

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE INC.,
Petitioner,

v.

GUI GLOBAL PRODUCTS, LTD., D/B/A GWEE,
Patent Owner.

IPR2021-00473
Patent 10,589,320 B1

Before SALLY C. MEDLEY, SHEILA F. McSHANE, and
MONICA S. ULLAGADDI, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We have jurisdiction to hear this *inter partes* review under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). For the reasons discussed herein, we determine that Apple Inc. (“Petitioner”) has shown, by a preponderance of the evidence, that claims 1–5 and 7–13 of U.S. Patent No. 10,589,320 B1 (Ex. 1001, “the ’320 patent”) are unpatentable.

A. Procedural Background

Petitioner filed a Petition requesting *inter partes* review of claims 1–5 and 7–13 (“the challenged claims”) of the ’320 patent, along with the supporting Declaration of Dr. Jerry Cooperstock. Paper 2 (“Pet.”); Ex. 1003. GUI Global Products, Ltd., d/b/a Gwee (“Patent Owner”) filed a Preliminary Response to the Petition, along with the supporting Declaration of Mr. Robert Stillerman. Paper 6; Ex. 2001.

Pursuant to 35 U.S.C. § 314(a), on August 13, 2021, we instituted *inter partes* review on the grounds of:

Claim(s) Challenged	35 U.S.C §	Reference(s)/Basis
1, 2, 8, 9, 11	103(a) ¹	Gundlach, ² Lee ³

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. Because the ’320 patent has an effective filing date before the effective date of the applicable AIA amendments, we refer to the pre-AIA version of 35 U.S.C. § 103.

² U.S. Pat. Appl. Pub. No. US 2008/0132293 A1, published June 5, 2008 (Ex. 1005, “Gundlach”).

³ U.S. Pat. No. US 7,548,040 B2, issued June 16, 2009 (Ex. 1006, “Lee”).

Claim(s) Challenged	35 U.S.C §	Reference(s)/Basis
2, 8	103(a)	Gundlach, Lee, Nishikawa ⁴
11	103(a)	Gundlach, Lee, Rosener ⁵
3, 7	103(a)	Gundlach, Lee, Brown ⁶
4, 5, 10, 12, 13	103(a)	Gundlach, Lee, Mak-Fan ⁷
1, 2, 8, 9, 11	103(a)	Gundlach, Lee, Kim ⁸
2, 8	103(a)	Gundlach, Lee, Kim, Nishikawa
11	103(a)	Gundlach, Lee, Kim, Rosener
3, 7	103(a)	Gundlach, Lee, Kim, Brown
4, 5, 10, 12, 13	103(a)	Gundlach, Lee, Kim, Mak- Fan

See Pet. 1–2; Paper 9 (“Inst. Dec.” or “Dec.”), 7–8, 40.

Patent Owner filed a Patent Owner Response (“PO Resp.”). Paper 17. Patent Owner filed the Declaration of Dr. Hamid Toliyat to support its positions. Ex. 2022. Petitioner filed a Reply (“Pet. Reply”) to the Patent Owner Response, with the supporting Supplemental Declaration of Dr. Cooperstock. Paper 21; Ex. 1089. Patent Owner filed a Sur-Reply to Petitioner’s Reply (“PO Sur-Reply”). Paper 27.

An oral hearing was held on May 19, 2022. A transcript of the hearing is included in the record. Paper 32 (“Tr.”).

⁴ U.S. Pat. Appl. Pub. No. US 2007/0145255 A1, published June 28, 2007 (Ex. 1059, “Nishikawa”).

⁵ U.S. Pat. Appl. Pub. No. US 2008/0076489 A1, published Mar. 27, 2008 (Ex. 1050, “Rosener”).

⁶ U.S. Pat. No. US 7,631,811 B1, issued Dec. 15, 2009 (Ex. 1008, “Brown”).

⁷ U.S. Pat. Appl. Pub. No. US 2008/0012706 A1, published Jan. 17, 2008 (Ex. 1010, “Mak-Fan”).

⁸ U.S. Pat. Appl. Pub. No. US 2011/0117851 A1, published May 19, 2011 (Ex. 1007, “Kim”).

B. Related Matters

The parties indicate this Petition is related to *GUI Global Prods, Ltd. d/b/a Gwee v. Samsung Elecs. Co.*, No. 4:20-cv-02624 (E.D. Tex.) and *GUI Global Prods, Ltd. d/b/a Gwee v. Apple, Inc.*, No. 4:20-cv-02652 (S.D. Tex.). Pet. 82; Paper 4, 1–2. The parties indicate that the '320 patent is also the subject of a petition filed by Samsung Electronics Co., Ltd. in IPR2021-00338. Pet. 83; Paper 4, 2.

C. The '320 Patent

The '320 patent is titled “System Comprising A Portable Switching Device For Use With A Portable Electronic Device” and issued on March 17, 2020, from an application filed on November 27, 2019. Ex. 1001, codes (22), (45), (54). The application for the '320 patent is a continuation of several applications as well as several provisional applications. *Id.*, codes (60), (63).

The Specification of the '320 patent describes how an apparatus may be used for cleaning view screens of electrical devices. *See* Ex. 1001, 2:19–24. The '320 patent aims to provide appropriate cleaning materials where the cleaning component can be carried on an electronic device case. *Id.* at 1:56–2:15.

In one embodiment, a cleaning component for cleaning a view screen of an electronic device is coupled to a first case of the electronic device using magnetic attractive force. *Id.* at 5:64–6:2, Fig. 1B. Figure 1B is illustrative and is reproduced below.

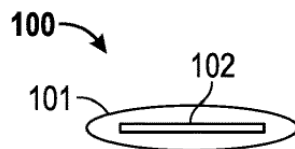


FIG. 1B

Figure 1B, above, shows a side view of a cleaning component. Ex. 1001, 6:29–30. Cleaning component 100 includes ferromagnetic or ferrimagnetic substrate 102 covered by cleaning material 101, such as a fabric or a cloth. *Id.* at 6:20–49.

In another embodiment, a second case receives the cleaning component and also “functions to protect the primary case.” Ex. 1001, 6:2–7. Figure 3 is illustrative and is reproduced below.

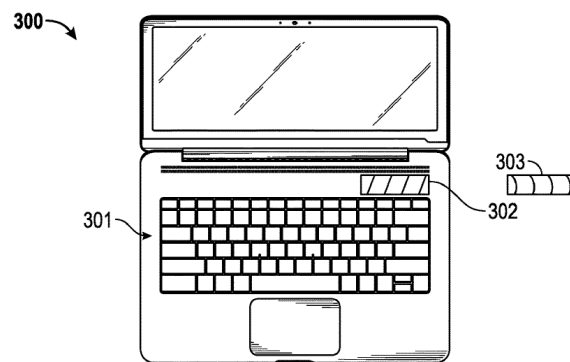


FIG. 3

Figure 3, above, shows a computer case configured to receive a cleaning component. Ex. 1001, 4:45–46. Laptop 300 has rectangular indentation 302 dimensioned for receiving cleaning component 303 which has a magnet. *Id.* at 8:62–9:2.

Figure 5A is also illustrative and is reproduced below.

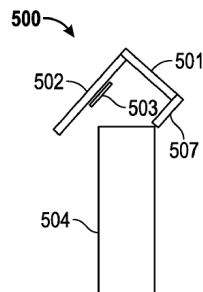


FIG. 5A

Figure 5A, above, shows “a lateral type phone case configured to receive a cleaning component.” Ex. 1001, 4:49–50. Case 500 includes body 504

“which functions to hold a smart phone” and a lid having tip 501, side 502, hinge 507, and cleaning component 503. *Id.* at 10:13–18.

A cleaning component may be secured and adhered to a case utilizing “dimensional stability to increase the security with which the clean components are adhered to the case.” Ex. 1001, 11:44–49; Fig. 9. Figure 9 is illustrative and is reproduced below.

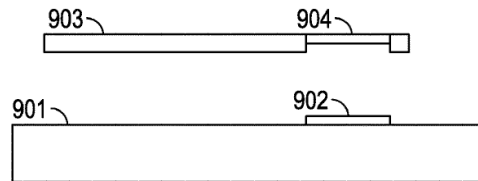


FIG. 9

Figure 9, above, shows a cleaning component “employing a structural feature to enhance adhesion.” Ex. 1001, 4:60–61. Device 901 has raised section 902 which is configured to fit within recess 904 of cleaning component 903. *Id.* at 11:49–51.

In another embodiment, the cleaning component has a magnetic element that activates or deactivates a magnetic switch. Ex. 1001, 3:6–8. The ’320 patent describes “activating or deactivating a device having a magnetic switch” as a “secondary application[]” and that “cleaning devices” “may also be manufactured without a cleaning component for use with the secondary application.” *Id.*, code (57). Thus, a device “may or may not include cleaning capabilities but will include a rare earth magnet or magnets” for “additional functionality.” *Id.* at 16:41–45. Figure 24 is illustrative and is reproduced below.

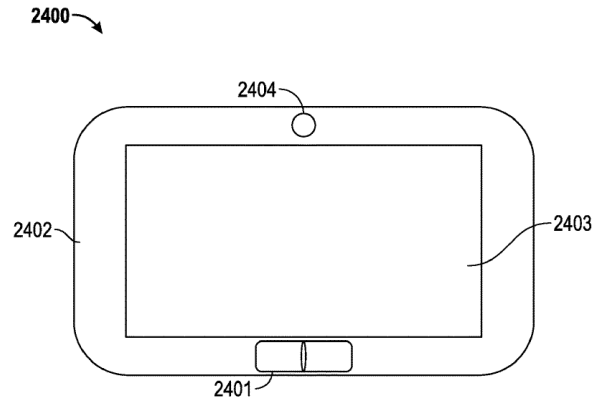


FIG. 24

Figure 24, above, shows a tablet computer having a switching device. Ex. 1001, 5:53–54. Tablet computer 2400 has switching device 2401 that “is selectively coupled to the front of the portable electronic device 2402 outside of the view screen 2403.” *Id.* at 18:6–10. A “magnetic switch is normally disposed with the portable electronic device but is shown [in Figure 24] for illustration purposes (2404).” *Id.* at 18:10–12. The ’320 patent describes that the switching component “may be picked up” and switching device “is either applied directly to the magnetic switch or applied to either side of the switch and then slid past it to activate or deactivate the portable electronic device.” *Id.* at 18:13–18.

Figure 25, reproduced below, shows a side view of the switching device in Figure 24. Ex. 1001, 5:55–56, 18:19–20.

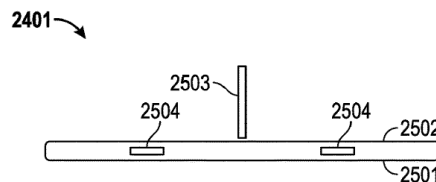


FIG. 25

Figure 25, above, shows switching device 2401 having bottom surface 2501, top surface 2502, and ferromagnetic or ferrimagnetic substrate 2504

disposed therebetween. Ex. 1001, 18:19–21, 23–25. Tab 2503 “on the top surface” facilitates manipulation of switching device 2401. *Id.* at 18:22–23.

Challenged claim 1 is the only independent challenged claim.

Claim 1 is reproduced below, with bracketed letters added to the limitations for reference purposes.

1. A system comprising:

[a] a portable switching device coupled to a portable electronic device;

wherein:

[b] the switching device and the electronic device are configured to selectively couple to each other employing magnetic force;

[c] the switching device comprises a first case;

[d] the electronic device comprises a second case and an electronic circuit that is responsive to the switching device;

[e] a first magnet is fully disposed within the electronic device;

[f] the electronic device comprises at least one element selected from the group consisting of beveled edges, ridges, recessed areas, grooves, slots, indented shapes, bumps, raised shapes, and combinations thereof; configured to correspond to complementary⁹ surface elements on the switching device;

[g] wherein the second case is decoupled from the first case by overcoming magnetic force the portable switching device is configured to activate, deactivate, or send into hibernation the portable electronic device;

[h] the electronic device plays or pauses a remote device;

⁹ Per a Certificate of Correction, “complimentary” was changed to “complementary.” *See* Ex. 1001, 27.

[i] the switching device includes a lid and hinge attaching the lid to the switching device;

[j] the lid is recessed to configure to the electronic device; and

[k] when coupled, the first case functions to protect the second case.

Ex. 1001, 21:38–22:18.

II. ANALYSIS

A. *The Parties’ Arguments*

In our Decision on Institution, we concluded that the arguments and evidence advanced by Petitioner demonstrated a reasonable likelihood that at least one claim of the ’320 patent would have been obvious. Dec. 11–40. Here, we must consider whether Petitioner has established by a preponderance of the evidence that the challenged claims 1–5 and 7–13 are obvious. 35 U.S.C. § 316(e). We previously instructed Patent Owner that “any arguments not raised in the response may be deemed waived.” Paper 10, 8; *In re Nuvasive, Inc.*, 842 F.3d 1376, 1379–82 (Fed. Cir. 2016) (holding Patent Owner waived an argument addressed in the Preliminary Response by not raising the same argument in the Patent Owner Response). Additionally, the Board’s Trial Practice Guide states that the Patent Owner Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Consolidated Trial Practice Guide¹⁰, 66 (November, 2019).

¹⁰ Available at <https://www.uspto.gov/TrialPracticeGuideConsolidated>.

Patent Owner has chosen not to address certain arguments and evidence advanced by Petitioner to support its unpatentability contentions. In this regard, the record contains persuasive arguments and evidence presented by Petitioner regarding the manner in which the prior art teaches the limitations of claims 1–5 and 7–13 of the '320 patent, as well as the rationale to combine the references with reasonable expectation of success.

