



BRAGI

**ORAL ARGUMENT FOR
IPR2023-01150 (U.S. PATENT NO. 9,843,853)**

Before Administrative Patent Judges

- Larry J. Hume
- Stacey G. White
- Michelle N. Wormmeester

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The '853 Patent

'853 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 9,843,853 B2
(45) **Date of Patent:** Dec. 12, 2017

(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)

(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.

(21) Appl. No.: **15/245,031**

(22) Filed: **Aug. 23, 2016**

(65) **Prior Publication Data**
US 2017/0064433 A1 Mar. 2, 2017

Related U.S. Application Data

(60) Provisional application No. 62/211,767, filed on Aug. 29, 2015.

(51) **Int. Cl.**
H04R 1/10 (2006.01)
H02J 7/00 (2006.01)
H02J 7/02 (2016.01)
H04R 1/02 (2006.01)
H04W 52/02 (2009.01)
(Continued)

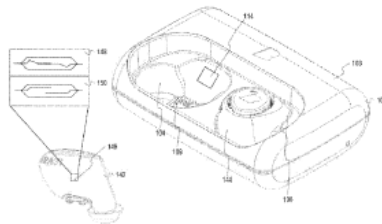
(52) **U.S. CL.**
CPC **H04R 1/1041** (2013.01); **H02J 7/007** (2013.01); **H02J 7/025** (2013.01); **H02J 50/10** (2016.02); **H04R 1/028** (2013.01); **H04R 1/1025** (2013.01); **H04W 52/0225** (2013.01); **H04W 52/0229** (2013.01); **H04W 52/0245** (2013.01); **H04M 1/6066** (2013.01); **H04R 2420/07** (2013.01); **Y02B 60/50** (2013.01)

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4,334,315 A 6/1982 Ono et al.
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OTHER PUBLICATIONS
Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014).
(Continued)

Primary Examiner — Brenda Bernardi
(74) *Attorney, Agent, or Firm* — 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.

21 Claims, 5 Drawing Sheets



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

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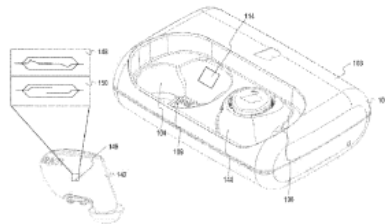
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(74) **Attorney, Agent, or Firm —** **Ginsburg, Coleman & Owens, PC**

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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.

21 Claims, 5 Drawing Sheets



'853 Patent

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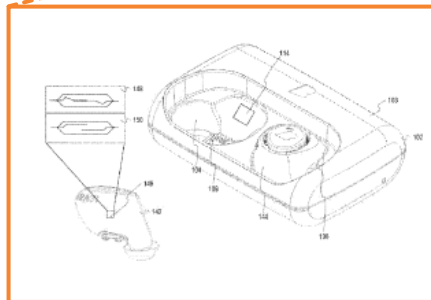
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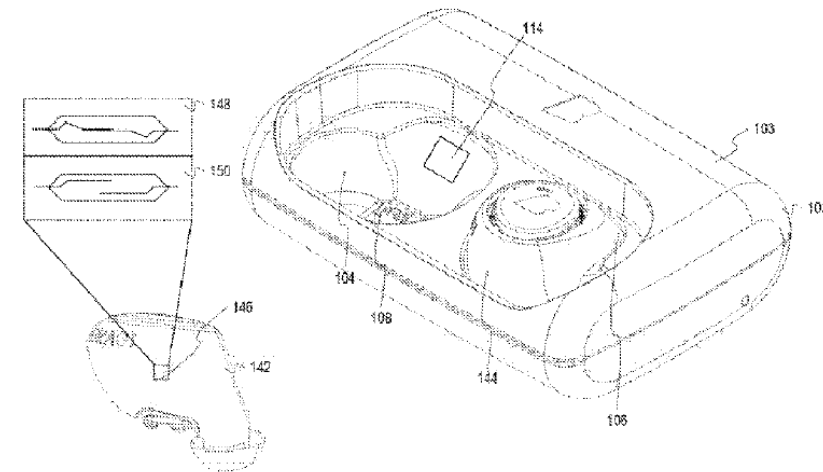
(57) **ABSTRACT**
A system and method for managing wireless earpieces. Circuitry of the wireless earpieces are powered utilizing a high power mode in response to detecting a magnetic field is not applied to one or more of the wireless earpieces. The power sent to the circuitry of the wireless earpieces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

21 Claims, 5 Drawing Sheets



What is claimed is:

1. A method for managing wireless earpieces, comprising:
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; and
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.



