

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BOSE CORPORATION,
Petitioner,

v.

INGENIOSPEC, LLC,
Patent Owner.

Case No. IPR2025-01549
Patent No. 11,852,901

**PETITION FOR *INTER PARTES* REVIEW
UNDER 35 U.S.C. §§311-319 AND 37 C.F.R. §42.1 *et seq.***

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APPENDIX LISTING OF EXHIBITS

Exhibit	Description
1001	U.S. Patent No. 11,852,901 (“the ’2901 patent”)
1002	Prosecution History of U.S. Patent No. 11,852,901
1003	Declaration of Andrew P. DeJaco
1004	Curriculum Vitae of Andrew P. DeJaco
1005	W.O. Pub. No. 2003/056790 A1 (“Goh”)
1006	U.S. Patent No. 7,925,029 (“Hollemans”)
1007	W.O. Pub. No. 2004/093490 A1
1008	U.S. Patent No. 4,882,745 (“Silver”)
1009	U.S. Patent Application Publication No. 2002/0137530
1010	U.S. Patent No. 5,113,428 (“Fitzgerald”)
1011	U.S. Patent Application No. 11/546,685 (“the ’685-Application”)
1012	U.S. Patent Application Publication No. 2007/0030442 (“Howell-442”)
1013	U.S. Patent Application No. 11/183,262 (“the ’262-Application”)
1014	U.S. Patent Application No. 11/006,343 (“the ’343-Application”)
1015	U.S. Patent Application No. 11/183,283 (“the ’283-Application”)
1016	U.S. Patent No. 7,116,976
1017	U.S. Patent Application Serial No. 12/803,732 (“the ’732-Application”)
1018	U.S. Patent Application Serial No. 13/831,445
1019	U.S. Patent Application Serial No. 16/429,181
1020	U.S. Patent Application Publication No. 2001/0041602 (“Berger”)
1021	W.O. Pub. No. 2001/63888 A1 (“Irvin”)
1022	U.S. Patent No. 5,359,647 (“Regen”)
1023	U.S. Patent Application Publication No. 2005/0124324
1024	U.S. Patent Application Publication No. 2002/0094806
1025	U.S. Provisional Application No. 60/583,169 (“the ’169-Provisional”)
1026	U.S. Patent No. 5,429,889
1027	U.S. Patent Application Publication No. 2003/0222622
1028	U.S. Patent Application Publication No. 2003/0214268

1029	U.S. Patent No. 7,283,635
1030	U.S. Patent Application Publication No. 2001/0011964
1031	U.S. Patent No. 6,453,018
1032	U.S. Patent No. 6,122,510
1033	W.O. Pub. No. 2000/005861 A1
1034	U.S. Statutory Invention Registration H417
1035	U.S. Patent No. 6,549,586

I. MANDATORY NOTICES

A. Real Party-In-Interest

Petitioner Bose Corporation is the Real Party-in-Interest.

B. Related Matters – § 42.8(b)(2)

A decision in this proceeding could affect or be affected by the following:

1. United States Patent & Trademark Office

The application from which U.S. Patent No. 11,852,901 (“the ’2901 patent”) issued (U.S. Patent Application Serial No. 17/942,347) purports to be a continuation of U.S. Patent Application Serial No. 16/429,181 (U.S. Patent No. 11,513,371), filed June 3, 2019, which purports to be a continuation of U.S. Patent Application Serial No. 13/831,445 (U.S. Patent No. 10,310,296), filed March 14, 2013, which purports to be a continuation of U.S. Patent Application Serial No. 12/803,732 (U.S. Patent No. 8,434,863), filed July 1, 2010, which purports to be a continuation of U.S. Patent Application Serial No. 11/546,685 (U.S. Patent No. 7,806,525), filed October 11, 2006, which purports to be a continuation-in-part of U.S. Patent Application Serial No. 11/183,256 (U.S. Patent No. 7,500,747), filed July 15, 2005.

U.S. Patent No. 12,242,138, which issued from U.S. Patent Application Serial No. 18/541,367, purports to be a continuation of the ’2901 patent.

2. United States District Courts

The '2901 patent has been asserted in the following district court litigations:

- *IngenioSpec, LLC v. Bose Corp.*, 2:24-cv-00822 (E.D. Tex.) (dismissed¹);
- *IngenioSpec, LLC v. LG Electronics Inc.*, 2:24-cv-00823 (E.D. Tex.);
- *Bose Corp. v. IngenioSpec, LLC*, 1:25-cv-12531 (D. Ma.).

C. Counsel and Service Information – §§ 42.8(b)(3) and (4)

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A power of attorney is submitted with the Petition. Counsel for Petitioner consents to service of all documents via electronic mail.

¹ Prior to its dismissal, 2:24-cv-00822 was consolidated with 2:24-cv-00819 and 2:24-cv-00823 and 2:24-cv-00822 was designated as the lead case. The district court ordered that 2:24-cv-00822 be kept open as the lead case despite its dismissal.

Petitioner respectfully requests cancellation of claims 1-32 of U.S. Patent No. 11,852,901.

II. CERTIFICATION OF STANDING

The '2901 patent is available for IPR and Petitioner is not barred or estopped from requesting IPR. 37 C.F.R. §42.104(a).

III. UNPATENTABILITY GROUNDS

Petitioner requests cancellation of claims 1-32 as follows².

Ground Number and Reference(s)		Claims	Basis
1	Howell-442, incorporating or in combination with: • The '169-Provisional • The '262-Application • The '343-Application • The '283-Application	1-32	§102, §103
2A	Goh, Berger	1, 3-11, 13, 21-22, 24	§103
2B	Goh, Berger, Irvin	2, 14-16, 19, 27, 31	§103
2C	Goh, Burger, Irvin, Hollemans	17, 18, 23, 25, 26, 28-30, 32	§103
2D	Goh, Burger, Regen	12	§103

² Certain of the Goh-based grounds rely on more than two references due to the nature of the dependent claims which recite a hodge-podge of conventional features that POSAs routinely implemented in headsets. *KSR Int'l. Co. v. Teleflex, Inc.*, 550 U.S. 398, 417 (2007) (explaining claims directed to the “predictable use of prior art elements according to their established functions” are obvious).

Ground 1 relies on a publication in the '2901 patent family—Howell-442—which is prior art under pre-AIA 35 U.S.C. §102(b) because it published over a year before the earliest priority date to which the '2901 patent is entitled (*i.e.*, July 1, 2010). *Infra* Ground 1.

Goh, published July 10, 2003, is prior art under pre-AIA 35 U.S.C. §102(b) even if the '2901 patent is entitled to the benefit of the filing date of the earliest provisional application to which any patents in its priority chain purport to claim priority, *i.e.*, Serial No. 60/618,107, filed October 12, 2004. The earlier-filed provisionals mentioned at 1:29-57 of the “cross-reference to related applications” section of the '2901 patent³ were filed over a year before the earliest non-provisional application in the chain, *i.e.*, Serial No. 11/183,256 (July 15, 2005), and therefore cannot provide an earlier priority date. 35 U.S.C. §119(e)(1). Further, while the “cross-reference to related applications” section says these provisionals are “related” to Serial No. 10/964,011 (1:29-34), that application is not part of the '2901 patent’s priority chain. *Droplets, Inc. v. E*TRADE Bank*, 887 F.3d 1309, 1315-16 (Fed. Cir. 2018) (for priority, the statutorily required “specific reference” to an earlier application must specify the nature of the relationship, *e.g.*, “continuation”). Finally,

³ Serial Nos. 60/509,631; 60/527,656; 60/562,798; 60/583,169; 60/605,191.

the '2901 patent says it is generically “related” to Serial No. 10/822,218, filed April 12, 2004 (2:25-26), but again fails to claim priority. *Id.* Goh is §102(b) prior art.

Berger, Irvin, and Regen each published over a year before the earliest conceivable priority date of the '2901 patent, making them all prior art under pre-AIA 35 U.S.C. §102(b).

Holleman is prior art under pre-AIA 35 U.S.C. §102(e)(2) as an issued U.S. patent that matured from a PCT application filed April 15, 2004, in English, designating the U.S.. EX1007. All of the references are analogous to the challenged patent. EX1003 (“DeJaco-Decl.”), ¶¶97-98.

IV. THE '2901 PATENT⁴

The '2901 patent is titled “[w]ireless headset supporting messages and hearing enhancement.”

In introducing its alleged invention, the '2901 patent says that although conventional mobile phones “support both voice calls and text messages,” using both simultaneously can be difficult. 3:41-45. For example, when on a phone call, “the user often holds the mobile phone against their ear,” preventing her from reading a text message on the phone. 3:42-44. Even if a conventional wireless headset is used with the phone for calling in a “hands-free manner” (which the '2901

⁴ Unless otherwise noted, citations in §IV are to EX1001.

patent acknowledges was known), “the user would need to view a screen of the mobile phone to participate in text messaging.” 3:48-52.

To address these problems, the patent discloses an “eyeglass frame” with electrical components in or attached thereto, which allow the glasses to perform text messaging. 3:59-64. For example, an “incoming text message can be presented to the recipient with an audio or textual presentation” and “[t]hereafter, a reply text message can be sent back to the initiator.” 43:9-12.

Although the patent focuses on eyeglasses, its independent claims recite a generic “*wearable device*” or “*headset*.” They and the dependent claims also recite various conventional components, with conventional capabilities, that are “*provided at least partially in*” the wearable device/headset.

As explained in Ground 1, the claims are unpatentable over earlier related applications because the ’2901 patent’s priority claim is ineffective.

As explained in Grounds 2A-2D, the components and capabilities recited in the claims were conventional in the prior art for use in headsets and other wearable devices before the ’2901 patent’s earliest claimed priority date—thus rendering the claims unpatentable even if the priority claim was effective.

A. Challenged Claims

Claims 1-32 are reproduced in the Claim Listing (*infra* §VIII), and independent claim 1 is reproduced below with labels added:

[1PRE] A wireless headset for a user comprising:

- [1A]** a printed circuit board provided in the headset, the printed circuit board having at least one electrical component attached thereon, the at least one electrical component being electrically connected to a plurality of other electrical components, each of the plurality of other electrical components being provided at least partially in the headset;
- [1B]** a speaker in the headset;
- [1C]** a microphone in the headset; and
- [1D]** wireless communication circuitry,
- [1E]** wherein the at least one electrical component or the plurality of other electrical components include at least a controller,
- [1F]** wherein the at least a controller is configured to facilitate modifying power within a range of frequencies based on at least one hearing characteristic of the user, to help the user hear audio outputs presented to the user via at least the speaker,
- [1G]** wherein the wireless communication circuitry is configured to wirelessly receive a message,
- [1H]** wherein if the message is a text message, the at least a controller is configured to have at least a portion of the text message presented to the user,
- [1I]** wherein if the message is an audio message, the at least a controller is configured to have at least a portion of the audio message presented to the user, and
- [1J]** wherein at least the speaker is configured to present at least a portion of the message, when the at least a portion of the message is to be presented in an audio manner.

Independent claims 10, 31, and 32 are similar except they are directed to a wearable “*device*” instead of a “*headset*” and they lack claim 1’s recitations of a “*hearing characteristic*” ([1F])⁵ and the speaker presenting an audio message ([1J]). Claims 10, 31, and 32 additionally recite well-known features recited in claims depending from claim 1, including conductive pads (claim 3), Bluetooth (claim 4), voice recognition (claim 5), and a second microphone for noise reduction (claim 9). Claims 31-32 recite well-known features recited in claims depending from claim 10, including hands-free usage (claim 13), use sensor/indicator (claim 14), motion sensor (claim 15), pressure sensor (claim 19), display (claim 22) and camera (claim 23).

B. Level of Ordinary Skill in the Art

POSAs would have had a Bachelor’s or graduate degree in electrical engineering, mechanical engineering, signal processing, or a related field, and at least two years of experience with designing personal wireless communication devices. DeJaco-Decl., ¶28.

⁵ The specification does not use the term “*hearing characteristic*,” but it describes amplifying certain audio frequencies to account for an individual’s hearing profile. 58:4-60.

C. Prosecution History

The originally-filed claims were allowed on April 19, 2023, without any rejections. EX1002, 487-496. The applicants subsequently amended the original claims and added new claims. EX1002, 573-583. All claims were ultimately allowed without rejections. EX1002, 668.

D. Priority

1. Priority Requires Consistent Written Description Support

Priority to an earlier application requires that “each application in the chain leading back to the earlier application must comply with the written description requirement.” *Lockwood v. Am. Airlines*, 107 F.3d 1565, 1571 (Fed. Cir. 1997). Otherwise, publication of another application in the same patent family may render the claims unpatentable. *E.g., Zenon Env'tl. v. U.S. Filter Corp.*, 506 F.3d 1370, 1374-75, 1382 (Fed. Cir. 2007) (patent-in-suit invalid over ancestor patent because intermediate applications failed to provide §112 support); *In re Floyd*, 2025 WL 1163561 (Fed. Cir. Apr. 22, 2025) (claims anticipated by parent application that failed to provide §112 support); *Reckitt Benckiser LLC v. Ansell Healthcare Prods. LLC*, IPR2017-00066, Paper 35, 13-16 (Jan. 20, 2018) (same).

Here, the '2901 patent's claims are obvious over a related patent publication because, despite the '2901 patent's claim to priority to Serial No. 11/546,685 ("'685-Application"), as well as one earlier nonprovisional application and several earlier provisional applications, the '685-Application does not support the '2901 patent's claims. That break in priority makes Application Serial No. 12/803,732, filed July 1, 2010, the earliest application to which the '2901 can claim priority.

2. Patent Owner Bears the Burden on Priority

Once a challenger identifies prior art antedating a patent's filing (such as Howell-442, applied in Ground 1), the patentee has "the burden of going forward with evidence either that the prior art does not actually anticipate, or...that it is not prior art because the asserted claim is entitled to the benefit of a filing date prior to the alleged prior art." *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1379-80 (Fed. Cir. 2015) (quotation omitted). Patent Owner must prove the claims have written description support in the applications through (and to) which priority is claimed. *Lockwood*, 107 F.3d at 1571 ("each application in the chain leading back to the earlier application must comply with the written description requirement"); *Natural Alternatives Int'l, Inc. v. Iancu*, 904 F.3d 1375, 1380 (Fed. Cir. 2018) (patent owner must prove entitlement to §120 priority).

3. The '2901 Patent Claims Lack Priority to Serial No. 11/546,685, Making Howell-442 Incontestable Prior Art

The '2901 patent's purported priority claim is illustrated below.