B. Level of Ordinary Skill in the Art

Relying on the testimony of Dr. Jerry Cooperstock, Petitioner proposes that a person of ordinary skill in the art at the time of the '320 patent would have had “at least a Bachelor’s degree in an academic area emphasizing electrical engineering, mechanical engineering, or a similar discipline, and at least two years of experience in the field working with electronic devices,” and a person of skill could have obtained similar experience with additional education or additional experience could compensate for educational deficiencies. Pet. 6 (citing Ex. 1003 ¶ 20).

Supported by the testimony of Dr. Toliyat, Patent Owner proposes that a person of ordinary skill in the art would have had “either a bachelor’s degree in electrical engineering, computer science, or mechanical engineering with some level of post-baccalaureate electronic device or system design experience, or an equivalent level of experience and training through other means.” PO Resp. 5 (citing Ex. 2022 ¶ 31). Dr. Toliyat testifies that Dr. Cooperstock’s definition of a skilled artisan “is somewhat different than mine, however, my opinions in this declaration would be the same regardless of whether or not my description or Dr. Cooperstock’s

description of a POSITA¹¹ is used.” Ex. 2022 ¶ 33. Patent Owner, however, disputes the inclusion of “at least” in Dr. Cooperstock’s proposed qualification because it leaves the actual education and experience of a person of ordinary skill in doubt. PO Resp. 5 (citing Ex. 2002 ¶ 30).

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). The level of ordinary skill in the art is also reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

In the Institution Decision, we considered the subject matter of the ’320 patent, the background technical field, and the prior art, and we agreed with Petitioner’s proposed qualifications. Dec. 9. Here, we adopt Petitioner’s definition of the level of skill, except that we delete the phrase “at least” to avoid ambiguity in the definition of the level of skill. Accordingly, we determine that one of ordinary skill in the art would have had a bachelor’s degree in electrical engineering, computer science, or a similar field and one year of experience in consumer electronics product design, and could have obtained similar knowledge and experience through other means. We note that even if we adopted Patent Owner’s proposed level of qualifications, the outcome of this Decision would remain the same.

¹¹ A person of ordinary skill in the art at the time of the invention.

C. Claim Construction

For petitions filed after November 13, 2018, the Board interprets claim terms in accordance with the standard used in federal district court in a civil action involving the validity or infringement of a patent. 37 C.F.R. § 42.100(b) (2019). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1015, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

According to Petitioner, “no express constructions are required to institute review and find the Challenged Claims unpatentable” in the proceeding. Pet. 6. Patent Owner similarly states that the ordinary meaning of the terms should be used. PO Resp. 6.

In the Institution Decision, we determined that it was not necessary to provide express interpretations of any claim terms. Dec. 10–11. On the full record, we likewise determine that it is not necessary to provide an express interpretation of any claim terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)

(“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

D. Alleged Obviousness of Claim 1, 2, 8, 9, and 11 Over Gundlach and Lee

Petitioner contends that claims 1, 2, 8, 9, and 11 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Gundlach and Lee. Pet. 17–57. To support its contentions, Petitioner provides explanations as to how the combination of Gundlach and Lee teaches each claim limitation. *Id.* Petitioner also relies upon Dr. Cooperstock’s Declaration and Supplemental Declaration (Exs. 1002, 1089) to support its positions. Patent Owner argues that the prior art does not teach all the claim limitations and Petitioner has provided insufficient rationale to combine the reference. PO Resp. 9–57. Petitioner also relies upon Dr. Toliyat’s Declaration. Ex. 2022.

We begin our discussion with a brief summary of Gundlach and Lee, and then address the evidence and arguments presented.

1. Gundlach (Ex. 1005)

Gundlach describes a device that operates as a wireless headset and can be stored and charged in a host device such as a laptop computer or a cell phone. Ex. 1005 ¶ 2. Gundlach indicates a desire for mobility while managing peripherals that accompany a portable computer. *Id.* ¶ 3. To this end, Gundlach discloses that its device’s “relatively thin shape may allow the headset to be stored and charged in a portable cradle” and the “portable cradle may be a holder, clip, case or card that may fit inside a standard expansion slot.” *Id.* ¶ 56.

Figure 1 is illustrative and is reproduced below.

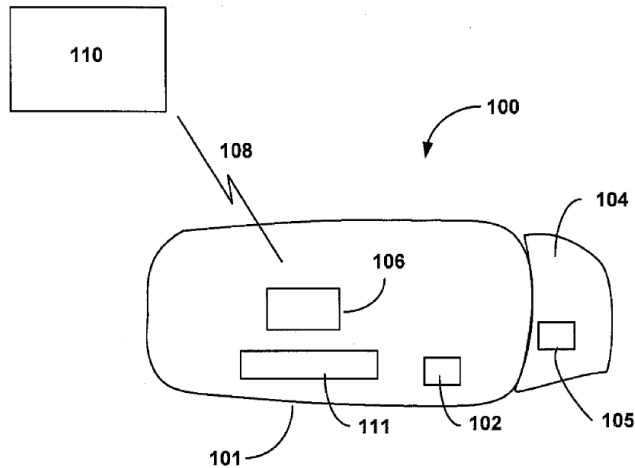


FIG. 1

Figure 1, above, shows a schematic view of a wireless device in communication with a host device. Ex. 1005 ¶ 11. Wireless device 100 includes housing 101 and earpiece 104. *Id.* ¶ 58. Housing 101 includes microphone 102, power source 111 such as a battery, and transceiver 106 for sending and receiving information 108 from host device 110 such as a computer or a cell phone. *Id.* Earpiece 104 includes speaker 105. *Id.*

Gundlach's wireless device may be held to a cradle by a magnet "which may be embedded in the cradle" and the wireless device "may include a ferromagnetic portion" such as another magnet which the magnet in the cradle may be attracted. Ex. 1005 ¶ 68. The wireless device may also be held to the cradle by "mechanical means" such that the wireless headset is retained to the cradle. *Id.*

Figure 18b is illustrative and is reproduced below.

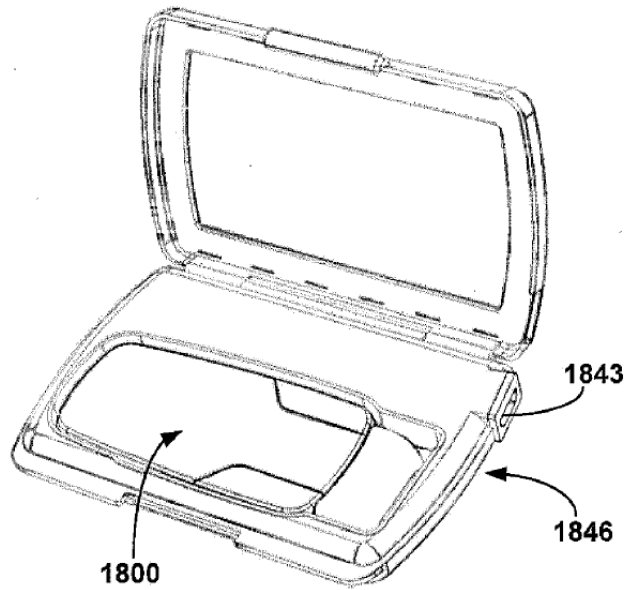


FIG. 18b

Figure 18b, above, shows a perspective view of a case for retaining a wireless device. Ex. 1005 ¶ 52. Wireless device 1800 is provided in a clamshell case that has recess 1846 “defined therein to accommodate the wireless device.” *Id.* ¶ 80.

2. *Lee (Ex. 1006)*

Lee describes a wireless battery for charging a wireless headset. Ex. 1006, 3:21–22. Lee indicates that wireless headsets require their own power source such that many use rechargeable batteries which require a method for recharging. *Id.* at 1:25–29. Lee thus provides a method for wirelessly charging a battery in a wireless headset. *Id.* at 3:32–33.

Figure 5 is illustrative and is reproduced below.

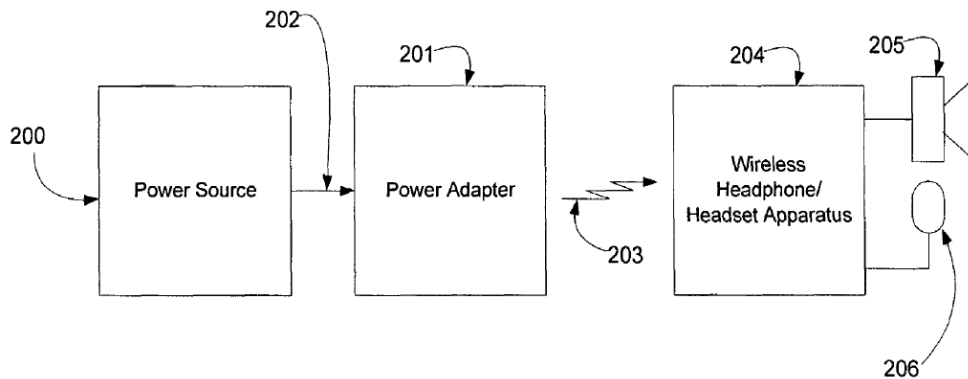


FIG. 5

Figure 5 shows a block diagram for wireless battery charging of a wireless headset. Ex. 1006, 2:14–15. Power source 200 provides energy via conductive means 202 to power adapter 201. *Id.* at 3:32–35. Power adapter 201 provides power to wireless headset apparatus 204 via non-conductive means 203, which is “typically inductive coupling.” *Id.* at 3:35–37. Lee indicates that energy can be transferred to a wireless headset via inductive coupling to an energy collection element which is then transferred to a battery via a battery charging circuit. *Id.* at 4:27–31. A headset circuit that is powered by the battery provides a drive signal to a transducer, in which the transducer has a dual purpose of producing sound and “receiving magnetic energy via [a] wireless magnetic field.” *Id.* at 4:32–39.

3. *Analysis*

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective indicia of nonobviousness.¹² *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Because many of the issues in dispute relate to the rationale to combine Gundlach and Lee, we will address those issues first.

a) *Rationale to Combine*

Petitioner argues that a person of ordinary skill in the art would have been motivated to combine Gundlach and Lee and, more specifically, would have exchanged Gundlach’s conductive charging components with Lee’s inductive charging components. Pet. 12–15; *see* Ex. 1003 ¶ 37. Petitioner asserts there would be motivation to pursue the combination of Gundlach with Lee because a person of ordinary skill in the art: 1) would have looked to Lee for details on charging in view of Gundlach’s deficient descriptions; 2) would have recognized that inductive charging is a suitable alternative to conductive charging that was known to produce similar results; 3) would

¹² No evidence of objective indicia of nonobviousness has been presented by Patent Owner. *See generally* PO Resp.

have appreciated benefits of inductive charging such as enhanced reliability; 4) would have appreciated that Lee’s inductive charging solution was consistent with Gundlach’s goal of providing a compact form factor; and 5) would have viewed Lee’s inductive charging solution as providing interoperability whereas the wireless headset could be recharged using other types of chargers beyond the clamshell case without a penalty of additional hardware. Pet. 12–15.

For the first basis for the combination, Petitioner argues that although Gundlach teaches featuring “a wireless mono or stereo headset” that is “stored and *charged*” in a “portable cradle,” it “does not *expressly* describe the manner in which the headset’s ‘charging circuitry’ responds when placed in the cradle for charging.” Pet. 12 (citing Ex. 1005 ¶ 55). Petitioner contends, and we agree, that Gundlach notes that “[t]he case may contain . . . charging circuitry” and “electrical contacts,” but it “is largely unconcerned with implementation details of charging.” *Id.* (citing Ex. 1005 ¶¶ 69, 73, 79–80; Ex. 1003 ¶ 35). Petitioner asserts, and we agree, that in light of the limited disclosures in Gundlach, a person of ordinary skill in the art “would have seen a need for elaboration and description of design options.” *Id.* In support, Dr. Cooperstock testifies that a search for supplemental disclosures “would have led the POSITA to Lee, a reference addressing this topic in the same context as Gundlach—wireless headsets.” Ex. 1003 ¶ 35.

Contrary to Petitioner’s assertions on this issue, Patent Owner argues that “Gundlach provides ample disclosure concerning its conductive charging via contacts 326 and micro-USB connections.” PO Resp. 9. We do not agree. Dr. Cooperstock’s testimony on this issue is that although Gundlach’s disclosures are “robust on structural aspects of the wireless

headset and storage solutions,” there is “significantly less guidance and implementation details on the subject of charging.” Ex. 1003 ¶ 35. This testimony is supported by the record—Gundlach discloses that the case may contain charging circuitry and electrical contacts, but there is no description of the circuitry or details of charging. Ex. 1003 ¶ 35; Ex. 1005 ¶¶ 69, 73, 79, 80. And although Patent Owner asserts that the disclosure is ample, there is no identification of what the disclosure actually is, short of the identification of contacts 326 and micro-USB connections. PO Resp. 9. And although Dr. Toliyat testifies that “Gundlach provides ample disclosure on its conductive charging to a POSITA, because conductive charging would be a relatively simple and straightforward process,” Dr. Toliyat states this in a conclusory manner absent supporting evidence. Ex. 2022 ¶ 88.¹³ As such, we find that the record supports that the disclosure of Gundlach is limited, and this supports Dr. Cooperstock’s testimony that one of ordinary skill in the art would have been led to a wireless headset reference like Lee for supplemental disclosure. Ex. 1003 ¶ 35.

Petitioner also asserts, and we agree, that a person of ordinary skill in the art would have recognized that inductive charging is a suitable alternative to conductive charging. Pet. 14. Dr. Cooperstock provides supporting testimony that a person of ordinary skill in the art would have known that “inductive charging was an industry-recognized alternative to conductive charging that produced substantially similar results, particularly in the context of low-power portable devices. Ex. 1003 ¶ 41. Dr.

¹³ Page 9 of Patent Owner’s Response contain references to “Ex. 1022,” and, in context, it appears that the references were intended to be to “Ex. 2022.”

