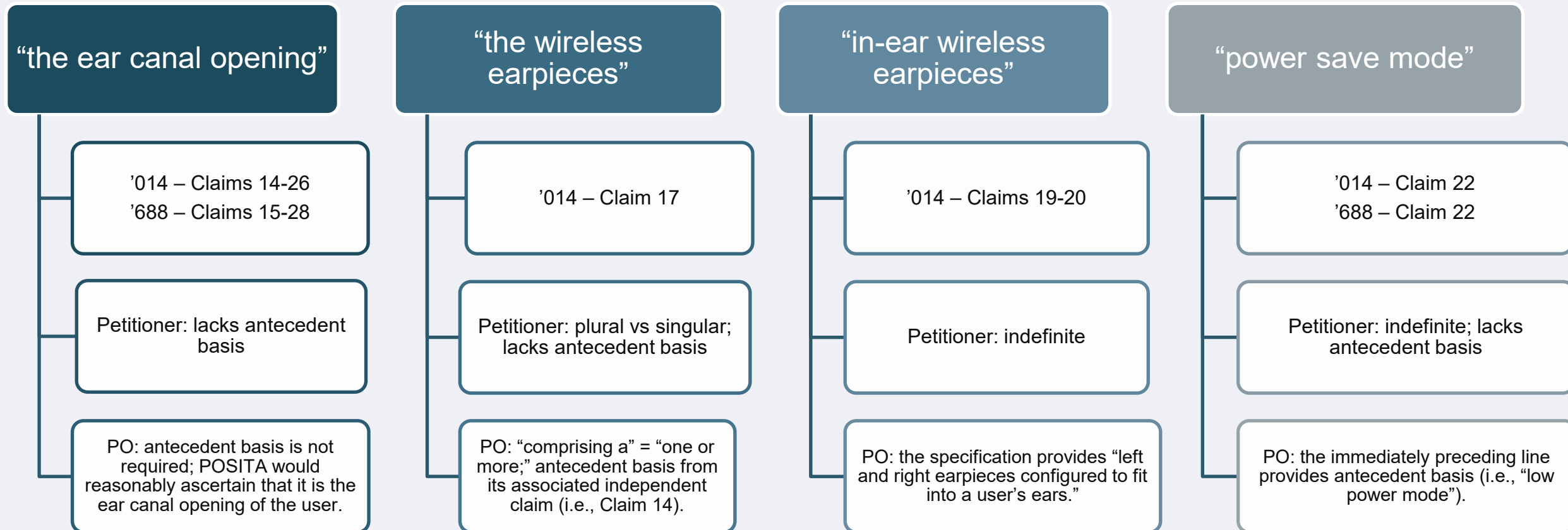
The Substitute Claims Are Not Indefinite

Substitute Claims Are Not Indefinite

“A claim is indefinite when it contains words or phrases whose meaning is unclear. . . . Obviously, however, the failure to provide explicit antecedent basis for terms does not always render a claim indefinite. If the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite.”

MPEP § 2173.05(e)

Substitute Claims Are Not Indefinite



Conclusion

Statutory & Regulatory Requirements for Substituting Patent Claims

- PO Proposes a Reasonable Number of Substituted Claims
- PO's Substitute Claims Respond to Grounds of Unpatentability Involved in the Trial
- PO's Substitute Claims Do Not Enlarge the Scope of the Claims or Introduce New Matter
- PO's Substitute Claims Are Patentable Over Petitioner's Obviousness Grounds
 - Combinations with Rass
 - Combinations with Aumer
 - Rass + Aumer

The Substitute Claims Are Enabled

The Substitute Claims Are Not Indefinite