Ex. 1001 ('853 Patent)

'853 Patent Substitute Claims

Claim 22. [Proposed substitute for claim 1] A method for managing wireless earpieces, comprising:

powering circuitry of the wireless earpieces utilizing a high ~~power~~ 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 earpieces fits within the ear canal opening and the wireless earpieces are configured to read user biometrics, and

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.

Statutory & Regulatory Requirements for Substituting Patent Claims

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

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) ("*Lectrosonics*").

(1) PO Proposes a Reasonable Number of Substitute Claims

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Trials@uspto.gov
571-272-7822

Paper 24
Date: August 7, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K/S HIMPP,
Petitioner,

v.

BRAGI GMBH,
Patent Owner.

IPR2023-01150
Patent 9,843,853 B2

Before LARRY J. HUME, STACEY G. WHITE, and
MICHELLE N. WORMMEESTER, *Administrative Patent Judges*.

HUME, *Administrative Patent Judge*.

PRELIMINARY GUIDANCE
PATENT OWNER'S MOTION TO AMEND

1. Reasonable Number of Substitute Claims

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-7 (App. A). Petitioner does not argue otherwise. *See generally* Opp.

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

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SPECIFIC GROUNDS OF UNPATENTABILITY

(b) *[10A] circuitry operating the wireless earpiece;*

Referring to Figure 1 below, Brown discloses circuitry (e.g., **amplifier 20**) operating the wireless earpiece (e.g., **hearing aid 10**).

Referring to Figure 1 below, Brown discloses a reed switch (e.g., **reed relay switch 24**) connecting the battery (e.g., **accumulator 14**) to the circuitry (e.g., **amplifier 20**) when a magnetic field is not detected, and wherein the **reed switch 24** disconnects the **circuitry 20** from the battery 14 when a magnetic field is detected.



Claim 31. [Proposed substitute for claim 10] A wireless earpiece, comprising:

circuitry operating 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

a battery powering the circuitry of the wireless earpiece; and
a reed switch connecting the battery to the circuitry, wherein:

the reed switch connects the circuitry to the battery when a magnetic field is not detected; ~~and wherein~~

the reed switch disconnects the circuitry from the battery when a magnetic field is detected.

(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) (“*Lectrosonics*”).

(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 wireless earpieces, comprising:
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; and
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.

Claim 22. [Proposed substitute for claim 1] A method for managing wireless earpieces, comprising:

powering circuitry of the wireless earpieces utilizing a high ~~power~~ 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 earpieces fits within the ear canal opening and the wireless earpieces are configured to read user biometrics, and

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.

Ex. 1001 ('853 Patent); PO RTMA at 4, Appx A-1 to A-7

(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.

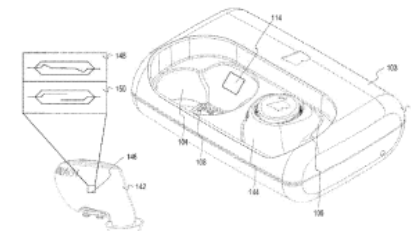
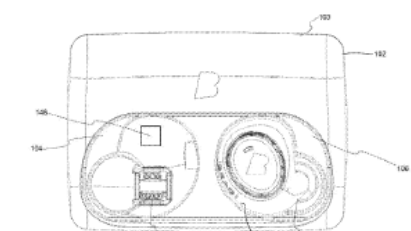
15 II. Description of the Art

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 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

1

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

Claim Limitation	Proposed Substitute Claims	Support from Original U.S. Application for the '853 Patent
Wherein a portion of the wireless earpiece fits within the ear canal opening	22-29, 31-38, 42	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  FIG. 2 Figure 1 Figure 2

PO RTMA at 4-5; Ex. 2007 at 27

(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

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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.

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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

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25 battery life.

SUMMARY OF THE DISCLOSURE

1

Claim Limitation	Proposed Substitute Claims	Support from Original U.S. Application for the '853 Patent
		FIG. 4 Figure 4 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] 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
Wherein the wireless earpiece(s) . . . is configured to read user biometrics	22-29, 31-38, 42	

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

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20	
25	
SUMMARY OF THE DISCLOSURE	
1	

Claim Limitation	Proposed Substitute Claims	Support from Original U.S. Application for the '853 Patent
		uploads/downloads to the wireless earpieces 142, 144 while in the low power mode. [7:27-8:8]
wherein the smart case comprises a rechargeable battery configured to charge the wireless earpieces	27-29	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] 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

PO RTMA at 4-5; Ex. 2007 at 29

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

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20	
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SUMMARY OF THE DISCLOSURE	
1	

