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On behalf of Masimo Corporation

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MASIMO CORPORATION,
Petitioner

v.

APPLE INC.,
Patent Owner

Case No. IPR2023-00702
U.S. Patent No. D947,842

**PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. D947,842**

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<i>Leapfrog Enters., Inc. v. Fisher-Price, Inc.</i> , 485 F.3d 1157 (Fed. Cir. 2007)	104, 105

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OTHER AUTHORITIES

35 U.S.C. § 103	3, 33, 34
35 U.S.C. § 112	3
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LIST OF EXHIBITS

Exhibit No.	Description
1001	U.S. Patent No. D947,842
1002	File History of U.S. Patent No. D947,842
1003	Declaration of Joel Delman
1004	<i>Curriculum Vitae</i> of Joel Delman
1005	<i>Apple Inc. v. Masimo Corporation, et al.</i> , Complaint, No. 1:22-cv-01377 (D. Del.)
1006	PCT Appl. Pub. No. WO 2017/165532 (“Paulke”)
1007	U.S. Pat. Appl. Pub. No. 2019/0196411 (“Yuen”)
1008	U.S. Pat. No. D827,831 (“Fong”)
1009	U.S. Pat. Appl. Pub. No. 2017/0086743 (“Bushnell”)
1010	RESERVED
1011	U.S. Pat. No. 6,801,799 (“Mendelson”)
1012	RESERVED
1013	RESERVED
1014	Declaration of R. James Duckworth, Ph.D.
1015	<i>Curriculum Vitae</i> of R. James Duckworth, Ph.D.
1016	Scott Jung, “Medgadget Joins the Verily Baseline ProjectStudy, Part 2: The Tech,” archived on October 27, 2017 by the Internet Organization’s “Wayback Machine” at https://web.archive.org/web/20171027221742/https://www.medgadget.com/2017/10/medgadget-joins-verily-baseline-project-study-part-2-tech.html

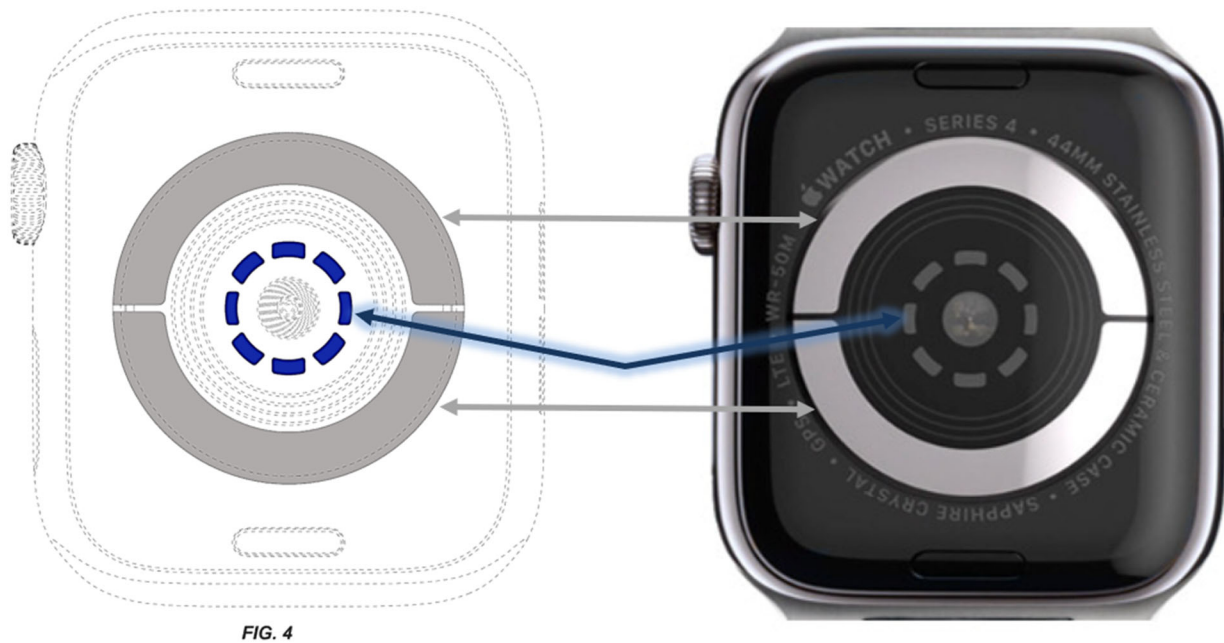
Exhibit No.	Description
1017	<i>Masimo Corp. et al. v. Apple Inc.</i> , Apple’s September 14, 2022 Public Second Corrected Post-Hearing Brief, ITC Inv. No 337-TA-1276
1018	“Apple Watch Series 4: Beautifully redesigned with breakthrough communication, fitness and health capabilities,” archived on September 12, 2018 by the Internet Organization’s “Wayback Machine” at https://web.archive.org/web/20180912191250/https://www.apple.com/newsroom/2018/09/redesigned-apple-watch-series-4-revolutionizes-communication-fitness-and-health/
1019	“Your heart rate. What it means, and where on Apple Watch you’ll find it,” archived on January 23, 2019 by the Internet Organization’s “Wayback Machine” at https://web.archive.org/web/20190123031906/https://support.apple.com/en-us/HT204666
1020	“Apple Watch Series 4 – Health,” archived on September 20, 2018 by the Internet Organization’s “Wayback Machine” at https://web.archive.org/web/20180920103403/https://www.apple.com/apple-watch-series-4/health/
1021	<i>Masimo Corp. et al. v. Apple Inc.</i> , June 6-10, 2022 Public Hearing Transcript, ITC Inv. No 337-TA-1276
1022	“Charge Apple Watch,” https://support.apple.com/guide/watch/charge-apple-watch-apd2b717523a/watchos (last visited Mar. 6, 2023)
1023	“Apple Watch Magnetic Charging Cable (1 m),” https://www.apple.com/shop/product/MX2E2AM/A/apple-watch-magnetic-charging-cable-1m (last visited Mar. 6, 2023)
1024	U.S. Pat. No. 10,610,157 (“’157 patent”)
1025	U.S. Pat. No. 10,627,783 (“’783 patent”)
1026	<i>Masimo v. Apple</i> , Excerpts of Redacted Sept. 23, 2022 Opening Expert Report of Steve Warren, Ph.D., No. 8:20-cv-48 (CD Cal.)

