

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

K/S HIMPP,
Petitioner

v.

BRAGI GmbH,
Patent Owner

Case: IPR2023-01205
U.S. Patent No. 10,117,688

**SECOND DECLARATION OF DR. DARRIN YOUNG, PH.D.
IN SUPPORT OF REVISED CONTINGENT MOTION TO AMEND**

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I, Dr. Darrin Young, declare as follows:

I. INTRODUCTION

1. I have been retained as an independent expert consultant on behalf of Bragi GmbH (“Patent Owner” or “Bragi”) in this *Inter Partes* Review proceeding (“IPR”) before the Patent Trial and Appeal Board (“Board” or PTAB”) of the United States Patent and Trademark Office (“PTO”) regarding U.S. Patent No. 10,397,688 (“the ’688 Patent” or “the Challenged Patent”) (Ex. 1001).¹

2. I have been asked to consider and provide my opinions regarding whether the Proposed Substitute Claims 15-28 as provided in the Revised Motion to Amend are patentable. I have also been asked to consider and provide my opinions regarding whether the alleged prior art references cited in this proceeding disclose the features recited in certain claims of the ’688 Patent (proposed claims 15-28, corresponding to original claims 1-14, respectively), which I understand K/S HIMPP (“Petitioner”) has challenged in this IPR. In my view, the alleged prior art references do neither. This declaration is based on the information currently available to me. To the extent that additional information becomes available, I reserve the right to continue my investigation and study, which may include review

¹ In this Declaration, I reference documents by exhibit numbers that, as I understand, are attached to exhibits in this *Inter Partes* Review of the ’688 Patent.

of documents and information that may be produced, as well as testimony from depositions that have not yet taken place. My opinions are set forth below.

3. I submitted a declaration in this proceeding on June 11, 2024 in support of Patent Owner's Motion to Amend (Paper 14)², which I understand has been filed as Exhibit 2001. I submit this second declaration in support of Patent Owner's Revised Contingent Motion to Amend the claims of the '688 Patent.

II. BACKGROUND AND QUALIFICATIONS

4. I have summarized in this section my educational background, career history, publications, and other relevant qualifications. My full *curriculum vitae* is Exhibit 2002.

5. I am a Utah Science Technology and Research Initiative (USTAR) Associate Professor and the chair of the solid-state/micro-electro-mechanical systems/circuit area of the Electrical and Computer Engineering Department of the University of Utah.

6. I earned a bachelor of science degree in Electrical Engineering and Computer Sciences from the University of California at Berkeley in 1991, a master

² I understand that Patent Owner submitted a Motion to Amend on June 11, 2024 (Paper 13) and a corrected version of the Motion to Amend (Paper 14) that same day.

of science in Electrical Engineering and Computer Sciences from the University of California at Berkeley in 1993, and a Ph.D. in Electrical Engineering and Computer Sciences from the University of California at Berkeley in 1999.

7. I have extensive experience in academia. I have been teaching and conducting research for over 24 years. My teaching and research have included a focus on electronic circuits design, electrical interface design for micro-electro-mechanical systems (“MEMS”), and integrated microsystem technology development for industrial sensing, wireless sensing, wearable sensing, navigation, biomedical implant, power and energy scavenging, and RF communication applications.

8. My work also includes research, design, and development of wireless electronic systems, including wireless power transmission systems and wireless data telemetry systems. My work focuses on wireless sensing, which involves designing systems that wirelessly provide power and data telemetry to remote devices, such as sensors or biomedical implants. As part of this work, I have frequently researched, designed, and developed systems that wirelessly provide power via inductive coupling of two inductive coils or resonators as well as data telemetry through inductive coupling or by employing active data transmitters.

9. I teach both undergraduate and graduate level electrical engineering courses, ranging from an Introduction to Circuits and Instruments to detailed lectures

on Applied Electronics for various sensing and communication applications, including industrial applications and biomedical applications. I have taught numerous graduate-level courses and invited lectures that bear on wireless power transfer system design and wireless data telemetry system design, including Radio-Frequency Integrated Circuits Design, MEMS for Sensing and Communication, Electrical Interface for MEMS, and Analog Integrated Circuit Design.

10. Since 2009, I have been the Director of the Wireless Microsystem Laboratory at the University of Utah, where I conduct and oversee research on the design and development of wireless power transfer and wireless data telemetry systems for biomedical applications and environmental sensing applications.

11. In my research lab I have designed, built, and tested a number of sensor-based microsystems. Those microsystems include wearable sensors to detect physiological signals such as blood pressure waveforms, heart rate, pulse rate, and pulse wave velocity, implantable sensors for detecting blood pressure waveforms, ECG, and glucose level, micro-implantable coils array for wireless power transfer to the brain, middle ear implantable microphone for fully implantable cochlear prosthesis, flexible tactile sensors array for personal navigation applications under GPS-denied environment, and MEMS-based wireless strain sensing module that can detect surface conditions of metallic rotating machinery elements.