'2901 patent (EX1001) →

U.S. Patent No. 11,852,901 Appl. Serial No. 17/942,347	Issued 12-26-2023 Filed 9-12-2022
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CON

U.S. Patent No. 11,513,371 Appl. Serial No. 16/429,181	Issued 11-29-2022 Filed 6-3-2019
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CON

U.S. Patent No. 10,310,296 Appl. Serial No. 13/831,445	Issued 6-4-2019 Filed 3-14-2013
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CON

U.S. Patent No. 8,434,863 Appl. Serial No. 12/803,732	Issued 5-7-2013 Filed 7-1-2010
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~~CON~~

Howell-442 (EX1012) →

EX1011 →

U.S. Patent No. 7,806,525 Pub. No. 2007/0030442 Appl. Serial No. 11/546,685	Issued 10-5-2010 Published 2-8-2007 Filed 10-11-2006
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CIP

U.S. Patent No. 7,500,747 Appl. Serial No. 11/183,256	Issued 3-10-2009 Filed 7-15-2005
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The '2901 patent purports to claim priority, through several continuations, to the '685-Application (EX1011), filed October 11, 2006. 1:19-22. Via the '685-Application, the '2901 patent purports to claim further priority to Serial No. 11/183,256 ("256-Application") as a continuation-in-part. 1:23-27. Further, the '2901 patent purports, via the '685- and '256-Applications, to claim priority to several provisional applications (not shown above). 1:58-2:24.

But because the '685-Application fails to provide written description support for the '2901 patent's claims, priority to the '685-Application is not available. *Lockwood*, 107 F.3d at 1571. This break in priority is shown above with a red "X." The break also rules out priority to any earlier application, such as the '256-Application. *Hollmer v. Harari*, 681 F.3d 1351, 1355 (Fed. Cir. 2012). Indeed, the next application in the family, Serial No. 12/803,732 ("732-Application"), does not purport to claim priority directly to the '256-Application, nor could it since the '732- and '256-Applications were never co-pending. 35 U.S.C. § 120; *Encyclopedia Britanica, Inc. v. Alpine Elecs. of Am., Inc.*, 609 F.3d 1345, 1350 (Fed. Cir. 2010).

Thus, the '2901 patent's earliest possible priority date is July 1, 2010: filing of the '732-Application. This makes the publication of the '685-Application ("Howell-442," EX1012) prior art under pre-AIA 35 U.S.C. §102(b) because it published in 2007, over a year before the '732-Application's filing.

a. The '685-Application Fails to Support the '2901 Patent Claims Because It Fails to Disclose a Controller Configured to Present a “Portion” or “Notification” of a Text Message to the User, and It Improperly Attempts to Incorporate by Reference the Relevant Matter from Provisional or Unpublished Applications

Each of the challenged independent claims (1, 10, 31, 32) claim a “*headset*” or “*wearable device*” with a “*controller...configured*” to perform specific functions including either presenting a portion or notification of a text message to the user.

In the '2901 patent, this functionality is described in Figure 30 (*e.g.*, step 3610, “DISPLAY THE INCOMING TEXT MESSAGE”) and 45:34-37 (“Tom is alerted by his mobile phone of an incoming text message, such as by displaying at least a portion of the text message and/or otherwise notifying Tom of the text message.”). However, none of this functionality is disclosed in the '685-Application. Indeed, the only “messages” discussed in the '685-Application are “voice” or “audio” messages. EX1011, [000106], [000153], [000197], Fig. 16; DeJaco-Decl., ¶¶44-47. The word “text” appears nowhere in the '685-Application. Thus, the '685-Application lacks §112 support for the '2901 patent’s text message-related claim limitations. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc) (to comply with §112, a specification must “clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed”).

Patent Owner may argue that the '685-Application incorporates by reference other applications that include this disclosure, namely provisional application Serial No. 60/527,565 ("'565-Provisional") and non-provisional application Serial No. 11/006,343 ("'343-Application").

The '685-Application asserts priority to the '565-Provisional and further asserts that it is "related" to the '343-Application without claiming priority.⁶ EX1011, [0001], [0004]. The '685-Application also purports to incorporate both of these applications by reference. *Id.* However, these attempted incorporations by reference are ineffective as a matter of law.

With respect to the '565-Provisional: incorporation by reference of provisional applications is never permitted to provide §112 support for claimed subject matter ("essential matter"). Essential matter can only be incorporated by reference from a U.S. patent or a published U.S. patent application. 37 C.F.R. §1.57(d); *ZTE (USA), Inc. v. CyWee Grp. Ltd.*, IPR2019-00143, Paper 87, 116 (Feb. 17, 2021).

⁶ For instance, the '685-Application does not claim priority to the '343-Application.

With respect to the '343-Application: Patent Owner, which pursued a deliberately obfuscating strategy in developing its patent portfolio, drafted the '685-Application to refer to the '343-Application only by application serial number. EX1011, [0004]. Before the '685-Application's filing on October 11, 2006, the '343-Application had already published (EX1023), and had issued as U.S. Patent No. 7,116,976 (EX1016). Patent Owner could have complied with Rule 1.57(d)'s requirements for incorporation by reference of the subject matter contained in the '343-Application by incorporating the corresponding published application or issued patent, but chose not to.

USPTO rules like 37 C.F.R. §1.57(d) are intended to ensure the public (and patent examiners and judges) can readily understand the disclosures and priority relationships of patent applications to evaluate compliance with 35 U.S.C. §120. “[E]xaminers and adjudicators cannot be expected to scrutinize the prosecution history of...each parent application to determine whether the application would have met §120's requirements...” *Natural Alternatives*, 904 F.3d at 1380; *see also Droplets*, 887 F.3d at 1317 (Fed. Cir. 2018) (“Congress may well have thought that Section 120 was necessary to eliminate the burden on the public to engage in long and expensive search of previous applications in order to determine the filing date of a later patent.”).

As discussed above, §120 requires consistent written description support, throughout a priority chain, for the claims of any patent that claims earlier priority via that chain. *Lockwood*, 107 F.3d at 1571. Therefore, patent owners are expected to draft their patents' specifications in a way that allows members of the public to evaluate written description support and determine priority, "with a minimum of effort." *Droplets*, 887 F.3d at 1317. Allocating to the patentee responsibility for making priority claim compliance straightforward to evaluate "eliminates the inefficiencies associated with having the public expend efforts to unearth information when such information is readily available to the patentee." *Medtronic CoreValve, LLC v. Edwards Lifesciences Corp.*, 741 F.3d 1359, 1366 (Fed. Cir. 2014).

Here, Patent Owner took the opposite approach, making it exceptionally difficult to determine the disclosures of the specifications of the applications in the priority chain by (1) disclosing only a portion of the subject matter in the specifications themselves, (2) purporting to incorporate numerous other patent applications by reference, and (3) amending the specifications to selectively include subsets of the incorporated subject matter that vary between the applications in the chain. Thus, the specifications have vastly different disclosures. For example, the '685-Application (EX1011) and Application Serial Nos. 12/803,732 (EX1017) and 13/831,445 (EX1018) each have 40 figures numbered 1-24, but Serial No.

16/429,181 (EX1019) has 47 figures numbered 1-31, and the '2901 patent (EX1001) has 84 figures numbered 1-61.⁷

This non-uniformity in disclosures contradicts the characterization of these applications as “continuations,” since the specifications of continuations must be the same. *Tech. Licensing Corp. v. Videotek*, 545 F.3d 1316, 1321 n. 2 (Fed. Cir. 2008) (“a continuation contains the same disclosure found in an earlier application”).

The Patent Statute permits incorporation by reference, which can be used to help match the disclosures of continuation patent applications. However, in view of the public policy imperatives discussed above—particularly the importance of avoiding inconvenience to the public in understanding the disclosures and priority dates of patent applications—the USPTO has enacted strict rules limiting how incorporation by reference may be used.

37 C.F.R. §1.57 distinguishes between “essential” and “non-essential” material. Essential material is, *inter alia*, material needed to provide a written description of the claimed invention. *Id.*, §1.57(d). Non-essential material is any material not defined as essential material. *Id.*, §1.57(e). The USPTO allows essential material to be incorporated by reference *only* from “a U.S. patent or U.S. patent application publication.” *Id.*, §1.57(d).

⁷ Some figures have multiple sub-figures.

The logic and importance of this rule are clear from the precedent cited above. Unlike issued patents and published patent applications, which are readily accessible through USPTO and third-party databases, pending patent applications and provisional applications require additional effort to obtain. Even today, pending patent applications and provisional applications are accessible only through USPTO Patent Center, a specialized database that requires knowledge of patent procedure to navigate. Congress and the Federal Circuit have emphasized that this kind of effort should not be required for the public to understand patents' disclosures and priority. 69 F.R. 56482-01 (Sept. 21, 2004) ("Where the incorporation is from an unpublished application that has not issued as a patent, such application may not be readily available and thus would impair the public's access to the needed information."); *Medtronic*, 741 F.3d at 1366 (explaining the public should not be required to "expend efforts to unearth information when such information is readily available to the patentee"); *Droplets*, 887 F.3d at 1317 (explaining the "patentee is the person best suited to understand the genealogy and relationship of her applications, and a requirement for her to clearly disclose this information should present no hardship") (cleaned up).

"[P]atent draftsmanship is an exacting art, and no less care is required in drafting an incorporation by reference statement than in any other aspect of a patent application." *Zenon*, 506 F.3d at 1382 n.3.

As discussed above, the '685-Application contains no text message-related disclosures, and thus could only support the '2901 patent claims based on essential material it attempts, contrary to Rule 1.57(d), to incorporate by reference from the '565-Provisional and the '343-Application. The Board has consistently denied attempts to incorporate essential material by reference from provisional applications and non-provisional applications identified only by serial number.

For instance, in *Hulu, LLC v. SITO Mobile R&D IP, LLC*, IPR2021-00304, Paper 30 (PTAB May 17, 2022), intermediate applications in a priority chain attempted to incorporate essential matter contained in an earlier non-provisional application (“the '519 Application”), referencing it only by serial number. The Board found the attempted incorporation failed Rule 1.57(d) because “the '519 Application has not been shown to be (and indeed is not) either a U.S. Patent or U.S. Patent application publication.” *Id.* at 56. On appeal, the Federal Circuit affirmed. Fed. Cir. Appeal Nos. 2022-1990, 2022-1991 (Fed. Cir. Apr. 5, 2024).

The Board reached the same conclusion in *SharkNinja Operating LLC v. iRobot Corp.*, IPR2020-00733. Incorporating by reference a non-provisional application identified by serial number was “not effective as regards essential matter” because “essential matter may only be incorporated by reference by way of a U.S. patent or U.S. patent application publication.” *SharkNinja*, Paper 31 at 19 (Oct. 4, 2021) (cleaned up).

The same is true for provisional applications. *E.g.*, *ZTE*, Paper 87 at 116 (final written decision: incorporation by reference of provisional application ineffective “[b]ecause a U.S. provisional application is not a ‘U.S. patent or U.S. patent application publication.’”); *NRG Energy, Inc. v. Midwest Energy Emissions Corp.*, IPR2020-00928, Paper 17 at 23-24 (Dec. 2, 2020) (institution decision: citing Rule 1.57 and concluding that incorporation by reference of provisional application “cannot cure the deficiencies” in ancestor applications lacking §112 support); *Ex Parte Rzigalinski*, 2020 WL 2617538, *3 (PTAB May 19, 2020) (affirming written description rejection: “The instant Specification does not refer to the U.S. patent application *publication* number, but only to the application serial number, and therefore does not comply with 37 C.F.R. §1.57(d).”) (emphasis in original).

The Board should likewise find that Patent Owner’s attempt to incorporate essential text messaging subject matter into the ’685-Application from the ’565-Provisional and/or the ’343-Application is ineffective. Because the ’685-Application thus fails to support the ’2901 patent claims—which require the text messaging functionality—the ’2901 patent’s earliest priority date is July 1, 2010.

b. The Board May Also Find that the ’685 Application’s Attempts to Incorporate Text Message Disclosure Lack Sufficient Particularity

The Federal Circuit has explained that “[t]o incorporate material by reference, the host document must identify with detailed particularity what specific material it

incorporates and clearly indicate where that material is found in the various documents.” *Advanced Display Sys. v. Kent State Univ.*, 212 F.3d 1272, 1282 (Fed. Cir. 2000). Such detail is particularly important here since the ’2901 patent confusingly relies so extensively on incorporation-by-reference. *Supra* §IV.D.3.a.⁸

The ’685-Application’s incorporation-by-reference statements for the ’565-Provisional and ’343-Application are generic and fail to provide the “detailed particularity” required by *Advanced Display*. EX1011, [0001], [0004]. Thus, under *Advanced Display*, the charging apparatus disclosures of these applications are not incorporated into the ’685-Application, providing an independent reason why the ’2901 patent cannot claim priority to the ’685-Application, making July 1, 2010 the ’2901 patent’s earliest possible priority date.

V. CLAIM INTERPRETATION

Claim terms are construed according to their ordinary meaning in light of the specification and prosecution history. 37 C.F.R. §42.100(b).

⁸ Cases finding generic incorporation statements sufficient, like *Paice LLC v. Ford Motor Co.*, 881 F.3d 894, 907 (Fed. Cir. 2018), are thus distinguishable.

VI. UNPATENTABILITY GROUNDS

A. **Ground 1: Howell-442, Incorporating or in Combination With Its Incorporated Applications, Renders Claims 1-32 Unpatentable**

As explained above, Howell-442 is prior art under pre-AIA 35 U.S.C. §102(b). *Supra* §§III, IV.D.3.

Howell-442 (EX1012) is the publication of the '685-Application (EX1011). As explained above (*supra* §IV.D.3.a.) Rule 1.57(d) precludes the '685-Application from incorporating by reference essential material in provisional and non-published applications to support the '2901 patent's claims. However, documents, including patent publications, used as *prior art*, are not subject to Rule 1.57(d)'s requirements, and thus may render challenged claims unpatentable in part via disclosure in patent applications they identify by serial number for incorporation by reference—including provisional applications *E.g.*, *Novartis Pharms. Corp. v. Shilpa Pharma, Inc.*, IPR2022-00886, Paper 75, 70 (PTAB Sept. 29, 2023) (“Rule 1.57 is not applicable to references that are alleged to be anticipatory that incorporate by reference material in other printed publications.”); *Willis Elec. Co. v. Polygroup Macau Ltd.*, 777 F. App’x 495, 497 n.1 & 501 (Fed. Cir. 2019) (relying on disclosure from incorporated provisional application in obviousness analysis); *Konda v. Flex Logix Tech.*, 2022 WL 1436144, *3 (Fed. Cir. May 6, 2022) (affirming Board’s determination that claims were unpatentable over reference that incorporated

provisional patent application by reference). As a prior art reference, Howell-442 includes the text messaging notification disclosure in the incorporated '343-Application and '565-Provisional—and anticipates, as well as renders obvious, every claim of the '2901 patent.

