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Paper 9
Date: December 6, 2024

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG ELECTRONICS CO., LTD.; and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

OURARING, INC.,
Patent Owner.

PGR2024-00030
Patent 11,868,178 B2

Before, NEIL T. POWELL, ELIZABETH M. ROESEL, and MICHAEL A. VALEK, *Administrative Patent Judges.*

ROESEL, *Administrative Patent Judge*.

DECISION
Granting Institution of Post-Grant Review
35 U.S.C. § 324

I. INTRODUCTION

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, "Petitioner") filed a Petition (Paper 2, "Pet.") requesting post-grant review of claims 1–18 of U.S. Patent No. 11,868,178 B2 (Ex. 1001, "the '178 Patent"). Ouraring, Inc. ("Patent Owner") filed a Preliminary Response (Paper 7, "Prelim. Resp."). With the Preliminary Response, Patent Owner filed a statutory disclaimer of claim 11 of the '178 Patent. Prelim. Resp. 66; Ex. 2015.

Our decision whether to institute a post-grant review is based on claims 1–10 and 12–18, which are the challenged claims remaining in the '178 Patent after Patent Owner's statutory disclaimer. 37 C.F.R. § 42.207(e); Consolidated Trial Practice Guide November 2019 ("CTPG")[1] at 52.

We have authority to determine whether to institute a post-grant review. 35 U.S.C. § 324 (2024); 37 C.F.R. § 42.4(a) (2024). A post-grant review may not be instituted "unless . . . the information presented in the petition . . . , if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable." 35 U.S.C. § 324(a). For the reasons that follow, we determine that the threshold for instituting a post-grant review is met, and we institute trial.

This is not a final decision as to the patentability of any challenged claim. Any final decision will be based on the full record developed during trial.

[1] *Available at* https://www.uspto.gov/TrialPracticeGuideConsolidated.

II. BACKGROUND

A. Related Matters

The parties identify the following matters involving the '178 Patent: *Certain Smart Wearable Devices, Systems, and Components Thereof*, Inv. No. 337-TA-1398 (Int'l Trade Comm'n); *Oura Health Oy v. Ultrahuman Healthcare Pvt. Ltd.*, No. 2:23-cv-396 (E.D. Tex.); *Samsung Electronics Co., Ltd. Ōura Health Oy*, No. 3:24-cv-03245 (N.D. Cal.). Pet. 1; Paper 6, 1 (Patent Owner's mandatory notices).

A. The '178 Patent (Ex. 1001)

The '178 Patent is titled "Wearable Computing Device" and was issued January 9, 2024, based on an application filed May 24, 2023, that asserts the benefit of a series of provisional and nonprovisional applications, the earliest of which was filed November 29, 2013. Ex. 1001, codes (22), (45), (54), (60).

The '178 Patent discloses a wearable computing device ("WCD") in the shape of a ring. Ex. 1001, 1:50–52. The Abstract describes a smart ring including a curved housing having a U-shape interior storing components including a curved battery approximately conforming to the curved housing and a semi-flexible printed circuit board ("PCB") approximately conforming to the curved housing, with various devices mounted on the PCB. *Id.* at code (57).

Figure 4 of the '178 Patent is reproduced below.

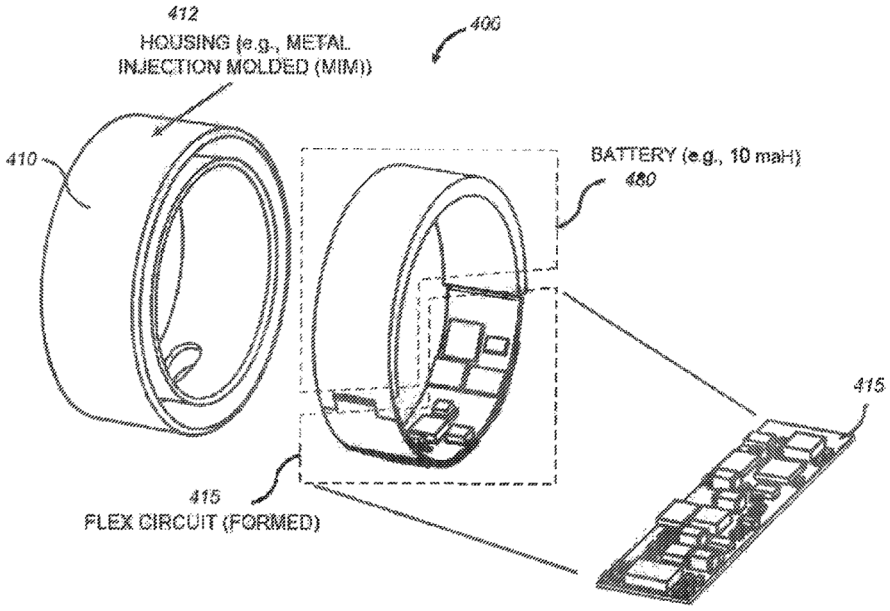

FIG. 4

Figure 4 is an exploded view of WCD 410 illustrating battery 480 and flexible PCB 415, which are configured to fit inside the U-shape of ring housing 412 of the WCD. Ex. 1001, 5:28–30, 15:64–67, 16:22–24.

Figures 7 and 8 of the '178 Patent are reproduced below.