Exhibit No.	Description
1027	“Apple Watch Series 4 Teardown,” https://www.ifixit.com/Teardown/Apple+Watch+Series+4+Teardown/113044 (last visited Mar. 6, 2023)
1028	RESERVED
1029	K192415 510(k) Summary for Verily Study Watch, https://www.accessdata.fda.gov/cdrh_docs/pdf19/K192415.pdf (last visited Mar. 6, 2023)
1030	U.S. Pat. No. 10,912,501
1031	Y. Mendelson et al., “Measurement Site and Photodetector Size Considerations in Optimizing Power Consumption of a Wearable Reflectance Pulse Oximeter,” Proceedings of the 25th IEEE Conference (2003)
1032	U.S. Pat. No. D753,510
1033	U.S. Pat. No. D782,537
1034	U.S. Pat. No. D735,131
1035	Chinese Design Reg. No. 303285726
1036	Konig et al., <i>Reflectance Pulse Oximetry – Principles and Obstetric Application in the Zurich System</i> , 1998
1037	Yitzhak Mendelson, <i>Invasive and Noninvasive Blood Gas Monitoring</i> , 1991
1038	<i>Masimo Corp. et al. v. Apple Inc.</i> , Public Excerpts of Apple’s June 6, 2022 Opening Presentation, ITC Inv. No 337-TA-1276
1039	U.S. Pat. No. D816,524
1040	<i>Masimo Corp. et al. v. Apple Inc.</i> , Public Excerpts of Final Initial Determination on Violation of Section 337, ITC Inv. No 337-TA-1276

Exhibit No.	Description
1041	U.S. Pat. No. 10,912,502
1042	U.S. Pat. No. 10,945,648
1043	N. Meziane et al., Dry Electrodes for Cardiography, Physiological Measurement 34 (2013)
1044	U.S. Pat. No. 6,265,789
1045	<i>Apple Inc. v. Masimo Corporation, et al.</i> , Masimo’s Public Opposition to Apple’s Motion for an Expedited Trial, No. 1:22-cv-01377 (D. Del.)
1046	<i>Apple Inc. v. Masimo Corporation, et al.</i> , Public Excerpt of January 30, 2023 Declaration of James Malackowski in Support of Apple Inc.’s Motion for an Expedited Trial, No. 1:22-cv-01377 (D. Del.)
1047	U.S. Pat. No. 6,091,530 (“Duckworth”)
1048	U.S. Pat. No. 6,075,755 (“Zarchan”)
1049	Y. Mendelson, “A Wearable Reflectance Pulse Oximeter for Remote Physiological Monitoring,” Proceedings of the 28th IEEE Conference (2006)
1050	Y. Mendelson, “Wearable Wireless Pulse Oximetry for Physiological Monitoring,” PPL Workshop (2008)

Masimo Corporation (“Masimo” or “Petitioner”) requests *inter partes* review (“IPR”) under 35 U.S.C. §§311-319 and 37 C.F.R. §42 of the claim (“the Challenged Claim”) of U.S. Patent D947,842 (“the D’842 Patent”).