Incorporated-by-reference applications, including provisionals, are part of the prior art reference into which they are incorporated, and they also qualify as prior art of their own accord when the incorporating reference publishes. *Flex Logix Tech. v. Konda*, IPR2020-00260, Paper 22, 15-16 (PTAB Aug. 3, 2020) (Per 37 C.F.R. §1.14(a)(1), provisional application became a prior art reference upon publication of the incorporating it), *aff'd*, 2022 WL 1436144; *see also In re Riggs*, 131 F.4th 1377, 1385 (Fed. Cir. 2025) (“Provisional applications become public when the corresponding non-provisional application publishes or the patent issues.”).

Howell-442 contains disclosure matching, almost identically, much of the text and many figures of the '2901 patent. *Compare* EX1012, [0045]-[0212], Figs. 1-24 *with* EX1001, 9:48-36:4, Figs. 1-24. The remaining portions of the '2901 patent's disclosure relevant to supporting its claims are found in the following applications Howell-442 incorporates by reference (*see* Howell-442, [0001], [0004]): 60/583,169 (“'169-Provisional”), 11/183,262 (“'262-Application”), 11/006,343 (“'343-Application”) and 11/183,283 (“'283-Application”) (collectively, the “Incorporated Applications”).

The chart below maps Howell-442 and the Incorporated Applications to the challenged claims. *See also* DeJaco-Decl., ¶¶66-96. The disclosures are nearly identical to the challenged claims and/or to the disclosures in the '2901 patent that purportedly support its claims (identified for comparison). *Reckitt*, IPR2017-00066, Paper 35, 16 (“Petitioner’s citations to portions of the ’384 publication disclosing each claim element, in essentially identical terms, is sufficient to satisfy its burden to show by a preponderance of the evidence that the challenged claims are anticipated.”). Patent Owner cannot in good faith dispute that the claim limitations are satisfied. *Id.*, at 5-6.

The Incorporated Applications are part of Howell-442 and also became independent prior art references when Howell-442 published. *Flex Logix*, Paper 22, 15. Including the Incorporated Applications, Howell-442 anticipates, and at least renders obvious, the challenged claims as detailed below. Under *Advanced Display*, which requires “detailed particularity” in the incorporation-by-reference statement, *see supra* §IV.D.3.b, then the challenged claims are also obvious, for the same reasons, over Howell-442 in combination with the Incorporated References as independent prior art references.

POSAs would be motivated to combine Howell-442 with each of the Incorporated References because Howell-442 explicitly identifies each of the Incorporated References. *See* Howell-442, [0001], [0004]. Thus, POSAs would

naturally look to these references when considering modifications to the eyeglasses disclosed by Howell-442. DeJaco-Decl., ¶¶56-57.

Further, like Howell-442 (and the '2901 Patent) each of the Incorporated References are similarly directed to eyeglasses with a speaker and other electronic components, and thus POSAs would be motivated to combine these components in the Howell-442 glasses and would have a reasonable expectation of success in doing so. *See* EX1025, §A, ¶¶[0001], [0004]; EX1013, [0004], [0012]-[0013]; EX1014, [0002]-[0003], [0093], [0095]; EX1015, [0004], [0012], [0050]-[0051]; DeJaco-Decl., ¶¶58-64.

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
Claim 1		
[1PRE]: A wireless headset for a user comprising:	<u>Howell-442</u> “[T]he glasses can be a cell phone wireless head set, such as a Bluetooth cordless headset.” EX1012, [0120]; <i>see also</i> [0123], [0136], [0189], [0198].	20:29-33; 20:60-62; 22:33-35; 31:39-41; 32:58-59.
[1A]: printed circuit board provided in the headset, the printed circuit board having at least one electrical component attached thereon, the at least one electrical component being electrically connected to a plurality of other electrical components, each of the	<u>Howell-442</u> “[T]here can be one or more circuit boards in the glasses.” EX1012, [0066]. Howell-442 discloses a processor 608 (electrical component) electrically connected to other electrical components, <i>e.g.</i> , antenna, transceiver circuits, memory, speaker, and	10:13-46; 11:12-25; 11:47-55; 12:5-26; 19:16-48; 36:5-9; 73:11-14;

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
plurality of other electrical components being provided at least partially in the headset;	microphone. EX1012, [0110]-[0113], Fig. 11A. Howell-442 discloses that each of these electrical components (including the processor 608) can be on “circuit boards in the glasses.” EX1012, [0066], [0202] (“A number of electrical components have been described. They can be on circuit boards.”); <i>see also</i> [0048]-[0050], [0058]; [0062], [0065]-[0067]. Placing these components on a printed circuit board in the glasses would also be obvious in view of the '169-Provisional either as part of Howell-442 or as separate references. EX1025, §C, ¶[0072]; DeJaco-Decl., ¶66.	
[1B]: a speaker in the headset;	<u>Howell-442</u> EX1012, [0046]-[0047] & Fig. 1 (speaker 102); <i>see also</i> [0013], [0106], [0114], [0189], [0198].	7:3-4; 9:64-10:12; 18:39-42; 19:49-65; 31:39-48; 32:58-33:4; Fig. 1
[1C]: a microphone in the headset;	<u>Howell-442</u> EX1012, [0103]-[0106] & Fig. 1 (microphone 110); <i>see also</i> [0122]-[0123], [0189], [0198].	18:24-42; 20:38-62; 31:39-48; 32:58-33:4; Fig. 1

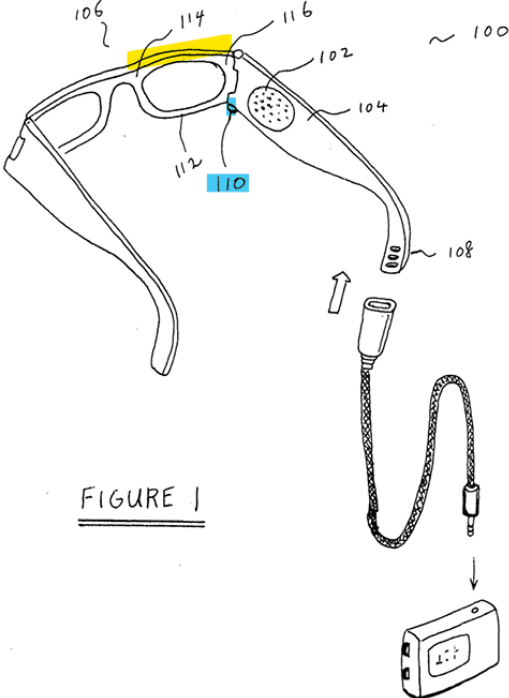
Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
[1D]: wireless communication circuitry,	<u>Howell-442</u> “In FIG. 11A, a high frequency or RF antenna 602 wirelessly captures high frequency or RF signals for RF transceiver circuits 604.” EX1012, [0110]; <i>see also</i> [0109] (glasses can wirelessly “couple to Bluetooth network, the Internet, a WiFi network”); [0111-0114]. DeJaco-Decl., ¶66. Including wireless communication circuitry would also be obvious in view of the '262-Application either as part of Howell-442 or as separate references. DeJaco-Decl., ¶66. <u>'262-Application</u> “[D]eactivation 324 can...sleep the wireless communication capabilities (e.g., circuitry) of the glasses.”) EX1013, [0131].	18:63-19:65; 61:65-62:2
[1E]: wherein the at least one electrical component or the plurality of other electrical components include at least a controller,	<u>Howell-442</u> EX1012, [0110]-[0111], Figs. 11A-11B (“processor 608”). POSAs would understand processor 608 is a “controller.” EX1012, [0092]; DeJaco-Decl., ¶66.	16:40-42; 19:16-34; Figs. 11A-11B
[1F]: wherein the at least a controller is configured to facilitate modifying power within a range of frequencies based on at least one hearing characteristic of the user,	<u>'262-Application</u> “The electrical components enhance audio signals, such as audio signals received by a microphone at the glasses. Then the enhanced signals are sent to the speakers for the user to hear....[T]he processor, using digital	56:53-59:26

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
to help the user hear audio outputs presented to the user via at least the speaker,	signal processing techniques, operates on the digitized signals, such as boosting specific frequency bands.” EX1013, [0099] “[A]mplification across frequencies is tailored to the hearing needs of the user.” EX1013, [0107]. <i>See also</i>, EX1013, [0099]-[0115]. It would be obvious to configure Howell-442’s processor 608 to boost specific frequencies, to benefit a user’s hearing, in view of the ’262-Application either as part of Howell-442 or as a separate reference. DeJaco-Decl., ¶66.	
[1G]: wherein the wireless communication circuitry is configured to wirelessly receive a message,	<u>Howell-442</u> <i>See</i> [1D] (<i>e.g.</i>, transceiver circuit 604). “messages are wirelessly transmitted to and received 856 by the glasses.” EX1012, [0153], Fig. 16.	25:1-4;
[1H]: wherein if the message is a text message, the at least a controller is configured to have at least a portion of the text message presented to the user,	<u>'343-Application</u> “[I]ncoming text message can be presented to the recipient with an audio or textual presentation.” EX1014, [0067]; <i>see also</i>, [0080]-[0082]. Either as part of Howell-442 or as a separate reference, it would have been obvious in light of the ’343-Application for POSAs to configure processor 608 to present at least a	19:16-34; 43:6-16; 45:29-37

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
	portion of a received text message to the user through audio as processor 608 is already used in generating audio outputs (<i>see</i> EX1012, [0110]-[0111]). DeJaco-Decl., ¶66.	
[1I]: wherein if the message is an audio message, the at least a controller is configured to have at least a portion of the audio message presented to the user, and	<u>Howell-442</u> “The speaker in the glasses outputs 858 the messages...” EX1012, [0153]; <i>see also</i> Fig. 16 (step 858); [0110]-[0111], Fig. 11A (processor 608).	19:16-34; 25:1-4; Figs. 11A, 16
[1J]: wherein at least the speaker is configured to present at least a portion of the message, when the at least a portion of the message is to be presented in an audio manner.	<i>See</i> [1H]-[1I].	
[2] A wireless headset as recited in claim 1 comprising an accelerometer.	<u>Howell-442</u> EX1012, [0160] (“accelerometer” in glasses).	25:57-61
[3] A wireless headset as recited in claim 1 comprising a first connector that includes a plurality of conductive pads that are configured to couple with a second connector external to the headset, wherein each of the conductive pads is configured to be in contact	<u>Howell-442</u> “‘There can be one or more electrically-conductive contacts, such as 304 and 306, on one or both of the flat surfaces of the temple.’ EX1012, [0064]; Fig. 5. “FIG. 6B shows...364 and 366, are...the metal contacts in the female connector 310.” EX1012, [0069]; Fig. 6B	11:66-12:4; 12:42-51; 12:58-61; Figs. 5, 6B

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
with a corresponding metallic contact of the second connector when the first connector is connected to the second connector.	“Referring to both FIG. 5 and FIG. 6B, when the male connector 300 is inserted into the slot 314 of the female connector 310, the metal pads, 304 and 306, will get in contact, or mate, with the metal sheets, 364 and 366.” EX1012, [0071].	
[4] A wireless headset as recited in claim 1, wherein the wireless communication circuitry is configured to couple to at least a Bluetooth network.	<u>Howell-442</u> EX1012, [0109] (“The glasses...can be used to couple to a Bluetooth network...”). <i>See also</i> [1D].	19:2-5
[5] A wireless headset as recited in claim 1, wherein the at least a controller is configured to facilitate voice recognition, including facilitating recognizing at least a word received via at least the microphone in the headset.	<u>Howell-442</u> “In one embodiment, a pair of glasses ...[includes] a microphone and voice recognition software. The user can indicate his preference vocally.” EX1012, [0125]; <i>see also</i> [0094], [0119]. <u>'262-Application</u> “The glasses are trained to recognize specific recitation, such as specific sentences or phrases, and/or the user's voice.” EX1013, [0117]. To the extent these are different references, it would also be obvious to facilitate recognizing words in view of the '262-Application. DeJaco-Decl. ¶71.	16:63-17:11; 20:22-38; 21:1-18; 59:34-41

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
[6] A wireless headset as recited in claim 1, wherein the headset includes at least an ear bud configured to be placed in an ear of the user.	<u>Howell-442</u> “[I]n one approach, there is a plug 156 at the end of the tube for inserting into an ear of the user. The plug can be an ear bud.” EX1012, [0057]; <i>see also</i> [0195], [0211].	11:7-11; 32:28-32; 35:25-63
[7] A wireless headset as recited in claim 1, wherein at least the microphone in the headset is configured to receive an audio response for the message from the user.	<u>'343-Application</u> The '343-Application discloses a user providing, via a microphone, a reply audio message to a received text message. EX1014, [0080]-[0085]; <i>see also</i> [0093], claim 27. Using the headset's microphone (<i>see</i> [1C], [5]) in Howell-442's eyeglasses to receive a spoken response from the user (<i>see</i> [1G]-[1I]) would have been obvious in view of the '343-Application either as part of Howell-442 or as a separate references. DeJaco-Decl., ¶¶73-74.	45:29-64; 46:55-67
[8] A wireless headset as recited in claim 7, wherein the at least a controller is configured to facilitate converting the audio response into text to be wirelessly transmitted.	<u>'343-Application</u> “If an audio message is initially created, such audio message must be converted to a text message prior to transmission.” EX1014, [0084]; <i>see also</i> EX1014, [claims 27-28]. Either as part of Howell-442 or as a separate reference, conversion of the audio response into text before wirelessly transmitting it would be obvious in view of the '343-Application. DeJaco-Decl., ¶75.	45:46-57

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
[9] A wireless headset as recited in claim 1, wherein wireless headset comprises another microphone, wherein the microphone is configured to be located closer to mouth of the user than the another microphone when the headset is worn by the user, wherein at least the another microphone is configured to capture at least ambient noise, and wherein at least a portion of signals from the microphone is configured to be reduced based on signals from the another microphone at least for reducing at least a portion of the ambient noise in signals from the microphone.	<u>Howell-442</u> “[T]he glasses include two microphones. One microphone is for capturing the voice of the user...It can be embedded in a protrusion extending from the end of the temple close to a lens holder, towards the mouth of the user, as the microphone 110 in FIG. 1. Another microphone can be located at the top of one of the lens holders pointing away from the mouth of the user. This microphone is for capturing ambient noise...outputs from the two microphones could be subtracted from each other to provide voice signals with noise reduced.” EX1012, [0122].  EX1012, Fig.1, (annotated: first microphone 110 (blue); second microphone (yellow)).	20:38-50, Fig. 1

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
[10PRE] A wireless wearable device configured to secure to the head of a user, with the device proximate to at least one ear of the user to at least help the user hear, the wireless wearable device comprising:	<i>See</i> [1PRE], [1C], [1G], [6].	
[10A] ⁹	<i>See</i> [1A].	
[10B]	<i>See</i> [1B].	
[10C]	<i>See</i> [1C].	
[10D]	<i>See</i> [1D].	
[10E]	<i>See</i> [1E].	
[10F]	<i>See</i> [1F].	
[10G] wherein the wireless communication circuitry is configured to wirelessly receive a message from a mobile phone via at least a Bluetooth network,	<i>See</i> [1G], [4].	
[10H]	<i>See</i> [1H].	
[10I] wherein if the message is an audio message, the at least a controller is configured to have at least a notification	<i>See</i> [1I] (audio message). <u>Howell-442</u> “[T]he glasses also include a notification electrical component to provide a notification to the user	18:43-58; 41:53-55;

⁹ Claim language is not repeated if identical to claim language already addressed.