12. As part of my research, I have authored more than 130 peer-reviewed

publications. A complete list of peer-reviewed conference papers, journal articles, and invited book chapters that I have authored is listed in my curriculum vitae, which also includes a more detailed summary of my background, experience, and qualifications to render an expert opinion in this matter.

13. I have testified in a number of patent cases. I have served as a technical expert in district court cases and for a number of *inter partes* reviews. I have served as a technical expert in patent cases involving wearable biosensors and wireless power transfer and data telemetry technologies.

III. MATERIALS REVIEWED AND TIME OF ALLEGED INVENTION

14. The opinions contained in this declaration are based on the documents that I reviewed, my professional judgment, as well as my education, experience, and knowledge regarding technologies related to the '688 Patent.

15. In forming my opinions expressed in this declaration, I reviewed:

- the '688 Patent (Ex. 1001);
- the file history of the '688 Patent (Ex. 1008);
- the declaration of Dr. Sayfe Kiaei (Ex. 1002);
- U.S. Patent Application Publication No. 2015/0245126 ("Shaffer" – Ex. 1003);
- Certified English translation of DE Patent Application No. 102007039455 ("Hain" – Ex. 1004);
- U.S. Patent No. 8,265,315 ("Sorensen" – Ex. 1005);

- U.S. Patent Pub. No. US 2015/0200554 (“Marks” – Ex. 1021);
- Petitioner’s Opposition to Patent Owner’s Motion to Amend (Paper 23) and corresponding exhibits, including Ex. 1020 (Second Declaration of Sayfe Kiaei, Ph.D.); and
- The Parties’ papers and exhibits in this case (IPR2023-01205).

16. I have been asked to consider the time of the alleged invention to be around August 29, 2015, which I understand is the filing date of the application (U.S. Provisional Application No. 62/211,767 to which the ’688 Patent claims priority (Ex. 1001, Cover). My opinions reflect how a person of ordinary skill in the art (as I define in Section V below) would have understood the claims and the specification of the ’688 Patent, the prior art to the patent, and the state of the art, at the time of the alleged invention.

17. As I discuss in detail below, it is my opinion that the Proposed Substitute Claims of the ’688 Patent are patentable, and that the limitations of the Proposed Substitute Claims are not disclosed by the prior art references cited by Petitioner in this *Inter Partes* Review.

IV. LEGAL STANDARDS

1. Overview

18. I am not an attorney or a legal expert. The legal standards I applied in reaching the conclusions expressed throughout this declaration were provided to me by counsel. In preparing this declaration, I have endeavored to faithfully apply these

legal standards. I do not intend to offer opinions on the law. Below, I describe the law I applied in considering whether the claims of the Challenged Patent are patentable.

19. I have been informed that an issued patent is presumed valid and that the challenger of the patent's validity bears the burden of proving invalidity of the patent.

2. Patent Claims

20. Patent claims describe the invention made by the inventors and describe what the patent owner owns and what the owner may prevent others from doing.

21. Claims may describe products, such as machines or chemical compounds, or processes for making or using a product. Claims are usually divided into parts or steps called limitations.

22. There are two types of claims: independent claims and dependent claims. An independent claim sets forth all the requirements that must be met in order to be covered by that claim. Thus, it is not necessary to look at any other claim to determine what an independent claim covers. A dependent claim does not itself recite all of the requirements of the claim, but refers to another claim for some of its requirements. In this way, the claim depends on another claim. The law considers a dependent claim to incorporate all of the requirements of the claims to which it refers.

23. The dependent claim then adds its own additional requirements. To determine what a dependent claim covers, it is necessary to look at both the dependent claim and any other claims to which it refers.

24. In that case, the dependent claims incorporate the limitations of the independent claim upon which they depend and, if a reference fails to disclose any of the limitations of an independent claim, the claims which depend on that claim cannot be made invalid by that reference. As a result, any of the references at issue in this proceeding that fail to disclose all of the limitations of an independent claim necessarily also fail to disclose all of the limitations of claims which depend on that claim.

3. Burden of Proof for Invalidity

25. I understand that the party challenging the validity of an issued U.S. patent in an IPR bears the burden of proving invalidity through facts supported by a preponderance of the evidence. I understand that a “preponderance of the evidence” means evidence sufficient to prove that a fact is more likely true than it is not.

4. Claim Construction

26. I understand that the first step in determining validity is to properly construe the claims. I further understand that, in this proceeding, the Board must determine the scope of the claims by using the same claim construction standard that United States District Courts use. Under this standard, words of a claim are given

their “ordinary” and “customary” meaning as understood by a person of skill in the art at the time of the invention. I understand that such a person looks to the claims, specification, and file history in understanding the meaning of the claim terms. I have applied this understanding in this declaration.