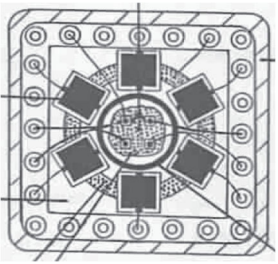
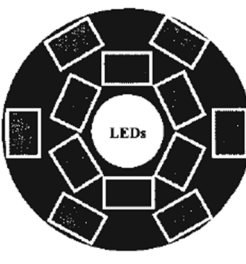
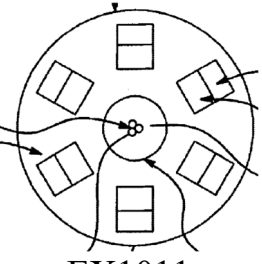
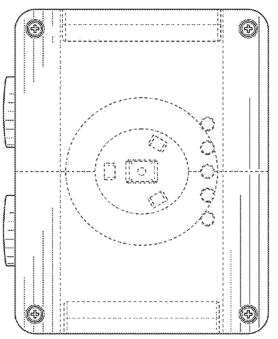
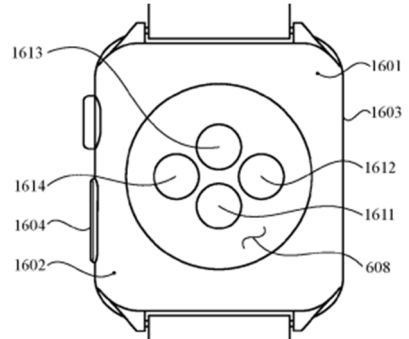
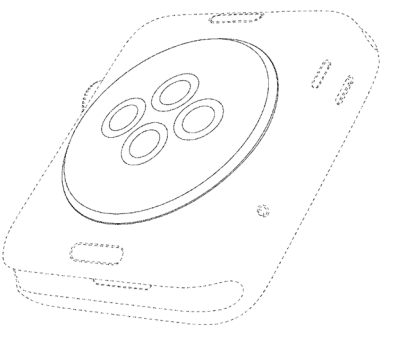
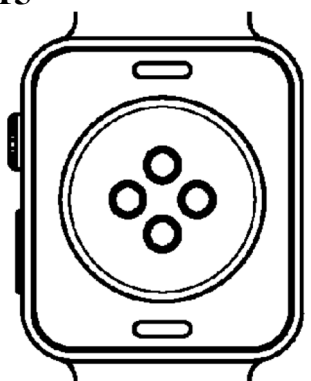
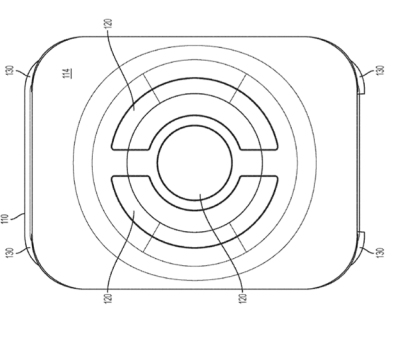
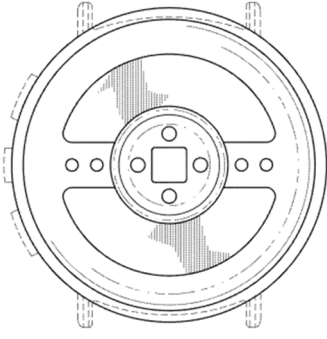
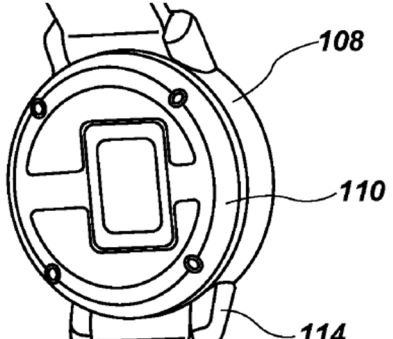
Apple’s D’842 Patent claims only the arc-shaped electrodes and circular array of photodiodes of Apple Watch Series 4. These functional elements are used take ECG and heart rate measurements, respectively. Much, if not all, of the claimed design is dictated by functional requirements.



Claimed Design

Apple Watch Series 4

The claimed design also merely recycles design aspects that were commonly used in pre-existing sensors and wearable devices with the same or similar health-monitoring features, as shown in the chart below.

1991  EX1037	2003  EX1031	2005  EX1011
2013  EX1032	2014  EX1025	2015  EX1033
2015  EX1035	2015  EX1009	2016  EX1006
2017  EX1008	2017  EX1039	2017  EX1007

And as explained in this Petition, a designer of ordinary skill would have combined the prior art to arrive at the following designs.

Ground 1
Paulke, Mendelson



Ground 2
Yuen, Mendelson, Bushnell



Ground 3
Fong, Mendelson, Bushnell



Accordingly, the Challenged Claim would have been obvious based on the grounds presented in this Petition. Masimo thus respectfully submits that IPR should be instituted and the Challenged Claim canceled as invalid.

I. MANDATORY NOTICES

A. Real Party-In-Interest (37 C.F.R. §42.8(b)(1))

Petitioner, Masimo Corporation, is the real party-in-interest.