Cooperstock refers to inductive chargers used for smart phones and media players that were established commercial products at the time of the invention. *Id.* (citing Ex. 1020; Ex. 1021; Ex. 1022). Dr. Cooperstock further testifies that in the routine design process a person of ordinary skill in the art “developing a portable device and associated charger” “would have contemplated an inductive charging solution like Lee’s.” *Id.*

In contrast, Patent Owner asserts that a person of ordinary skill in the art would not have seen inefficient inductive charging “as an industry-recognized alternative to efficient conductive charging for low power portable devices” and would not have sought Lee’s inductive charging “as producing substantially similar results as conductive in the context of low-power portable devices.” PO Resp. 10 (citing Ex. 2022 ¶ 92). Patent Owner argues that a person of ordinary skill in the art would have known that the Powermat and the Palm Touchstone charger in 2001 were not for portable charging like Gundlach’s clamshell case and instead were used as a conduit for power from a wall socket of a USB connection. *Id.* at 10–14. Patent Owner asserts that a person of ordinary skill in the art “would not have been aware of any portable, especially hand-held, low power consumer electronic products that inductively charged directly from a portable battery powered device to portable battery powered device in 2011.” *Id.* at 15 (citing Ex. 2022 ¶ 96).

We do not find that Patent Owner’s arguments undermine Petitioner’s persuasive showing. Petitioner proposes modifying Gundlach’s conductive charging components with Lee’s inductive charging components, and the relevant aspect at issue is charging of a wireless headset. *See* Ex. 1003 ¶¶ 36, 42. We agree with Petitioner that Lee, as well as Gundlach, include

embodiments for storing and charging wireless headsets. Ex. 1003 ¶ 36 (citing Ex. 1005 ¶ 80; Ex. 1006, 6:39–46). We also agree that Lee itself discloses the motivation to modify Gundlach’s conductive charging—Lee identifies that in previously-known wired methods of recharging batteries in wireless headsets there were disadvantages of increased size and risk of failure, and Lee’s improvements presented opportunities to correct those problems. Pet. Reply 1–2 (citing Ex. 1006, 1:14–2:2, 3:15–6:4). We discuss Patent Owner’s arguments related to alleged size and failure issues below, but we agree with Petitioner that Lee describes a low power electronic device that utilizes inductive charging as an alternative to conductive charging like that utilized in Gundlach. *Id.* Lee also provides reasons why a person having ordinary skill in the art would have modified Gundlach to include Lee’s inductive charging.¹⁴ *Id.*; Pet. 14–15. We agree with

¹⁴ Although Patent Owner argues that Petitioner’s assertion of a motivation based on Lee’s teachings is a new theory (PO Sur-Reply 8), we do not agree. The Petition discusses Lee’s teachings as offering advantages to Gundlach (Pet. 14–15), with Dr. Cooperstock testifying that Lee discloses its enhanced “reliability,” in view of the known failure-prone nature of electric contacts, and that “a POSITA would have appreciated that the benefits of inductive charging disclosed by Lee also would apply to Gundlach’s embodiments.” Ex. 1003 ¶ 42 (citing Ex. 1006, 1:62–2:2, 3:17–20).

Additionally, even though we do not find that Petitioner raises a new issue in Reply, Patent Owner argues for the first time in Sur-Reply that Lee’s teachings are limited, that is, they “might arguably suggest, if anything, some advantage [of inductive charging], if any, over a USB cord.” PO Sur-Reply 9 (citing Ex. 1006, 1:62–2:2). We do not find this argument persuasive because Gundlach is not limited to charging of the headset battery from the case battery. Gundlach discloses that the case *may* contain a reserve power supply, such as a reserve battery. Ex. 1005 ¶ 80. If a battery is not used, power could be sent to the headset battery via the power supply adapter in the case. *Id.* In this case, Gundlach’s charging of the

Petitioner that, accordingly, Lee provides motivation to one of ordinary skill in the art to modify Gundlach. *KSR*, 550 U.S. at 417 (“When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.”).

Additionally, we are not persuaded by Patent Owner’s arguments directed to the use of inductive charging in portable low power consumer electronic products and, more particularly, to Dr. Toliyat’s testimony that at the time of the invention he was not aware of any hand-held, consumer portable earpiece charging systems that did not use conductive charging to charge an earpiece from a portable, battery powered case. PO Resp. 15; Ex. 2022 ¶¶ 96, 99. Patent Owner’s arguments are narrowly directed to “consumer portable earpiece charging systems,” absent explanation why the issue of whether the product is a consumer product is specifically relevant to the consideration of the use of a modification with inductive charging. Patent Owner also attempts to differentiate charging from a portable battery-powered device, but, as explained *supra* note 14, Gundlach is not limited to charging from a portable, battery powered case. Moreover, because Dr. Toliyat testified during cross-examination that he could not recall doing any work on or researching earbuds or headsets, we afford little weight to his testimony on this issue. Ex. 1088, 19:19–21. Instead we credit Dr. Cooperstock’s testimony that inductive charging was an industry-recognized

wireless headset would not be “from a portable battery powered device to portable battery powered device,” and instead would be similar to Lee’s charging by USB connection.

alternative to conductive charging in the context of low-power portable devices because it is supported by the evidence of record. Ex. 1003 ¶ 41. For instance, the Wireless Power Consortium, a multi-national group of electronics companies formed in 2008, was promoting commercial adoption of inductive charging by standardizing specifications for inductive transmitters and receivers. Pet. Reply 9–10 (citing Ex. 2032¹⁵). Exhibit 2032 describes that the Wireless Power Consortium (WPC), comprised of “a group of Asian, European, and American companies in diverse industries, including electronics manufacturers” has defined “the type of inductive coupling (coil configuration) and the communications protocol *to be used for low-power wireless devices.*” Ex. 2032, 1 (emphasis added). The evidence of record also provides additional support that there were products commercially available in the market that inductively charged portable devices, so inductive charging was an available option. Ex. 1003 ¶¶ 40–41; Ex. 1020; Ex. 1021; Ex. 1022. Dr. Cooperstock testifies that the Powermat and Touchstone inductive chargers were available at the time of invention, and that in a design process a person of skill who is “developing a portable device and associated charger—here, the wireless headset and charging case provided by Gundlach—would have contemplated an inductive charging solution like Lee’s.” Ex. 1003 ¶ 41. Accordingly, the evidence of record supports that a person of ordinary skill in the art would have recognized that inductive charging was a known alternative to conductive charging.

¹⁵ Patent Owner presents Exhibit 2032 as being relevant to what a person of ordinary skill in the art would have known at the time of the invention. Ex. 2022 ¶ 121.

Turning to the issue of alleged enhanced reliability, Petitioner asserts that Gundlach's reliability could be improved by combining it with Lee to use inductive charging because, as Dr. Cooperstock testifies, there can be failure caused by fatigue and corrosion of electrical contact elements, and particularly for wireless headsets, which are issues recognized by Lee and other literature. Pet. 14–15 (Ex. 1003 ¶¶ 42–43; Ex. 1006, 1:62–2:2; Ex. 1023, 1:39–60 (Flowerdew patent)). The record indicates that Gundlach was cognizant of potential problems with the electrical contacts for recharging the wireless device, even with the use of USB charging, and sought to mitigate them by specific design, i.e. sliding or latching connections between the wireless device and the USB charger. Ex. 1005 ¶ 66. Gundlach's disclosures do not indicate whether some potential problems could remain with the electrical connections, even with its alternative designs, and Lee identifies the issue of corrosion, which may be an issue with electrical contacts. *See id.*; Ex. 1006, 1:62–2:2. Petitioner argues therefore that eliminating contact elements and using inductive charging would improve reliability. Pet. 14; Ex. 1003 ¶ 42. Based on this evidence, we find that the record supports that modifications to use Lee's inductive changing would serve to enhance reliability.

Patent Owner argues that Petitioner's assertion that conductors would add unreliability "is a fiction because conductive contacts would have more than ample reliability for Gundlach's applications." PO Resp. 16. Dr. Toliyat testifies that "[c]orrosion might be a design consideration for something like connectors in a highly salty or acidic environment, but not for Gundlach's encase[d] headsets," and if a person of ordinary skill in the art had a concern with potential corrosion, corrosion-resistant material could

be used for connectors. Ex. 2022 ¶ 100. We weigh this testimony against Dr. Cooperstock's testimony that a person of ordinary skill in the art "would have been motivated to eliminate a failure-prone component to achieve a more reliable design," and credit Dr. Cooperstock's testimony because it is supported by the evidence of record. More particularly, contrary to Dr. Toliyat's testimony that corrosion would not be an issue, Lee indicates otherwise. Ex. 1006, 1:62–2:2. Further, Gundlach identifies alternatives that should be considered for the electrical connection. Ex. 1005 ¶ 56. Accordingly, the record supports a finding that a person of ordinary skill in the art would have recognized a potential for problems with electrical connections and would have been motivated to consider other options, such as inductive charging.

Petitioner also alleges that the combination of Lee's inductive charging in Gundlach would lessen bulk and size due to conductor removal and would be consistent with Gundlach's compact form factor. Pet. 10 (citing Ex. 1003 ¶ 31), 15 (citing Ex. 1003 ¶ 44; Ex. 1005 ¶¶ 56–57; Ex. 1006, 2:62–66, 4:55–57, Fig. 12; Ex. 1029). More specifically, Dr. Cooperstock testifies, and Lee discloses, that conventional charging techniques "add size" to the wireless headset. Ex. 1003 ¶ 31. Patent Owner discounts this teaching of Lee because electrical contacts for charging Gundlach's headset are only a couple of millimeters. PO Resp. 15 (citing Ex. 1005 ¶ 57; Ex. 2022 ¶ 97). We do not find that Patent Owner's arguments undermine Petitioner's showing on this issue because the record supports Petitioner's assertions. Lee notes reductions in size as an advantage. Ex. 1006, 1:64–66. Further, a person having ordinary skill in the art at the time of the invention would have known that eliminating electrical

contacts, like those in Gundlach’s headset, would reduce bulk even if only “a couple of millimeters” because the conductors would be eliminated entirely with the use of inductive charging. Ex. 1005 ¶ 66, Figs. 9a, 9b.

Patent Owner additionally argues that Lee’s inductive charging solution was not consistent with Gundlach’s compact form factor because Gundlach’s charging contacts occupy less space than the necessary coils, circuitry, and larger battery needed by Lee’s inductive charging solution. PO Resp. 16–17 (citing Ex. 2022 ¶¶ 104–105), 18 (arguing that the Gundlach-Lee combination would require a larger, heavier form factor due to larger battery and additional circuitry). Patent Owner further argues that Gundlach’s clamshell case is capable of insertion into a laptop or phone slot, but replacing Gundlach’s conductive charging with inductive charging would obviate these benefits. *Id.* at 17 (citing Ex. 2022 ¶¶ 106–109), 37. Dr. Toliyat testifies that a POSITA would have understood that “Gundlach requires a compact form factor . . . because it wants to charge and provide data [to] the headset from a slot in a PC or phone” and “that Gundlach requires its headsets to be conductively charged inside a laptop or cell phone expansion slot.” Ex. 2022 ¶¶ 105, 109. Dr. Toliyat, however, fails to consider that Gundlach’s language regarding charging per expansion slots is permissive, not mandatory. Ex. 1005 ¶ 56 (the portable cradle “*may* fit inside a standard expansion slot” or “a unique slot or cavity *may* be designed”) (emphases added), ¶ 70 (describing a configuration “that *may* allow the cradle to be inserted into a slot in a host device”) (emphasis added), ¶ 80 (describing a clamshell case for charging a headset through power supply adapter 184 capable of receiving USB connector without mention of charging through an expansion slot). Instead, Dr. Cooperstock’s

testimony that “a POSITA would have appreciated that Lee’s approach was consistent with the expressly stated design goal of Gundlach to provide a compact form factor” is entitled to substantial weight because it is consistent with Lee’s own teaching. Ex. 1003 ¶ 44. For example, Lee describes a charging solution for wireless headsets that achieves “a reduction of size and weight” and further describes “a mechanism to re-charge batteries in wireless headphones/headsets in order to minimize size, weight, maximize reliability, and improve end user experience” through inductive charging. Ex. 1006, 1:62–66, 3:17–20, 3:32–37. On the other hand, we do not afford substantial weight to Dr. Toliyat’s testimony that the “Gundlach-Lee combination would require a larger and heavier form factor due to the additional circuitry and larger clamshell battery” because insufficient factual basis had been provided in support. Ex. 2022 ¶ 114.

Accordingly, we find that the weight of the evidence supports that Lee’s inductive charging solution was consistent with Gundlach’s goal of providing a compact form factor.

Petitioner additionally asserts, and we agree, that a person of ordinary skill in the art would recognize that Lee’s inductive charging would provide an interoperability advantage to Gundlach’s wireless headset. Pet. 15 (citing Ex. 1003 ¶ 45). As Dr. Cooperstock testifies, with the modification to add inductive charging, Gundlach’s wireless headset could be recharged using other types of chargers, such as charging pads, and recharging would therefore not be limited to the use of the clamshell case. *Id.* (citing Ex. 1005 ¶ 66; Ex. 1006, Figs. 16, 18, 19). Although Patent Owner argues that Lee’s dual-purpose coil design would not work with a charging pad because there would be coil alignment issues, we do not find that Patent Owner’s

assertions undermine Petitioner’s showing. PO Resp. 17–19 (citing Ex. 2022 ¶¶ 115–116), 35–36 (citing Ex. 2022 ¶¶ 157–158). Dr. Toliyat’s testimony focuses narrowly on what Lee allegedly teaches with respect to Lee’s Figure 16. Ex. 2022 ¶ 157. Dr. Toliyat assumes that Figure 16 does not apply to Lee’s Figure 12 embodiment due to how the coil would be arranged in the earpiece shown in Lee Figure 12. *Id.* ¶¶ 157–158. However, Petitioner does not propose modifying the Gundlach-Lee combination by placing a coil in the Gundlach earpiece. *See, e.g.*, Pet. 15; Tr. 46:12–47:1. We agree with Petitioner, however, that Lee’s form factor is not the correct frame of reference to consider and rather “[w]hat matters is that a POSITA would have understood that *Gundlach*’s form factor is particularly well suited for using a charging mat.” Pet. Reply 14–15. On this issue, as well as others, Patent Owner’s arguments are based on bodily incorporating Lee’s circuit into Gundlach’s clamshell/headset arrangement without considering what the combined teachings of Gundlach and Lee would have suggested to a person having ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425 (Fed. Cir. 1981).¹⁶

Accordingly, we find that the weight of the evidence supports that that a person of ordinary skill in the art would have recognized that Lee’s inductive charging would provide an interoperability advantage to Gundlach’s wireless headset.