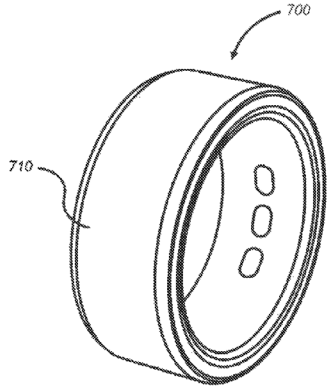

FIG. 7

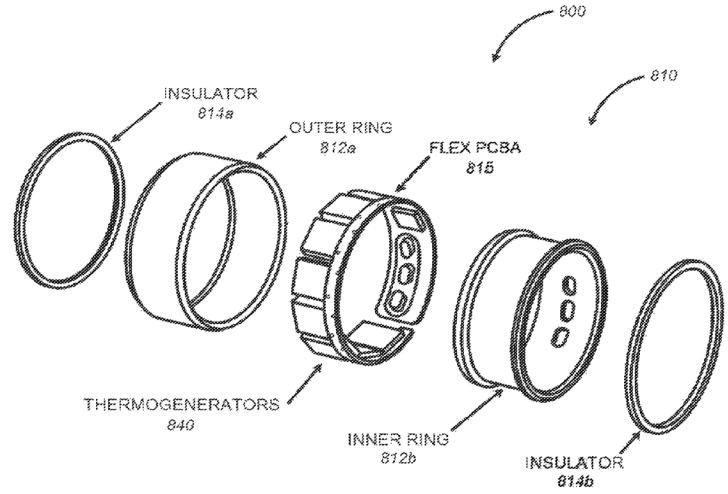

FIG. 8

Figure 7 is a perspective view of a WDC, and Figure 8 is an exploded view of the WCD of Figure 7. Ex. 1001, 5:36–40, 14:65–67. Figures 7 and 8 illustrate a design of the housing for the WCD, where the ring includes outer ring 812a, inner ring 812b, and insulators 814a and 814b. *Id.* at 14:67–15:5. Also shown in Figure 8 are flexible PCBA 815 and thermogenerators 840. *Id.* at Fig. 8. According to the '178 Patent, a thermoelectric generator charges a battery of the WCD by the difference between a wearer's body temperature and the ambient temperature. *Id.* at 14:61–65, 15:4–11.

B. Illustrative Claim

Petitioner challenges all 18 claims of the '178 Patent, of which only claim 1 is independent. Claims 1–10 and 12–18 are the challenged claims that remain in the '178 Patent after Patent Owner's statutory disclaimer. Ex. 2015. Claim 1 is reproduced below:

> 1. A finger-worn wearable ring device, comprising:
>
> [a] an external housing component defining an outer circumferential surface of the finger-worn wearable ring device;
>
> [b] an internal housing component defining an inner circumferential surface of the finger-worn wearable ring device, the internal housing component coupled with the external housing component, wherein at least a portion of the inner circumferential surface of the internal housing component is configured to contact a tissue of a user when the finger-worn wearable ring device is being worn by the user;
>
> [c] a battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a

first portion of the cavity of the finger-worn wearable ring device;

[d] a printed circuit board disposed between the internal housing component and the external housing component, wherein the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable ring device different from the first portion; and

[e] one or more sensors electrically coupled with the printed circuit board and the battery and configured to acquire data from the user through the internal housing component.

Ex. 1001, 44:45–45:8 (bracketed designations added).

C. Asserted Challenges and Evidence

Petitioner raises the following challenges to patentability.[2]

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1	1–3, 17, 18	103	Schröder[3]
2	1–3, 13–16	103	Schröder, Niwa[4]
3	12	103	Schröder, Mestas[5]

[2] Disclaimed claim 11 is omitted from the table.

[3] Ex. 1007, US 10,303,867 B2, issued May 28, 2019 ("Schröder"). Petitioner asserts that Schröder qualifies as prior art under 35 U.S.C. § 102(a)(2) based on its foreign priority date of July 25, 2013. Pet. 9–10.

[4] Ex. 1005, US 2012/0016245 A1, published January 19, 2012 ("Niwa"). Petitioner asserts that Niwa qualifies as prior art under 35 U.S.C. §§ 102(a)(1) and 102(a)(2). Pet. 11.

[5] Ex. 1010, US 2014/0244009 Al, published August 28, 2014 ("Mestas"). Petitioner asserts that Mestas qualifies as prior art under 35 U.S.C. § 102(a)(2) based on its provisional filing date of February 22, 2013. Pet. 13.

Ground	Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
4	1, 4–10, 13–16	103	Schröder, Yuen[6]
5	1–3, 13–18	103	Niwa
6	1–3, 13–18	103	Niwa, Schröder
7	12	103	Niwa, Mestas
8	12	103	Niwa, Schröder, Mestas
9	4–10	103	Niwa, Yuen
10	4–10	103	Niwa, Schröder, Yuen
11	17, 18	112(d)	Improper dependence

Pet. 5. Petitioner submits the Declaration of Brian W. Anthony, Ph.D. Ex. 1002.

III. ANALYSIS

A. Eligibility for Post-Grant Review

The earliest asserted priority date for the '178 Patent is later than March 16, 2013, the effective date of the post-grant review provisions of the Leahy-Smith America Invents Act ("AIA"). Ex. 1001, code (60) (provisional application filed November 29, 2013). The Petition was filed May 31, 2024, which is within nine months of issuance of the '178 Patent. *Id.* at code (45) (date of patent: January 9, 2024). The Petition thus satisfies the requirements for post-grant review.

[6] Ex. 1006, US 8,954,135 B2, issued February 10, 2015 ("Yuen"). Petitioner asserts that Yuen qualifies as prior art under 35 U.S.C. § 102(a)(2) based on its filing date of June 24, 2013. Pet. 15.

B. Asserted Prior Art

An overview of Schröder suffices for purposes of our decision.

Schröder discloses an external secure unit comprising a memory, a processor, and an interface for sending and receiving data to and from a communication device, such as a smartphone. Ex. 1007, code (57), 1:5–11, 1:42–47, 1:64–67. The external secure unit stores security-relevant data necessary for executing an application program in the communication device. *Id.* at code (57), 1:56–61. A "finger-ring" can be employed as an external secure unit. *Id.* at 1:61–64.