Claim Limitation	Proposed Substitute Claims	Support from Original U.S. Application for the '853 Patent
		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] 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]

PO RTMA at 4-5; Ex. 2007 at 30

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

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

Ground 1-7: Prior Art Combinations

- Ground 1: Brown + Aumer
- Ground 2: Hain + Aumer
- Ground 3: Steinbrecher + Aumer
- Ground 4-7: Shaffer + Hain/Steinbrecher, Sorenson, and/or Aumer

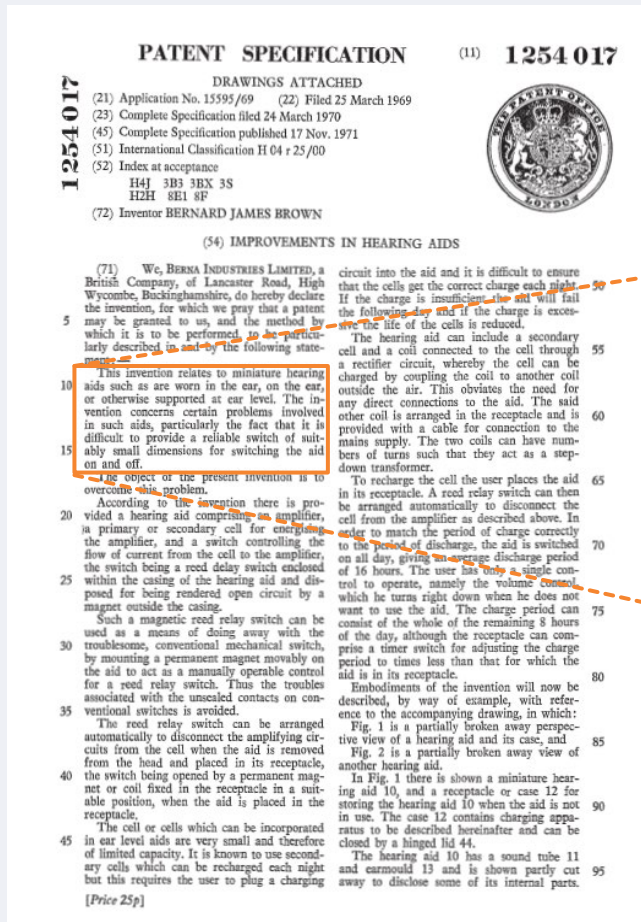
(4) PO's Substitute Claims Are Patentable Over Petitioner's Obviousness Grounds

Grounds	Substitute Claims
Ground 1: Brown + Aumer	Claims 31 and 35
Ground 2: Hain + Aumer	Claims 22-24 and 26
Ground 3: Steinbrecher + Aumer	Claims 31 and 42
Grounds 4-7: Shaffer in view of Hain, Sorensen, and/or Aumer	Claims 22-30
Grounds 4-7: Shaffer in view of Steinbrecher, Sorensen, and/or Aumer	Claims 31-42

Ground 1: Brown + Aumer

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

GB Patent Application No. 1254017 ("Brown")



This invention relates to miniature hearing aids such as are worn in the ear, on the ear, or otherwise supported at ear level. The invention concerns certain problems involved in such aids, particularly the fact that it is difficult to provide a reliable switch of suitably small dimensions for switching the aid on and off.

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

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

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

(52) U.S. Cl. (2006.01)
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.

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.

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

The Combination of Brown + Aumer Does Not Render Claims 31 and 35 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
- (5) Reasonable expectation of success

Aumer is Not Analogous Art

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

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)).

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Compare the Reference to the Challenged Patent

“In evaluating whether a reference is analogous, we have consistently held that a patent challenger ***must compare the reference to the challenged patent.***”

Sanofi-Aventis Deutschland GmbH v. Mylan Pharm. Inc., 66 F.4th 1373, 1377 (Fed. Cir. 2023) (emphasis added).

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Don't Define the Field of Endeavor or Pertinent Problem "Too Broadly"

"[T]he PTAB explained that 'defining the problem too broadly [. . .], may result in considering prior art as 'analogous' which is inconsistent with real world considerations.' Precisely defining the problem helps ensure that the prior art considered is that which 'logically would have commended itself to an inventor's attention in considering his problem.'"

Procter & Gamble Co. v. Team Techs., Inc., No. 12-CV-552, 2014 WL 12656554, at *25 (S.D. Ohio July 3, 2014) (quoting *Ex parte Dussaud*, 7 U.S.P.Q. 2d 1818, 1819 (B.P.A.I. 1988)).