Patent Owner presents arguments that a person of ordinary skill in the art would not have been motivated to replace Gundlach’s efficient

¹⁶ The Petition indicates that it does not propose bodily incorporating Lee into Gundlach. Pet. 14 n.2.

conductive charging with far less efficient inductive charging. PO Resp. 10, 20–27. We, however, agree with Petitioner that to the extent there were known inefficiencies with inductive charging, a person having ordinary skill in the art would have known of tradeoffs between inductive and conductive charging, but would still have known inductive charging to be a viable alternative to conductive charging. Pet. Reply 5, 9–10. Although there may be disadvantages of inductive charging, these are weighed against potential advantages. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (stating that “a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine”); *see also Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349, n.8 (Fed. Cir. 2000) (“The fact that the motivating benefit comes at the expense of another benefit . . . should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.”). Additionally, an obviousness determination does not turn on whether the proposed combination is the preferred or most desirable combination. *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004); *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1197–98 (Fed. Cir. 2014). As discussed above, inductive charging offers some recognized advantages, including enhanced reliability and interoperability advantages, to conductive charging and was a known alternative at the time of the invention.

More specifically, Patent Owner argues that Lee’s dual role transducer coil depicted in Lee Figure 12 would be much less efficient than conventional inductive charging and that the transducer coil would be small, vibrate a speaker diaphragm, result in a large air gap, and produce excessive

heat. PO Resp. 26–31 (citing Ex. 2022 ¶¶ 131–148). But, Patent Owner and Dr. Toliyat narrowly focus on bodily incorporating Lee’s circuit into Gundlach’s clamshell/headset arrangement without considering what the combined teachings of Gundlach and Lee would have suggested to a person having ordinary skill in the art. Further, Patent Owner incorrectly assumes that Petitioner proposes placing the dual role transducer coil in the earpiece of Gundlach, as discussed above. PO Resp. 19.

Dr. Toliyat also testifies that Lee presents several constraints that would result in inefficient inductive charging. Ex. 2022 ¶¶ 131–148. Dr. Toliyat testifies that “a POSITA would have to spend a significant amount of time and money on experimentation to try to make Lee’s Fig. 12 device work, especially with any meaningful level of efficiency” and that a “POSITA would have never seen a wire coil capable of both acting as a transducer and an inductive charging coil.” Ex. 2022 ¶ 148. This testimony overlooks Lee itself, however, which teaches using a wire coil as a transducer and inductive charging coil. Further, Dr. Toliyat does not explain why effort to “make Lee’s Fig. 12 work” constitutes undue, rather than routine, experimentation. Moreover, Exhibit 1029 also describes embodiments of a headset with a multi-purpose coil that “functions multiply to receive charging power for [the] battery, generate a wake up signal, or receive an audio signal carrier.” Ex. 1029, 8:35–46. Additionally, and in contrast to his undue experimentation statements, Dr. Toliyat acknowledges that a person of ordinary skill in the art would have known how to design an inductive charging system for Gundlach by arranging the dual purpose coil flat and parallel to a coil in Gundlach’s case. Ex. 2022 ¶ 152. Thus, we do not afford substantial weight to Dr. Toliyat’s testimony that a person having

ordinary skill in the art would have never seen a dual purpose coil or that it would have required the person an undue amount of experimentation “to make Lee’s Fig. 12 device work.” Ex. 2022 ¶ 147.

Patent Owner additionally argues that in the charging system taught by Lee’s Fig. 12 embodiment there is no disclosed means of communication for controlling the charging process and the charger would continue emitting its charging field and drain the clamshell case battery, which would be undesirable. PO Resp. 36–39. Patent Owner also argues that, even if there were a means of communication for controlling the charging process, such an addition to the Gundlach-Lee device would result in significant energy loss. *Id.* We agree with Petitioner that Patent Owner’s arguments are not particularly relevant to Petitioner’s motivations to combine Gundlach and Lee, and that to the extent relevant, Lee itself teaches wireless communication between the wireless headphone/headset and power adapter. Pet. Reply 13–14 (citing Ex. 1006, 6:5–21; Ex. 1089 ¶¶ 42–46). Dr. Cooperstock testifies that if a person of ordinary skill in the art needed guidance for managing the charging process, Lee’s description of Figure 15 provides a solution. Ex. 1089 ¶ 45. Contrary to Patent Owner’s assertion (PO Sur-Reply 24), Petitioner’s argument is responsive to the arguments presented in Patent Owner’s Response, and not based on a “new theory.” Further, Petitioner refers to the same portion of Lee in the Petition that is cited in the Reply. *See, e.g.*, Pet. 36–37 (citing Ex. 1006, 6:5–21 and explaining that Lee teaches providing control signals “between the power adapter [clamshell case in Gundlach-Lee] and the headset”). Accordingly, we do not find that Patent Owner’s arguments undermine Petitioner’s showing.

Considering the multiple reasons that Petitioner provides why a person of ordinary skill would have been motivated to combine Gundlach and Lee, as supported by the evidence of record, we determine that Petitioner has provided sufficient rationale to combine the references.

b. Claim Analysis

1. Claim 1

The Petition asserts that the combination of Gundlach and Lee teaches all the limitations of claim 1. Pet. 12–42. Below we consider the claim 1 limitations in turn.

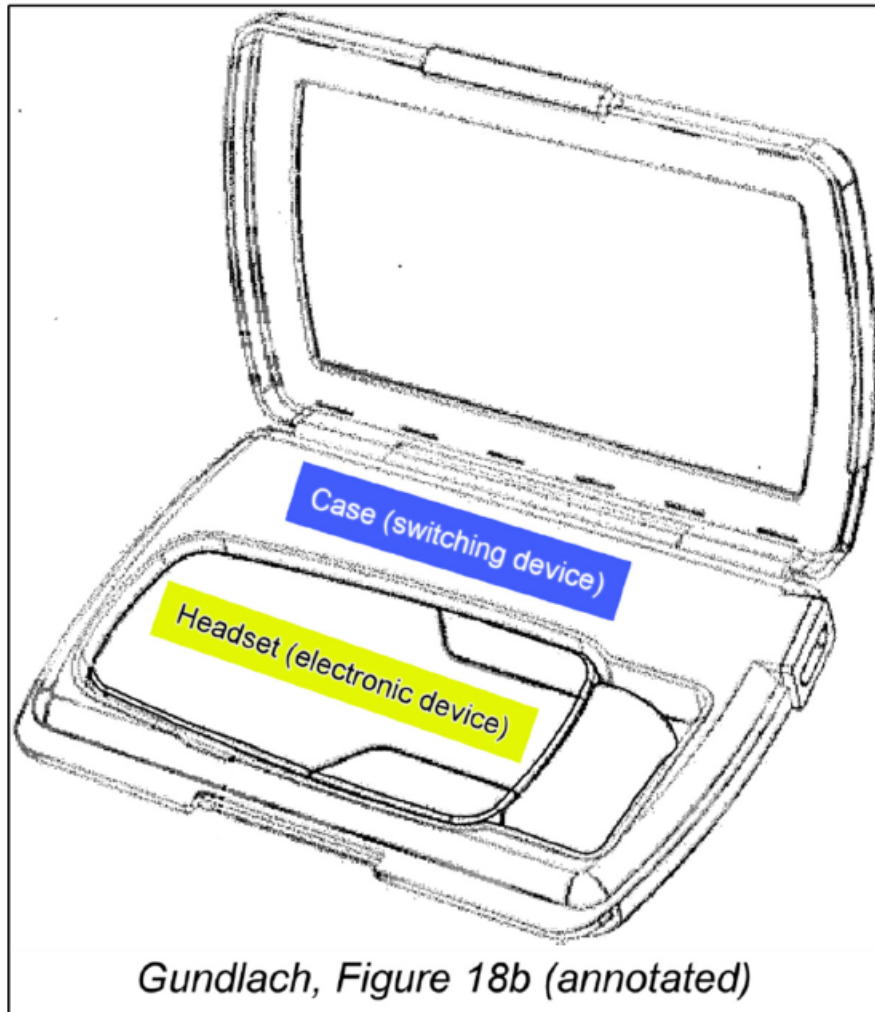
i. Preamble

Petitioner asserts that, to the extent that the preamble is limiting, Gundlach describes a system including a “wireless mono or stereo headset” and “a portable cradle,” such as a “case” where the headset is “stored and charged.” Pet. 17 (citing Ex. 1005 ¶¶ 55–56; Ex. 1003 ¶ 46). Petitioner asserts that this combination is consistent with a person of ordinary skill’s understanding of a system. *Id.* (citing Ex. 1003 ¶ 47). Patent Owner presents no arguments specifically related to the preamble. *See generally* PO Resp. We have reviewed the evidence and argument and on this complete record we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches a “system.”¹⁷

¹⁷ We need not determine whether the preamble of claim 1 is limiting because Petitioner has shown that the prior art teaches the preamble. *See Nidec*, 868 F.3d at 1017.

ii. Limitation 1[a]

Petitioner asserts that Gundlach teaches a portable charging case (portable switching device) coupled to a wireless headset (portable electronic device), as shown in annotated Figure 18a, reproduced below. Pet. 18 (citing Ex. 1003 ¶ 48).



In annotated Figure 18b, above, which is a perspective view of a case including a retained wireless device, Petitioner asserts that the headset is equivalent to the claimed “electronic device” and the case to the claimed “switching device.” Pet. 18; Ex. 1005 ¶ 52.

Petitioner asserts, and we agree, that Gundlach’s case in combination with Lee’s inductive charging is a switching device because Gundlach teaches a case, which is one form of a “portable cradle,” and Lee describes an inductive charging case that activates a charging switch in a wireless headset. Pet. 19 (citing Ex. 1005 ¶ 56; Ex. 1006, 5:12–40, 6:31–38; Ex. 1003 ¶ 50); *see also* Pet. 33–37. Petitioner contends, and we agree, that in the combination, the switching device, that is, the charging case, is coupled to the electronic device, that is, the wireless headset, at least by physical coupling. *Id.* at 21 (citing Ex. 1003 ¶ 51; Ex. 1005 ¶¶ 55–56, 80, Figs. 18a–18b).

Patent Owner presents no arguments specifically related to the limitation 1[a], except for arguments relating to the rationale to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. *See generally* PO Resp. We have reviewed the evidence and argument and on the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[a].

iii. Limitation 1[b]

Petitioner alleges, and we agree, that the combination of Gundlach and Lee teaches the limitation that the switching device is coupled to the electronic device. Pet. 22. Petitioner relies upon Gundlach’s description of a cradle embodiment where a wireless headset is secured by both mechanical means and the attractive magnetic force between embedded magnets. *Id.* at 22–23 (citing Ex. 1005 ¶¶ 67–68, Figs. 10a–10c; Ex. 1003 ¶ 55). Petitioner additionally asserts that a person of ordinary skill in the art would have

understood that the inductive coupling between the wireless headset and charging case employs magnetic force. *Id.* at 22 (citing Ex. 1003 ¶ 54).

Focusing on the physical coupling showing, Petitioner argues, and we agree, that a person of ordinary skill in the art would have appreciated that physical coupling exists when a user chooses to install the wireless headset in the charging case. Pet. 24 (citing Ex. 1003 ¶ 53). Petitioner contends, and we agree, that with respect “to the physical ***coupling***, Gundlach describes an embodiment where a wireless headset is secured within a cradle by both ‘mechanical means’ and the attractive ***magnetic force*** between respective embedded magnets.” *Id.* at 22 (citing Ex. 1003 ¶ 55; Ex. 1005 ¶¶ 67, 68, Figs. 10a–10c). Petitioner provides reasons that a person of ordinary skill in the art would have incorporated the embedded magnets disclosed in Gundlach’s cradle embodiment (Figs. 10a–10c) in the clamshell case embodiment (Fig. 18b). *Id.* at 24–25. In summary, Petitioner asserts, and we agree, that a person of ordinary skill in the art would have been motivated to incorporate the embedded magnets of the cradle embodiment into the clamshell embodiment because: 1) Gundlach discloses that a “case” is a type of “portable cradle;” 2) inclusion of embedded magnets in a clamshell case is the use of a known technique to improve a similar device in the same way; and 3) this would offer predictable advantages to promote retention of the wireless headset if the case were dropped. *Id.* (citing Ex. 1003 ¶¶ 56–62; Ex. 1005 ¶¶ 56, 68, Figs. 10, 18; Exs. 1020, 1030–1032).

As to the first basis, Petitioner argues, and we agree, that Gundlach describes that “the headset is ‘stored and charged in a portable cradle’ taking the form of ‘a holder, clip, case or card.’” Pet. 24 (quoting Ex. 1005 ¶ 56).