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
of the audio message presented to the user,	wearing the glasses. The notification can be to notify, alert or display information to the user.” EX1012, [0107]. <u>'262-Application</u> “There can be an operation indicator on the frame of the glasses to indicate that there is an incoming call. The indicator can be based on, for example, sound, light or vibration.” EX1013, [0125]. “The user of the glasses is then notified 310 of the incoming call.” EX1013, [0128]. <u>'343-Application</u> “2. Tom is alerted by his mobile phone of an incoming call.” EX1014, [0056]; <i>see also</i> [0082]. Given that the above disclosures mirror any disclosure by the '2901 patent regarding providing notifications of audio messages, POSAs would understand these disclosures as meeting the claimed limitation. POSAs would find it obvious to configure processor 608 (<i>see</i> [1E]) to provide a notification to the user in the manner described by the '262- and/or '343-Applications	45:34-37; 61:1-15; 61:33-46. ¹⁰

¹⁰ Note that these are the only “notifications” disclosed by the '2901 patent.

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
	either as part of Howell-442 or as separate references,. DeJaco-Decl., ¶77.	
[10J]	<i>See</i> [9].	
[10K]	<i>See</i> [9].	
[10L]	<i>See</i> [9].	
[10M]	<i>See</i> [9].	
[11] A wireless wearable device as recited in claim 10 comprising a storage medium configured to store at least computer program codes for facilitating voice recognition, wherein at least the microphone is configured to receive at least a word, with the at least a word recognized using at least the computer program codes for facilitating voice recognition.	<u>Howell-442</u> “In one embodiment of the invention, the glasses have a storage medium (i.e., memory).” EX1012, [0090]. “In one embodiment, a pair of glasses has access to voice recognition software. The software can be embedded in (a) the glasses...” EX1012, [0119]. <i>See also</i> [5]. POSAs would find it obvious to store the voice recognition software in the storage medium. DeJaco Decl., ¶78.	16:15-23; 20:22-28.
[12] A wireless wearable device as recited in claim 10 comprising an optical indicator configured to illuminate in a predetermined manner to provide an indication	<u>Howell-442</u> “[T]he glasses also include a notification electrical component to provide a notification to the user wearing the glasses...The display can be one or more light emitting diodes....” EX1012, [0107].	18:43-58; 58:61-65; 61:1-15

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
regarding a status of the wireless wearable device.	<u>'262-Application</u> “The glasses...can also periodically alert the user for re-calibration.” EX1013, [0112]. “There can be an operation indicator on the frame of the glasses to indicate that there is an incoming call....[T]he indication is based on light...” EX1013, [0125]. Using Howell-442’s optical indicator to indicate a status of the device would have been obvious in view of the '262-Application either as part of Howell-442 or as a separate reference. DeJaco-Decl., ¶¶79-80.	
[13] A wireless wearable device as recited in claim 10, wherein the wireless wearable device is configured to enable the user to receive and respond to the message hands-free, using at least the speaker and at least the microphone.	<i>See</i> [1B], [1C], [1G]-[1J].	
[14] A wireless wearable device as recited in claim 10 comprising a sensor configured to at least provide an indication regarding the wireless wearable device being used.	<u>Howell-442</u> “In one embodiment, the sensor is a “being worn” sensor. The ‘being worn’ sensor indicates whether the glasses are being worn by its user.” EX1012, [0159]; <i>see also</i> [0160]-[0163].	25:49-26:19

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
[15] A wireless wearable device as recited in claim 10 comprising a motion sensor.	<i>See</i> [2], [10].	
[16]	<i>See</i> [2], [10].	
[17] A wireless wearable device as recited in claim 10 comprising a touch-sensitive input surface configured to receive at least a touch input to generate at least an electrical signal for an operation of the wireless wearable device.	<u>Howell-442</u> “[T]he display is a touch-screen display, allowing entries to be entered directly on the display.” EX10012, [0094]; <i>see also</i> [0132]-[0136] (describing various “control knobs” to control operation of eyeglasses). <u>'283-Application</u> The '283-Application teaches “a switch” that “is at least partially embedded in the glasses” to, for example, “turn the speaker on, or to tune the frequency of a radio.” EX1015, [0074]. EX1015, [0082] (switch can be “turned on and off” based on change of capacitance when a user places a “finger over a metallic pad.”). EX1015, [0088]-[0091] (switch can be “two photodiodes or photo detectors” that detect whether they are covered by a finger and can thereby detect sliding movement). Either as part of Howell-442 or as a separate reference, it also would have been obvious to incorporate a touch-	17:8-11; 21:65-22:42; 47:64-48:5; 49:20-28; 50:3-63; 63:51-54.

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
	sensitive switch from the '283-Application. DeJaco-Decl., ¶¶85-86.	
[18] A wireless wearable device as recited in claim 17, wherein the touch input received at the touch-sensitive input includes a movement with a direction, and wherein the direction of movement is determined, with the operation of the wireless wearable device dependent on the determined direction.	<i>See</i> [17].	
[19] A wireless wearable device as recited in claim 10 comprising a pressure sensor.	<u>Howell-442</u> “The environmental sensor can sense...pressure...” EX1012, [0164]	26:20-24
[20] A wireless wearable device as recited in claim 19, wherein the pressure sensor includes a Hall-effect sensor.	<i>See</i> [19]. <u>'283-Application</u> EX1015, [0081] (Hall effect detector 254). Either as part of Howell-442 or as a separate reference, it would have been obvious to incorporate a Hall effect sensor from the '283-Application. DeJaco-Decl., ¶¶89-90.	49:4-19
[21]	<i>See</i> [3].	

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
[22] A wireless wearable device as recited in claim 10 comprising a display.	<u>Howell-442</u> EX1012, [0107] (listing several locations in the glasses for a display).	18:43-58
[23] A wireless wearable device as recited in claim 10 comprising a camera.	<u>Howell-442</u> “In one embodiment, the glasses further serve as a camera.” EX1012, [0137].	22:43-45
[24]	<i>See</i> [5], [10], [11], [13]	
[25]	<i>See</i> [3], [14], [17].	
[26]	<i>See</i> [23].	
[27]	<i>See</i> [3], [14], [19].	
[28]	<i>See</i> [17].	
[29]	<i>See</i> [2], [14], [22], [23].	
[30]	<i>See</i> [19].	
[31PRE]	<i>See</i> [10PRE].	
[31A]	<i>See</i> [1A].	
[31B]	<i>See</i> [1B].	
[31C]	<i>See</i> [1C].	
[31D]	<i>See</i> [1D].	
[31E]	<i>See</i> [11].	
[31F]	<i>See</i> [14].	
[31G]	<i>See</i> [19].	
[31H]	<i>See</i> [3].	
[31I]	<i>See</i> [11].	
[31J]	<i>See</i> [1E].	
[31K]	<i>See</i> [1F].	
[31L]	<i>See</i> [4].	

Claim/Limitation	Howell-442 and Incorporated References	'2901 Patent
[31M]	<i>See</i> [10H].	
[31N]	<i>See</i> [10I].	
[31O]	<i>See</i> [13].	
[31P]	<i>See</i> [9].	
[31Q]	<i>See</i> [9].	
[31R]	<i>See</i> [9].	
[31S]	<i>See</i> [9].	
[32PRE]	<i>See</i> [10PRE].	
[32A]	<i>See</i> [1A].	
[32B]	<i>See</i> [1B].	
[32C]	<i>See</i> [1C].	
[32D]	<i>See</i> [23].	
[32E]	<i>See</i> [15].	
[32F]	<i>See</i> [22].	
[32G]	<i>See</i> [1D].	
[32H]	<i>See</i> [1E].	
[32I]	<i>See</i> [1F].	
[32J]	<i>See</i> [1G].	
[32K]	<i>See</i> [10H].	
[32L]	<i>See</i> [10I].	
[32M]	<i>See</i> [13].	
[32N]	<i>See</i> [9].	
[32O]	<i>See</i> [9].	
[32P]	<i>See</i> [9].	
[32Q]	<i>See</i> [9].	

B. Ground 2A: Goh in view of Berger Renders Claims 1, 3-6, 7-11, 13, 21-22, and 24 Obvious.

1. Goh (EX1005)

Goh discloses a multifunctional wireless headset. Goh, Title, 5:11-12. The headset includes conventional electronic components like a speaker and a microphone, and it also includes a short-range wireless network interface, *e.g.*, Bluetooth, that allows the headset to communicate wirelessly with nearby devices. *Id.*, 3:28-29, 5:11-12, 9:18-20, 11:21-27, 17:26-18:2, 19:20-22, claim 1; DeJaco-Decl., ¶100. The headset also has a display. *Id.*, 13:4-11, 15:8-9, 16:15-25; FIG. 4; DeJaco-Decl., ¶¶101-102.

Among other things, the headset can function as “as a reader of written text messages like electronic mails or messages transmitted using the short message service (SMS).” *Id.*, 11:27-12:1; *see also* 11:21-12:4, 15:24-28, claim 7. The headset allows the user to send text messages too. *Id.*, 14:4-10. This text-messaging functionality—and other functionality—is depicted in Figure 2:

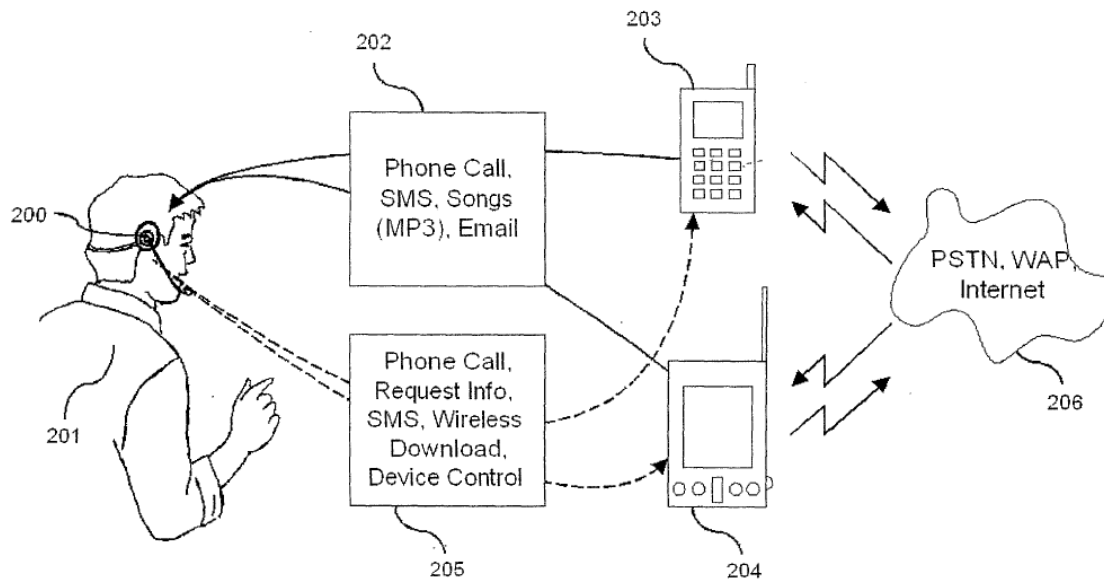


Figure 2

DeJaco-Decl., ¶103.

2. Berger (EX1020)

Berger integrates hearing-aid functionality into various electronic devices. Berger, Abstract; [0041]. An embodiment in which hearing-aid functionality is incorporated into a wireless headset is shown in Figure 6 ([0041]):

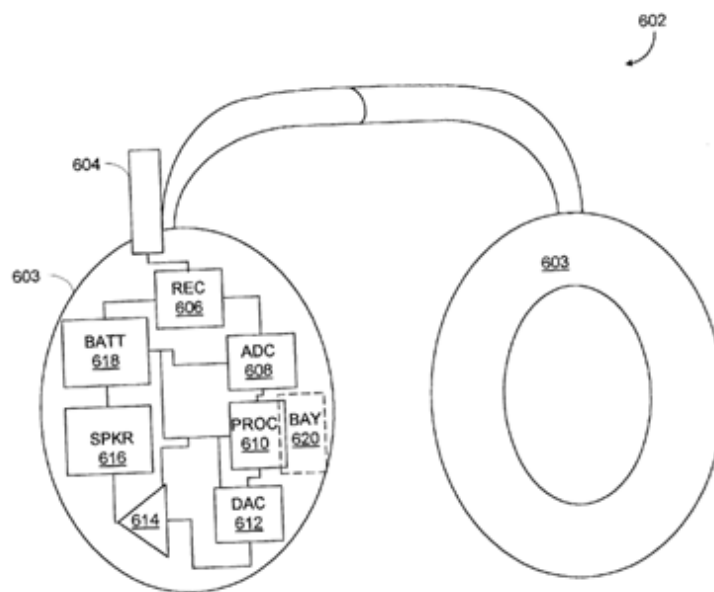


FIGURE 6

As seen above, Figure 6's headset includes various electronic components including a receiver 606 and a processor 610. *Id.*, [0041]. The wireless headset can be used with various electronic devices, including a television and/or cellphone. *Id.*, [0008]; [0039]; [0041]; DeJaco-Decl., ¶¶104-105.

Berger describes the functionality of its electronic components in the context of the handset shown in Figures 1 and 2A ([0017]-[0022]), but POSAs would have understood the components perform the same functionality in Figure 6's wireless headset, *e.g.*, processor 610 performs the same functions as processor 210, etc. DeJaco-Decl., ¶¶106-107.

The wireless headset's receiver "receives [a] digital wireless signal" picked up by antenna 604 and generates a digital audio signal that is transmitted to the

processor. *Id.*, [0018]; [0041]. “A user’s [hearing] prescription is programmed into” the processor, which “transforms the [digital audio] signal by applying a transfer function with more gain in the frequency ranges where the user has lost hearing.” *Id.*, [0019]; [0041]. The modified signal is then transmitted to digital-to-analog converter 612 where it is converted to an analog signal, amplified by an amplifier 614, and output by speaker 616. *Id.*, [0019]; [0041]; DeJaco-Decl., ¶108.