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Petitioner's Stated Field of Endeavor: "Similar Wearable Electronic Device"

First, Brown and Aumer are from the same field of endeavor. *See, e.g., Medtronic, Inc. v. Cardiac Pacemakers, Inc.*, 721 F.2d 1563, 1574–75 (Fed. Cir. 1983); M.P.E.P. §2141. Both references are directed to a similar wearable electronic device. Brown discloses a hearing aid 10. Ex-1007-Brown, 1:88–89, Figure 1. Similarly, as discussed above, Aumer discloses an earpiece 20. Ex-1022-Aumer, ¶66, Figures 2A–2B. A POSITA would have therefore considered the teachings of Brown and Aumer and would have readily been motivated to combine their teachings. Ex-1021-Kaiei-Decl., ¶16.

Too broad;
virtually boundless

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Aumer Is Not Analogous Art to the '853 Patent.

'853 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 9,843,853 B2
		(45) Date of Patent: Dec. 12, 2017
(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 24/20/07; 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.	3,934,100 A 1/1976 Honda	4,190,262 A 4/1979 Ono
	4,334,315 A 6/1982 Ono et al.	(Continued)
(21) Appl. No.: 15/245,031	FOREIGN PATENT DOCUMENTS	
(22) Filed: Aug. 23, 2016	EP 1017252 A2 7/2000	GB 2074817 4/1981
(65) Prior Publication Data	(Continued)	
US 2017/0064433 A1 Mar. 2, 2017	OTHER PUBLICATIONS	
Related U.S. Application Data	Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014).	
(60) Provisional application No. 62/211,767, filed on Aug. 29, 2015.	(Continued)	

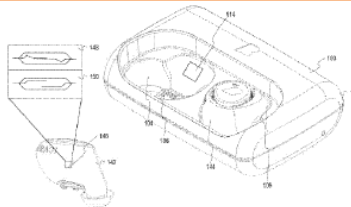
Not the same field of endeavor

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	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)	
(72) Inventors: Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)	(52) U.S. Cl. CPC H04Q 9/00 (2013.01); G08B 21/18 (2013.01); H04R 1/1091 (2013.01)	
(21) Appl. No.: 14/829,032	ABSTRACT	
(22) Filed: Aug. 18, 2015	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.

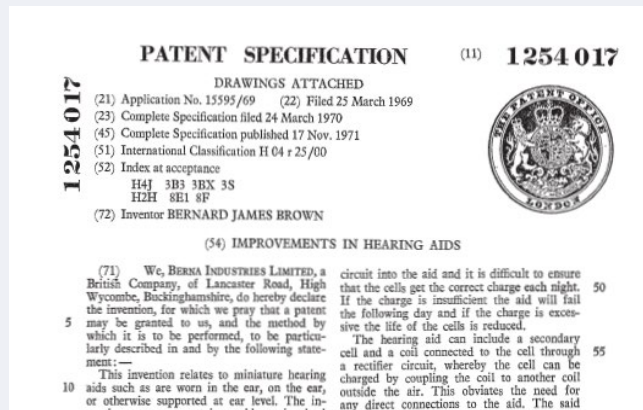


Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Brown and Aumer Are Not Analogous.

Brown

Aumer



Not the same field of endeavor

This invention relates to miniature hearing aids such as are worn in the ear, on the ear, or otherwise supported at ear level. The invention concerns certain problems involved in such aids, particularly the fact that it is difficult to provide a reliable switch of suitably small dimensions for switching the aid on and off.

associated with the sealed contacts on conventional switches is avoided.

The real relay switch can be arranged automatically to disconnect the amplifying circuits from the cell when the aid is removed from the head and placed in its receptacle, the switch being operated by a permanent magnet or coil fixed in the receptacle in a suitable position, when the aid is placed in the receptacle.

The cell or cells which can be incorporated in the hearing aids are of a very small and therefore of limited capacity. It is known to use secondary cells which can be recharged each night but this requires the user to plug a charging

described, by way of example, with reference to the accompanying drawing, in which:

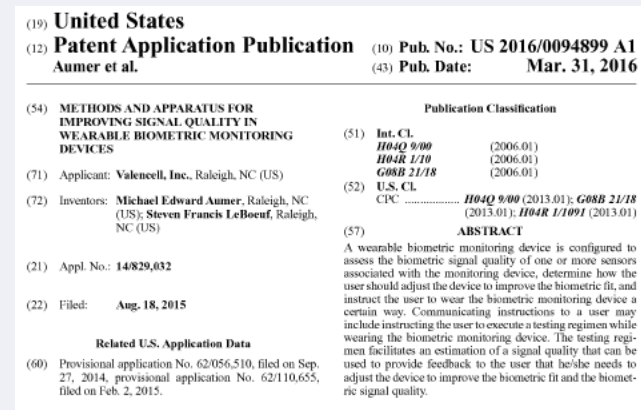
Fig. 1 is a partially broken away perspective view of a hearing aid and its case, and

Fig. 2 is a partially broken away view of another hearing aid.