Petitioner contends, and we agree, that Gundlach teaches to one of ordinary skill in the art “that a ‘case’ is an exemplary type (species) of ‘portable cradle’ (genus).” *Id.* (citing Ex. 1003 ¶¶ 57–58). Petitioner further contends, and we agree, “[w]ith this genus-species relationship between ‘cradles’ and ‘cases’ in mind, the POSITA would have understood that certain features of Gundlach’s Figure 10 cradle embodiment—such as the coupling via magnetic force—are generally applicable to the Figure 18 clamshell case embodiment.” *Id.*

Patent Owner argues that as to the first basis Petitioner’s genus/species argument is incorrect because “Gundlach does not state that a clamshell case 1860 is a species of cradle, nor would a POSITA understand something with a lid to be a cradle,” and that the teachings of the cradle would not be applicable to the clamshell case. PO Resp. 43 (citing Ex. 2022 ¶ 173). We are not persuaded by Patent Owner’s argument because Gundlach explicitly states that the “cradle may be a holder, clip, case, or card.” Ex. 1005 ¶ 56. Accordingly, Dr. Toliyat’s testimony that “Gundlach does not state that a clamshell case 1860 is a species of cradle” does not appear to recognize the meaning of Gundlach’s disclosure regarding a cradle. Ex. 2022 ¶ 173. Additionally, Dr. Toliyat testifies that a person having ordinary skill in the art would not “understand something with a lid to be a cradle,” but this is stated in a conclusory manner not supported by any evidence. *Id.* Therefore, we agree with Petitioner that a case as described in Gundlach is a type of cradle, such as the Figure 10 cradle. Pet. Reply 18.

As to the second basis, Petitioner points to the Figure 10 cradle embodiment of Gundlach for improvements to the Figure 18 clamshell

embodiment. Pet. 23–25. Petitioner asserts, and we agree, that a person of ordinary skill in the art would view the “inclusion of embedded magnets in a clamshell case as merely the use of a known technique—i.e., magnetic force to achieve a physical coupling, per the Figure 10 cradle embodiment—to improve a similar device—i.e., the Figure 18 clamshell case embodiment—in the same way.” *Id.* at 24 (citing *KSR*, 550 U.S. at 417). Dr. Cooperstock testifies, and we agree, that Gundlach suggests that in Figure 10 embedded magnets serve as a supplement to mechanical means for holding the headset to the cradle, and “[t]he Figure 18 embodiment likewise includes a mechanical solution for retaining the wireless headset—i.e., folding clamshell lids—that would be supplemented in a substantially similar way by embedded magnets.” Ex. 1003 ¶ 59.

For the third basis, Petitioner asserts, and we agree, that a person of ordinary skill in the art would appreciate the advantages of embedded magnets to “promote retention of the wireless headset within the clamshell case if the case were opened inadvertently (e.g., dropped),” “inhibit users from losing or damaging the headset,” “assist users with fitting the headset into the case,” and “holding the headset firmly in place within the case.” Pet. 25 (citing Ex. 1003 ¶¶ 60–62; Ex. 1030; Ex. 1031; Ex. 1032; Ex. 1020).

Patent Owner argues that a person of skill would not be motivated to add “an unnecessary magnet to further secure an already well secured earpiece in a clamshell case” and this addition would offer no additional protection. PO Resp. 43–44 (citing Ex. 2022 ¶¶ 174–175). Dr. Toliyat additionally testifies that a person of ordinary skill in the art would have appreciated that if the clamshell case was dropped with enough force to eject the earpiece, then adding an extra magnet would add no additional

protection. Ex. 2022 ¶ 175. Dr. Toliyat, however, fails to direct us to evidence supporting the conclusion that adding a magnet to the clamshell case would add no additional protection if the clamshell case was dropped. *See id.* ¶ 174. In contrast, Dr. Cooperstock’s testimony that “magnets were commonly used long before the Critical Date in 2011 to retain mobile phones in vehicle dashboard mounts with sufficient force to prevent inadvertent detachment when jostled during use” is entitled to substantial weight because such testimony is supported by record evidence. Ex. 1003 ¶ 60 (citing Ex. 1030, 1:50–64 (describing a mobile phone vehicle mount where magnetic forces firmly hold a phone in engagement so that the phone will not move unintentionally)).

Patent Owner did not address some of Petitioner’s other evidence provided for an additional magnet. In particular, we note that we afford substantial weight to Dr. Cooperstock’s reasonable assessment that “incorporating magnets would assist users, some of which may have lower levels of dexterity, with fitting the headset into the case,” because “a magnetic attraction would pull the headset into place against the case.” Ex. 1003 ¶ 61 (citing Ex. 1031, 2–4 (describing older users with decreased dexterity as a growing consumer group)). Dr. Cooperstock’s testimony that a person of ordinary skill in the art “would have known that incorporating magnets would facilitate inductive charging by holding the headset firmly in place within the case” is also entitled to substantial weight because it is supported by record evidence. *Id.* ¶ 62 (citing Ex. 1020, 2 (describing magnetic attraction between receiver and charging mat to ensure that alignment is precise for efficient charging)).

Patent Owner also argues that adding magnets would increase weight and the size of Gundlach's earpieces and risk getting the device stuck in Gundlach's laptop expansion slot. PO Resp. 44 (citing Ex. 2022 ¶ 177). We agree with Petitioner that "[s]ize and weight penalties are design tradeoffs that do not preclude obviousness." Pet. Reply 20. We further agree with Petitioner that Gundlach's clamshell case embodiment is not limited to fitting within the expansion slot of a laptop, as explained above. *Id.*

On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[b].

iv. Limitation 1[c]

Petitioner asserts, and we agree, that in Gundlach, the clamshell inductive charging case, which is the first case, provides a switching device. Pet. 26 (citing Ex. 1003 ¶ 63).

Patent Owner presents no arguments specifically related to the limitation 1[c], except for arguments relating to the rationale to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. PO Resp. 46. On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[c].

v. Limitation 1[d]

Petitioner asserts, and we agree, that Gundlach discloses a wireless headset, the electronic device, that includes a "housing," that is, a second case. Pet. 27 (citing Ex. 1005 ¶¶ 58–59, 65, Figs. 1, 2a–2f, 8). Petitioner contends, and we agree, that the combined teachings of Gundlach and Lee yield a clamshell case that stores and inductively charges a wireless headset.

Id. at 28 (citing Ex. 1005 ¶¶ 56, 80, Figs. 18a, 18b; Ex. 1006, 3:50–62, Fig. 7). We also agree with Petitioner’s assertion that Lee teaches that the wireless headset has an electronic battery charging circuit that “manages charging of the battery by taking the raw energy received by the [energy collecting] coil and providing the proper voltage to the battery based on its type.” *Id.* (quoting Ex. 1006, 4:62–66). Petitioner contends, and we agree, that in the combined Gundlach-Lee device, the battery charging circuit of the headset (electronic device) is responsive to the clamshell charging case (switching device) “which provides ‘[t]he energy received by the coil [and] transferred via the battery charging circuit to the battery.’” *Id.* (quoting Ex. 1006, 4:57–59). We agree with Petitioner that the Gundlach-Lee charging case would have resulted in an inductive charging case that activates a charging “switch” in a wireless headset. *Id.* at 19–20 (citing Ex. 1006, 5:12–40, 6:31–38, Figs. 12, 17; Ex. 1003 ¶ 50; Ex. 1001, 18:6–18).

Patent Owner argues that in the view of a person of ordinary skill in the art “the portion of Lee relied upon by Apple is not disclosed by Lee to involve anything more than the passive receipt of a charge by a battery charging circuit” and that the person of skill “would not understand such passive receipt of electric current flowing automatically from negative to positive to be switching.” PO Resp. 47 (citing Ex. 2022 ¶¶ 185–186). Dr. Toliyat testifies the same. Ex. 2022 ¶¶ 185–186. Dr. Toliyat’s testimony, however, does not account for what Lee teaches. We agree with Petitioner that “Lee’s battery charging circuit ‘manages charging of the battery by taking the raw energy received by the [energy collecting] coil and providing the proper voltage to the battery based on its type’” which amounts to more than just “passive receipt of a charge.” Pet. Reply 21 (quoting Ex. 1006,

4:62–66). We afford substantial weight to Dr. Cooperstock’s testimony that Lee’s “battery charging *circuit* only transfers energy to the battery when the charging case (*switching device*) provides that energy through the inductive coupling, meaning that the battery charging circuit’s function is triggered by—i.e., *responsive to*—the charging case.” Ex. 1003 ¶ 66 (referring to Fig. 12 of Lee).

On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[d].

vi. Limitation 1[e]

Petitioner asserts, and we agree, that a person of ordinary skill in the art would have been motivated to incorporate the embedded magnets of Gundlach’s cradle embodiment into the clamshell case embodiment. Pet. 29 (citing Ex. 1005, Figs. 10a–10c, 18a–18b). Petitioner asserts that Gundlach discloses that one magnet is embedded in the case and that the wireless headset may also include another magnet. *Id.* (citing Ex. 1005 ¶ 68; Ex. 1003 ¶ 67). Petitioner asserts that to the extent Gundlach does not expressly state that the magnet of the wireless headset is fully disposed within the headset, a person of skill would have understood as much or otherwise been prompted to pursue such configuration because: 1) the magnet is embedded in the case, and a person of skill would have been led to a similar solution for the headset; 2) a person of skill would have recognized various predictable advantages of embedding the magnet, such as maintaining the compactness envelope of the headset and protecting the magnet against corrosion, debris accumulation, and impact damage; and 3) embedding the magnet would have been a design choice among a small number of options.

Id. at 30 (citing Ex. 1003 ¶¶ 68–71; Ex. 1005 ¶¶ 56–57, 68). We determine that Petitioner has made a sufficient showing for the proposed modification based on the evidence of record.

Patent Owner’s argument that a person of ordinary skill in the art would not be motivated to incorporate embedded magnets of Gundlach’s cradle embodiment into the clamshell case embodiment do not undermine Petitioner’s showing for the reasons discussed above. PO Resp. 48.

On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[e].

vii. Limitation 1[f]

Petitioner asserts, and we agree, that as an example of its teaching of this limitation, Gundlach explains that the clamshell case has “a recess [] defined therein to accommodate the wireless [headset].” Pet. 31 (citing Ex. 1005 ¶ 80, Fig. 18b). With this, Petitioner asserts that the contour of the wireless headset (the electronic device) is configured to correspond to complimentary surface elements of the recess in the case (the switching device). *Id.* (citing Ex. 1003 ¶ 72).

Patent Owner presents no arguments specifically related to the limitation 1[f], except for arguments relating to the rationale to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. PO Resp. 48. On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[f].

viii. Limitation 1[g]

Petitioner contends that Gundlach teaches that its embedded magnets serve to couple the wireless headset to the clamshell case by magnetic force. Pet. 32. Petitioner further asserts that a person of ordinary skill in the art would have known that the magnetic force would be overcome to facilitate decoupling of these components. *Id.* at 33 (citing Ex. 1003 ¶ 74).

Petitioner relies on several disclosures in Lee for the teaching of the “activation” and “deactivation” portion of the claim limitation. Pet. 33–37. More specifically, Petitioner contends that the combined teachings of Gundlach and Lee satisfy this claim element in four ways. *Id.* Here, we focus our analysis on Petitioner’s first, second, and fourth showings and begin with Petitioner’s fourth showing.

For its fourth showing, Petitioner argues, and we agree, that a person of ordinary skill in the art would have been motivated to configure the Gundlach-Lee clamshell charging case to place the wireless headset in a hibernation mode by deactivating at least the battery-powered headset circuit when the headset is stored and charging. Pet. 36–37 (citing Ex. 1006, 4:51–5:11, Fig. 15; Ex. 1003 ¶¶ 80–83; Exs. 1033, 1060, 1061). Petitioner further contends, and we agree, that a person of skill “contemplating Gundlach-Lee would have recognized Lee’s teaching of a ‘wireless data communication channel’ for ‘provid[ing] control signals’ between the power adapter [clamshell case in Gundlach-Lee] and the headset.” *Id.* at 36 (citing Ex. 1006, 6:5–21, Fig. 15). Petitioner asserts, and we agree, that a person of ordinary skill in the art “also would have appreciated that it was known to utilize a control signal for triggering component *deactivation* in a portable device, and that such a signal could be easily leveraged to *deactivate* Lee’s

‘headset circuit’” and that it was known to place portable devices into a hibernation mode. *Id.* at 36 (citing Ex. 1003 ¶ 82; Ex. 1033). Petitioner explains, and we agree, that a person of ordinary skill in the art would have been motivated to deactivate the headset when not in use, such as when stored in the clamshell case to conserve battery power, to speed up the charging process, and to improve usability. *Id.* at 37 (citing Ex. 1003 ¶ 83).

Patent Owner argues as to all of Petitioner’s showings, that a person of ordinary skill in the art would not be motivated to replace Gundlach’s “efficient conductive charging with [Lee’s] highly questionable and inefficient inductive charging with a dual role transducer coil.” PO Resp. 49. For reasons discussed above, this argument does not undermine Petitioner’s showing. For Petitioner’s fourth showing, Patent Owner also argues that the “headphone/headset circuit 468 in Fig. 12 would control power to the headphone consistent with whether the headset itself is powered on or off using its own on/off controls.” *Id.* at 52 (citing Ex. 2022 ¶ 203). Patent Owner further argues that “[t]he only external control signal is shown in a Fig. 14 device, not the Fig. 12 device” and that “there is no teaching or suggestion of even those control signals being used to power or depower the headphone.” *Id.* (citing Ex. 1006, 5:56–6:4; Ex. 2022 ¶ 203). Lastly, Patent Owner argues that “a POSITA would not understand that merely turning on power to an earphone would constitute activating a Gundlach earpiece, or that merely turning off power to an earphone would constitute deactivating or hibernating a Gundlach earpiece.” *Id.* at 53 (citing Ex. 2022 ¶ 204).