3. The Goh-Berger Combination

In view of Berger, POSAs had reason to implement Goh’s headset such that an individual’s hearing-aid prescription was programmed into Goh’s headset so that audio signals the headset outputs are modified—*e.g.*, certain frequency ranges are amplified—to account for a user’s hearing-impairment.

Berger explicitly motivates the combination as it teaches that while hearing-aids compensate for hearing deficits, such hearing-aids are not compatible with many electronic devices like wireless telephones. Berger, [0006]. Berger thus discloses a wireless headset that advantageously compensates for a user’s hearing impairment while also being compatible with electronic devices like wireless telephones. *Id.*, [0007]-[0008].

Implementing Goh’s headset to include Berger’s hearing-aid functionality would have also been the use of a known technique (Berger’s hearing-aid

functionality) to improve a similar device (a wireless headset) in a predictable manner. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416-417 (2007).

In the Goh-Berger combination, Goh’s headset would maintain its original functionality, but its “digital processing device 101” would be programmed with a user’s hearing-aid prescription. Berger, [0019] (“A user’s prescription is programmed into processor 210.”); Goh, 9:18-20 (“The headset circuit 100 comprises above all a digital processing device 101, which comprises a central processing unit 102 for processing binary data and an audio processing unit 103 for processing audio signals.”); *id.*, 9:23-10:16 (discussing various memory devices resident on Goh’s headset); *id.*, 9:17-18 (“The central processing unit 102 is able to manipulate the binary audio data for achieving an advanced audio processing.”). POSAs would have had a reasonable expectation of success in achieving the combination as Goh’s CPU (which is part of its digital processing device) performs “advanced audio processing,” including “audio signal amplifying” (*id.*, 10:17-29), and therefore only routine software programming would be needed for Goh to amplify audio signals based on a user’s hearing-aid prescription. DeJaco-Decl., ¶¶109-114.

4. Claim 1

a. [1PRE]

The Goh-Berger combination uses Goh's headset which is "a digital wireless headset for multifunctional usage," and which includes "at least one speaker" for playing an "audio signal," *e.g.*, for "a phone call" or "music." Goh, 5:11-25; *see also id.*, Abstract, 7:27-8:10 (explaining that the "headset...is arranged to work as an audio player, *e.g.*, a MP3 player, which is able to play music" stored in or wirelessly transmitted to the headset), 11:1-10, 14:4-10, 18:3-7, FIG. 4.; DeJaco-Decl., ¶115.

b. [1A]: "printed circuit board provided in the headset... having at least one electrical component attached thereon, the at least one electrical component being electrically connected to a plurality of other electrical components..."

Goh's headset includes a "headset circuit 100" that contains, *inter alia*, a "central processing unit." Goh, 9:18-20. Goh's central processing unit is "*at least one electrical component.*"

As of 2004, most consumer electronic products, *e.g.*, wireless headsets, used printed circuit boards (PCBs) to organize, secure, and electronically connect an electrical component like Goh's CPU with other electrical components on the board. DeJaco-Decl., ¶¶118-119 (citing, *e.g.*, EX1029 and EX1030 as corroboration). The process for manufacturing and assembling PCBs is often automated which allows

them to be mass produced quickly and cost effectively, making their use an ideal design choice for consumer electronics like headsets. DeJaco-Decl., ¶¶119, 124.

Given their background knowledge, POSAs would have understood Goh's "central processing unit" and various other electrical components were affixed to a PCB and electronically connected to one another via copper traces or similar conductive pathways. DeJaco-Decl., ¶¶120-125. Alternatively, implementing Goh's headset to use a PCB to organize, secure, and electronically connect Goh's various electronic components would have a routine design choice for POSAs to pursue given their background knowledge regarding the ubiquitous use of PCBs in consumer electronics. DeJaco-Decl., ¶¶122-123.

Goh's "central processing unit...is connected to" various other electronic components including Goh's "*audio processing unit*," its "*memory device[s]*," and its "*short-range wireless network interface*." Goh, claim 1. Each of these other components is "*provided at least partially in [Goh's] headset*." *Id.*, FIG. 4 (depicting headset).

c. [1B]: "a speaker in the headset;"

Goh's headset includes a "*speaker*." Abstract; *see also* 5:18-22, 11:3-5, claim 1, FIG. 1 (element 110), FIG. 4 (elements 408, 409); DeJaco-Decl., ¶126.

d. [1C]: “a microphone in the headset;”

Goh’s headset includes a “*microphone*.” Goh, Abstract, 8:11-13, 11:3-5, 11:11-14, 16:15-17, FIG. 1 (elements 111), FIG. 4 (element 412), FIGS. 5-6; claim 1; DeJaco-Decl., ¶127.

e. [1D]: “wireless communication circuitry”

Goh’s headset includes a “short-range wireless network interface [that] connects the headset via a short-range wireless network communication, e.g. a Bluetooth™ network communication, with the surrounding communication devices.” Goh, 7:9-15; *see also id.*, 1:19-2:5 (describing prior-art Bluetooth headsets), 13:13-16, 14:27-15:6. Preferably, the network interface comprises a “Bluetooth™ transceiver, which is electrically coupled to an antenna.” *Id.*, 11:21-27; DeJaco-Decl., ¶128.

f. [1E]: “wherein the ... other electrical components include at least a controller,”

As discussed for [1A], Goh’s headset, which is used in Goh-Berger, includes a “central processing unit.” *Supra* VI.B.4.b. Goh’s CPU controls the headset’s functionality and is thus “*a controller*.” Goh, 9:23-10:5, 10:17-29, 11:14-17, 12:3-4, 12:7-10, 13:4-8, claims 1, 4 (reciting the CPU as controlling various system components); DeJaco-Decl., ¶129.

g. [1F]: “...controller is configured to facilitate modifying power within a range of frequencies based on at least one hearing characteristic of the user...”

In the Goh-Berger combination, Goh’s CPU—*i.e.*, “*the controller*”—has been programmed with a user’s prescription, which POSAs knew would identify the amount of amplification needed to account for a user’s unique hearing impairment, *i.e.*, “*at least one hearing characteristic of the user*,” and uses that user-specific prescription to “transform[] an electrical signal to compensate for a hearing impairment.” Berger, Abstract; *see also id.*, [0003], [0019], [0021], claim 1; DeJaco-Decl., ¶130.

The processor “transforms the signal by applying a transfer function with more gain [*i.e.*, more power] in the frequency ranges where the user has lost hearing” (*id.*, [0019]), and therefore the processor is “*configured to facilitate modifying power within a range of frequencies based on at least one hearing characteristic of the user*.” *See also* Berger, [0003] (explaining hearing aids “can often be programmed to remedy a specific pattern of frequency loss specified by a user’s prescription”). The modified audio signal is then output via Goh’s speakers for the user. Goh, 5:18-22, 9:18-20, 11:1-10, 12:7-10, 12:20-23; DeJaco-Decl., ¶¶131-132.

h. [1G]: “...configured to wirelessly receive a message,”

As discussed for [1D], Goh’s headset includes a “*short-range wireless network interface*,” *e.g.*, a Bluetooth transceiver and antenna, that enables the

headset to connect with nearby communication devices such as a mobile phone or a personal digital assistant (PDA). *See* Goh, 13:12-14:3 (describing headset as in communication with a mobile phone and/or PDA), FIG. 2, claims 6-7.

Using its wireless interface, Goh's headset can be used "as a mobile phone, as a walkie-talkie, as a reader of written text messages like electronic mails or messages transmitted using the short message service (SMS)." Goh, 11:21-12:4. For example, Goh's headset can "read an email" that the headset "received" via its wireless connection with a PDA. *Id.*, 13:18-22. Likewise, Goh's headset can receive audio, *e.g.*, a telephone conversation, via its wireless connection with a mobile phone. *Id.*, 13:13-16. Goh's wireless network interface is therefore "*configured to wirelessly receive a message,*" *e.g.*, an audio message, an email, or an SMS message; DeJaco-Decl., ¶¶134-135.

- i. **[1H]: "wherein if the message is a text message, the at least a controller is configured to have at least a portion of the text message presented to the user,"**

Goh teaches that if the message its headset receives is an email message or a SMS text message, *i.e.*, either "*a text message,*" then Goh's CPU is configured to have the message "read to the user," *i.e.*, "*presented to the user.*" Goh, 13:18-22; *see also id.*, 11:27-12:3 (describing the headset as a "reader of written *text messages* like electronic mails or messages transmitted using the short messages services (SMS)...I "); *see also* EX1001, 36:50-54 (identifying e-mail as using a "messaging

protocol” similar to “short messages,” *i.e.*, SMS messages); DeJaco-Decl., ¶¶136-137.

- j. **[1I]: “wherein if the message is an audio message, the at least a controller is configured to have at least a portion of the audio message presented to the user, and”**

As discussed for [1G], Goh’s headset can be “arranged to work as a mobile phone.” Goh, claim 7. To do so, Goh’s headset either communicates (*e.g.*, via Bluetooth) with a nearby mobile phone or the headset itself performs the functionality of a mobile phone. *Id.*, 8:3-4 (“[T]he headset may alternatively or additionally provide the functions of a mobile phone.”); 11:27-28 (“The deployed short-range wireless communication technology enables the user of the headset to use the headset as a mobile phone...”); 13:13-15 (“[T]he headset 200 is worn and used by a user 201 who, for instance, makes a phone call...via a surrounding mobile phone 203 which comprises a short-range wireless communication interface”). DeJaco-Decl., ¶¶138-139.

As of 2004, POSAs would have known that mobile phones include the ability for calling parties to leave an audio message (a.k.a. a voicemail) and for the called party to access those messages for later playback. DeJaco-Decl., ¶140 (citing EX1031-EX1033 as corroboration). POSAs would thus have understood Goh’s disclosure that its headset can “work as a mobile phone” or work with a mobile phone to disclose that Goh’s headset is configured (via its CPU) to have “*at least a*

portion of [an] audio message presented to the user,” e.g., when the user access his or her voicemails. DeJaco-Decl., ¶¶141-143. Alternatively, it would have been obvious to implement Goh’s teachings such that the headset allowed for playback of audio messages since the headset already allows for real-time voice communication and playback of recorded audio would require similar audio processing. DeJaco-Decl., ¶144.

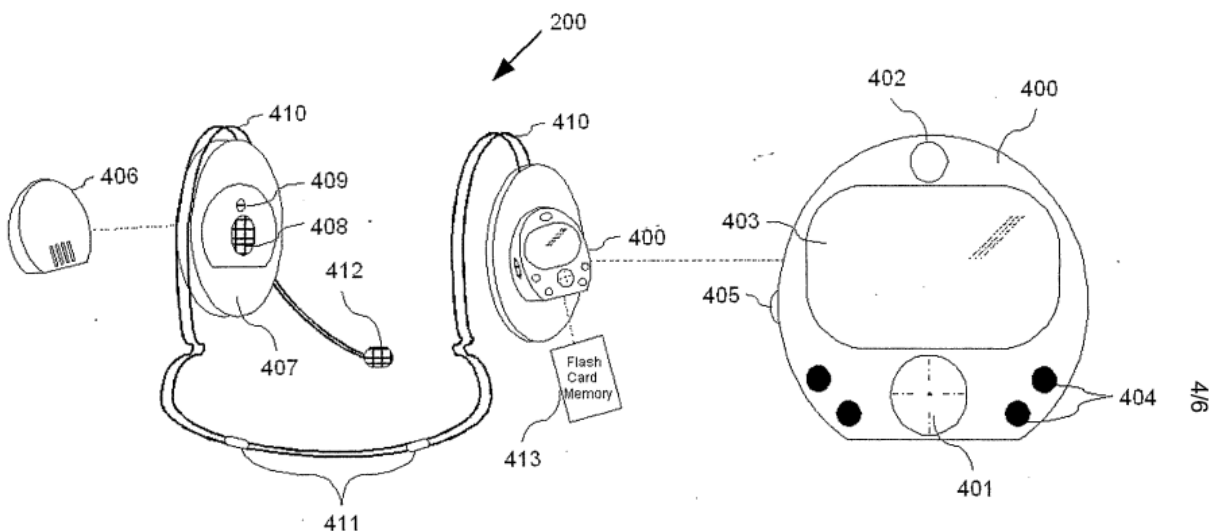
- k. [1J]: “wherein at least the speaker is configured to present at least a portion of the message, when the at least a portion of the message is to be presented in an audio manner.”**

As discussed for [1I], Goh discloses (or it would have been obvious in view of Goh’s disclosures) using its headset to playback voicemails that the headset-user received from a calling party. This audio would have been presented to the headset-user via Goh’s speaker. *Supra* [1B]; *see also* Goh, Abstract; *see also* 5:18-22, 11:3-5, claim 1, FIG. 1 (element 110), FIG. 4 (elements 408, 409).

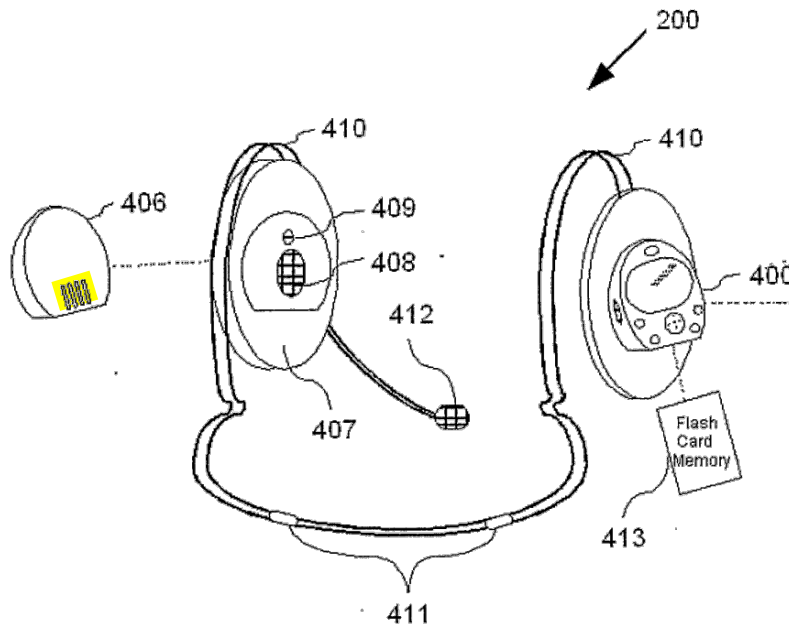
Separately, as discussed for [1H], Goh’s headset acts as “a reader of text messages.” Goh, 11:29. POSAs would have understood this disclosure to mean that Goh converts the text of a received SMS text message or e-mail into audio for playback to the user via Goh’s speaker. *Supra* [1B]; DeJaco-Decl., ¶¶145-149.