5. Person of Ordinary Skill in the Art

27. I understand that a person having ordinary skill in the art may be defined by factors such as: (a) the levels of education and experience of the inventor and other persons actively involved in the field; (b) the types of problems encountered in the field; (c) prior art solutions to those problems; (d) rapidity with which innovations are made; and (e) the sophistication of the technology.

6. Prior Art

28. I understand that a patent cannot be invalidated based on one person’s testimony alone without corroborating evidence, particularly documentary evidence. Moreover, I understand that corroboration is required of any witness whose testimony alone is asserted to invalidate a patent, regardless of his or her level of interest in relation to that patent. Accordingly, even if the testifying individual has no interest in the litigation, I understand that that corroboration is still required.

29. In this declaration, I may use the phrase “prior art” when describing specific references. However, my use of this phrase should not be interpreted as agreement that the item(s) described qualify as prior art under the patent laws. I

merely use this phrase to address the items labeled as “prior art” by Petitioner and its expert.

7. Anticipation

30. I understand that a patent claim can be found invalid as anticipated if each and every element of the claim, as properly construed, is found either explicitly or inherently in a single prior art reference. If the single prior art reference does not disclose any one claim limitation, then that claim is not anticipated. I further understand that the single prior art reference cannot merely disclose each element; rather, it must disclose all of the elements as arranged in the claim. I have been informed that for a prior art reference to “inherently” disclose something, the reference must necessarily function in accordance with, or include the claimed limitations, to anticipate. The missing descriptive matter cannot merely probably or possibly include the claimed limitations. I further understand that, with respect to an anticipation analysis, it is improper to combine separate, distinct embodiments of a single prior art reference.

31. I understand that for a claim to be anticipated, each claim limitation must be disclosed in a single prior art reference, and the claimed arrangement or combination of those limitations must also be disclosed in that same prior art reference. I understand that for a reference to be anticipatory, the reference must contain an enabling disclosure. I understand that merely naming or describing the

subject matter is insufficient if it cannot be produced without undue experimentation.

8. Obviousness

32. I understand that a patent claim can be found invalid as obvious if the differences between the claim and the prior art references would have been obvious to a person of ordinary skill in the art at the time of the invention, taking into account (1) the scope and content of the prior art, (2) the differences between the prior art and the claims, (3) the level of ordinary skill in the art, and (4) any objective indicia of non-obviousness. I further understand that a claim can be found to be obvious in light of either a single prior art reference or multiple prior art references. I understand that references qualify as prior art for an obviousness determination only when they are analogous to the claimed invention. Two separate tests define the scope of analogous prior art: (1) whether the art is from the same field of endeavor, regardless of the problem addressed; and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

33. To be obvious in light of a single prior art reference or multiple prior art references, there must be a reason either to modify either the single prior art reference or to combine the two or more prior art references to achieve the claimed invention. I understand that this reason may come from a teaching, suggestion, or motivation to combine or may come from the reference or references themselves,

the knowledge or “common sense” of one skilled in the art, or from the nature of the problem to be solved, and may be explicit or implicit from the prior art as a whole.

34. The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.

35. I further understand that there is no suggestion to combine, however, if a reference teaches away from its combination with another source. A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant, or if it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant. If when combined, the references would produce a seemingly inoperative device, then they teach away from their combination. I understand that it is improper to combine references where the references teach away from their combination.

36. I understand that the degree of teaching away will depend on the particular facts; in general, a reference will teach away if it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant. I understand that a reference teaches away, for example, if (1) the combination would produce a seemingly inoperative device, or (2) the references leave the impression that the product would not have the property

sought by the applicant.

37. I understand that if the teachings of a prior art reference would lead one skilled in the art to make a modification that would render another prior art device inoperable, then such a modification would generally not be obvious. I understand that if a proposed modification would render the prior art device unsatisfactory for its intended purpose, then the proposed modification would generally not be obvious.

38. I understand that it is improper to use hindsight in making the obviousness determination.

39. I understand that some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness must be made. For example, I understand that there may be no rational underpinning to support the legal conclusion of obviousness where systems are already complete and the party challenging validity seeks to mix and match components, which each exist in the separate systems, from these complete systems.

40. In paragraphs 13-16 of my previous declaration, I identified the materials I have reviewed in forming my opinions. Since submitting my previous declaration, I have reviewed the Petitioner's Opposition to Patent Owner's Motion to Amend (Paper 23) and supporting exhibits and the Board's Preliminary Guidance: Patent Owner's Motion to Amend (Paper 24).