B. Related Matters (37 C.F.R. §42.8(b)(2))

The parties are currently engaged in district court litigation, captioned *Apple Inc. v. Masimo Corporation, et al.*, No. 1:22-cv-01377 (D. Del.), where Apple Inc. (“Apple” or “Patent Owner”) has asserted the D’842 Patent against Masimo. EX1005. Masimo is not aware of any disclaimers, reexamination certificates, or other IPR petitions for the D’842 Patent.

C. Lead and Backup Counsel (37 C.F.R. §42.8(b)(3))

Masimo provides the following designation of counsel, all of whom are included in Customer No. 64,735 identified in Masimo’s Power of Attorney.

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D. Service Information (37 C.F.R. §42.8(b)(4))

Please direct all correspondence to lead counsel and back-up counsel at the addresses shown above. Masimo also consents to electronic service by email to MasimoIPR842@knobbe.com.

E. Grounds for Standing (37 C.F.R. §42.104)

Masimo certifies that the D’842 Patent is available for IPR. This Petition is being filed within one year of service of a complaint against Masimo in *Apple Inc. v. Masimo Corp., et al.*, No. 1:22-cv-01377 (D. Del.). Masimo is not barred or estopped from requesting this review on the grounds identified in this Petition.

F. Payment of Fees (37 C.F.R. §42.15(a))

The Office may charge the §42.15(a) fee to Deposit Account No. 11-1410. Review of the D’842 Patent’s sole claim is requested. Payment for any additional fees due may be charged to the above-referenced Deposit Account.

II. SUMMARY OF GROUNDS

As explained in this Petition, the Challenged Claim is invalid under 35 U.S.C. § 103 as obvious over the following grounds.¹

¹ Masimo is not conceding the Challenged Claim satisfies 35 U.S.C. § 112 or any other statutory requirements. As this is an IPR petition, Masimo is only pursuing prior-art-based grounds and does not waive any arguments concerning other grounds.

Ground	References
1	Paulke, Mendelson
2	Yuen, Mendelson, Bushnell
3	Fong, Mendelson, Bushnell

Accompanying explanations and support are provided in the Declarations of Joel Delman (EX1003) and R. James Duckworth, Ph.D. (EX1014).

A. Status of References as Prior Art

The D’842 Patent claims priority to June 27, 2018. EX1001, 2. Masimo takes no position regarding whether the D’842 Patent is entitled to that filing date, but has applied references that pre-date June 27, 2018 and qualify as prior art, as shown below. EX1003 ¶¶53-57.

Exhibit	Reference	Prior Art Date	Prior Art Under 35 U.S.C. §
1006	WO2017/165532 (“Paulke”)	09/28/2017 (published)	102(a)(1)
1007	US2019/0196411 (“Yuen”)	12/27/2017 (filed)	102(a)(2)
1008	USD827,831 (“Fong”)	04/04/2017 (filed)	102(a)(2)
1009	US2017/0086743 (“Bushnell”)	03/30/2017 (published)	102(a)(1)
1011	US6,801,799 (“Mendelson”)	10/05/2005 (patented)	102(a)(1)

None of the applied references are of record to the D’842 Patent.

These references constitute analogous art because they are from the same field as the D’842 patent, *e.g.*, wearables electronic devices, and concern the design of common wearable device sensor components, including electrodes and optical sensors. *Infra* §VI.A; *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 995, 1000 (Fed. Cir. 2016). Thus, a skilled artisan presumably would have been aware of these references. *In re Nilssen*, 851 F.2d 1401, 1403 (Fed. Cir. 1988).

III. THE D’842 PATENT

A. Overview

The D’842 Patent, titled “Electronic Device,” claims “[t]he ornamental design for an electronic device, as shown and described” in FIGS. 1-9. EX1001. As shown below, the D’842 Patent claims the design of two arc-shaped portions (gray) surrounding a circular array of rectangles (blue).

D’842 Patent

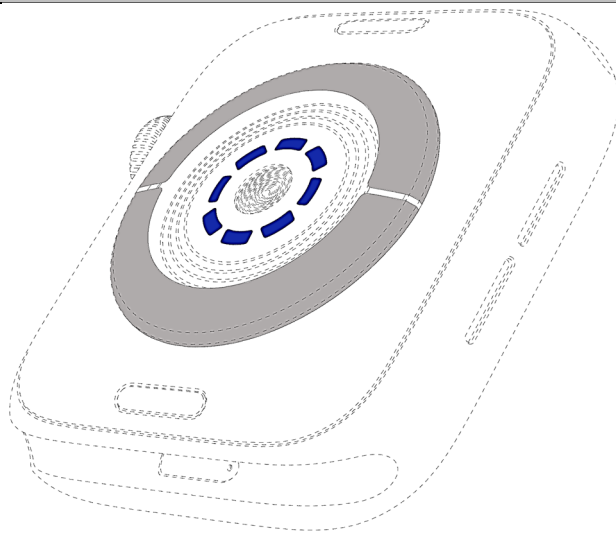


FIG. 2

“FIG. 2 is a bottom rear perspective view [of an electronic device showing the claimed design].”