5. **Claim 3: “...a plurality of conductive pads..., wherein each of the conductive pads is configured to be in contact with a corresponding metallic contacts of the second connector when the first connector is connected to the second connector.”**

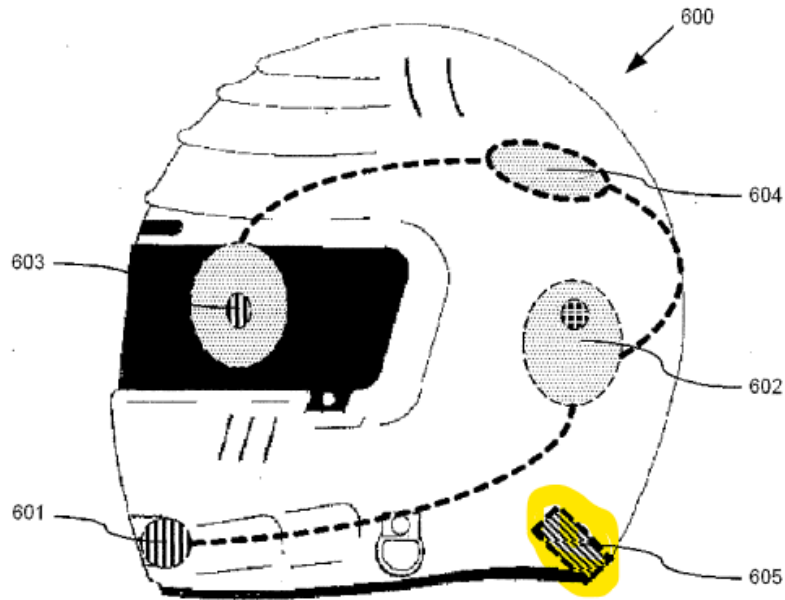
As seen below in Goh’s Figure 4, Goh’s headset includes “a detachable power source 406 for supplying the headset 200 with power.” Goh, 17:12-13.



As seen in the close-up below, Figure 4 depicts the “detachable power source 406” as including contacts that a POSA would have interpreted to be metallic charging contacts used to establish an electrical connection with the headset via corresponding metallic charging contacts on the headset. DeJaco-Decl., ¶¶150-152 (discussing EX1008, EX1010); *see also* Goh, 19:21-22 (in context of FIG. 6’s helmet embodiment, discussing an “accumulator,” *i.e.*, battery, “charger contacts 605”), FIG. 6 (element 605).



If Patent Owner argues Goh’s headset, as used in the Goh-Berger combination, does not disclose claim 3, then modifying Goh such that its “detachable power source 406” used metallic contacts that contacted with charging pads on the headset would have been the obvious in view of Goh’s teachings. DeJaco-Decl., ¶ 153. For example, Goh’s helmet embodiment uses an accumulator and accumulator charger contacts. Goh, 19:19-22, FIG. 6 (accumulator charger contacts 605); *see also id.*, 6:19-20, 9:20-22 (headset embodiment); DeJaco-Decl., ¶¶154, 199 (explaining that an accumulator, in the context of electronic devices, is another term for a rechargeable battery, and citing EX1026-EX1028 as corroboration). Using a similar method for recharging Goh’s headset would have been the use of a known technique to improve similar devices in a similar manner. DeJaco-Decl., ¶154.



6. Claim 4: “...Bluetooth.”

As discussed for [1D] and [1G], Goh’s wireless interface includes a Bluetooth transceiver. Goh, 1:26-2:5, 7:9-12, 11:21-12:4, 13:13-22, 14:17-15:6; DeJaco-Decl., ¶¶155-156.

7. Claim 5: “...facilitate voice recognition, including facilitating recognizing at least a word received via at least the microphone in the headset

The CPU in Goh’s headset is configured to “recognize voice commands of a user,” and “it can control the headset [] via recognized voice commands.” Goh, claim 2; *see also id.*, 7:22-24 (“[T]he central processing unit...can recognize voice commands of a user, and...can control the headset via recognized voice commands.”), 15:8-9, 16:20-21, 17:5-6; DeJaco-Decl., ¶¶157-158.

The voice command(s), *i.e.* “*at least a word*,” is received by the headset’s microphone. Goh, 11:11-20 (explaining Goh’s “microphone 111” “detects sound

waves generated by the mouth of the user” and those sounds waves “represent, for instance, commands for controlling the central processing unit 102 or a surrounding communication device”). DeJaco-Decl., ¶159.

8. Claim 6: “...in an ear of the user.”

In describing the prior art, Goh teaches that communication headsets include a speaker that is usually “placed next to an ear of a user or inside of the ear.” Goh, 1:20-22. Goh thus identifies in-the-ear speakers (*i.e.*, earbuds), and near-the-ear speakers as two known designs for communication headsets.

Although Goh’s Figure 4 headset uses a near-the-ear speaker, implementing the headset such that its speakers were configured as earbuds to be placed in the user’s ear would have been a routine design choice, a fact Goh itself confirms. Goh, 1:20-22. As Goh teaches, the use of headsets with earbud speakers that were configured to be placed in the user’s ear was well known and conventional before 2004. DeJaco-Decl., ¶162 (citing EX1006 as an example). Implementing Goh’s Figure 4 headset using an in-the-ear earbud design would have been the simple substitution of one known element (near-the-ear speakers) for another (in-the-ear earbud speakers) to yield a predictable result. *KSR*, 550 U.S. at 416-417; *see also generally* DeJaco-Decl., ¶¶160-162.

9. Claim 7: “...receive an audio response for the message from the user.”

Goh discloses that its microphone “detects sounds waves generated by the mouth of the user” and that these sound waves represent, *inter alia*, “spoken text to be converted in written text.” Goh, 11:11-20; *see also id.*, 13:18-25 (“[T]he user 201 can dictate into the headset 200, which converts the detected sound waves into a corresponding email 205 and sends it via the surrounding personal digital assistant 204 to the addressee of the email.”). Goh’s microphone is thus “*configured to receive an audio response for the message from the user,*” *i.e.*, spoken text the user utters in response to a text or email message. DeJaco-Decl., ¶¶163-164.

10. Claim 8

As discussed for claim 7, Goh’s headset uses its microphone to convert speech to text. In one example, Goh’s headset “converts the detected sound waves into a corresponding email 205 and sends it via the surrounding personal digital assistant 204 to the addressee of the email.” Goh, 13:23-25; *see also id.*, 10:17-18 (“central processing unit 102 is able to manipulate the binary audio data for achieving an advanced audio processing”); 11:11-20 (explaining Goh’s “microphone 111” “detects sound waves generated by the mouth of the user” and those sounds waves “represent, for instance, commands for controlling the central processing unit 102 or a surrounding communication device”).

The “personal digital assistant” is connected to the headset via a wireless Bluetooth connection (Goh, 7:9-11), and therefore the audio response has been converted into “*into text to be wirelessly transmitted,*” *i.e.*, from the headset to the PDA and/or from the PDA to the Internet for transmission. DeJaco-Decl., ¶¶165-167.

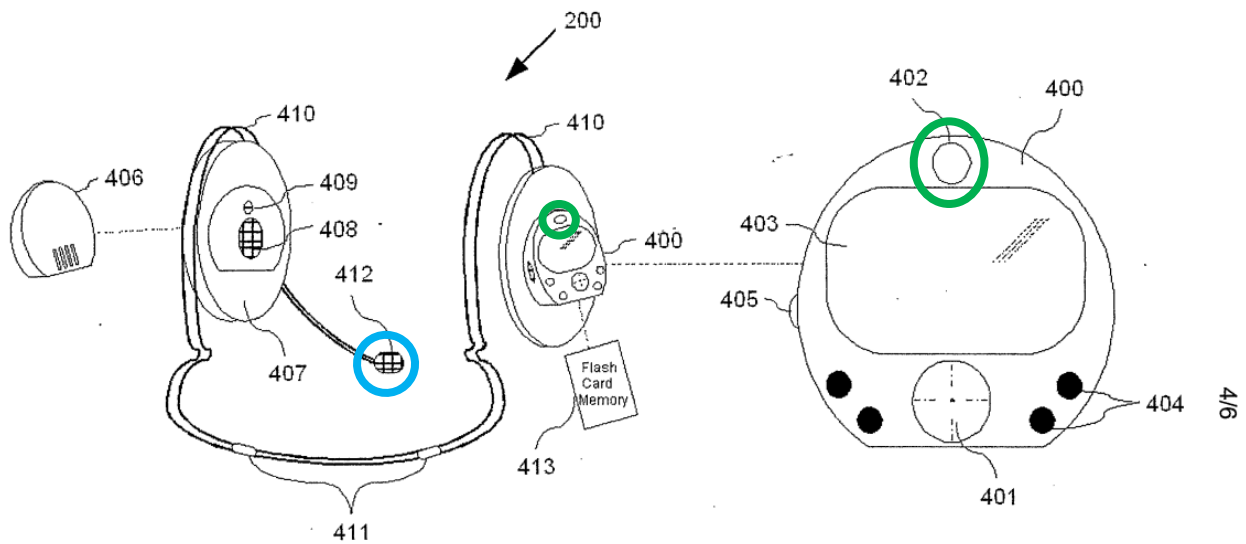
11. Claim 9

Claim 9 depends from claim 1.

a. [9A]: “wherein wireless headset comprises another microphone”

Goh’s headset includes a “second microphone,” *i.e.*, “*another microphone,*” to “offer more convenience to the user.” Goh, 12:11-23; *see also id.*, 17:6-11, FIG. 1 (element 118), FIG. 4 (element 402). Goh’s second microphone captures “sounds generated in the adjacent real world,” *i.e.*, ambient noise. Goh, 12:11-23.

As seen in Figure 4 below, the second microphone (element 402 in green) is located on a controller on the side of the headset whereas the first microphone (element 412 in blue) is located at the end of a mouthpiece closer to the user’s mouth. Goh, 18:10-11 (“retractable mouthpiece 412 comprising a microphone...”); *see also id.*, 11:11-14 (“[A] first microphone 111 [] is located in the mouth-piece of the headset adjacent to the mouth of the user of the headset...”). *See generally* DeJaco-Decl., ¶¶168-170.



- b. [9B]: “wherein the microphone is configured to be located closer to mouth of the user than the another microphone when the headset is worn by the user”**

As discussed for [9A], Goh’s second microphone is depicted as element 402 in Figure 4, and it is located on controller 400 apart from the first microphone 412 which is located on a mouthpiece (Goh, 17:6-11, 18:9-13). The first microphone 412, i.e., “*the microphone*” is thus configured to be “*closer to the mouth of the user*” than the second microphone 402, i.e., “*the another microphone.*” DeJaco-Decl., ¶¶171-172.

- c. [9C]: “wherein at least the another microphone is configured to capture at least ambient noise.”**

As discussed for [9A], Goh’s second microphone captures “sounds generated in the adjacent real world,” i.e., “*ambient noise.*” Goh, 12:11-23. DeJaco-Decl., ¶173.

- d. [9D]: “wherein at least a portion of signals from the microphone is configured to be reduced based on signals from the another microphone at least for reducing at least a portion of the ambient noise in signals from the microphone.”

Goh discloses that “[a]dvanced audio processing feasible by the headset may comprise units for respectively providing: **real-time acoustic noise reduction**” among other functionality. *See* Goh, 8:17-22; *see also* 3:4-5, 10:17-29. A POSA would have understood that reducing background noise using a microphone is via “reducing” signals in the primary microphone. DeJaco-Decl., ¶¶174-177.

While one embodiment in Goh suggests that ambient noise may be intentionally played through the speaker to help the user remain aware of their surroundings, a POSA would have readily understood that the same second microphone could alternatively be used for noise reduction—particularly in contexts like a phone call, where ambient noise is undesirable. In such scenarios, using the second microphone for noise reduction would have been a known technique applied to a known device to enhance performance in a predictable way. A POSA would have readily understood Goh as disclosing that its second microphone is also be used for noise reduction in contexts like a phone call. DeJaco-Decl., ¶177 (citing EX1034-EX1035 as corroboration). POSAs thus would have understood Goh’s disclosure of “advanced audio processing” to disclose that one use of Goh’s second microphone is to capture ambient noise so that the noise can be reduced from speech

audio captured by the first microphone positioned at the end of a boom, *e.g.*, the user's voice during a phone call. *Id.*

Alternatively, implementing Goh's headset such that the ambient noise captured by its second microphone was used to perform Goh's real-time noise reduction would have been the use of a known technique to a known device ready for improvement. DeJaco-Decl., ¶178.

12. Claim 10

Claim 10 repeats limitations found in several previously-discussed claims. The chart below does not repeat claim language that is the same limitation. *See supra* Claims 1, 4, 6, 9. DeJaco-Decl., ¶179.

Claim 10 Limitations	Corresponding limitation(s)
[10PRE] A wireless wearable device configured to secure to the head of a user, with the device proximate to at least one ear of the user to at least help the user hear, the wireless wearable device comprising:	<i>See</i> [1PRE], [1G], claim 6.
[10A] a printed circuit board ...;	<i>See</i> [1A].
[10B] a speaker...;	<i>See</i> [1B].
[10C] a microphone ...	<i>See</i> [1C].
[10D] wireless communication circuitry,	<i>See</i> [1D].
[10E] wherein the at least one electrical component or the plurality of other electrical components include at least a controller,	<i>See</i> [1E].
[10F] wherein the at least a controller is configured to facilitate modifying power within a range of frequencies, to help the user hear outputs presented to the user via at least the speaker,	<i>See</i> [1F].
[10G] ... Bluetooth network,	<i>See</i> [1G], [4].

[10H] wherein if the message is a text message, the at least a controller is configured to have at least a notification of the text message presented to the user,	<i>See</i> [1H]. Goh's "headset may provide the functions of a mobile phone. POSAs would understand this functionality to include alert notifications for received calls and texts as such functionality was standard in mobile phones as of 2004. Alternatively, POSAs would find it obvious to program the headset to provide alert notifications for received calls and texts. Goh, 8:3-4, 11:27-28; DeJaco-Decl., ¶179 (discussing EX1033, EX1009, EX1024).
[10I] wherein if the message is an audio message, the at least a controller is configured to have at least a notification of the audio message presented to the user,	<i>See</i> [1I], [10H].
[10J] wherein the wireless wearable device comprises another microphone,	<i>See</i> [9A].
[10K] wherein the microphone is configured to be located closer to mouth of the user than the another microphone when the wireless wearable device is worn by the user,	<i>See</i> [9B].
[10L] wherein at least the another microphone is configured to capture at least ambient noise, and	<i>See</i> [9C].
[10M] wherein at least a portion of signals from the microphone is configured to be reduced based on signals from the another microphone at least for reducing at least a portion of the ambient noise in signals from the microphone.	<i>See</i> [9D].

13. Claim 11: “...storage medium configured to store at least computer program codes for facilitating voice recognition...”