41. As stated in my previous declaration, I have been asked to consider the time of the alleged invention to be around August 29, 2015, which I understand is the filing date of the application (U.S. Provisional Application No. 62/211,767 to which the '688 Patent claims priority (Ex. 1001, Cover). My opinions reflect how a person of ordinary skill in the art (as I define in Section V below) would have understood the claims and the specification of the '688 Patent, the prior art to the patent, and the state of the art, at the time of the alleged invention.

42. For the technical analysis I provide below of Petitioner's prior art and the '688 Patent, I apply my understanding of the relevant legal standards recited above.

43. As I discuss in detail below, it is my opinion that the Proposed Substitute Claims of the '688 Patent are patentable, and that the limitations of the Proposed Substitute Claims are not disclosed by the prior art references cited by Petitioner in this *Inter Partes* Review and Petitioner's Opposition to Patent Owner's Motion to Amend (Paper 23).

V. PERSON OF ORDINARY SKILL IN THE ART (POSITA)

44. Based on my review of the '688 Patent, the types of problems encountered in the art at and prior to the time of the alleged invention, prior solutions to those problems, the pace with which innovations were made during the relevant time period, the sophistication of the technology, and the educational level of active

professionals in the field, I believe that a person of ordinary skill in the art (POSITA), at the time of the alleged invention, would have had at least a bachelor's degree in Electrical Engineering, or equivalent experience, and one to two years of experience in the field of wireless electronic devices and battery systems, particularly wireless earpieces such as wireless headphones and hearing aids.

45. All of my opinions in this declaration are from the perspective of a person of ordinary skill in the art, as I have defined it above and during the relevant time frame (e.g., 2015, including August 29, 2015). During this time frame, I possessed at least the qualifications of a POSITA, as defined above.

VI. THE '688 PATENT

46. The '688 Patent discloses a system in which one or more wireless earpieces interact with a smart case in order to preserve battery life, by entering a low power mode when the one or more earpieces are detected in the case, or a high power mode when the one or more earpieces are not detected in the case, presumably removed by the user to play audio.

47. Figure 1 of the '688 Patent, reproduced below, demonstrates some of the novel aspects in a particular embodiment. As shown below, the invention claimed in the '688 Patent allows one or more wireless in-ear earpieces to interact with a smart case comprising a rechargeable battery capable of being utilized to charge a wireless earpiece to perform various actions. For example, the '688 Patent

provides multiple functionalities for interaction including utilizing the smart case to preserve the battery life of the wireless earpieces while in a low power mode or state and ensuring charging of the earpieces to a desired level, overcoming the interference from headphone wires.

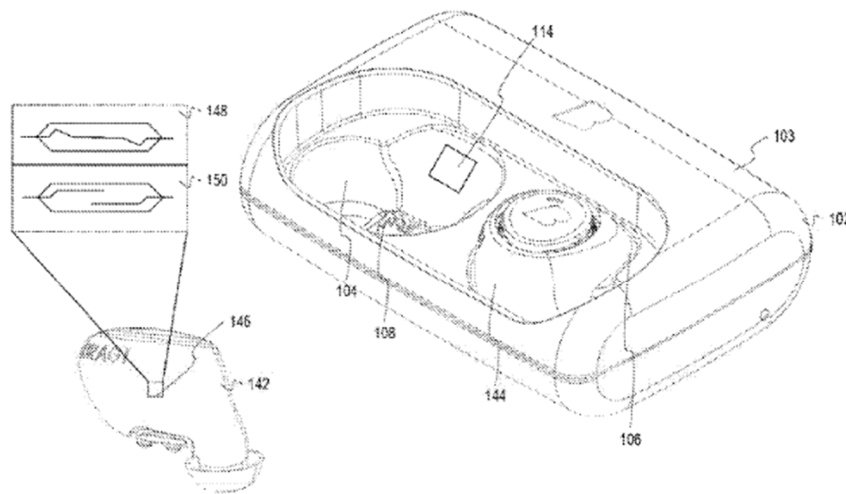


FIG. 1

Ex-1001, Fig. 1.

48. The '688 Patent discloses a reed switch which is an electrical switch operated by an applied magnetic field, provided by a magnet of the smart case which turns the wireless earpieces on and off. Ex-1001, 2:52-62; Figure 1. The wireless earpiece may operate in a variety of power modes. For example, the wireless earpiece may operate in a power saver or a low power mode, in which the wireless earpiece utilizes minimal power to maintain functionality and alert status of the wireless earpiece. *Id.* at 10:15-36. The wireless earpiece may also operate in a high-

power mode, which is implemented upon detecting that the wireless earpieces have been removed from the smart case. *Id.*

49. The '688 Patent system comprises one or more wireless earpieces and a smart case. The wireless earpieces may be referred to as a pair or singularly. Ex-1001, 3:1-3. The wireless earpieces are configured to fit into a user's ear. *Id.* at 3:5-11.