In Fig. 1 there is shown a miniature hearing aid 10, and a receptacle or case 12 for storing the hearing aid 10 when the aid is not in use. The case 12 contains charging apparatus to be described hereinafter and can be closed by a hinged lid 44.

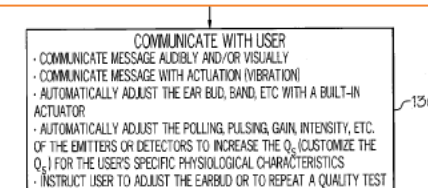
In Fig. 2 there is shown a sound tube 11 and earmould 13 and is shown partly cut away to disclose some of its internal parts.

[Price 25s]



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. 1001; Ex. 1022; PO REPLY to OPP at 3-4; Ex. 2007 ¶ 62-65

Brown and Aumer Do Not Yield Predictable Results

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Brown and Aumer do not yield predictable results because there is no motivation to combine them.

Second, implementing a hearing aid as taught by Brown to include a biometric sensor would not have been a “predictable result” because Aumer is not the same field of endeavor as Brown (or the '853 Patent), a POSITA would not have been motivated to combine these references. *See In re Clay*, 966 F.2d at 658 (“[T]he Court should consider only “analogous” prior art references, and need not consider references which are so remote as to be “nonanalogous.”); Ex. 2007 ¶ 66.

Consumer Interest is Irrelevant

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Any supposed consumer interest is irrelevant.

Third, any supposed “increased consumer interests in personal health and advances in miniaturizing sensors,” *see* Pet. Opp. at 8, that may have existed as of Aumer’s filing is irrelevant. A POSITA concerned with the problems described in Brown would not have been motivated to add the ability to read user biometric signals to the hearing aid Brown discloses. This would not have helped develop a more reliable switch for turning Brown’s hearing aid on or off. Ex. 2007 ¶ 67.

Biometric Sensors for Power Control Were Not Well Known

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

Petitioner: A biometric sensor that allows an earpiece to switch off was “well known” as of the priority date.

Fourth, it was well known prior to the '853 patent's priority date that a sensor in a wireless earpiece could allow the earpiece to automatically switch on or off depending on user biometrics. For example, as early as 2005, like Aumer, U.S. Patent No. 7,522,739 disclosed “an in-the-ear hearing aid I” that automatically switches on and off when the temperature sensed by “a temperature sensor TS” in the hearing aid is above or below a threshold, respectively. Ex-1028-Rass, 2:63–3:2, Figure 1; *cf.* Ex-1001-USP853, 5:16–19 (“biometric readings, such as heart beat or temperature may be utilized by the wireless earpieces 142, 144 and smart case 102 to alter the power mode”). A POSITA would have been motivated to include, in Brown's hearing aid, a sensor that reads user biometrics, as taught by Aumer, to automatically switch on and off the hearing aid. Ex-1021-Kaiei-Decl., ¶19.

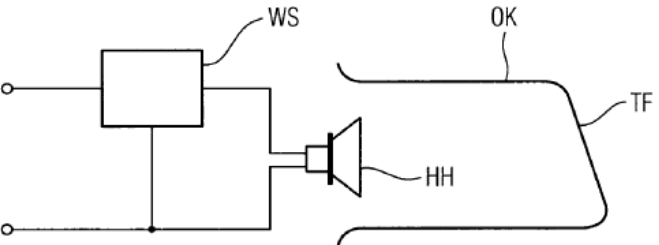
PO REPLY to OPP at 5-6; Ex. 2007 ¶¶ 68-69

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

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

Petitioner's Opposition at 8-9

(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 Geller 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)	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 (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.	
(51) Int. Cl. H04R 25/00 (2006.01)	15 Claims, 1 Drawing Sheet	
(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		



Patent No. 7,522,739 disclosed “an in-the-ear hearing aid I” that automatically switches on and off when the temperature sensed by “a temperature sensor TS” in the hearing aid is above or below a threshold, respectively. Ex-1028-Rass, 2:63–3:2, Figure 1; cf. Ex-1001-USP853, 5:16–19 (“biometric readings, such as heart beat