Goh’s headset includes a “*memory device*,” *i.e.*, “*a storage medium*,” to which the headset’s CPU is connected. Goh, Abstract, 5:18-22, 9:23-10:16, FIG.1, claim 1. As discussed for claim 5, Goh’s CPU “*can recognize voice commands of a user*” and “*can control the headset...via recognized voice commands.*” Goh, claim 2; *see also id.*, 7:22-24, 11:11-20, 15:8-9, 17:5-6.

Goh explains that “voice commands” are conventionally provided via “a software library or a look-up table” that is stored in memory on the device providing the voice-control functionality. *Id.*, 2:25-3:4. POSAs would have understood that Goh’s voice-command functionality is facilitated by similar software, *i.e.*, “*computer program codes*,” and that such software is stored in Goh’s memory device because the headset is providing the voice-command functionality in Goh’s system. Goh, 2:25-3:4 (describing drawbacks of prior-art systems that offloaded voice-control functionality to external devices). DeJaco-Decl., ¶¶180-182

Alternatively, implementing Goh’s headset such that the software for its voice-control functionality is stored in Goh’s memory would have been a routine choice given Goh’s teaching that such an implementation was known. DeJaco-Decl., ¶183; Goh, 2:25-3:4; *see also id.*, 10:17-29 (describing advanced audio processing that the headset can perform based on programs stored in memory).

14. Claim 13: “...enable the user to receive and respond to the message hands-free....”

Goh’s headset “enables hands-free and eyes-free receipt of desired information items.” Goh, 3:24-26.

For example, as discussed for [1G]-[1J] and claim 7, a user wearing Goh’s headset (used in Goh-Berger) can receive (a) audio messages that are played back to a user via the headset’s speaker and/or (b) text messages that are “read” to the user via the headset’s speaker. The user can then respond to either form of message by speaking into the headset microphone which speech is then, for example, converted into a text or email response to the received message. *See* Goh, 5:18-22, 8:3-4, 11:3-5, 11:21-12:4, 13:12-14:3, claim 1, FIGS. 1, 4. DeJaco-Decl., ¶¶184-185.

15. Claim 21

Claim 21 depends on claim 10 and recites a similar limitation as Claim 3. EX1001, Claim 21. *See supra* Claim 3. DeJaco-Decl., ¶186.

16. Claim 22: “...a display...”

Goh’s headset includes *a display*. Goh 13:4-11, 15:8-9, 16:15-20, FIG. 4 (element 403). DeJaco-Decl., ¶187.

17. Claim 24

Goh discloses a headset that is used in the Goh-Berger combination and which includes all of the functions recited in claim 24 as discussed for claims 5, 11, and

13. Alternatively, implementing Goh’s functionality as described separately for these features would have been a routine design choice for a POSA given that each of the separate features were known and described by Goh. DeJaco-Decl., ¶¶188-190.

C. Ground 2B: The Goh-Berger Combination in View of Irvin Renders Claims 2, 14-16, 19, 27, and 31 Obvious.

1. Irvin (EX1021)

Irvin discloses a wireless headset that includes a sensor for detecting whether the headset is being worn by a user so the headset can automatically be placed into an active (or inactive) state to conserve battery power. Irvin, Abstract, 2:29-31. Irvin’s headset is suitable for use with a “cellular telephone,” and “draws essentially no power” when in an inactive state. Irvin, 2:31-3:2; *see also* Abstract.

Irvin teaches that its sensor for detecting whether the headset is being used “may be based on a variety of technologies” so long as it “provide[s] a signal responsive to a natural stimulus associated with use of the headset by a user.” Irvin, 7:10-18. One sensor Irvin identifies is an “accelerometer” that can detect movement of the headset. Irvin, 7:15-17. An alternative sensor is a “contact sensor” that detects when the headset contacts the user’s head. Irvin, Abstract, 8:28-9:8, claim 11; *see generally* DeJaco-Decl., ¶¶192-196.

2. The Goh-Berger-Irvin Combination

Goh's headset includes "an integrated power source like a battery or an accumulator." Goh, 6:18-20. POSAs would have known that an accumulator is another term for a rechargeable battery. DeJaco-Decl., ¶199 (citing EX1026-EX1028 as corroboration).

In view of Irvin, POSAs would have had reason to add a sensor to the headset in the Goh-Berger combination that outputs data indicating whether the headset is in use so as to conserve the life of the headset's battery. As Irvin explains, "battery life is a key component of operator convenience," and therefore "it is important that wireless headset design incorporates provisions maximizing battery life." Irvin, 2:17-21. Such teachings motivate the combination.

In an obvious implementation, the sensor would be either an accelerometer that detects movement of the headset or a contact sensor that detects when the user's head is in contact with the headset. Irvin, 7:15-17, 8:28-9:8; Abstract, claim 11. POSAs would have considered an "accelerometer" to be a form of motion sensor because an accelerometer detects movement or motion. *Id.* Likewise, POSAs would have considered a "contact sensor" to be a form of pressure sensor because a contact sensor detects force, *i.e.*, pressure, applied to it. Irvin, Abstract, 8:28-9:8, claim 11. Data from the sensor would be used by the CPU in Goh's headset to control whether the headset should transition from an inactive to an active state. *Supra* [1E] in

Ground 2A (discussing Goh’s CPU); Irvin, Abstract, 2:17-34, 5:7-30; 7:10-22. Use of these types of sensors alone or in combination would have a routine design choice for POSAs to pursue given their background knowledge regarding the ubiquitous use of various sensors in consumer electronics. Further, POSAs would have a reasonable expectation of success in making modifications to add such sensors to headsets given that the electrical components were all well-known in the art. DeJaco-Decl., ¶¶197-202.

3. Claim 2

As discussed *supra* §VI.C.2, an obvious implementation of the Goh-Berger-Irvin combination uses an “*accelerometer*” as the sensor for detecting whether Goh’s headset is being used. Irvin, 7:15-17; DeJaco-Decl., ¶203.

4. Claim 14: “...a sensor configured to at least provide an indication regarding the wireless wearable device being used”

As discussed for claim 2, an obvious implementation of the Goh-Berger-Irvin combination uses Irvin’s accelerometer to detect whether the headset is being worn. Irvin, 7:15-17. Irvin’s accelerometer is a “*sensor*,” and it provides data regarding whether the headset is being used, *i.e.*, “*an indication regarding the wireless wearable device being used.*” DeJaco-Decl., ¶204.

5. Claim 15: “...a motion sensor.”

As discussed *supra* §VI.C.2, an obvious implementation of the Goh-Berger-Irvin combination uses an “*accelerometer*” as the sensor for detecting whether headset is being used, i.e., by detecting motion of the headset. Irvin, 7:15-17; *see also id.*, claims 8, 22. POSAs would have considered an “*accelerometer*” to be a form of “*motion sensor*” because an accelerometer detects movement or motion. DeJaco-Decl., ¶¶205-207.

6. Claim 19: “...pressure sensor.”

As discussed *supra* §VI.C.2, an obvious implementation of the Goh-Berger-Irvin combination uses a “*contact sensor*” as the sensor for detecting whether headset is being used. Irvin, Abstract, 8:28-9:8, claim 11. POSAs would have considered a “*contact sensor*” to be a form of pressure sensor because a contact sensor detects force, *i.e.*, pressure, applied to it. DeJaco-Decl., ¶¶208-209.

7. Claims 16, 27, and 31

Claims 16, 27, and 31 repeat limitations found in several previously-discussed claims. The chart below does not repeat claim language that is the same limitation. *See supra* Claims 1-5, 9-11, 13-14, 19. DeJaco-Decl., ¶201.

Claims	Corresponding limitation(s)
Claim 16	<i>See</i> [2], [10].
Claim 27	<i>See</i> [3], [10], [14], [19].
Claim 31	<i>See</i> [1], [3]-[5], [9]-[11], [13]0-[14], [19].

D. Ground 2C: The Goh-Berger-Irvin Combination in view of Hollemans Renders Claims 17-18, 23, 25-26, 28-30 and 32 Obvious.

1. Hollemans (EX1006)

Hollemans discloses a remote control device that takes the form of an earbud-type headphone with a touch-sensitive surface. Hollemans, Abstract, 1:44-49, 1:63-2:4, FIG. 2, claim 10. The earbud detects “temporal patterns” that a user makes on the touch-sensitive surface and controls the functionality of a remote device, *e.g.*, a mobile phone or MP3 player, based on those detected patterns. *Id.*, 1:12-19, 2:5-18. (“An example is a single short tap for pause/play, double short tap for next track, triple short tap for next artist/album and a long tap for adjusting the volume.”). Hollemans also teaches that its earbud can include “a small camera” to detect directional motion such as “gestures made on the [touch-sensitive] area.” *Id.*, 6:14-18.

Hollemans touts its touch-sensitive design over prior-art designs that relied on “tiny button[s] to active the desired function” and which “require[] considerable time and attention from the user, which may lead to dangerous situations when the user takes part in traffic.” *Id.*, 1:28-40; *see generally*, DeJaco-Decl., ¶¶212-214.

2. The Goh-Berger-Irvin-Hollemans Combination

Hollemans demonstrates that the use of touch-sensitive surfaces on a headset for controlling/adjusting functions was known. In view of Hollemans, POSAs had

reason to augment Goh's pre-existing controller by adding to the controller a touch-sensitive surface that a user could touch to control the functionality of the headset and/or the electronic device(s) with which the headset is wirelessly connected. Hollemans also encourages POSAs to include a "small camera" in the earbud as one means for detecting more complex user interactions with the touch-sensitive surface such as gestures. DeJaco-Decl., ¶215.

POSAs would have recognized that Hollemans' touch-sensitive surface would beneficially allow users to adjust the functionality of Goh's headset and/or the electronic device to which it is wirelessly connected in a convenient manner that did not require locating and pressing small physical buttons, and Hollemans' camera would extend this functionality by allowing Goh's headset to detect more complex user interactions like gestures. Hollemans explicitly motivates the use of its touch-sensitive surface to increase user safety in scenarios such as driving. Hollemans, 1:28-40. The use of Hollemans' touch-sensitive surface as well as its small camera on Goh's headset is merely the use of a known technique to improve similar devices in the same way. *KSR*, 550 U.S. at 416-417; DeJaco-Decl., ¶216.

In the Goh-Berger-Irvin-Hollerman combination, Goh's headset would maintain all the functionality associated with the Goh-Berger-Irvin combination discussed in Ground 2B, but the headset would also be designed to include, *e.g.*, on the surface of controller 400, a touch-sensitive surface and the headset would use

that surface—and a small camera—to detect touch-based commands from a user for adjusting the functionality, *e.g.*, volume. Such a touch-sensitive surface would either replace one or more of the physical buttons on Goh’s controller 400 or be added to the controller as another means to control the headset’s functionality in situations where the physical buttons are not easily accessed, *e.g.*, when driving. DeJaco-Decl., ¶217.

Further, POSAs would have been motivated to add Hollemans’ touch-sensitive surface and camera to the Goh-Berger-Irvin combination in order to provide a more intuitive, gesture-based user interface, offering significant usability improvements, especially in scenarios where accessing physical buttons is difficult or unsafe. DeJaco-Decl., ¶¶224-228.

3. Claim 17: “...touch-sensitive input surface...”

In the Goh-Berger-Irvin-Hollemans combination, Goh’s headset would include Hollemans’ touch-sensitive surface, *e.g.*, a surface on controller 400, such that the headset is “*configured to receive at least a touch input to generate at least an electrical signal for an operation of the wireless wearable device.*” Such operations include changing the volume of a telephone call, the song being played on a connected MP3 player, and/or a mode of operation for the headset. Hollemans, 2:17-18 (“a long tap for adjusting volume”); claim 15; *see also id.*, 2:15-19

(describing other temporal patterns and functions to be controlled), 4:46-56 (same), 5:55-6:64 (same); DeJaco-Decl., ¶218.

4. Claim 18: “...touch input...includes a movement with a direction”

As discussed for claim 17, in the Goh-Berger-Irvin-Hollemans combination, Goh’s headset would include Hollemans’ touch-sensitive surface. Hollemans explains that its touch-sensitive surface, alone and/or in combination with a small camera, “is used for picking up a gesture made on the [surface] with e.g., ...a finger.” Hollemans, 6:14-15. “The gesture detected may be a character, like a letter from an alphabet. The character detected may be used for jumping in a list to an entry with a first letter corresponding to the character detected.” *Id.*, 6:26-29.

When, for example, a user makes a gesture on the touch-sensitive surface that correspond to the letter “I,” “*the touch input received at the touch-sensitive input includes a movement with a direction,*” *i.e.*, down or up to create the “I.” Based on the direction of movement of the user’s finger on the touchpad, the letter “I” is detected, and an “*operation*” of Goh’s headset is “*dependent on the determined direction*” because the determination of the “I” gesture results in a jump in a list (*e.g.*, of song titles) to the letter I.

Separately, Hollemans also teaches that the gestures that the touch-sensitive surface can detect include a “planar gesture,” and the gesture can be used to “scroll[] content on a display.” Hollemans, 6:21-35. This planar gesture is “*touch input*

received at the touch-sensitive input [that] includes a movement with a direction” and the resulting scrolling is “*wherein the direction of movement is determined, with the operation of the wireless wearable device dependent on the determined direction.*” In view of these teachings, POSAs would have had reason to implement the Goh-Berger-Hollemans combination such that a user could scroll content (e.g., a list of phone numbers) shown on either Goh’s display (or on a display of a phone being controlled by Goh’s headset) by sliding his or her finger up and down on the touch-sensitive surface. DeJaco-Decl., ¶¶219-228.

5. Claim 23: “...camera.”

As discussed above, in the Goh-Berger-Irvin-Hollemans combination, Goh’s headset would include both Hollemans’ touch-sensitive surface and its “small camera” to better detect more complex user interactions with the surface such as gestures. Hollemans, 6:15-17; DeJaco-Decl., ¶229.

6. Claims 25, 26, 28-30, and 32

Claims 25, 26, and 29 repeat limitations found in several previously-discussed claims. The chart below does not repeat claim language that is the same limitation. *See supra* Claims 1-3, 9-10, 13-15, 17, 19, 22, 23. DeJaco-Decl., ¶230.

Claims	Corresponding limitation(s)
Claim 25	<i>See</i> [3], [14], [17].
Claim 26	<i>See</i> [23].
Claim 28	<i>See</i> [17].
Claim 29	<i>See</i> [2], [14], [22]-[23]

Claim 30	<i>See</i> [19].
Claim 32	<i>See</i> [1], [9]-[10], [13], [15], [22]-[23].

E. Ground 2D: The Goh-Berger Combination in view of Regen Renders Claim 12 Obvious.

1. Regen (EX1022)

Regen is titled “Headset In-use Indicator.” Regen, Title. Regen discloses a “headset” with “an in-use indicator for notifying passers-by when the wearer of the headset is carrying on a telephone conversation.” *Id.*, Abstract.