50. The smart case is configured to receive the wireless earpieces such that they fit securely inside of the smart case. *Id.* at 3:55-60. The smart case comprises a rechargeable battery utilized to charge the wireless earpieces. *Id.* at 3:31-34. The wireless earpieces may be charged via direct contact or wirelessly.

51. The reed switch operates in a closed mode when no magnetic field is present or in an open mode when a magnetic field is present. *Id.* The magnetic field is supplied by one or more magnets of the smart case, such that the reed switch is in the closed mode when the wireless earpieces are outside of the smart case and in an open mode when the wireless earpieces are in the smart case. *Id.* When the reed switch is in the open mode indicating that the wireless earpieces are in the smart case, the wireless earpieces may be charged by the smart case. *Id.* at 5:39-47. When the wireless earpieces are removed from the case for use, the reed switch is in a closed mode, which results in the wireless earpieces functioning under their own power. *Id.* The reed switch may initiate a self-power (or high power) mode when

deactivated (closed) by the magnet of the smart case. *Id.* at 8:1-21. As a result, the wireless earpieces may be fully activated and ready for use.

52. In operation, the wireless earpieces interface with a smart case. The process begins with one or more wireless earpiece determining whether a magnetic field is present. This determination may be based on the interaction of a magnet or magnetic field with a reed switch of the wireless earpiece. If the magnetic field is not present, the wireless earpiece remains powered on and the reed switch remains closed. When in this state, the onboard battery of the wireless earpiece powers and operates the wireless earpiece to ensure full functionality. Ex-1001, 8:32-53. If a magnetic field is present, the reed switch is opened and the wireless earpiece enters low power mode to preserve battery life.

53. In addition, the '031 Application for the '688 Patent teaches “[t]he 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.).” Ex-1008 at [4:20-4:22], [7:27-8:8].

VII. CLAIM CONSTRUCTION

54. I understand that claim terms are typically given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the alleged invention. In considering the meaning of the claims, I also understand that one must consider the claim language, specification,

prosecution history, and the knowledge of a person of ordinary skill in the art at the relevant time. I do not believe any terms require construction in the present matter.

VIII. OVERVIEW OF ALLEGED PRIOR ART REFERENCES

55. In its Petition (Paper No. 1), Petitioner presents three grounds challenging claims 1-14 using various combinations of Hain, Steinbrecher, Shaffer, and Sorensen. Petitioner's Opposition to Patent Owner's Original Motion to Amend (Paper 23) presents modified versions of the three grounds asserted in the Petition, adding the Marks reference³ for Ground 3. These references are described briefly below.

1. Hain

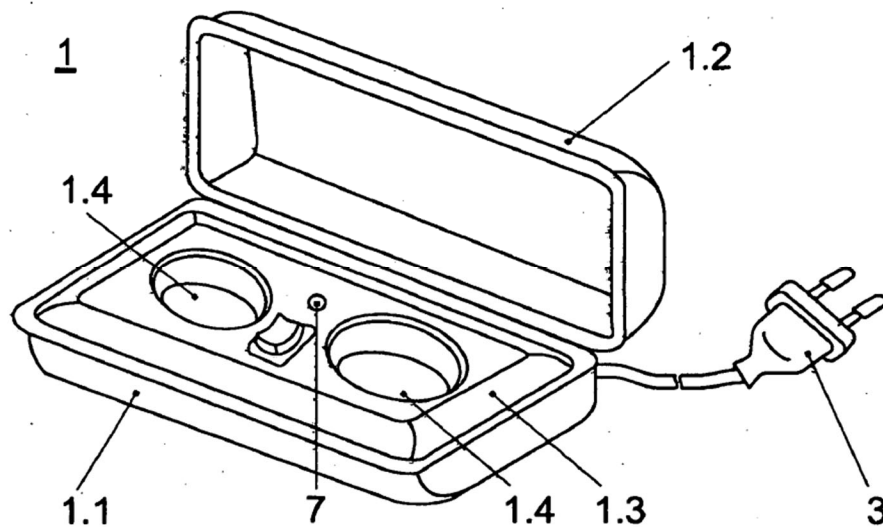
56. Hain generally discloses a dual hearing aid system with magnetic field sensors. Ex-1004. In some scenarios, the magnetic field is only detected by one hearing aid, which indicates that the hearing aid is "telephoning," and the hearing aids (which has detected the magnetic field) operates in telephone mode. *Id.* at [0013]. In other scenarios, when the magnetic field is detected by both hearing aids, the hearing aids enter an off state. *Id.* at Abstract. Hain discloses three modes of

³ The "Marks reference" is U.S Patent Pub. US 2015/0200554, titled "Chargeable, Portable Storage Case for Optical and Other Wearable Computing Devices," submitted by Jeffrey S. Marks et al.

operation: “normal operation,” the “telephoning” operation, and an off state. *Id.* at [0021]-[0022]. Hain does not disclose reading of biometrics and does not discuss biometrics.