Patent Owner’s arguments do not undermine Petitioner’s fourth persuasive showing. Dr. Toliyat’s testimony largely repeats the above

arguments, and the testimony is misplaced and narrowly focused on Lee in isolation. For instance, Dr. Toliyat testifies that “Lee’s Fig. 12 embodiment relied upon by Dr. Cooperstock lacks any disclosed means for such control signals to be sent or received” and that “[t]he only external control signal is shown in a Fig. 14 device, not the Fig. 12 device.” Ex. 2022 ¶ 202. But this testimony is of no moment, as Petitioner does not solely rely on Lee’s Figure 12 embodiment and does not rely at all on the Figure 14 embodiment. *See* Pet. 36–37. As Petitioner argues, and we agree, “the Petition does not rely on the disclosure in Figure 12,” but “presents a theory of obviousness where the POSITA would have been motivated to utilize the control signals Lee discussed regarding Figure 15 to deactivate the headset circuit and/or place the wireless headset in hibernation mode.” Pet. Reply 23–24 (citing Pet. 36–37; Ex. 1003 ¶¶ 80–83; Ex. 1033; Ex. 1060; Ex. 1061). Accordingly, Dr. Toliyat’s testimony that “[w]ithout more details of what might constitute activation, deactivation or hibernation, a POSITA would not understand that merely . . . turning off power to an earphone would constitute deactivating or hibernating” is entitled to little weight because it does not address Petitioner’s showing. Ex. 2022 ¶ 204.

In contrast, we afford substantial weight to Dr. Cooperstock’s testimony that deactivating “the ‘headset circuit’ of the Gundlach-Lee headset is consistent with a POSITA’s understanding of placing the wireless headset in a minimal-power *hibernation* mode,” because his testimony is based on factual evidence. Ex. 1003 ¶ 81 (citing Ex. 1060 ¶ 5 (describing that a portable computing device can be designed to transition into a hibernation mode in which some components of the device that consume significant power are powered down); Ex. 1061 ¶ 43 (describing that

circuitry may not receive power in the hibernation mode)). We also afford substantial weight to Dr. Cooperstock's testimony that Lee teaches a wireless data communication channel for providing control signals between the power adapter (clamshell case) and the headset, and that it was well known at the time of the invention to utilize control signals for triggering component deactivation in a portable device and that such a signal could be used to deactivate Lee's headset circuit. Ex. 1003 ¶ 82 (citing Ex. 1006, 6:5–21, Fig. 15; Ex. 1033 ¶ 30). We determine that a person having ordinary skill in the art would have been motivated to utilize Lee's control signal from the power adapter (clamshell case) to deactivate the combined Gundlach-Lee wireless headset (to deactivate the "headset circuit") in order to "conserve battery power and speed up the charging process." Ex. 1003 ¶ 83. For these reasons, Petitioner has sufficiently demonstrated that the Gundlach-Lee combination for the claim 1 limitation that "the portable switching device is configured to activate, deactivate or send into hibernation the portable electronic device."

We also find Petitioner's first alternative showing persuasive. In it, Petitioner contends, and we agree, that in Gundlach-Lee, the battery charging circuit of the headset that manages charging of the headset battery is activated by the clamshell charging case because the case provides "[t]he energy received by the coil [and] transferred via the battery charging circuit to the battery." Pet. 33–34 (citing Ex. 1006, 4:57–59). Petitioner asserts that a person of ordinary skill in the art would have understood that the battery charging circuit of the headset is activated to an operative state (transferring energy to the battery) from an inoperative state in response to receiving energy from the clamshell case. *Id.* at 34 (citing Ex. 1005 ¶ 76).

For its second alternative showing, which we also find persuasive, Petitioner argues that Lee provides a switch triggered by the charging case (switching device) that activates the headset (electronic device). Pet. 34–35 (citing Ex. 1006, 5:12–40; Ex. 1003 ¶¶ 77–79; Ex. 1001, 4:1–7, 17:55–59, 18:13–18). In particular, Petitioner argues, and we agree, that when the switch is open, the battery charging circuit is isolated from the energy-receiving coil and thus is inoperative to charge the battery, but when the switch is closed, the battery charging circuit is connected to the energy-receiving coil and can operate to charge the battery. *Id.* at 34 (citing Ex. 1003 ¶ 77). Petitioner explains, and we agree, that Lee discloses that the switch automatically closes to the charge position when near the power adapter (which in the proposed combination is the Gundlach-Lee clamshell case) or opens/closes in response to a wireless control signal from the power adapter (the Gundlach-Lee clamshell case). *Id.* (citing Ex. 1006, 5:30–40). Petitioner argues that “[t]o the extent the ’320 patent’s specification equates deactivating/activating a switch in the portable electronic device with deactivating/activating the device (as claimed), Lee’s disclosure of a switch in the headset triggered by the charging case to open/close, satisfies” the limitation. *Id.* at 37 (citing Ex. 1001, 4:4–12, 18:13–18). Petitioner further argues that “[t]o the extent the ’320 patent’s specification suggests using a switch in the portable electronic device to change between on/off modes of the device is an example of activating/deactivating the device (as claimed), Lee’s similar disclosure of a switch in the headset that changes the headset between charging/non-charging modes satisfies” the limitation. *Id.* (citing Ex. 1001, 17:55–59, 18:13–18).

For Petitioner’s first and second showings, Patent Owner argues that, in view of a person of ordinary skill in the art, “the portions of Lee relied upon by [Petitioner] again do not disclose more than the passive receipt (or non-receipt) of a charge by the headset battery.” PO Resp. 50 (citing Ex. 2022 ¶ 193). Based on the reasons discussed, we are not persuaded by this argument because “the Petition does not rely on ‘passive receipt of a charge’” but instead shows that a person of ordinary skill “would have understood various aspects of the Gundlach-Lee wireless headset to transition to an operative state (activation) or inoperable state (deactivation).” Pet. Reply 22. As an example, with respect to the second mapping we agree with Petitioner that “Patent Owner does not contest that Lee’s disclosure of opening/closing a switch comports with the ’320 Patent’s specification.” *Id.* at 22–23 (citing Pet. 35; Ex. 1001, 4:1–7, 18:13–18). We agree with Petitioner that Lee’s switch in the Gundlach-Lee wireless headset (portable electronic device) changing the headset between charging/non-charging modes is not a passive receipt of a charge because the charge does not occur unless, for example, the switch is closed to provide charge to the headset charging circuit. Ex. 1003 ¶ 77. The switch is triggered by the charging case (switching device) that activates the headset (electronic device). *Id.* ¶ 78.

We agree with Dr. Cooperstock’s testimony that using the switch in the electronic device to change its mode of operation with respect to charging “is similar to the ’320 patent’s embodiment of using a switch to change between on/off modes” and that “[t]hese paradigms are analogous and not materially distinct within the broad scope of” the claim limitation, “which does not recite any specifics relating to activation/deactivation.” Ex.

1003 ¶ 78 (citing Ex. 1001, 18:13–18). We do not agree with Patent Owner (PO Sur-Reply 29–30) that Petitioner presents a new theory “that merely closing Lee’s switch 470 activates the ‘electronic device’” because the Petition included this showing. Pet. 34–35.

Accordingly, on the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[g].

ix. Limitation 1[h]

Petitioner asserts, and we agree, that Gundlach discloses that its wireless headset includes “a transceiver for sending and receiving information from a host device, such as a computer, a cell phone or a media player.” Pet. 37 (citing Ex. 1005 ¶ 58). Petitioner argues that Gundlach uses Bluetooth technology for sending/receiving information between the headset and host device. *Id.* at 38 (citing Ex. 1005 ¶¶ 3, 81). Petitioner contends, and we agree, that a person of ordinary skill in the art would have known that basic play/pause media controls were conventionally incorporated in headsets operating one of the standardized Bluetooth profiles, that is, the Audio/Video Remote Control Profile (AVRCP). *Id.* (citing Ex. 1003 ¶¶ 85–87; Ex. 1007 ¶ 6). In support, Dr. Cooperstock testifies that play/pause controls were part of the AVRCP specification. Ex. 1003 ¶ 85 (citing Ex. 1034, 17, 30–33, 51). Dr. Cooperstock also refers to wireless headsets that were known that had play/pause controls. *Id.* ¶ 86. More specifically, Dr. Cooperstock refers to Kim to reflect the knowledge of one of ordinary skill in the art, with Kim disclosing that a “conventional Bluetooth Stereo Headset is able to remotely control functions of a media player in a

Bluetooth device using . . . an Audio Video Remote Control Profile (AVRCP).” *Id.* ¶ 87 (citing Ex. 1007 ¶ 6).

Patent Owner presents no arguments specifically related to the limitation 1[h], except for arguments relating to the rationale to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. PO Resp. 48. On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[h].

x. Limitation 1[i]

Petitioner asserts, and we agree, that Gundlach’s clamshell charging case includes lids with an attaching hinge. Pet. 39 (citing Ex. 1005 ¶ 80, Figs. 18a–18b; Ex. 1003 ¶ 90).

Patent Owner presents no arguments specifically related to the limitation 1[i], except for arguments relating to the rationale to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. PO Resp. 53. On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[i].

xi. Limitation 1[j]

Petitioner argues, and we agree, that Gundlach teaches a clamshell charging case with opposing cover sections (lids). Pet. 40 (referring to Ex. 1005, Figs. 18a, b). Petitioner asserts, and we agree, that there are two independent bases for the teaching of the limitation: one cover section (lid) which configures to the thickness of the wireless device (electronic device), and the other cover section (lid) which configures to both the thickness and

contour of the wireless headset (electronic device). *Id.* at 40–41 (citing Ex. 1003 ¶ 91).

Patent Owner argues that there would be no motivation to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. PO Resp. 53. Patent Owner also argues that “Gundlach has a beveled earpiece” and a “flat/planar interior lid” and a person of ordinary skill in the art “would not understand the flat clamshell case lid to be configured to the beveled earpiece.” *Id.* at 54 (citing Ex. 2022 ¶ 208). Neither Patent Owner nor Dr. Toliyat, however, explain why “recessed to configure to the electronic device” means that the recess must completely conform to the exact shape of the electronic device, and conforming to a thickness dimension is not acceptable. That is, Patent Owner’s arguments are not commensurate in scope with the claim language which only requires that the lid be “recessed to configure to the electronic device,” which Gundlach describes. Ex. 1005 ¶ 80, Figs. 18a, b; Ex. 1003 ¶ 91). We agree with Petitioner that “Patent Owner seeks to narrow a facially broad limitation without support in the intrinsic record.” Pet. Reply 24.

With respect to Petitioner’s showing that the other cover section meets the limitation (Pet. 40–41), Patent Owner argues that the “base” of the clamshell case is not a lid, and if it were deemed a lid, then Petitioner’s “analysis of dependent claims based upon the lid highlighted above being the lid would be invalid and further lacking in merit.” PO Resp. 54 (citing Ex. 2022 ¶ 208). Dr. Toliyat’s testimony that the base of the clamshell case is not a lid is not entitled to substantial weight because there is no explanation why the bottom cover is not a lid. Ex. 2022 ¶ 208. We agree with Petitioner that nothing in the ’320 patent limits the term “lid” to a

covering on the topside of the case, nor does the patent exclude a case with two lids. Pet. Reply 25.

Accordingly, on the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[j].

xii. Limitation 1[k]

Petitioner contends, and we agree, that when the wireless headset is stored in Gundlach’s clamshell case, cover sections serve to protect it. Pet. 41–42 (citing Ex. 1003 ¶¶ 93–94). In support, Dr. Cooperstock testifies, and we agree, that “the clamshell case completely surrounds the wireless headset when the lids are held closed” and a person of ordinary skill in the art “would have expected a ‘case’ to provide some degree of protection for the object contained therein (here, a wireless headset).” Ex. 1003 ¶ 93.

Patent Owner presents no arguments specifically related to the limitation 1[k], except for arguments relating to the rationale to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. PO Resp. 54–55. On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches limitation 1[k].

xiii. Conclusion

Accordingly, having considered Petitioner’s and Patent Owner’s arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 of the ’320 patent would have been obvious over the combination of Gundlach and Lee.

2. Claims 2, 8, 9, and 11

Claim 2 depends from claim 1 and recites “wherein the switching device has a first lens.” For this claim, Petitioner contends, and we agree, that Gundlach discloses an indicator light that would be understood to be a lens-equipped light emitting diode (LED) or that it would have been obvious to implement an LED with a lens to provide the indicator light suggested by Gundlach. Pet. 42–43. Further, Petitioner argues, and we agree, that Gundlach discloses an embodiment with a host flip-phone, and flip-phones were known at the time of the invention to include cameras with lenses. *Id.* at 42–43. Petitioner provides persuasive reasons for modifying the Gundlach clamshell case with a flip-phone having a camera. *Id.*

Claim 8 depends from claim 2 and recites “wherein the second case is configured to be nonabrasive to the first lens.” For this claim, Petitioner asserts, and we agree, that it would have been desirable to manufacture the wireless headset from plastic because plastic is lightweight, low cost, and has high durability characteristics. Pet. 44–45. Petitioner further asserts, and we agree, that a person of ordinary skill in the art would have appreciated the nonabrasive nature of a smooth plastic surface, and that such a surface would not have been prone to cause abrasive damage to a lens. *Id.* at 45 (citing Ex. 1003 ¶ 101; Ex. 1049).

Claim 9 depends from claim 1 and recites “wherein the first magnet is employed in actuating the electronic circuit.” For this claim, Petitioner refers back to its showing for claim 1, and asserts that a person of ordinary skill in the art would have been motivated to incorporate embedded magnets into the clamshell case and headset for the purpose of securing the headset in the case, assisting users with fitting the headset into the case, and boosting

the consistency and efficiency of the inductive charging process. Pet. 45. Petitioner further contends, and we agree, that a person of skill would have understood that a first magnet embedded in a wireless headset that facilitates inductive charging is employed in actuating the electronic battery circuit of the wireless headset during inductive charging. *Id.* at 54–55 (citing Ex. 1003 ¶ 103; Ex. 1100 ¶ 37).