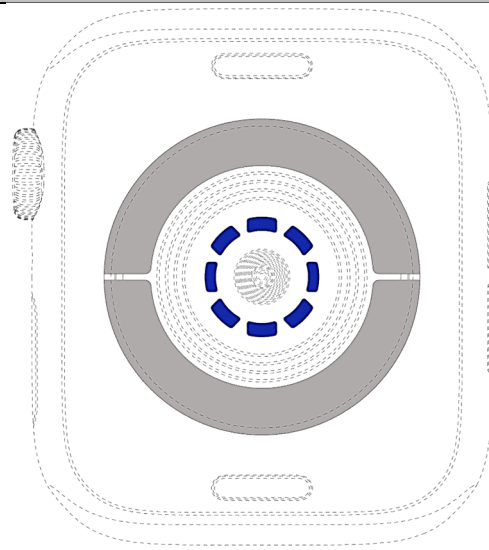


FIG. 4

“FIG. 4 is a rear view thereof.”

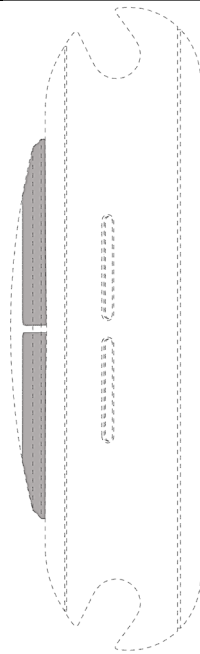


FIG. 5

“FIG. 5 is a left side view thereof.”

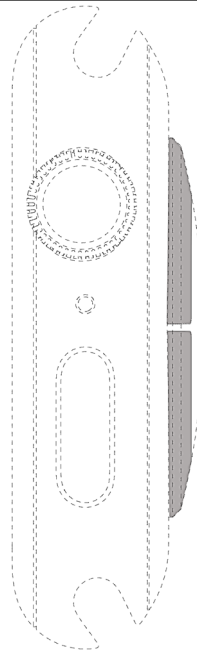
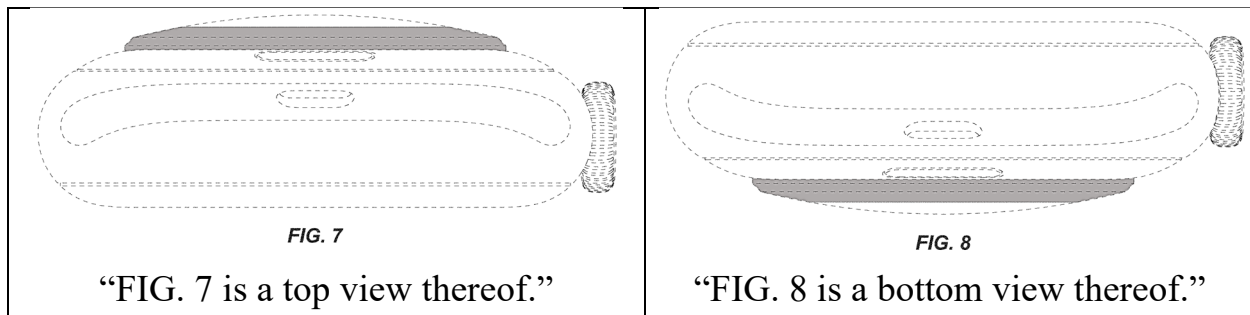


FIG. 6

“FIG. 6 is a right side view thereof.”



*Id.*² As explained below, the D’842 Patent claims aspects of the sensor design of the underlying article—Apple Watch Series 4.

B. Prosecution History

The D’842 Patent issued from U.S. Application No. 29/816,024 (the “’024 Application”). The ’024 Application was filed on November 18, 2021 with Figures 1-135. EX1001, Cover; EX1002, 13-118. On December 14, 2021, Apple filed a preliminary amendment “replac[ing] Figures 1–135 with replacement Figures 1–9.” EX1002, 324-326. Less than two months later on February 2, 2022, the ’024 Application was allowed without any rejections (EX1002, 347), and issued as the D’842 Patent on April 5, 2022. EX1001, Cover.

² FIGS. 1, 3, and 9 are not included above because nothing on the front of the device is claimed. EX1001, FIGS. 1, 3, 9, Description; EX1003 ¶24.

IV. CLAIM CONSTRUCTION

A. Legal Standard for Design Patent Claim Construction

In an IPR, claims are construed according to the *Phillips* standard. 37 C.F.R. § 42.100; *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005). Masimo thus employs that standard herein.