2. Steinbrecher

57. Steinbrecher is directed to a device for contactless loading of an accumulator battery in a hearing aid when the hearing aid is located in a charging shell. Ex-1006 at [0001]. The charging shell is connected by a main plug, or plug-in power supply, in order to provide power. *Id.* at [0024]. This is shown in Figure 1, reproduced below. Steinbrecher does not disclose reading of biometrics and does not discuss biometrics.



Ex-1006, Fig. 1.

3. Shaffer

58. Shaffer discloses a mobile device case, which operates as an electrical charger and storage dock for wireless earbuds. Ex-1003 at [0002]. Each earbud may include sensors, including a pressure sensor or a magnetic sensor that identifies when the earbud is within or outside the case. *Id.* at [0011]. The case has electrical components, which allow the earbud batteries to be charged in the case when the case is plugged into a power source via a charging cable. *Id.* at [0047]. Shaffer does not disclose reading of biometrics and does not discuss biometrics.

4. Sorensen

59. Sorensen is directed to a hearing aid system including a charging station in which a hearing instrument is mounted to charge the hearing instrument without removal of the battery. Ex-1005, Abstract. The system provides communication between the charging station and the hearing instrument when the hearing instrument is placed in the charging station, such that data can be exchanged between the devices. *Id.* at 6:25-62. Sorenson does not disclose reading of biometrics and does not discuss biometrics.

5. Marks

60. Marks is directed to a portable case for optical and other wearable computing devices. Specifically, the invention in Marks is “a portable case for storing wearable electronic and computing equipment, such as optical computing

devices in the form of eyewear, headgear, or other wearable items that incorporates an auxiliary battery capable of charging the wearable electronic and computing device.” Ex. 1021 at [0002]. Marks does not disclose reading of biometrics and does not discuss biometrics.

IX. PATENT OWNER’S SUBSTITUTE CLAIMS ARE PATENTABLE

61. I understand that Patent Owner has proposed potentially substituting claims as listed below. The proposed amendments rewrite each of claims 1-14 as Proposed Substitute Claims 15-28. The Proposed Substitute Claims do not broaden the claim scope or introduce new subject matter. The proposed claim amendments further limit the method and/or system of each of these claims by adding additional functionalities. These amendments further distinguish the claims over the prior art, narrowing the claim scope. The claims are patentable over Petitioner’s prior art references. Further, as I discuss below, a POSITA would have understood that the inventor possessed the substitute claims as of the priority date, and would have been sufficiently enabled in how to make and use the invention recited in the Substitute Claims. As discussed below, I find that Patent Owner’s Proposed Substitute Claims are patentable.

A. Proposed Substitute Claims

62. According to Patent Owner’s proposal, I understand that the original claims in the ’688 Patent may be canceled and replaced with the Proposed Substitute

Claims. I have been asked to evaluate these Proposed Substitute Claims. I understand that these are not currently claims in the '688 Patent. I am informed by Counsel that the underlined text is proposed to be added to the original claims, and text that is struck through is proposed to be removed from the original 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.

Claim 16. [Proposed substitute for claim 2] The method of claim 15, further comprising:

operating the wireless earpiece utilizing an onboard battery in response to detecting the magnetic field is not applied to the wireless earpiece.

Claim 17. [Proposed substitute for claim 3] The method of claim 15, wherein the magnetic field is applied by a magnet of a smart case configured to receive the wireless earpiece, wherein the smart case comprises a rechargeable battery configured to charge the wireless earpiece.

Claim 18. [Proposed substitute for claim 4] The method of claim 15, wherein the magnetic field is detected by a reed switch of the wireless earpiece.

Claim 19. [Proposed substitute for claim 5] The method of claim 15, further comprising:

coupling the wireless earpiece to a smart case, wherein the smart case comprises a rechargeable battery configured to charge the wireless earpiece and applies a magnetic field to the wireless earpiece.

Claim 20. [Proposed substitute for claim 6] The method of claim 15,

wherein the magnetic field is detected by a reed switch integrated in magnetic contacts that interface with a smart case for securing the wireless earpiece.

Claim 21. [Proposed substitute for claim 7] The method of claim 15, further comprising:

synchronizing data between the wireless earpiece and a smart case in response to detecting the magnetic field.

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.

Claim 23. [Proposed substitute for claim 9] A method for power control for a wireless earpiece, comprising:

determining if a magnetic field is present at the wireless earpiece in a powered state, wherein a portion of the wireless earpiece fits within the ear canal opening and the wireless earpiece is configured to read user biometrics, and;

opening a reed switch located within the wireless earpiece when the magnetic field is detected and placing the wireless earpiece in a low-power mode;

coupling the wireless earpiece to a smart case

charging a battery located within the wireless earpiece with power supplied by a second battery within the smart case;

remaining in a high-power mode if no magnetic field is detected; and

operating the wireless earpiece with power supplied by the battery within the wireless earpiece.