Patent Owner presents no arguments specifically related to claim 2, 8, and 9 except for arguments relating to the rationale to combine Gundlach and Lee, which we do not find persuasive for the reasons discussed above. PO Resp. 55–56. On the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches the limitations of claims 2, 8 and 9.

Claim 11 depends from claim 1 and recites “wherein the electronic device is wireless earplugs.” For this claim, Petitioner asserts, and we agree that Gundlach discloses a wireless headset (electronic device) with an earpiece that is “inserted into an ear [and] the earpiece in the ear [is used] to achieve improved sound characteristics or improved retention within the ear.” Pet. 46 (citing Ex. 1005 ¶ 63; Ex. 1003 ¶ 104). Petitioner contends that Gundlach discloses applicability to “a wireless stereo headset” including “two speakers.” *Id.* at 47 (citing Ex. 1005 ¶ 82). Petitioner asserts, and we agree, that a person of ordinary skill in the art would have understood that a stereo version of the clamshell-case embodiment would include two left/right earpieces. *Id.* (citing Ex. 1003 ¶ 108).

Patent Owner asserts that two earpieces would not fit in Gundlach’s clamshell case which was intended to fit in an expansion slot. PO Resp. 56 (citing Ex. 2022 ¶ 212). Patent Owner also contends that adding a second

earpiece to be charged from the clamshell battery would deplete the clamshell battery, so a person of ordinary skill in the art would not add a second earpiece. *Id.* at 57 (citing Ex. 2022 ¶ 213).

We do not find that Patent Owner's arguments undermine Petitioner's persuasive showing. As discussed above, the Gundlach-Lee clamshell case need not necessarily fit within the expansion slot of a laptop. Additionally there is no preclusion of obviousness, even if a modification would have been less efficient, also as discussed above. Accordingly, on the complete record, we determine that Petitioner has demonstrated that the combination of Gundlach and Lee teaches the limitations of claim 11.

Thus, having considered Petitioner's and Patent Owner's arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that claims 2, 8, 9, and 11 of the '320 patent would have been obvious over the combination of Gundlach and Lee.

E. Asserted Obviousness of Claims 2 and 8 Over Gundlach, Lee, and Nishikawa

Petitioner contends that claims 2 and 8 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of Gundlach, Lee, and Nishikawa. Pet. 57–58. To support its contentions, Petitioner provides explanations as to how the combination of the prior art teaches each claim limitation. *Id.* Petitioner also relies upon the Dr. Cooperstock's Declaration and Supplemental Declaration (Exs. 1002, 1089) to support its positions. Patent Owner argues that the prior art does not render obvious claim 1, from which claims 2 and 8 depend. PO Resp. 57–58. Patent Owner relies upon the Dr. Toliyat Declaration. Ex. 2022.

We begin our discussion with a brief summary of Nishikawa, and then address the evidence and arguments presented.

1. *Nishikawa (Ex. 1059)*

Nishikawa describes a lens-equipped light-emitting diode device which extracts light from a light-emitting diode through a lens. Ex. 1059 ¶ 3.

Figure 1 is illustrative and is reproduced below.

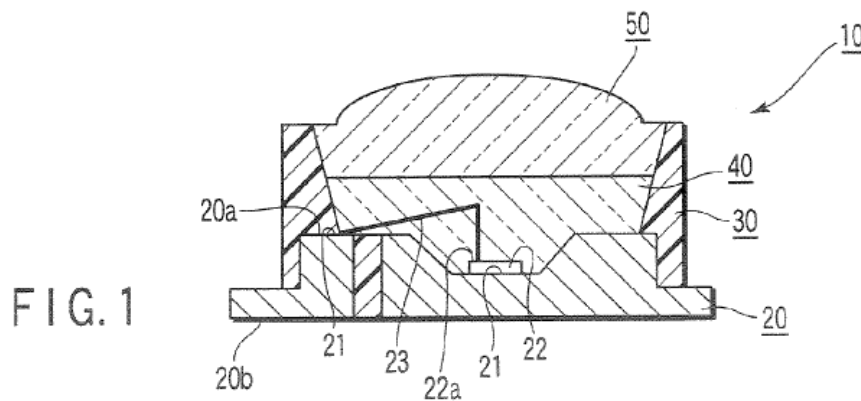


Figure 1, above, shows a longitudinal sectional view of a lens-equipped light-emitting diode device. Ex. 1059 ¶ 17. Lens-equipped light-emitting diode device 10 has lead frame 20, outer peripheral unit 30, sealing portion 40, and lens unit 50. *Id.* ¶ 30. According to Nishikawa, its lens-equipped light-emitting diode device “is excellent in the light extraction efficiency and the reliability, and the production cost can be reduced.” *Id.* ¶ 38.

2. Discussion

Petitioner argues, and we agree, that claims 2 and 8 would have been obvious over Gundlach, Lee, and Nishikawa. Pet. 48–50. Petitioner asserts, and we agree, that a person of ordinary skill would have been motivated to implement the indicator light on Gundlach’s clamshell case with a lens-equipped LED, such as that disclosed in Nishikawa. *Id.* at 49 (citing Ex. 1042; Ex. 1044; Ex. 1062; Ex. 1063). Petitioner asserts, and we agree, that

Nishikawa is expressly directed to “a lens-equipped light-emitting diode device.” *Id.* (citing Ex. 1059 ¶ 3).

Patent Owner argues only that the prior art does not render claim 1 obvious, which we have not found persuasive for the reasons discussed above. PO Resp. 57–58.

Thus, having considered Petitioner’s and Patent Owner’s arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that claims 2 and 8 of the ’320 patent would have been obvious over the combination of Gundlach, Lee, and Nishikawa.

F. Asserted Obviousness of Claim 11 Over Gundlach, Lee, and Rosener

Petitioner contends claim 11 is unpatentable under 35 U.S.C. § 103(a) as obvious over Gundlach, Lee, and Rosener. Pet. 50–53.

We begin our discussion with a brief summary of Rosener, and then address the evidence and arguments presented.

1. Rosener (Ex. 1050)

Rosener describes wireless earphones. Ex. 1050 ¶ 1. The earphone comprises a housing containing a speaker, a radio frequency (RF) receiver or transreceiver, and a battery. *Id.* ¶ 30. The earphone “may be in the form of an earbud” or “a canalphone, which can be fitted within the ear canal of the user’s ear.” *Id.*

2. Discussion

Petitioner argues claim 11 would have been obvious over Gundlach, Lee, and Rosener. Pet. 50–53. Petitioner asserts, and we agree, that the Gundlach-Lee headset would have included one or more earpieces that are “inserted into” the user’s ears, the headset uses Bluetooth communications, and Rosener describes a wireless headset that avoids the needs for wires. *Id.*

at 51. Petitioner contends, and we agree, that a person of ordinary skill in the art would have been motivated to combine Gundlach-Lee with Rosener's teachings to provide a Bluetooth stereo headset having two wireless earpieces that are also not wired together. *Id.* at 52.

Patent Owner argues that the prior art does not render claim 1 obvious. PO Resp. 59. We find this argument is unavailing for the reasons discussed above. Patent Owner additionally argues that a person of ordinary skill in the art would not be motivated to expand the size of the Gundlach clamshell case to accommodate a second headset because it would not fit an expansion slot or to use two headsets because it is inefficient. *Id.* We do not find these arguments undermine Petitioner's showing for the reasons discussed above for the Gundlach-Lee combination.

Thus, having considered Petitioner's and Patent Owner's arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that claim 11 of the '320 patent would have been obvious over the combination of Gundlach, Lee, and Rosener.

G. Asserted Obviousness of Claims 3 and 7 Over Gundlach, Lee, and Brown

Petitioner contends claims 3 and 7 are unpatentable under 35 U.S.C. § 103(a) as obvious over Gundlach, Lee, and Brown. Pet. 53–58.

We begin our discussion with a brief summary of Brown, and then address the evidence and arguments presented.

1. Brown (Ex. 1008)

Brown describes a headset user interface input mechanism with an optical line scanner that detects finger movements that can be translated into various inputs. Ex. 1008, 2:1–9.

Figure 1 is illustrative and is reproduced below.

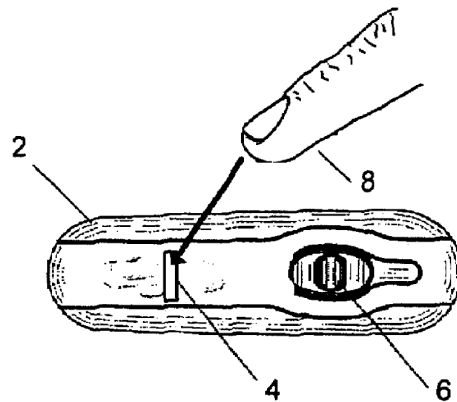


Figure 1 shows a headset that is capable of receiving user inputs via an optical line scanner. Ex. 1008, 1:39–40. Headset 2 has finger pad 4 that is optically transparent, and a lens for focusing light on an optical sensor. *Id.* at 3:14–18, 4:18–23. Light reflected off finger pad 4 forms an image of a user finger and the image is captured by the optical sensor. *Id.* at 4:35–37. Successive images of a finger placed on finger pad 4 are compared by a processor to determine motions of the finger which are then translated to a user command. *Id.* at 4:39–52.

2. Discussion

Petitioner argues claims 3 and 7 would have been obvious over Gundlach, Lee, and Brown. Pet. 53–58. Claim 3 depends from claim 1 and additionally recites “wherein the electronic device has a second lens.” Petitioner asserts, and we agree, that a person of ordinary skill in the art would have been motivated to integrate Brown’s teachings with Gundlach-Lee in order to produce a wireless headset (electronic device) with an improved user interface that would accept touch inputs. *Id.* at 54 (citing Ex. 1003 ¶ 123), 56 (citing Ex. 1003 ¶ 126). Petitioner contends, and we agree, that the improved user interface, which includes a lens, also has a finger pad and a line scanner to facilitate touch-based user inputs. *Id.* (citing Ex. 1003 ¶ 126; Ex. 1008, 3:23–30).

Claim 7 depends from claim 3 and additionally recites “wherein the first case is configured to be nonabrasive to the second lens.” Petitioner asserts, and we agree, that a person of ordinary skill in the art would have understood that the lens in Brown’s line scanner is disposed within the housing of the headset and would not contact the clamshell case. Pet. 57–58 (citing Ex. 1003 ¶ 128 (citing Ex. 1008, 4:18–23)). Petitioner asserts, and we agree, that because abrasion requires physical contact, a person of skill in the art would have understood that the clamshell case would be non-abrasive to the second lens within the headset. *Id.* at 58 (citing Ex. 1003 ¶ 128).

Patent Owner argues that Brown is not “analogous art to the ’320 patent.” PO Resp. 60. Patent Owner contends that “[t]he only apparent analogy is that the electronic device of the ’320 patent can be wireless earplugs and Brown pertains to a specific variety of wireless earbuds with optical user interfaces.” *Id.* (citing Ex. 2022 ¶ 224¹⁸). Patent Owner contends that the field of endeavor of the ’021 patent is “magnetic switching devices that activate, deactivate or hibernate an electronic device” and the “field of endeavor for Brown is a very specific, optical user interface for headsets.” *Id.* Patent Owner also contends that a POSITA would not “understand Brown’s disclosure to be reasonably pertinent to problems encountered by the ’320 inventor.” *Id.*

The test for determining whether a prior art reference constitutes analogous art to the claimed invention is “(1) whether the [prior] art is from

¹⁸ In this section, several of Patent Owner’s references to Dr. Toliyat’s declaration appear to be typographical errors, and the citations we include herein have been corrected.

the same field of endeavor, regardless of the problem addressed and, (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved." *See In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004). "Prior art is analogous if it is from the same field of endeavor or if it is reasonably pertinent to the particular problem the inventor is trying to solve." *Circuit Check Inc. v. QXQ Inc.*, 795 F.3d 1331, 1335 (Fed. Cir. 2015). A reference is analogous art if either of these two tests is met. *Scientific Plastic Prods., Inc. v. Biotage AB*, 766 F.3d 1355, 1359 (Fed. Cir. 2014). The Federal Circuit has indicated that the scope of analogous art is to be construed broadly. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010) ("The Supreme Court's decision in *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398 . . . (2007), directs us to construe the scope of analogous art broadly . . .").

In determining the field of endeavor, we look to the '320 patent's written description and claims, including the structure and function of the invention. *Bigio*, 381 F.3d at 1326. We agree with Petitioner that in defining the field of invention, and in determining the relevance of Brown to the obviousness inquiry, a broad approach should be taken here. Pet. Reply 15. In *KSR International Co. v. Teleflex Inc.*, the Court explained that if a feature has been used to improve one device, and a person of ordinary skill in the art would have recognized that it would improve a similar device in that field or another, implementing that feature on the similar device is likely obvious. 550 U.S. at 417. Here, we agree with Petitioner that the appropriate scope of the field of endeavor of the claimed invention is directed to switching devices and electronic devices. Pet. Reply 15 (citing

Ex. 1001, 4:8–16, 17:63–65, 21:39–40); PO Resp. 60 (“[t]he field of endeavor of the ’320 patent is, broadly, speaking, magnetic switching devices that activate deactivate or hibernate an electronic device”). Patent Owner’s arguments that Brown is not within the same field of endeavor as the ’021 patent are unavailing. PO Resp. 60. Although Brown may describe optical user interfaces for headsets, its teachings are relevant to the broad field of endeavor which includes electronic devices such as headsets.

Because we find that Brown is from the same field of endeavor as the claimed invention and provides relevant teachings to a person of ordinary skill in the art at the time of the invention, we need not consider Patent Owner’s arguments regarding whether Brown is reasonably pertinent to the particular problem with which the inventors are involved.