Schröder's Figures 1 and 2 are reproduced below.

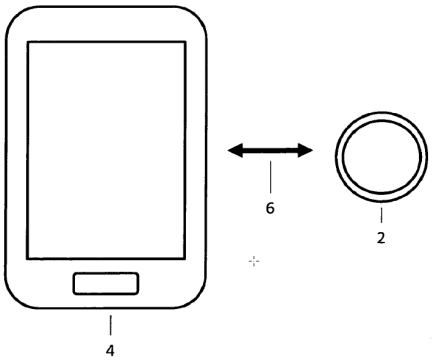

Fig. 1

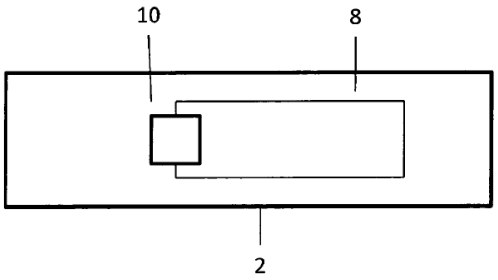

Fig. 2

Figure 1 shows finger-ring 2 as an exemplary external secure unit and smartphone 4 as a communication device, and Figure 2 shows a cross section through finger-ring 2. Ex. 1007, 3:39–44, 3:57–59, 4:58–60.

Schröder discloses a method for authentication by means of finger-ring 2 and smartphone 4. Ex. 1007, 3:59–61. According to Schröder, "[f]inger-ring 2 is worn by a user e.g. permanently on the finger," which is advantageous as an external secure unit because the ring "cannot be taken away or employed without authorization or get lost." *Id.* at 3:61–62, 4:16–18. Finger-ring 2 and smartphone 4 are interconnected via contactless communication connection 6, *e.g.*, an NFC (near field communication)

connection. *Id.* at 3:64–66, 4:18–22. All security-relevant data necessary for executing applications on smartphone 4, such as email, Facebook, and banking, are stored only on finger-ring 2, not on the smartphone. *Id.* at 4:3–5, 4:10–15.

Schröder's Figure 2 is reproduced below.

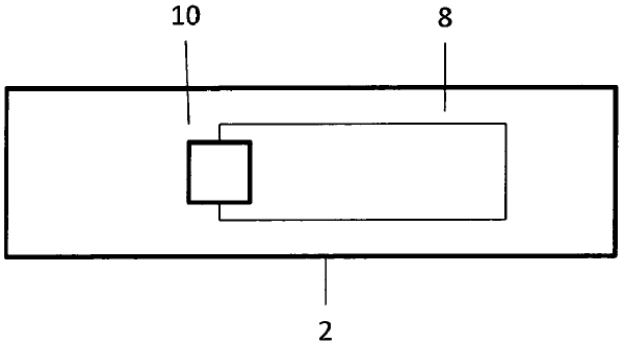

Fig. 2

Figure 2 shows a cross section through finger-ring 2 as an example of an external secure unit. *Id.* at 4:58–60. "In the finger-ring 2 are located an antenna coil 8 and a chip or chip module 10, which are schematically indicated" and used to communicate with an NFC reader, such as an RFID (radio frequency identification) reader. *Id.* at 4:60–62, 5:12–18, 5:49–53.

Schröder's Figure 3 is reproduced below.

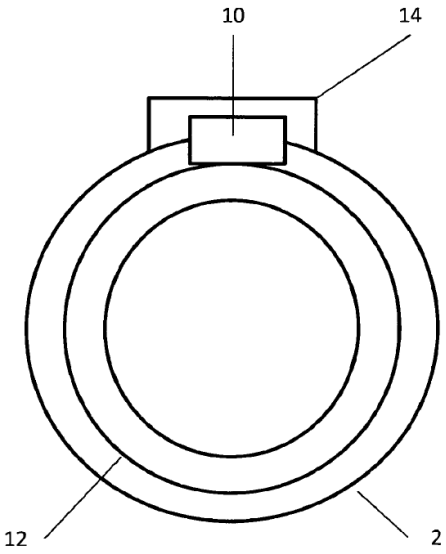

Fig. 3

Figure 3 shows a cross section through an external secure unit in the form of finger-ring 2 with a replaceable chip module 10. Ex. 1007, 3:45–46, 8:54–56. Inlay 12 is inside finger-ring 2 and serves as a carrier for antenna coil 8. *Id.* at 8:56–58. As shown in Figure 3, chip module 10 is inserted into a recess of finger-ring 2. *Id.* at 8:58–59. Chip module 10 is protected by cover 14, which has a hinged or threaded connection to the finger-ring 2. *Id.* at 8:60–63. Chip module 10 is electroconductively connected to antenna coil 8 on inlay 12. *Id.* at 8:63–66. "Advantageously, the chip module 10 is located in a module holder, in order that the contacts of the chip module 10 are properly interconnected to the contacts of a corresponding antenna coil 8." *Id.* at 9:4–7. According to Schröder, the chip module 10 in Figure 3 is "arranged in particular replaceably," but "[a]lternatively, the chip module 10 can . . . be firmly connected to the finger-ring 2." *Id.* at 9:1–4; *see also id.* at 9:13–15 ("Alternatively, it is possible to connect the chip module 10 permanently to the contacts of the inlay 12, e.g. by soldering, crimping, gluing, etc.").

In a "further embodiment example," Schröder describes external secure unit 2 as having "an energy storage device, e.g., an accumulator or a battery" that is "connected to the chip module 10." Ex. 1007, 11:46–67.

Schröder's Figures 4 and 5 are reproduced below.