The scope of a design patent is defined by the solid lines depicted in its figures in conjunction with their descriptions. *See Egyptian Goddess, Inc. v. Swisa, Inc.*, 543 F.3d 665, 680 (Fed. Cir. 2008) (citing 37 C.F.R. § 1.152). While it can be difficult to verbally describe a claimed design, it is often “helpful to point out ... various features of the claimed design as they relate to ... the prior art.” *Id.* at 680; *see High Point Design LLC v. Buyers Direct, Inc.*, 730 F.3d 1301, 1314–15 (Fed. Cir. 2013) (remanding, in part, for “verbal description of the claimed design to evoke a visual image consonant with that design”).

Moreover, a design patent may only protect the “ornamental design” of an article. 35 U.S.C. § 171. Thus, when a design patent contains functional and ornamental elements, the claimed design’s “scope is limited to [the ornamental] aspects alone and *does not extend to any functional elements of the claimed article.*”³ *Richardson v. Stanley Works, Inc.*, 597 F.3d 1288, 1293-94 (Fed. Cir. 2010) (factoring out functional elements of design patent from obviousness

³ All emphasis and coloring added unless indicated otherwise.

analysis). And “[w]here a design contains both functional and non-functional elements, the scope of the claim ***must be construed*** in order to identify the non-functional aspects of the design as shown in the patent,” if any. *OddzOn Prods., Inc. v. Just Toys, Inc.*, 122 F.3d 1396, 1405 (Fed. Cir. 1997).

There are several factors for assessing the functionality of a claimed design. Whether suitable alternative designs are available is “an important—if not dispositive—factor in evaluating the legal functionality of a claimed design.” *Ethicon Endo-Surgery, Inc. v. Covidien, Inc.*, 796 F.3d 1312, 1329-30 (Fed. Cir. 2015). Additional factors “serv[ing] as a useful guide for claim construction functionality” include: (1) whether the claimed design represents the best design; (2) whether alternative designs would adversely affect the article’s utility; (3) whether there are any concomitant utility patents; (4) whether advertising touts particular design features as having specific utility; and (5) whether there are any design elements or an overall appearance clearly not dictated by function. *Sport Dimension, Inc. v. Coleman Co., Inc.*, 820 F.3d 1316, 1322 (Fed. Cir. 2016).

B. Claim Construction of the D’842 Patent

The D’842 Patent claims the design of two arc-shaped portions (gray) protruding from the back of an electronic device and surrounding a circular arrangement of rectangles (blue), as shown below.

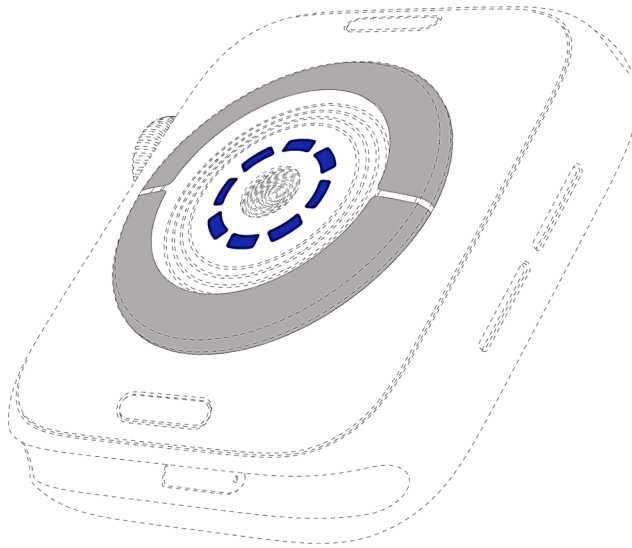


FIG. 2

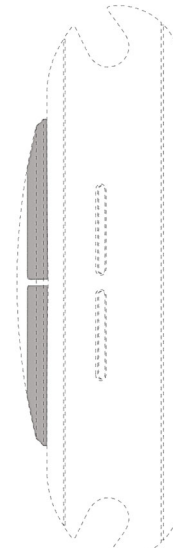


FIG. 5

EX1001, FIGS. 2, 5; *supra* §III.A. The arc-shaped portions' outermost surface has a convex curvature, as shown in cyan below. EX1001, FIGS. 2, 5-8; EX1003 ¶39.