Claim 24. [Proposed substitute for claim 10] The method of claim 23, wherein the magnetic field is applied by a magnet of the smart case configured to receive the wireless earpiece.

Claim 25. [Proposed substitute for claim 11] The method of claim 24, wherein the magnetic field is detected by the reed switch of the wireless earpiece.

Claim 26. [Proposed substitute for claim 12] The method of claim 25, wherein the magnetic field is detected by the reed switch integrated in magnetic contacts interfacing with a smart case for securing the wireless earpiece.

Claim 27. [Proposed substitute for claim 13] The method of claim 26, further comprising the step of synchronizing data between the wireless earpiece and a smart case in response to detecting the magnetic field.

Claim 28. [Proposed substitute for claim 14] The method of claim 15, wherein the low power mode is a power saver mode.

B. The Original Application for the '688 Patent Includes Support for the Proposed Substitute Claims

63. I have been asked to provide my opinions regarding whether the Proposed Substitute Claims are supported by the original application for the '688 Patent. In performing this analysis, I have applied the plain and ordinary meaning of the terms. I include exemplary citations to the original application for both the existing limitations of the claims and the limitations added by each proposed substitute claim. The '688 Patent issued from U.S. Patent Application No. 16/245,031 (“the '031 Application”), which is found at pages 1-36 of Exhibit 1008.

64. As noted above, the Proposed Substitute Claims rewrite claims 1-14 with additional limitations. The following features, found in the Proposed Substitute Claims, were supported by the '031 Application. A POSITA would have found that the inventor was in the possession of the features (and each claim as a whole) at the time of filing the '031 Application.

Claim Limitation	Proposed Substitute Claims	Support from Original U.S. Application for the '688 Patent
Wherein a portion of the wireless earpiece fits within the ear canal opening ⁴	15-28	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]

⁴ The Proposed Substitute Claims include the limitation “wherein a portion of the wireless earpiece fits within the ear canal opening.” *See, e.g.*, Appx A, substitute

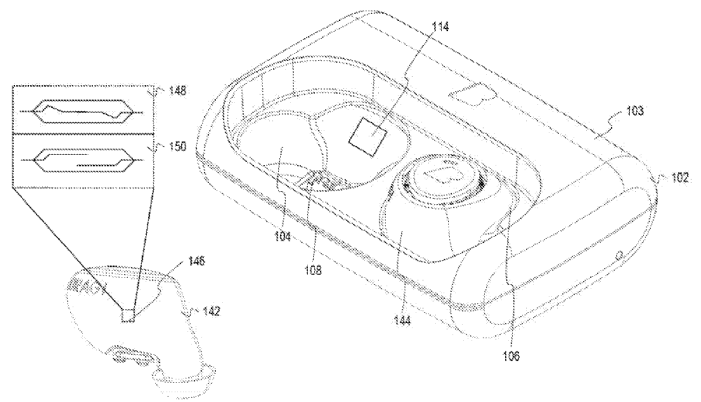


FIG. 1

Figure 1

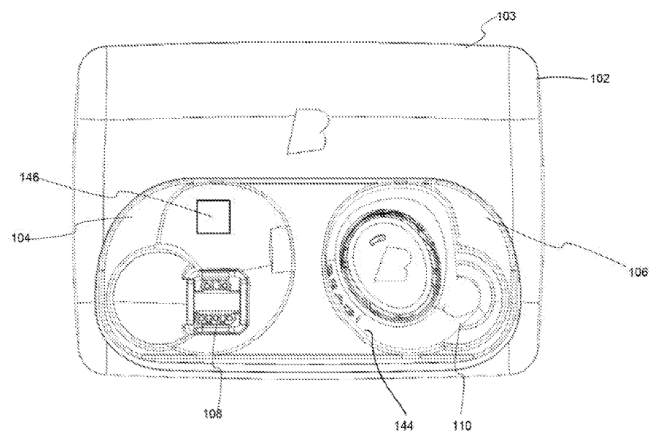
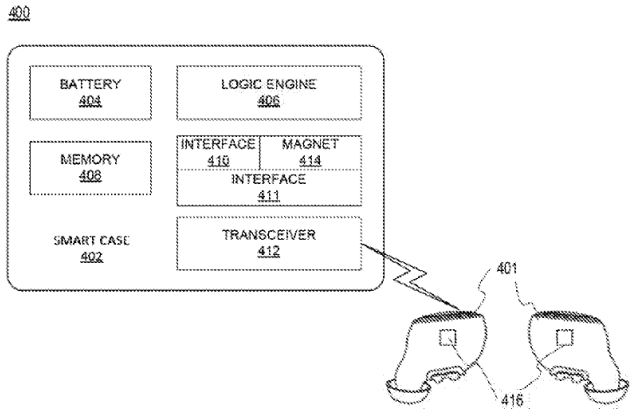


FIG. 2

Figure 2

claim 15; *see* ¶ 60, *supra*. This additional limitation provides clarity as to the location of the earpiece within the ear and how much of the wireless earpiece should be within the ear. This addresses Petitioner’s allegations that Patent Owner’s previous “in-ear” limitation is indefinite. *See* Petitioner’s Opposition at 6; Preliminary Guidance at 7.