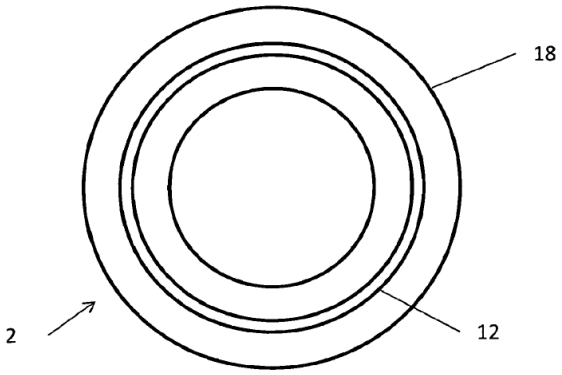

Fig. 4

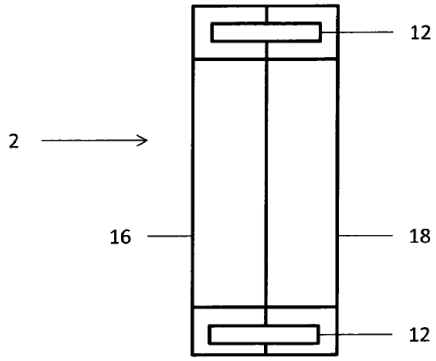

Fig. 5

Figure 4 shows a longitudinal cross-section through finger-ring 2 as an exemplary external unit, and Figure 5 shows a cross-section of the finger-ring of Figure 4. Ex. 1007, 3:46–50, 12:4–7. Figure 4 shows one half 18 of finger-ring 2, and Figure 5 shows two ring halves 16 and 18. *Id.* at 12:5–8. As shown in Figures 4 and 5, ring halves 16 and 18 have a recess into which inlay 12 is inserted. *Id.* at 12:8–9. Components 16 and 18 of finger-ring 2 are interconnected in such a way that the connection can be undone in order to insert or exchange inlay 12. *Id.* at 12:20–26. Inlay 12 consists of a flexible carrier material, with antenna coil 8 and chip module 10 connected to each other on the inlay. *Id.* at 12:28–32.

Schröder's Figures 6 to 10 are reproduced below.

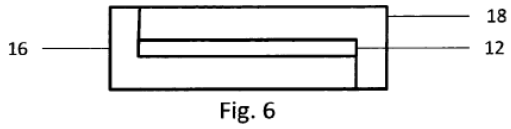

Fig. 6

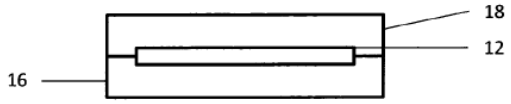

Fig. 7

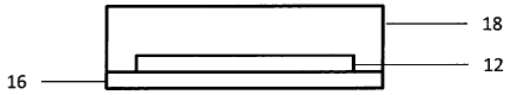

Fig. 8

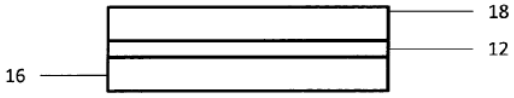

Fig. 9

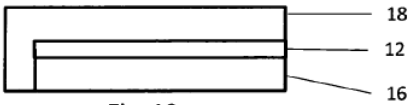

Fig. 10

Figures 6 to 10 show different cross sections through a finger-ring, which along with Figures 4 and 5, show "possible construction variants of external secure unit 2 in the form of finger-ring 2." Ex. 1007, 12:1–3; *see also id.* at 3:51–52; 12:43–45 (describing Figures 6–10). In Figures 6 to 10, finger-ring 2 has ring-shaped components 16 and 18, with inlay 12 arranged between the components. *Id.* at 12:43–55.

According to Schröder, "inlay 12 can have at least one chip module 10 with at least one antenna coil 8, with at least one further electronic device, e.g. a display, optionally being arranged on the inlay 12." Ex. 1007, 12:61–65.

C. Request for Denial under 35 U.S.C. § 325(d)

1. Legal Standard

When deciding whether to institute a post-grant review, we "may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office." 35 U.S.C. § 325(d).

In applying § 325(d), we use a two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or

whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential). We also consider the non-exclusive factors set forth in *Becton, Dickinson and Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential in relevant part), which "provide useful insight into how to apply the framework" under § 325(d). *Advanced Bionics*, Paper 6 at 9. Those non-exclusive factors include:

> (a) the similarities and material differences between the asserted art and the prior art involved during examination;
>
> (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
>
> (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
>
> (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;
>
> (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
>
> (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson, Paper 8 at 17–18. "If, after review of factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to

whether the petitioner has demonstrated a material error by the Office." *Advanced Bionics*, Paper 6 at 10.

2. Discussion

Part I of the *Advanced Bionics* framework asks whether the same or substantially the same art was previously presented to the Office or whether the same or substantially the same arguments were previously presented to the Office. *Advanced Bionics*, Paper 6 at 8.

Petitioner contends that part I of the *Advanced Bionics* framework is not met. Pet. 17. Petitioner acknowledges that Yuen was listed in an Information Disclosure Statement ("IDS"), but asserts that "the record is silent as to the examiner's consideration or understanding of Yuen's teachings." *Id.*

Patent Owner argues that Mestas and Yuen were before the Examiner, and that Schröder and Niwa are cumulative of Vescovi[7] and other art before the examiner. Prelim. Resp. 60–65.

We determine that part I of the *Advanced Bionics* framework is not satisfied because several of Petitioner's challenges are based, at least in part, on Schröder, and Schröder is not cumulative of Vescovi.

Patent Owner asserts that Vescovi is the closest prior art identified by the Examiner. Prelim. Resp. 8, 63. According to Patent Owner, Vescovi does not disclose the structure of the housing recited in the '178 Patent claims, including "internal and external housing components, an inner circumferential cavity with a battery positioned and shaped to fit inside the cavity and including a circuit board disposed within the interior and exterior component and extending through a portion of the cavity." *Id.* at 9, 64

[7] Ex. 2005, US 2015/0277559 A1, published October 1, 2015 ("Vescovi").