Regen explains that headsets for allowing “hands-free” use of telephones were well known, but that one problem with such headsets “is that passers-by may be unaware that the user of a headset telephone is carrying on a conversation, and may therefore not afford the headset user the same common courtesies as when a telephone user is holding a telephone handset to his or her ear.” *Id.*, 1:14-20. To address this problem, Regen discloses the use of a light-emitting diode at the end of a microphone boom. *Id.*, Abstract, 2:55-59, FIGS. 1, 2 (item 32, LED in-use indicator). “The indicator is illuminated when the user is conversing over the headset, so that passers-by are made aware of the telephone conversation and can extend the usual telephone courtesies only when appropriate.” *Id.*, 1:33-39; DeJaco-Decl., ¶¶232-233.

2. The Goh-Berger-Regen Combination

POSAs would have recognized that Regen's LED in-use indicator would beneficially allow a passer-by to know when Goh-Berger's headset is in use thereby allowing the passer-by to extend appropriate courtesies. Regen, 1:33-39; DeJaco-Decl., ¶¶234-235. Moreover, the use of Regen's LED in-use indicator on Goh-Berger's headset is merely the use of a well-known technique to improve similar devices in the same way. *KSR*, 550 U.S. at 416-417.

In the Goh-Berger-Regen combination, Goh's headset would be modified to include an LED in-use indicator, *e.g.*, at the end of the microphone boom depicted in Goh's Figure 4. The indicator would illuminate to provide an indication that Goh's headset is being used. POSAs would have had a reasonable expectation of success in making the modification as adding an LED indicator to the headset requires only routine design skill. DeJaco-Decl., ¶¶236-237.

3. Claim 12

For the reasons discussed above, the Goh-Berger-Regen headset “*compris[es] an optical indicator configured to illuminate in a predetermined manner to provide an indication regarding a status of the wireless wearable device.*” Regen, Abstract, 1:33-39, 2:55-59, FIGS. 1, 2 (item 32, LED in-use indicator); DeJaco-Decl., ¶238.

VII. CONCLUSION

The Board should institute review and cancel claims 1-32.

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Respectfully submitted,

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VIII. CLAIM LISTING APPENDIX

Claim 1
[1PRE] A wireless headset for a user comprising:
[1A] a printed circuit board provided in the headset, the printed circuit board having at least one electrical component attached thereon, the at least one electrical component being electrically connected to a plurality of other electrical components, each of the plurality of other electrical components being provided at least partially in the headset;
[1B] a speaker in the headset;
[1C] a microphone in the headset; and
[1D] wireless communication circuitry,
[1E] wherein the at least one electrical component or the plurality of other electrical components include at least a controller,
[1F] wherein the at least a controller is configured to facilitate modifying power within a range of frequencies based on at least one hearing characteristic of the user, to help the user hear audio outputs presented to the user via at least the speaker,
[1G] wherein the wireless communication circuitry is configured to wirelessly receive a message,
[1H] wherein if the message is a text message, the at least a controller is configured to have at least a portion of the text message presented to the user,
[1I] wherein if the message is an audio message, the at least a controller is configured to have at least a portion of the audio message presented to the user, and
[1J] wherein at least the speaker is configured to present at least a portion of the message, when the at least a portion of the message is to be presented in an audio manner.
Claim 2
A wireless headset as recited in claim 1 comprising an accelerometer.

Claim 3

A wireless headset as recited in claim 1 comprising a first connector that includes a plurality of conductive pads that are configured to couple with a second connector external to the headset, wherein each of the conductive pads is configured to be in contact with a corresponding metallic contact of the second connector when the first connector is connected to the second connector.

Claim 4

A wireless headset as recited in claim 1, wherein the wireless communication circuitry is configured to couple to at least a Bluetooth network.

Claim 5

A wireless headset as recited in claim 1, wherein the at least a controller is configured to facilitate voice recognition, including facilitating recognizing at least a word received via at least the microphone in the headset.

Claim 6

A wireless headset as recited in claim 1, wherein the headset includes at least an ear bud configured to be placed in an ear of the user.

Claim 7

A wireless headset as recited in claim 1, wherein at least the microphone in the headset is configured to receive an audio response for the message from the user.

Claim 8

A wireless headset as recited in claim 7, wherein the at least a controller is configured to facilitate converting the audio response into text to be wirelessly transmitted.

Claim 9

A wireless headset as recited in claim 1,

[9A] wherein wireless headset comprises another microphone,

[9B] wherein the microphone is configured to be located closer to mouth of the user than the another microphone when the headset is worn by the user,

[9C] wherein at least the another microphone is configured to capture at least ambient noise, and

[9D] wherein at least a portion of signals from the microphone is configured to be reduced based on signals from the another microphone at least for reducing at least a portion of the ambient noise in signals from the microphone.

Claim 10

[10PRE] A wireless wearable device configured to secure to the head of a user, with the device proximate to at least one ear of the user to at least help the user hear, the wireless wearable device comprising:

[10A] a printed circuit board provided in the wireless wearable device, the printed circuit board having at least one electrical component attached thereon, the at least one electrical component being electrically connected to a plurality of other electrical components, each of the plurality of other electrical components being provided at least partially in the wireless wearable device;

[10B] a speaker in the wireless wearable device;

[10C] a microphone in the wireless wearable device; and

[10D] wireless communication circuitry,

[10E] wherein the at least one electrical component or the plurality of other electrical components include at least a controller,

[10F] wherein the at least a controller is configured to facilitate modifying power within a range of frequencies, to help the user hear outputs presented to the user via at least the speaker,

[10G] wherein the wireless communication circuitry is configured to wirelessly receive a message from a mobile phone via at least a Bluetooth network,

[10H] wherein if the message is a text message, the at least a controller is configured to have at least a notification of the text message presented to the user,

[10I] wherein if the message is an audio message, the at least a controller is configured to have at least a notification of the audio message presented to the user,

[10J] wherein the wireless wearable device comprises another microphone,

[10K] wherein the microphone is configured to be located closer to mouth of the user than the another microphone when the wireless wearable device is worn by the user,

[10L] wherein at least the another microphone is configured to capture at least ambient noise, and

[10M] wherein at least a portion of signals from the microphone is configured to be reduced based on signals from the another microphone at least for reducing at least a portion of the ambient noise in signals from the microphone.

Claim 11
A wireless wearable device as recited in claim 10 comprising a storage medium configured to store at least computer program codes for facilitating voice recognition, wherein at least the microphone is configured to receive at least a word, with the at least a word recognized using at least the computer program codes for facilitating voice recognition.
Claim 12
A wireless wearable device as recited in claim 10 comprising an optical indicator configured to illuminate in a predetermined manner to provide an indication regarding a status of the wireless wearable device.
Claim 13
A wireless wearable device as recited in claim 10, wherein the wireless wearable device is configured to enable the user to receive and respond to the message hands-free, using at least the speaker and at least the microphone.
Claim 14
A wireless wearable device as recited in claim 10 comprising a sensor configured to at least provide an indication regarding the wireless wearable device being used.
Claim 15
A wireless wearable device as recited in claim 10 comprising a motion sensor.
Claim 16
A wireless wearable device as recited in claim 10 comprising an accelerometer.
Claim 17
A wireless wearable device as recited in claim 10 comprising a touch-sensitive input surface configured to receive at least a touch input to generate at least an electrical signal for an operation of the wireless wearable device.
Claim 18
A wireless wearable device as recited in claim 17,
[18A] wherein the touch input received at the touch-sensitive input includes a movement with a direction, and
[18B] wherein the direction of movement is determined, with the operation of the wireless wearable device dependent on the determined direction.

Claim 19
A wireless wearable device as recited in claim 10 comprising a pressure sensor.
Claim 20
A wireless wearable device as recited in claim 19, wherein the pressure sensor includes a Hall-effect sensor.
Claim 21
A wireless wearable device as recited in claim 10 comprising a first connector that includes a plurality of conductive pads that are configured to couple with a second connector external to the wireless wearable device, wherein each of the conductive pads is configured to be in contact with a corresponding metallic contact of the second connector when the first connector is connected to the second connector.
Claim 22
A wireless wearable device as recited in claim 10 comprising a display.
Claim 23
A wireless wearable device as recited in claim 10 comprising a camera.
Claim 24
A wireless wearable device as recited in claim 10 comprising a storage medium configured to store at least computer program codes for facilitating voice recognition,
[24A] wherein at least the microphone is configured to receive at least a word, with the at least a word recognized using at least the computer program codes for facilitating voice recognition, and
[24B] wherein the wireless wearable device is configured to enable the user to receive and respond to the message hands-free, using at least the speaker and at least the microphone.

Claim 25
A wireless wearable device as recited in claim 24 comprising:
[25A] a sensor configured to at least provide an indication regarding the wireless wearable device being used;
[25B] a touch-sensitive input surface configured to receive at least a touch input to generate at least an electrical signal for an operation of the wireless wearable device; and
[25C] a first connector that includes a plurality of conductive pads that are configured to couple with a second connector external to the wireless wearable device, wherein each of the conductive pads is configured to be in contact with a corresponding metallic contact of the second connector when the first connector is connected to the second connector.
Claim 26
A wireless wearable device as recited in claim 25 comprising a camera.
Claim 27
A wireless wearable device as recited in claim 24 comprising:
[27A] a sensor configured to at least provide an indication regarding the wireless wearable device being used;
[27B] a pressure sensor; and
[27C] a first connector that includes a plurality of conductive pads that are configured to couple with a second connector external to the wireless wearable device, wherein each of the conductive pads is configured to be in contact with a corresponding metallic contact of the second connector when the first connector is connected to the second connector.
Claim 28
A wireless wearable device as recited in claim 27 comprising a touch-sensitive input surface configured to receive at least a touch input to generate at least an electrical signal for an operation of the wireless wearable device.

Claim 29
[29PRE] A wireless wearable device as recited in claim 24 comprising:
[29A] sensor configured to at least provide an indication regarding the wireless wearable device being used;
[29B] an accelerometer;
[29C] a display; and
[29D] a camera.
Claim 30
A wireless wearable device as recited in claim 29 comprising a pressure sensor.
Claim 31
[31PRE] A wireless wearable device configured to secure to the head of a user, with the device proximate to at least one ear of the user to at least help the user hear, the wireless wearable device comprising:
[31A] a printed circuit board provided in the wireless wearable device, the printed circuit board having at least one electrical component attached thereon, the at least one electrical component being electrically connected to a plurality of other electrical components, each of the plurality of other electrical components being provided at least partially in the wireless wearable device;
[31B] a speaker in the wireless wearable device;
[31C] a microphone in the wireless wearable device;
[31D] wireless communication circuitry;
[31E] a storage medium configured to store at least computer program codes for facilitating voice recognition;
[31F] a sensor configured to at least provide an indication regarding the wireless wearable device being used;
[31G] a pressure sensor; and
[31H] a first connector that includes a plurality of conductive pads that are configured to couple with a second connector external to the wireless wearable device, wherein each of the conductive pads is configured to be in contact with a corresponding metallic contact of the second connector when the first connector is connected to the second connector,

[31I] wherein at least the microphone is configured to receive at least a word, with the at least a word recognized using at least the computer program codes for facilitating voice recognition,
[31J] wherein the at least one electrical component or the plurality of other electrical components include at least a controller,
[31K] wherein the at least a controller is configured to facilitate modifying power to help the user hear outputs presented to the user via at least the speaker,
[31L] wherein the wireless communication circuitry is configured to wirelessly receive a message from a mobile phone via at least a Bluetooth network,
[31M] wherein if the message is a text message, the at least a controller is configured to have at least a notification of the text message presented to the user,
[31N] wherein if the message is an audio message, the at least a controller is configured to have at least a notification of the audio message presented to the user,
[31O] wherein the wireless wearable device is configured to enable the user to receive and respond to the message hands-free, using at least the speaker and at least the microphone,
[31P] wherein the wireless wearable device comprises another microphone,
[31Q] wherein the microphone is configured to be located closer to mouth of the user than the another microphone when the wireless wearable device is worn by the user,
[31R] wherein at least the another microphone is configured to capture at least ambient noise, and
[31S] wherein at least a portion of signals from the microphone is configured to be reduced based on signals from the another microphone at least for reducing at least a portion of the ambient noise in signals from the microphone.

Claim 32
[32PRE] A wearable device configured to secure to the head of a user, with the device proximate to at least one ear of the user to at least help the user hear, the wearable device comprising:
[32A] a printed circuit board provided in the wearable device, the printed circuit board having at least one electrical component attached thereon, the at least one electrical component being electrically connected to a plurality of other electrical components, each of the plurality of other electrical components being provided at least partially in the wearable device;
[32B] a speaker in the wearable device;
[32C] a microphone in the wearable device;
[32D] a camera;
[32E] a motion sensor;
[32F] a display; and
[32G] communication circuitry,
[32H] wherein the at least one electrical component or the plurality of other electrical components include at least a controller,
[32I] wherein the at least a controller is configured to facilitate modifying power within a range of frequencies, to help the user hear outputs presented to the user via at least the speaker,
[32J] wherein the communication circuitry is configured to receive a message from a mobile phone,
[32K] wherein if the message is a text message, the at least a controller is configured to have at least a notification of the text message presented to the user,
[32L] wherein if the message is an audio message, the at least a controller is configured to have at least a notification of the audio message presented to the user,
[32M] wherein the wearable device is configured to enable the user to receive and respond to the message hands-free, using at least the speaker and at least the microphone,
[32N] wherein the wearable device comprises another microphone,

[32O] wherein the microphone is configured to be located closer to mouth of the user than the another microphone when the wearable device is worn by the user,

[32P] wherein at least the another microphone is configured to capture at least ambient noise, and

[32Q] wherein at least a portion of signals from the microphone is configured to be reduced based on signals from the another microphone at least for reducing at least a portion of the ambient noise in signals from the microphone.

CERTIFICATE OF SERVICE UNDER 37 C.F.R. §42.6(e)(4)

I certify that on September 19, 2025, I will cause a copy of the foregoing document, including any exhibits or appendices filed therewith, to be served via Overnight FedEx at the following correspondence address of record for the patent:

IPVENTURE, INC.
4010 Moorpark Avenue
Suite 211
San Jose, CA 95117

Date: September 19, 2025

/MacAulay Rush/
MacAulay Rush
Paralegal
WOLF, GREENFIELD & SACKS, P.C.

CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24, the undersigned certifies that the foregoing Petition for *Inter Partes* Review contains 13,960 words excluding a table of contents, a table of authorities, Mandatory Notices under §42.8, a certificate of service or word count, or appendix of exhibits or claim listing. Petitioner has relied on the word count feature of the word processing system used to create this paper in making this certification.

Date: September 19, 2025

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