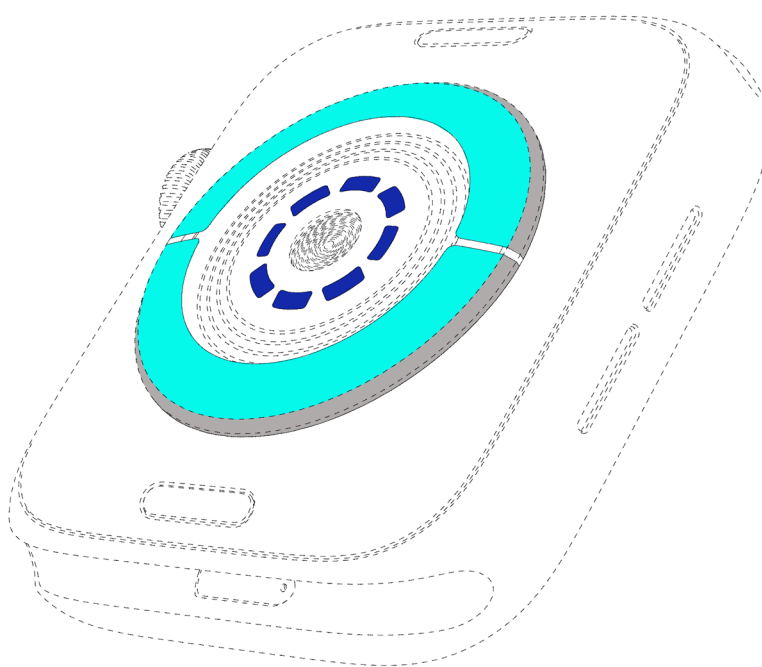


FIG. 2

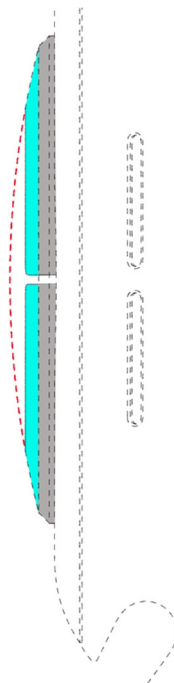
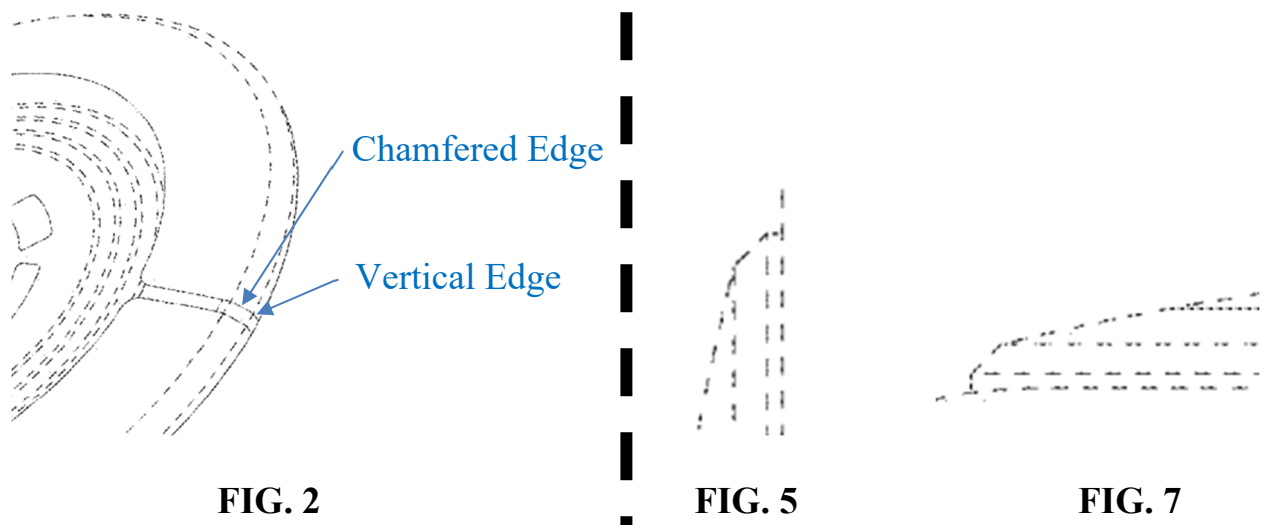


FIG. 5

EX1001, FIGS. 2, 5 (excerpted); EX1003 ¶39. An unclaimed part of the convex surface, shown above (right) in red, continues between the arc-shaped portions.