Rass at 2:63-3:2

DETAILED DESCRIPTION OF INVENTION

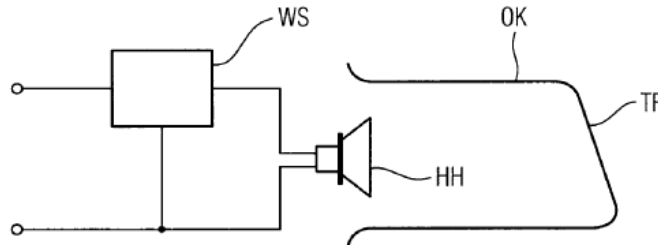
FIG. 1 shows a schematic diagram of an in-the-ear hearing aid I. It has a temperature sensor TS. When worn, the hearing aid I or its shell heats up. The temperature sensor TS registers this heat. Once a certain temperature threshold is exceeded, the device is switched on. If the temperature drops back to below a lower temperature threshold, the hearing aid I switches off again. This temperature-controlled switching on and off is also possible in principle with a single temperature threshold.

PO REPLY to OPP at 5-6; Ex. 2007 ¶¶ 68-69

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

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.	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
(21) Appl. No.: 11/126,088	* cited by examiner
(22) Filed: May 10, 2005	Primary Examiner—Curtis Kuntz Assistant Examiner—Jesse A Elbin
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(30) Foreign Application Priority Data May 11, 2004 (DE) 10 2004 023 049	
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(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	15 Claims, 1 Drawing Sheet



- No disclosure of biometrics
- Temperature sensor is not specific to body heat
- Rass is not one of Petitioner's prior art references

Rass at 2:63-3:2

DETAILED DESCRIPTION OF INVENTION

FIG. 1 shows a schematic diagram of an in-the-ear hearing aid I. It has a temperature sensor TS. When worn, the hearing aid I or its shell heats up. The temperature sensor TS registers this heat. Once a certain temperature threshold is exceeded, the device is switched on. If the temperature drops back to below a lower temperature threshold, the hearing aid I switches off again. This temperature-controlled switching on and off is also possible in principle with a single temperature threshold.

PO REPLY to OPP at 5-6; Ex. 2007 ¶¶ 68-69

No Reasonable Expectation of Success

Ground 1: PO's Substitute Claims Are Patentable Over Brown + Aumer

The Combination of Brown + Aumer Does Not Render
Claims 31 and 35 Obvious

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

Fifth, a POSITA would not have had a reasonable expectation of success in combining Brown and Aumer because, as explained, there was no motivation to combine these references. Ex. 2007 ¶ 70.

Ground 2: Hain + Aumer

Ground 2: PO's Substitute Claims Are Patentable Over Hain + Aumer

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: 08/21/2007
(43) Publication date: 02/26/2009

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

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

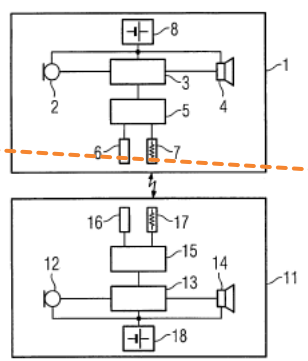
(74) Counsel:
Maier, D., Dipl.-Ing. Univ., Pat.-Ass., 85221 Dachau

(56) Documents considered for the assessment of patentability:
EP 13 95 994 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 transmitters (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 wireless signal transmitter/receiver (5, 7, 15, 17). The hearing aids are connected to a common antenna (15, 17) and a common antenna (12, 14).

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

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Ground 2: PO's Substitute Claims Are Patentable Over Hain + Aumer

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'853 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 9,843,853 B2
		(45) Date of Patent: Dec. 12, 2017
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(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	
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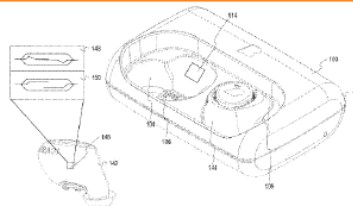
Not the same field of endeavor

Aumer

(19) United States		
(12) Patent Application Publication		(10) Pub. No.: US 2016/0094899 A1
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(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)	
(72) Inventors: Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)	(52) U.S. Cl. CPC H04Q 9/00 (2013.01); G08B 21/18 (2013.01); H04R 1/1091 (2013.01)	
(21) Appl. No.: 14/829,032	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.	
(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.



Ground 2: PO's Substitute Claims Are Patentable Over Hain + Aumer

Hain and Aumer Are Not Analogous.

Hain

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

(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.: 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.



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); 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.