(citing Ex. 1004, 1314 (prosecution history of the '178 Patent)). Patent Owner asserts that Vescovi discloses "a unitary structure, not internal and external housing components as claimed." *Id.* at 64.

In contrast to Vescovi, Schröder discloses finger-ring 2 consisting of ring-shaped components 16 and 18, with inlay 12 arranged between the components. Ex. 1007, 12:43–55, Figs. 6–10. Petitioner contends that Schröder's ring-shaped components 16 and 18 and inlay 12 correspond to an external housing component, an internal housing component, and a cavity, as recited in claim 1. Pet. 23 (annotation of Schröder's Figure 7).

Because part I of the *Advanced Bionics* framework is not satisfied, we do not reach part II of the framework.

D. Legal Standards for Post-Grant Review

In a post-grant review, "the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable." *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3)); *see also* 35 U.S.C. § 322(a)(3) (establishing requirements for a petition for post grant review); 37 C.F.R. § 42.204(b) (requiring a petition for post-grant review to identify how the challenged claim is to be construed; where each element of the claim is found in the prior art relied upon; and how the claimed subject matter fails to comply with the statute).

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 based on 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) when presented, objective evidence of nonobviousness, i.e., secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

Additionally, the obviousness inquiry typically requires an analysis of "whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR*, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) (requiring "articulated reasoning with some rational underpinning to support the legal conclusion of obviousness")). Petitioner cannot satisfy its burden of proving obviousness by employing "mere conclusory statements," but "must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016).

E. Level of Ordinary Skill in the Art

At this stage of the proceeding, there is no dispute about the level of ordinary skill in the art. Based on the testimony of Petitioner's declarant, we determine that a person of ordinary skill in the art ("POSITA") would have had a four-year degree in electrical engineering, mechanical engineering, biomedical engineering, optical engineering, or related field of study, and two years of experience in academia or industry studying or developing physiological monitoring devices such as non-invasive biosensors. A POSITA would have been familiar with sensor system design and signal

processing. A higher level of education or skill can substitute for less experience, and vice versa. Ex. 1002 ¶ 21.

We find that the level of ordinary skill in the art, as articulated above, is consistent with the level of technical understanding and competence reflected in the '178 Patent Specification and the asserted prior art references.

F. Claim Construction

In a post-grant review, we apply the same claim construction standard as would be used by a district court to construe a claim in a civil action involving the validity or infringement of a patent. 37 C.F.R. § 42.200(b). Under that standard, claim terms are given their ordinary and customary meaning, as would have been understood by a person of ordinary skill in the art at the time of the invention, in light of the language of the claims, the specification, and the prosecution history of record. *Id.*; *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–19 (Fed. Cir. 2005) (en banc); *Thorner v. Sony Comput. Entm't Am. LLC*, 669 F.3d 1362, 1365–66 (Fed. Cir. 2012). "The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'" *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (quoting *Vivid Techs., Inc. v. Am. Sci. Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

We agree with the parties that it is not necessary for us to provide an express construction for any claim term for purposes of determining whether to institute a post-grant review. Pet. 8; Prelim. Resp. 25.

G. Petitioner's First Prior Art Challenge

Petitioner contends that claims 1–3, 17, and 18 are unpatentable over Schröder in view of the knowledge of a POSITA. Pet. 18–32. Patent Owner

opposes. Prelim. Resp. 26–40. At this stage of the proceeding, the parties' disputes focus on claim elements 1[c] and 1[d].

1. Claim Element 1[c]

Claim element 1[c] recites:

> a battery positioned within a cavity formed between the internal housing component and the external housing component, wherein the battery comprises a shape and size configured to fit within the cavity between the outer circumferential surface of the external housing component and the inner circumferential surface of the internal housing component, and wherein the battery extends through at least a first portion of the cavity of the finger-worn wearable ring device.

Ex. 1001, 44:57–65.

Petitioner contends that "Schröder's 'finger-ring' has a battery positioned within a cavity between the internal and external housing components." Pet. 22 (citing Ex. 1002 ¶¶ 162–165). Petitioner illustrates its contention with the following annotation of Schröder's Figure 7.

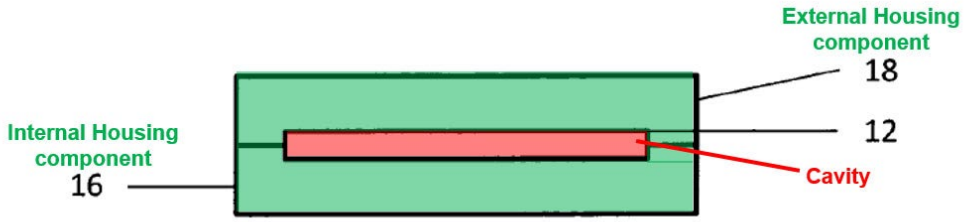

Fig. 7

Pet. 23. Schröder's Figure 7 shows a cross-section through a finger-ring, and Petitioner's annotation identifies ring-shaped components 16 and 18 as an "internal housing component" and an "external housing component," respectively. *Id.* Petitioner's annotation further identifies inlay 12 as a "cavity." *Id.*

Petitioner contends that "Schröder teaches a battery positioned within a first portion of the cavity of the 'finger-ring.'" Pet. 23 (citing Ex. 1002 ¶ 168). According to Petitioner, "[i]t would have been obvious that because the energy storage unit (i.e., battery) powers chip module 10 and chip module 10 resides in inlay 12, the battery is also positioned inside the ring" and "the battery must be configured in size and shape to fit within the cavity because it must be arranged between the internal and external housing components." *Id.* (citing Ex. 1002 ¶¶ 166–168).