		 <p>The diagram shows a system 400 enclosed in a dashed box. Inside, there are several components: a BATTERY 403, a LOGIC ENGINE 404, MEMORY 405, a SMART CASE 402, an INTERFACE 415, a MAGNET 414, another INTERFACE 411, and a TRANSCIVER 412. A lightning bolt symbol indicates a wireless connection between the TRANSCIVER 412 and a pair of wireless earpieces 401. Each earpiece has a small square component labeled 416.</p> <p>FIG. 4</p>
Wherein the wireless earpiece(s) . . . is configured to read user biometrics	15-28	<p>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.).</p> <p>[4:20-4:22]</p> <p>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</p>

		<p>uploads/downloads to the wireless earpieces 142, 144 while in the low power mode.</p> <p>[7:27-8:8]</p>
<p>wherein the smart case comprises a rechargeable battery configured to charge the wireless earpieces</p>	<p>17 and 19</p>	<p>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.</p> <p>[5:3-15]</p> <p>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</p>

		<p>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.</p> <p>[6:6-20]</p> <p>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.</p> <p>[7:5-13]</p>
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C. The Original Application for the '688 Patent Enables the Proposed Substitute Claims

65. I have been asked to evaluate whether the Proposed Substitute Claims are enabled by the original application. I have been informed that, to be enabling, a specification or application must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation, as of the patent's effective filing date. I understand that the factors to consider when 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.

66. Given the table of exemplary citations above, it is my opinion that a POSITA would have had a sufficient amount of information to make and use the full scope of the Proposed Substitute Claims without undue experimentation. To the extent Petitioner and/or Petitioner's expert argue differently, I reserve the right to respond.

D. The Proposed Substitute Claims are Patentable Over the Cited Prior Art

1. *Ground 1 – Hain*

67. In Ground 1, the Petition asserts that Hain anticipates claims 1, 2 and 4, Petition, 17, and the original substitute claims 15, 16, and 18, as set forth in Patent Owner’s Motion to Amend, *see* Opposition at 10. Claims 1, 2, and 4 correspond to Proposed Substitute Claims 15, 16 and 18, respectively. In my opinion, Hain does not disclose Proposed Substitute Claims 15, 16, and 18.

68. In particular, proposed substitute claim 15 (which Proposed Substitute Claims 16 and 18 depend from) requires that the wireless earpieces are “configured to read user biometrics.” Hain does not disclose a wireless earpiece(s) “configured to read user biometrics.” As explained above, the ’031 Application for the ’688 Patent teaches “[t]he 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.).” Ex-1008 at [4:20-4:22], [7:27-8:8]. The hearing aid Hain discloses is not configured to read user biometrics. Hain does not even mention biometrics.

69. Therefore, Hain fails to anticipate the claims of the ’688 Patent as presented in Petitioner’s Ground 1.

2. *Grounds 2 and 3*

70. Grounds 2-3 rely on a combination of references Shaffer, Hain, Sorsenson, and Marks (modified Grounds only) to assert that claims 3, 5-7 and 9-14 (Petition) and the Proposed Substitute Claims 15-28 as set forth in Patent Owner's original Motion to Amend are invalid (Opposition). *See* Petition, 34-66; Opposition at 14-19. However, none of these references discloses wireless earpieces "configured to read user biometrics," as required by all Proposed Substitute Claims asserted in Patent Owner's Revised Contingent Motion to Amend. As explained above, the '031 Application for the '688 Patent teaches "[t]he 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.)." Ex-1008 at [4:20-4:22], [7:27-8:8]. Shaffer, Hain, Sorenson, and Marks do not disclose reading a user's biometrics. In fact, these references do not even mention biometrics. Therefore, Petitioner's original and modified Grounds 2-3 do not disclose or render obvious the Proposed Substitute Claims.

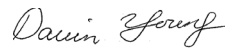
V. CONCLUSION

71. This declaration represents the opinions that I have formed up to date based on the material currently available to me. I reserve the right to revise, supplement, and/or amend my opinions stated in this declaration based on new

information that becomes available to me and on my continuing analysis of the materials available to me.

72. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine, imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: October 22, 2024



Dr. Darrin Young