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. 1004; Ex. 1022; PO REPLY to OPP at 6; Ex. 2007 ¶ 73

Ground 3: Steinbrecher + Aumer

Ground 3: PO's Substitute Claims Are Patentable Over Steinbrecher + Aumer

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

(19)  Europäisches Patentamt
European Patent Office
Office européen des brevets  (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

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).

EP 1 727 395 B1

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; PO RTMA at 6-7; Ex. 2007 ¶ 48

Ground 3: PO's Substitute Claims Are Patentable Over Steinbrecher + Aumer

Aumer Is Not Analogous Art to the '853 Patent.

'853 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 9,843,853 B2
		(45) Date of Patent: Dec. 12, 2017
(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 24/20/07; 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.	3,934,100 A 1/1976 Honda	4,190,262 A 4/1979 Ono
	4,334,315 A 6/1982 Ono et al.	(Continued)
(21) Appl. No.: 15/245,031	FOREIGN PATENT DOCUMENTS	
(22) Filed: Aug. 23, 2016	EP 1017252 A2 7/2000	GB 2074817 4/1981
(65) Prior Publication Data	(Continued)	
US 2017/0064433 A1 Mar. 2, 2017	OTHER PUBLICATIONS	
(60) Related U.S. Application Data	Announcing the \$3,333,333 Stretch Goal (Feb. 24, 2014).	
Provisional application No. 62/211,767, filed on Aug. 29, 2015.	(Continued)	

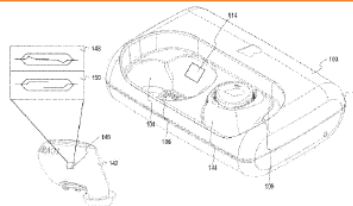
Not the same field of endeavor

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	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)	
(72) Inventors: Michael Edward Aumer, Raleigh, NC (US); Steven Francis LeBoeuf, Raleigh, NC (US)	(52) U.S. Cl. CPC H04Q 9/00 (2013.01); G08B 21/18 (2013.01); H04R 1/1091 (2013.01)	
(21) Appl. No.: 14/829,032	(57) ABSTRACT	
(22) Filed: Aug. 18, 2015	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.



Ground 3: PO's Substitute Claims Are Patentable Over Steinbrecher + Aumer

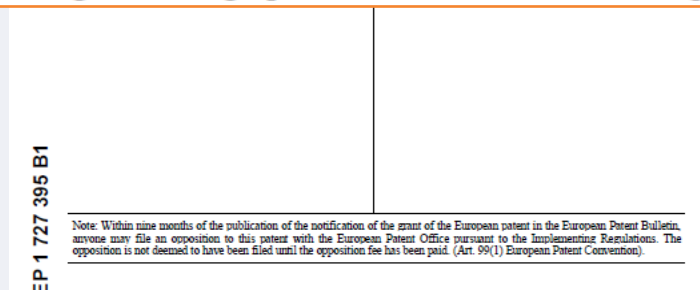
Steinbrecher and Aumer Are Not Analogous.

Steinbrecher



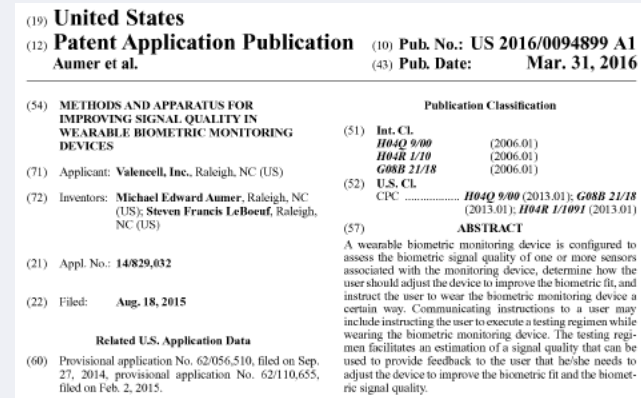
Description

[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.



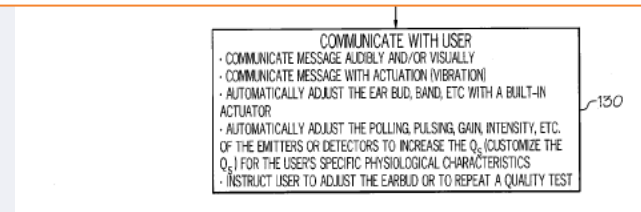
Not the same field of endeavor

Aumer



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. 1006; Ex. 1022; PO REPLY to OPP at 6-7; Ex. 2007 ¶ 80

Ground 4: Shaffer + Hain/Steinbrecher, Sorensen, and/or Aumer

Ground 4: PO's Substitute Claims Are Patentable Over Shaffer + Hain/Steinbrecher, Sorensen, and/or Aumer