Patent Owner argues that Schröder does not disclose or suggest limitation 1[c]. Prelim. Resp. 26–35. According to Patent Owner, "Schröder does not disclose any position of a battery" and "also does not disclose any 'shape and size' of a battery." *Id.* at 26 (quoting claim language).

After considering the parties' argument and evidence, we determine that Petitioner's showing for claim element 1[c], as summarized above, is sufficient for purposes of granting institution of a post-grant review.

Schröder's only express discussion of a battery is in the paragraph that begins:

> In a further embodiment example, the external secure unit 2 has an energy storage device, e.g. an accumulator or a battery. The energy storage device is connected to the chip module 10 in order to supply the chip module 10 with energy outside an electromagnetic field of a reader.

Ex. 1007, 11:46–50; *see also id.* at 11:50–67 (discussing function and operation of the energy storage device, including that it is charged by the reader's electromagnetic field and supplies energy for operating electronic components, such as display units).

Patent Owner is correct that a battery is not shown in any of Schröder's figures, and there is no express description of any position, size, or shape of a battery. Prelim. Resp. 26. However, Petitioner contends that it would have been obvious to position the battery within the cavity it identifies in Figure 7 because Schröder teaches that inlay 12, which resides in that cavity, has a chip module 10 and other electronic devices on it; and the battery is connected to and powers the chip module 10. Pet. 22–23 (citing Ex. 1007, 8:56–57, 11:46–50, 11:54–55, 11:58–61, 12:7–9, 12:61–65). Petitioner further contends that it would have been obvious to configure the battery to fit within this cavity. Pet. 23 (citing Ex. 1002 ¶¶ 166–168).

Petitioner relies on Dr. Anthony's testimony that a POSITA would have understood Figures 6–8 as showing a cavity as recited in claim 1 and the battery must be arranged within that cavity because "[o]therwise, if the battery did not fit within the 'finger-ring,' the 'finger-ring' either has (1) a battery that sticks out or is exposed to the environment or (2) a wired connection to power its components, which is contrary to the intent of having a portable, wearable device." Ex. 1002 ¶ 166. Dr. Anthony opines that "[a] POSITA would have understood that the battery's location within the cavity is the 'first portion' of the cavity because the battery necessarily occupies space in the cavity." *Id.* ¶ 168. Such testimony, when viewed along with the rest of Petitioner's showing, provides sufficient basis for institution.

Relying on Figure 3, Patent Owner argues that "Schröder expressly teaches (and shows) that the chip module is located outside the recess occupied by inlay 12." Prelim. Resp. 29. According to Patent Owner, "[s]ince the chip module is located outside the recess, there is no suggestion

that the battery to which it is 'connected' is located in the recess." *Id.* Petitioner and Dr. Anthony, however, map the claim elements to Schröder's Figures 4, 5, and 7, not Figure 3. Pet. 19–26; Ex. 1002 ¶¶ 152–180. Figures 4, 5, and 7 appear to depict a different arrangement of elements than the finger-ring "having an insertable chip module with a cover" in Figure 3 (Ex. 1007, 3:45–46). *Compare* Ex. 1007, Fig. 3 (depicting protruding chip module 10 and cover 14) *with* Figs. 4, 5, and 7 (lacking these elements).

We agree with Patent Owner's criticism of Petitioner's showing in at least one respect. Petitioner quotes Schröder's teaching that "chip module 10 is inserted into a recess of the finger-ring 2." Pet. 23 (quoting, *inter alia*, Ex. 1007, 8:58–60). That particular quote comes from the description of Schröder's Figure 3, not Figure 7, which Petitioner reproduces immediately following the quote and relies on to show claim element 1[c]. *Id*. As Patent Owner correctly observes (Prelim. Resp. 29–32), Schröder's Figure 3 shows chip module 10 inserted into a recess that protrudes from finger-ring 2, not a recess between ring-shaped components 16 and 18, as Petitioner tries to suggest (Pet. 23).

Nevertheless, as explained above, we find that, viewed as a whole, Petitioner's arguments and evidence about obviousness of arranging a battery between the internal and external housing components and having a size and shape to fit between those components provide a sufficient basis on which to institute a post-grant review. *See* Pet. 22–23; Ex. 1002 ¶¶ 164–168. At this stage of the proceeding, we do not definitively resolve the parties' dispute about whether Schröder's disclosure and the knowledge of a POSITA would have led to the arrangement of claim element 1[c], as Petitioner contends, or whether Petitioner's obviousness case is based on impermissible hindsight, as Patent Owner argues (*see* Prelim. Resp. 35).

Any final decision will be based on the full record developed during trial, including arguments and evidence about whether Schröder's disclosure is enabling and objective evidence of nonobviousness, as discussed below.

2. Claim Element 1[d]

Claim element 1[d] recites:

> a printed circuit board disposed between the internal housing component and the external housing component, wherein the printed circuit board extends through at least a second portion of the cavity of the finger-worn wearable ring device different from the first portion.

Ex. 1001, 44:66–45:4.

Petitioner contends that "Schröder's 'finger-ring' has a PCB in the cavity between the internal and external housing components." Pet. 24 (citing Ex. 1002 ¶¶ 169–171). According to Petitioner, Schröder's inlay 12 is "arranged 'in the interior of the finger-ring,'" "'serves as a carrier,'" for the antenna coil and chip module, and "consists of 'flexible carrier material' like PET and Kapton," which Petitioner contends "are common PCB materials." Pet. 10, 24 (quoting Ex. 1007, 8:54–57, 12:18–29, 12:61–65). Petitioner contends "[a] POSITA would have understood that Schröder's inlay corresponds to the claimed PCB disposed between the internal and external housings." Pet. 24 (citing Ex. 1002 ¶ 171).