Patent Owner also argues that Petitioner is “using hindsight reconstruction to advocate drastically modifying Gundlach’s headset with Brown’s optical headset user interface, merely for the reason of supplying a lens on the headset.” PO Resp. 60 (citing Ex. 2022 ¶ 225). Patent Owner additionally argues that a person of ordinary skill in the art “would not have the knowledge, experience, or expertise to implement Brown’s highly complex optical scanning system” and would not have been motivated “to dramatically increase the cost and complexity of Gundlach’s headsets to add Brown’s optical user interface.” *Id.* at 61 (citing Ex. 2022 ¶¶ 226–227).

In support of Patent Owner’s arguments, Dr. Toliyat substantially reiterates it. Dr. Toliyat’s testimony that Petitioner is using hindsight merely for the reason of supplying a lens on the headset is not entitled to substantial weight, because Dr. Toliyat fails to consider Dr. Cooperstock’s testimony, which we determine is reasonable. Dr. Cooperstock explains that a person

of ordinary skill in the art would have “viewed Brown’s touch-based user interface, and all of its advantages, as applicable to the wireless headset of Gundlach-Lee” and “that the Gundlach-Lee headset was ripe for improvement in this area, as Gundlach’s and Lee’s disclosures are not particularly concerned with the headset’s user interface.” Ex. 1003 ¶ 124. We afford substantial weight to Dr. Cooperstock’s testimony that a person of ordinary skill in the art would have known of limitations with headset user interfaces and would have been motivated to provide a user interface like Brown’s on the Gundlach-Lee headset that would have been compatible to provide enhanced functionality on a headset with limited physical size. *Id.*

Dr. Toliyat further testifies that a person of ordinary skill in the art would not have the knowledge, experience, or expertise to implement Brown’s highly complex optical scanning system and would not do so because of the cost and complexity of adding Brown’s interface to Gundlach’s headset. Ex. 2022 ¶¶ 226–227. Dr. Toliyat’s testimony is not entitled to substantial weight because it is conclusory. For example, Dr. Toliyat fails to explain what kind of obstacles one of skill would have faced incorporating Brown’s finger pad and line scanner into the Gundlach-Lee device. We afford substantial weight to Dr. Cooperstock’s testimony that one of skill would have been able to include a finger pad and line scanner, like those taught by Brown, to the Gundlach-Lee device and that doing so “would have been entirely predictable to a POSITA and implemented with merely routine skill” because his testimony is supported by record evidence. Ex. 1003 ¶¶ 20, 123–125.

Thus, having considered Petitioner’s and Patent Owner’s arguments and evidence, we determine that Petitioner has shown by a preponderance of

the evidence that claims 3 and 7 of the '320 patent would have been obvious over the combination of Gundlach, Lee, and Brown.

H. Asserted Obviousness of Claims 4, 5, 10, 12, and 13 Over Gundlach, Lee, and Mak-Fan

Petitioner contends claims 4, 5, 10, 12, and 13 are unpatentable under 35 U.S.C. § 103(a) as obvious over Gundlach, Lee, and Mak-Fan. Pet. 58–65.

We begin our discussion with a brief summary of Mak-Fan, and then address the evidence and arguments presented.

1. Mak-Fan

Mak-Fan describes holsters for portable handheld wireless communication devices. Ex. 1010 ¶ 1. Mak-Fan indicates that “[i]t is known to have a magnet in the holster, with a Hall effect sensor in the device, so that either the device is turned off in response to the device being placed in the holster and the sensor aligning with the magnet, or at least certain functions are disabled.” *Id.* ¶ 2. In one embodiment, an electronic device has a hall effect sensor and a holster has a magnet positioned to align with the sensor when the electronic device is fully holstered. *Id.* ¶ 14. “The device is programmed so that when the Hall effect sensor detects the magnet, the device is disabled, or at least certain elements thereof are disabled.” *Id.* The holster can have a fold-over flap that has a metal element to engage a magnet of the holster to hold down the flap in a closed position. *Id.* ¶ 19.

2. Discussion

Claim 4 depends from claim 1 and further recites “wherein the lid has

a second magnet disposed within it.” Claim 5 depends from claim 4 and recites “wherein the lid is configured to employ the second magnet to secure the lid in a closed position by magnetically coupling to the first case.”

Claim 10 depends from claim 4 and recites “wherein the second or a third magnet is employed in the lid to actuate the electronic circuit.” Claim 12 depends from claim 1 and recites “wherein the system further comprises a sensor that can be activated using a magnet.” Claim 13 depends from claim 5 and recites “wherein the system further comprises a sensor that can be actuated using a magnet.”

Petitioner argues claims 4, 5, 10, 12, and 13 would have been obvious over Gundlach, Lee, and Mak-Fan. Pet. 58–65. Petitioner asserts, and we agree, that a person of ordinary skill in the art would have known that replacing the snap elements in Gundlach’s embodiments with Mak-Fan’s magnet was a simple substitution of known closure elements. *Id.* at 60 (citing Ex. 1003 ¶ 133). Petitioner further asserts, and we agree, that the substitution offers benefits, including that the Mak-Fan magnetic closures are easier to operate. *Id.* at 61 (citing Ex. 1054). Petitioner also argues, and we agree, that magnetic closures are less susceptible to fatigue failure modes. *Id.* Petitioner contends that “[m]agnetic closures were among a limited number of conventional solutions for retaining a clamshell case in the folded/closed state.” *Id.* (citing Ex. 1005). Petitioner argues, and we agree, that a person of ordinary skill in the art “would have appreciated the design tradeoffs between different closures,” and their interchangeability would have been apparent. *Id.*

For claims 4 and 5, Petitioner asserts, and we agree, that a person of ordinary skill in the art would have integrated Mak-Fan’s teachings with

Gundlach-Lee to produce a clamshell case with a second magnet installed on one of the protective lids for magnetic coupling. Pet. 62–63 (citing Ex. 1003 ¶¶ 135–137). For claims 10, 12, and 13, Petitioner contends, and we agree, that Lee teaches that the wireless headset includes a switch that automatically closes to actuate the battery circuit when positioned near the clamshell case, and that a person of ordinary skill in the art would have been motivated to use a hall effect sensor for actuation which Mak-Fan teaches. *Id.* at 64 (citing Ex. 1003 ¶ 140; Ex. 1006, 5:30–40; Ex. 1010 ¶¶ 14, 19).

Patent Owner argues that the respective dependent claims are not obvious because the Gundlach-Lee combination does not render claim 1 obvious. *See* PO Resp. 65. We do not find this argument persuasive for the reasons discussed above for claim 1.

Patent Owner also contends that Petitioner uses hindsight reconstruction to significantly modify both Gundlach and the Gundlach-Lee combination with Mak-Fan. PO Resp. 62. Patent Owner argues that “Mak-Fan’s magnetic closure would be significantly less secure than Gundlach’s mechanical snap fastener,” so a person of ordinary skill in the art would not be motivated to replace the mechanical fastener of Gundlach’s case with a less secure magnetic one. *Id.* at 62–63 (citing Ex. 2022 ¶ 231). Patent Owner also contends that Petitioner’s analysis is based on the belief that Mak-Fan discloses a magnet in its lid flap, but “Mak-Fan discloses a magnet 4 in the main body of its case and metal element 11 in the flap or lid.” *Id.* at 65 (citing Ex. 1010 ¶¶ 14, 19, Fig. 1, Fig. 4; Ex. 2022 ¶ 236).

We do not find these arguments undermine Petitioner’s showing. Petitioner provides un rebutted evidence that, although magnetic closures provide a lesser closure force compared to a snap closure, magnetic closures

can be easier for users to operate than snap closures, which offer an advantage. Pet. 61; Pet. Reply 16–17 (citing Pet. 61 Ex. 1003 ¶ 134; Ex. 1054). We agree with Petitioner that “tradeoffs and challenges do not preclude obviousness.” Pet. Reply 17.

Additionally, we agree with Petitioner that the “Petition correctly interpreted Mak-Fan as describing an embodiment where ‘[t]he fold-over flap includes a metal element engaging a magnet to hold the holster closed,’” and that the Petition is based on a person of skill applying this teaching of Mak-Fan’s to modify the Gundlach-Lee clamshell case by installing a magnet on one of the lids and a piece of metal on the other lid. Pet. Reply 26 (citing Pet. 58; Ex. 1010 ¶¶ 14, 19).

In its arguments regarding claims 4 and 5, Patent Owner repeats the arguments that we address above and which we do not find persuasive. PO Resp. 64–67. Accordingly, we determine that the combination of Gundlach, Lee, and Mak-Fan teach the limitations of claims 4 and 5.

For claims 10, 12, and 13, Patent Owner additionally asserts that Petitioner is proposing re-engineering of Mak-Fan’s case, which would “frustrate Mak-Fan’s design and intention.” PO Resp. 69. This argument is based on a misunderstanding of Petitioner’s assertions—Petitioner contends that a person of skill would have applied Mak-Fan’s teachings to the Gundlach-Lee clamshell case. Pet. Reply 27. Patent Owner also argues that Petitioner is proposing to change the recharging operation based on whether the clamshell lid is open. PO Resp. 69–71. Patent Owner’s arguments misunderstand Petitioner’s position on how the combination operates, that is, Mak-Fan does not change Lee’s operation, but instead enables it. Pet. Reply 27 (citing Ex. 1003 ¶ 140); Pet. 64–65. Further, Patent Owner argues that a

person of ordinary skill in the art would not agree with Petitioner's assertion that Lee does not disclose the implementation details of the switch, because Lee describes switch 470 opening and closing. PO Resp. 69 (citing Ex. 2022 ¶ 252; Ex. 1006, 5:12–40). This argument is not persuasive because whether Lee describes how switch 470 functions, that is, opening or closing, does not address Dr. Cooperstock's testimony that, while Lee teaches a switch that automatically closes to actuate the battery circuit when positioned near the clamshell case, Lee does not describe the implementation details of the switch. Ex. 1003 ¶ 140 (citing Ex. 1057, 2–4). Additionally, Patent Owner argues that Petitioner's modifications would make Gundlach's earpieces incompatible with being charged inside an expansion slot for a laptop or phone. PO Resp. 71. We have addressed above that Gundlach is not limited to a design that fits within the expansion slot of a laptop. Accordingly, based on the evidence of record, we determine that the combination of Gundlach, Lee, and Mak-Fan teach the limitations of claims 10, 12, and 13.

Thus, having considered Petitioner's and Patent Owner's arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that claims 4, 5, 10, 12, and 13 of the '320 patent would have been obvious over the combination of Gundlach, Lee, and Mak-Fan.

I. Other Grounds Including Kim

Petitioner asserts alternative grounds (identified as Grounds 2A–2E) that are substantially the same as the other grounds except that they rely on additional disclosures in Kim for the teaching of the play/pause feature of limitation 1[h]. Pet. 1–2, 65–70. Petitioner asserts, and we agree, that Kim discloses that its wireless headsets are conventionally used as remote

controllers for Bluetooth-equipped media players. *Id.* at 66 (citing Ex. 1007 ¶ 6). Petitioner contends, and we agree, that a person of ordinary skill in the art would have been motivated to integrate Kim’s teachings into Gundlach-Lee because Gundlach suggests that use of remote control functionality that would have prompted pursuing known solutions such as Kim. *Id.* at 66–67. Petitioner further contends, and we agree, that the integration of Kim would predictably improve Gundlach-Lee’s headset, and a person of skill would have been prompted by market forces to pursue Kim’s functionality. *Id.* at 67–68.

We have reviewed the Petition’s showing for these claims and find that Petitioner has sufficiently demonstrated that the asserted art teaches the limitations of the claims and the rationale for the combinations.

Patent Owner argues only that the prior art does not render claim 1 obvious, which we have not found persuasive for the reasons discussed above. PO Resp. 73–75.

Thus, having considered Petitioner’s and Patent Owner’s arguments and evidence, we determine that Petitioner has shown by a preponderance of the evidence that claims 1, 2, 8, 9, and 11 of the ’320 patent would have been obvious over the combination of Gundlach, Lee, and Kim; claims 2 and 8 would have been obvious over the combination of Gundlach, Lee, Kim, and Nishikawa; claim 11 would have been obvious over the combination of Gundlach, Lee, Kim, and Rosener; claims 3 and 7 would have been obvious over the combination of Gundlach, Lee, Kim, and Brown; and claims 4, 5, 10, 12, and 13 would have been obvious over the combination of Gundlach, Lee, Kim, and Mak-Fan.

IV. CONCLUSION¹⁹

In summary:

Claims	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentabl e	Claims Not Shown Unpatentabl e
1, 2, 8, 9, 11	103(a)	Gundlach, Lee,	1, 2, 8, 9, 11	
2, 8	103(a)	Gundlach, Lee, Nishikawa	2, 8	
11	103(a)	Gundlach, Lee, Rosener	11	
3, 7	103(a)	Gundlach, Lee, Brown	3, 7	
4, 5, 10, 12, 13	103(a)	Gundlach, Lee, Mak-Fan	4, 5, 10, 12, 13	
1, 2, 8, 9, 11	103(a)	Gundlach, Lee, Kim	1, 2, 8, 9, 11	
2, 8	103(a)	Gundlach, Lee, Kim, Nishikawa	2, 8	
11	103(a)	Gundlach, Lee, Kim, Rosener	11	
3, 7	103(a)	Gundlach, Lee, Kim, Brown	3, 7	
4, 5, 10, 12, 13	103(a)	Gundlach, Lee, Kim, Mak-Fan	4, 5, 10, 12, 13	

¹⁹ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

Overall Outcome			1–5, 7–13	
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V. ORDER

For the reasons given, it is:

ORDERED that Petitioner has established based on a preponderance of evidence that claims 1–5 and 7–13 of U.S. Patent 10,589,320 are unpatentable as obvious under 35 U.S.C. § 103; and

FURTHER ORDERED because this is a final written decision, the parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2021-00473
Patent 10,589,320 B1

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