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**

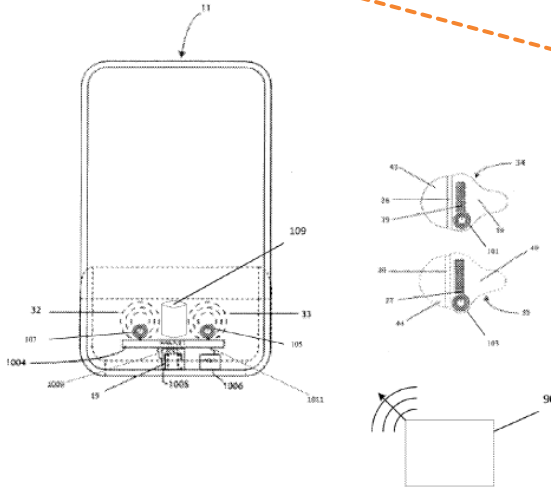
Related U.S. Application Data

(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.

Ground 4: PO's Substitute Claims Are Patentable Over Shaffer + Hain/Steinbrecher, Sorensen, and/or Aumer

Aumer Is Not Analogous Art to the '853 Patent.

'853 Patent

(12) United States Patent Hirsch et al.		(10) Patent No.: US 9,843,853 B2
		(45) Date of Patent: Dec. 12, 2017
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(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	
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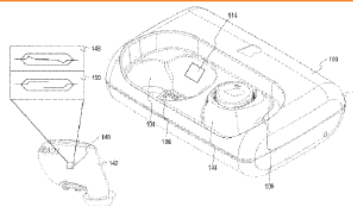
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Aumer

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FIELD OF THE INVENTION

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Ground 4: PO's Substitute Claims Are Patentable Over Shaffer + Hain/Steinbrecher, Sorensen, and/or Aumer

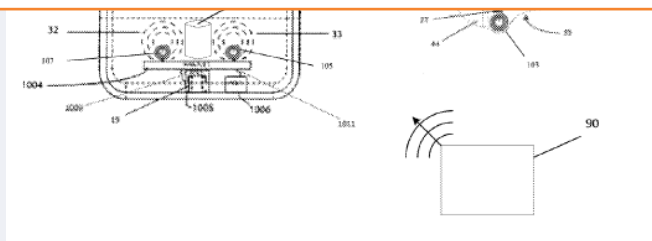
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Shaffer

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Shaffer	(43) Pub. Date: Aug. 27, 2015
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(71) Applicant: Alpha Audiotronics, Inc., New York, NY (US)	Publication Classification
(72) Inventor: Jonathan Everett Shaffer, Huntingdon Valley, PA (US)	(51) Int. Cl. H04R 1/10 (2006.01)
(21) Appl. No.: 14/510,539	(52) U.S. Cl. CPC H04R 1/1025 (2013.01)
(22) Filed: Oct. 9, 2014	(57) ABSTRACT
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.	

(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.

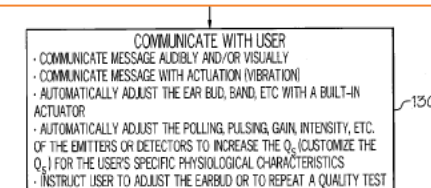


Aumer

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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. 1003; Ex. 1022; PO REPLY to OPP at; Ex. 2007 ¶ 87

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 is not required that every embodiment be exemplified.

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 breath of the claims***
- “[A] POSITA would understand that only a limited set of biometrics would be appropriate for use in an earpiece worn within the ear and for performing associated functions, which would include powering down.”
- “In my opinion, a POSITA would not implement Petitioner’s examples for reading biometrics in a wireless earpiece system, such as retinal scan and facial recognition because these examples relate to the face and eyes, while the claims earpieces are worn within the ears.”

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 relative 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 level 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

Claims 22-42

“the ear canal opening”

Petitioner: lacks antecedent basis

PO: antecedent basis is not required; POSITA would reasonably ascertain that it is the ear canal opening of the user

Claim 32

“the smart case”

Petitioner: lacks antecedent basis

PO: antecedent basis may be implicit

Claim 42

“the wireless earpiece”

Petitioner: lacks antecedent basis

PO: there is antecedent basis; “the first wireless earpiece” is disclosed in the preceding line

PO REPLY to OPP at 11-12; Ex. 2007 ¶¶ 94-97

Table of Contents

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
 - The Grounds (1-7) Identified by Petitioner Lack Motivation to Combine

The Substitute Claims Are Enabled

The Substitute Claims Are Not Indefinite