Petitioner further contends that "Schröder teaches a PCB that extends through a second portion of the cavity different than the first portion (where the battery is located)." Pet. 24. Reasoning that "two solid components cannot simultaneously occupy the same space," Petitioner argues that "[i]t would have been obvious that the PCB—existing within the 'finger-ring'—extends through a 'portion of the cavity' that is necessarily different from the 'portion of the cavity' occupied by the battery." Pet. 25 (citing Ex. 1002

¶¶ 172–176). Petitioner illustrates its contention with the following annotation of Schröder's Figure 7.

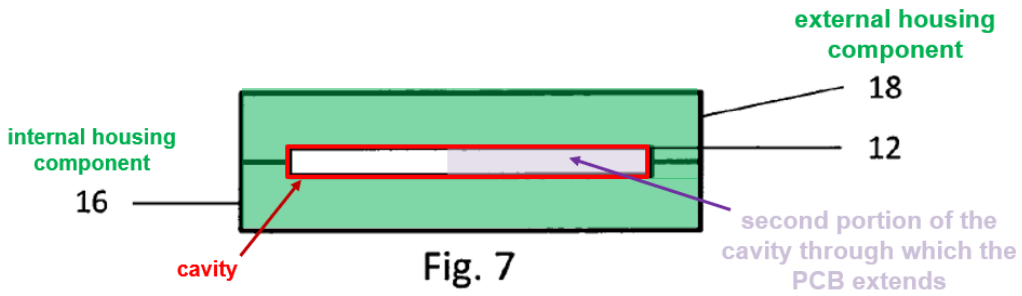

Fig. 7

Id. Schröder's Figure 7 shows a cross-section through a finger-ring. Petitioner outlines inlay 12 and labels it "cavity" and shades a portion of the cavity and labels it "second portion of the cavity through which PCB extends." *Id.* Petitioner contends that "a POSITA would have understood that Schröder's PCB . . . extends through at least a second portion of a cavity . . . that is between inner and outer housing components . . . but does not extend through the entire cavity of 'finger-ring' 2 to allow space for other electrical components, e.g., the battery." *Id.* (citing Ex. 1002 ¶ 176).

Patent Owner argues that Schröder does not disclose or suggest limitation 1[d]. Prelim. Resp. 35–38. Patent Owner disputes Petitioner's contention that Schröder's inlay 12 is a PCB. *Id.* at 36 (citing Ex. 2014). In addition, Patent Owner asserts that "inlay 12 occupies the entire space between ring halves 16 and 18," and "Schröder does not teach that the battery occupies any portion of the recess occupied by inlay 12." *Id.* at 37. Responding to Petitioner's modification of Schröder's Figure 7 with a "side-by-side" arrangement of a battery and a PCB, Patent Owner argues that Petitioner does not explain how or why this redesign of Schröder would have occurred, other than to meet the limitations of claim 1. *Id.* at 38.

After considering the parties' argument and evidence, we determine that Petitioner's showing for claim element 1[d], as summarized above, is sufficient for purposes of granting institution of a post-grant review. For purposes of institution, Petitioner's contentions are adequately supported by Schröder, which describes inlay 12 as a "carrier" for the antenna, chip module, and "at least one further electronic device, e.g., a display" (*see* Ex. 1007, 12:28–29, 12:61–65) and, Schröder's Figure 7, which depicts the inlay 12 between ring halves 16 and 18.

That said, we are not unsympathetic to Patent Owner's criticisms of Petitioner's showing. As Patent Owner points out, the highlighting Petitioner adds to Figure 7 to visually depict the "second portion of the cavity through which PCB extends" seems arbitrary and is not directly supported by the text or drawings of Schröder. *See* Prelim. Resp. 37–38.

In addition, Patent Owner raises a serious issue about whether a POSITA would have understood Schröder's inlay 12 as teaching a PCB. Prelim. Resp. 36 (citing Ex. 2014). These issues would benefit from further development at trial.

Nevertheless, we find that Petitioner's arguments and evidence about the obviousness of arranging a PCB and a battery in different portions of a cavity between internal and external housing components provide a sufficient basis on which to institute a post-grant review. Pet. 24–25; Ex. 1002 ¶¶ 169–174, 176. At this stage of the proceeding, we do not definitively resolve the parties' dispute about whether Schröder's disclosure and the knowledge of a POSITA would have led to the arrangement of claim element 1[d], as Petitioner contends, or whether Petitioner's obviousness case is based on impermissible hindsight, as Patent Owner argues (*see* Prelim. Resp. 38). Any final decision will be based on the full record

developed during trial, including arguments and evidence about whether Schröder's disclosure is enabling and objective evidence of nonobviousness, as discussed below.

3. Enabling Disclosure

"To render a claim obvious, the prior art, taken as a whole, must enable a skilled artisan to make and use the claimed invention." *Raytheon Techs. Corp. v. Gen. Elec. Co.*, 993 F.3d 1374, 1380 (Fed. Cir. 2021). "[P]rior art patents and publications enjoy a presumption of enablement, and the patentee/applicant has the burden to prove nonenablement for such prior art." *Apple Inc. v. Corephotonics, Ltd.*, 861 F. App'x 443, 450 (Fed. Cir. 2021) (nonprecedential; *inter partes* review context); *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1354 (Fed. Cir. 2003). "In general, a prior art reference asserted under § 103 does not necessarily have to enable its own disclosure, i.e., be 'self-enabling,' to be relevant to the obviousness inquiry." *Raytheon*, 993 F.3d at 1380. For example, such a reference could provide the motivation to combine, and then be combined with a reference in which the limitation in question is enabled, or the reference could be used to supply the claim elements if it is enabled by another reference. *Id.* But "if an obviousness case is based on a non-self-enabled reference, and no other prior art reference or evidence would have enabled a skilled artisan to make the claimed invention, then the invention cannot be said to have been obvious." *Raytheon*, 993 F.3d at 1377.

Patent Owner argues that "Petitioner has not shown that Schröder, in view of the knowledge of one of ordinary skill in the art, enables one having ordinary skill in the art to make and use the invention without undue experimentation." Prelim. Resp. 39. Patent Owner argues that, "[i]n

contrast to Schröder, the '178 patent goes into extensive detail describing a first-of-its-kind engineering feat of incorporating all components within a ring housing." *Id.* at 40 (citing Ex. 1001, 15:53–21:10, Fig. 2).

At this stage of the proceeding, we rely on a presumption of enablement for Schröder. *Amgen*, 314 F.3d at 1354. As in *Raytheon*, Petitioner relies on a single prior art reference— Schröder—to establish that a POSITA would have been able to make the claimed invention. *Raytheon*, 993 F.3d at 1381. Petitioner's first challenge does not rely on other prior art or evidence to show that a POSITA would have been able to make a battery and a PCB positioned in first and second portions of a cavity between internal and external housing components of a finger-worn wearable ring device. To the extent Patent Owner argues nonenablement in its post-institution briefing, we will need to address that issue in view of the full trial record.

4. Objective Evidence of Nonobviousness

"Objective evidence of nonobviousness is an important component of the obviousness inquiry because evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not." *Transocean Offshore Deepwater Drilling, Inc. v. Maersk Drilling USA, Inc.*, 699 F.3d 1340, 1349 (Fed. Cir. 2012).

"For objective evidence of secondary considerations to be relevant, there must be a nexus between the merits of the claimed invention and the objective evidence." *Volvo Penta of the Americas, LLC v. Brunswick Corp.*, 81 F.4th 1202, 1210 (Fed. Cir. 2023). "A showing of nexus can be made in two ways: (1) via a presumption of nexus, or (2) via a showing that the

evidence is a direct result of the unique characteristics of the claimed invention." *Id.*

Patent Owner contends that its commercial product—the Oura Ring—is "revolutionary" and a success, with more than more than 2,500,000 sales. Prelim. Resp. 2. According to Patent Owner, the Oura Ring is coextensive with and embodies the '178 Patent. *Id.* at 3.

We determine that Patent Owner's argument and evidence concerning commercial success and nexus are best evaluated on a fully developed record.

5. Conclusion for Petitioner's First Prior Art Challenge

For these reasons, we determine that Petitioner's challenge to claim 1 based on Schröder meets the threshold for institution of a post-grant review.

H. Petitioner's Remaining Prior Art Challenges

In view of our determination that Petitioner's first challenge to claim 1 based on Schröder meets the threshold for institution of a post-grant review, it is unnecessary for us to determine whether Petitioner's remaining prior art challenges meet that threshold. *See SAS Institute Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); 37 C.F.R. § 42.208(a) ("When instituting post-grant review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim."). We do not reach Petitioner's other prior art challenges or Patent Owner's arguments concerning them in this decision (*see* Prelim. Resp. 40–59). In our view, those arguments present complex issues that are best evaluated on a fully developed record at trial.

I. Petitioner's Section 112 Challenges

Petitioner's indefiniteness challenge to claim 11 is mooted by Patent Owner's disclaimer of claim 11. Pet. 106–108; Prelim. Resp. 66; Ex. 2015.

Petitioner contends that claims 17 and 18 are unpatentable for failure to comply with 35 U.S.C. § 112(d). Pet. 108–109. Patent Owner opposes. Prelim. Resp. 66.

After correction, claims 17 and 18 recite:

> 17. The finger-worn wearable ring device of claim 1, wherein the external housing component and the internal housing component define the cavity configured to at least partially surround the battery, and the printed circuit board, wherein one of the external housing component or the internal housing component comprises:
>
> a first side wall and a second side wall that extend between the internal housing component and the external housing component, wherein the cavity is defined at least in part by the outer circumferential surface, the inner circumferential surface, the first side wall, and the second side wall.
>
> 18. The finger-worn wearable ring device of claim 17, wherein the first side wall, the second side wall, or both, are substantially perpendicular to the inner circumferential surface, the outer circumferential surface, or both.

Ex. 1001, 46:47–62; Ex. 1004, 1363 (certificate of correction changing "a cavity" to "the cavity" in claim 17's preamble).

The statute requires a dependent claim to "contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed." 35 U.S.C. § 112(d).

Petitioner argues that claim 17 "improperly broadens" claim 1's scope by reciting "the cavity configured to at least partially surround the battery," whereas "[c]laim 1 requires the battery to be completely encompassed by the cavity." Pet. 108–109.

Petitioner has not shown it is more likely than not that claims 17 and 18 are unpatentable under section 112(d). As argued by Patent Owner, claim 17 appears to comply with the statute by reciting additional limitations that are not recited in independent claim 1, including "a first side wall and a second side wall." Prelim. Resp. 66. Neither party presents a separate argument for claim 18, which depends from claim 17.

IV. ORDER

It is

ORDERED that, pursuant to 35 U.S.C. § 324(a), a post-grant review of claims 1–10 and 12–18 of the '178 Patent is instituted commencing on the entry date of this Decision; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 324(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial.

For PETITIONER:

William M. Fink
John Kappos
Benjamin M. Haber
Marc Pensabene
Mark Liang
Sorin G. Zaharia
O'MELVENY & MYERS LLP
tfink@omm.com
jkappos@omm.com
bhaber@omm.com
mpensabene@omm.com
mliang@omm.com
szaharia@omm.com

For PATENT OWNER:

Jasjit S. Vidwan
Christopher S. Schultz
ARENTFOX SCHIFF LLP
jasjit.vidwan@afslaw.com
christopher.schultz@afslaw.com