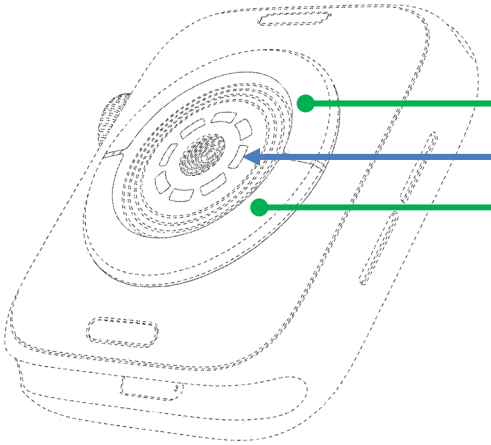
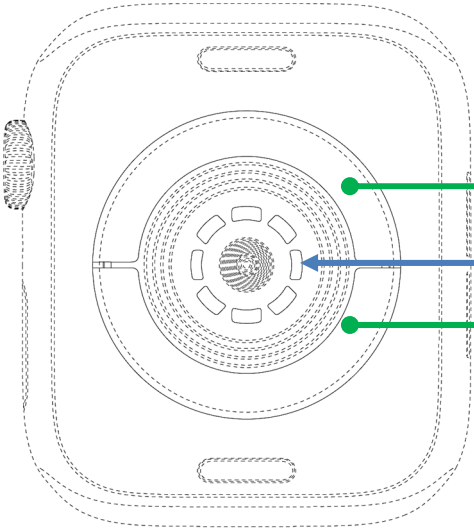
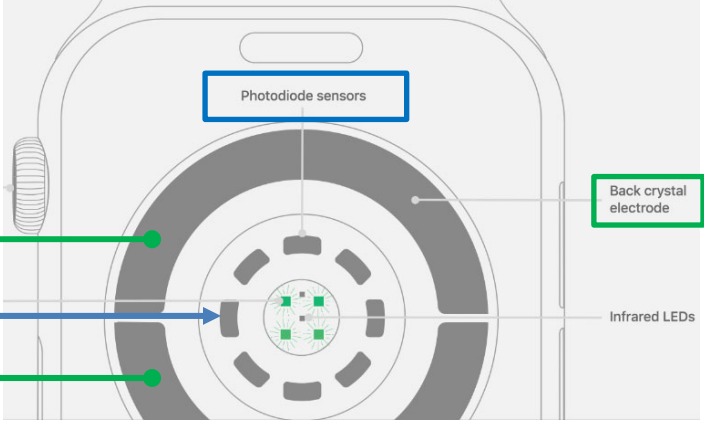
EX1001, FIG. 5; EX1003 ¶39. Together, the claimed (cyan) and unclaimed (red) parts of the convex surface form a dome. *Id.* The claimed rectangles (blue) are included below the convex surface on an interior surface of the sensor, as shown above. EX1001, FIGS. 2, 5; EX1003 ¶39.

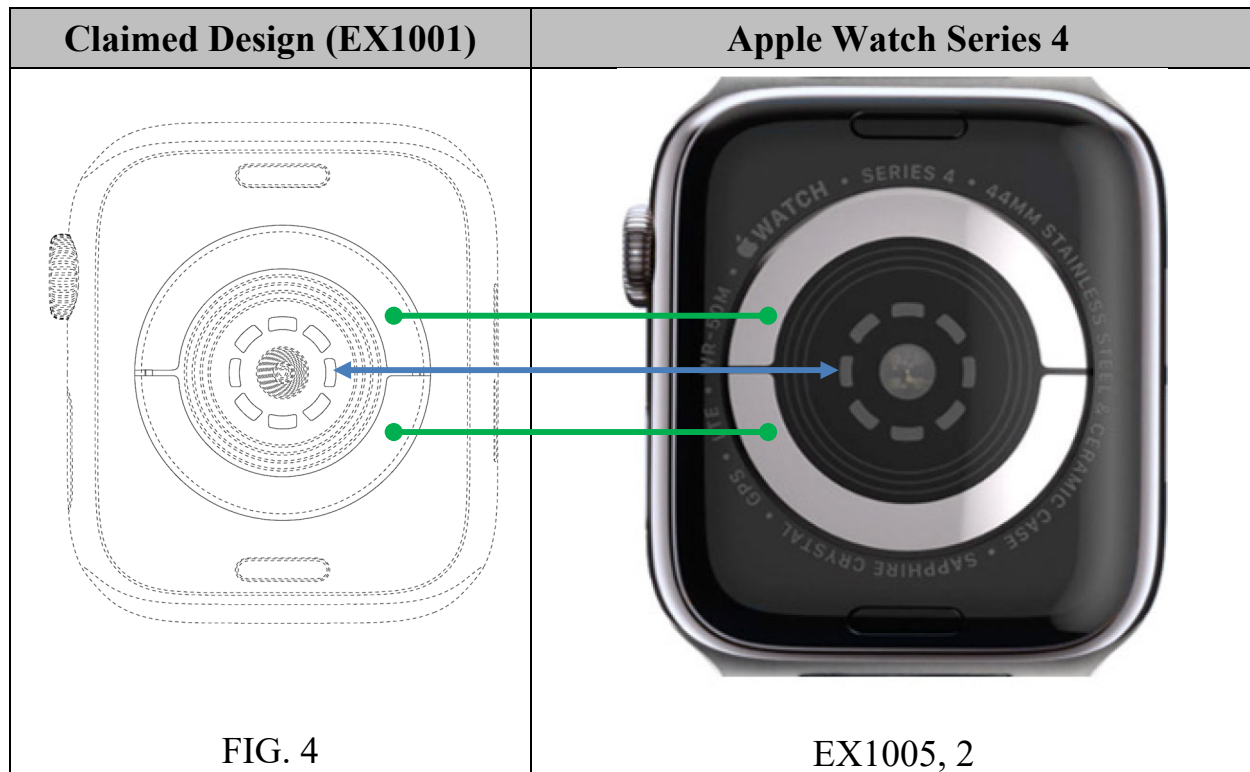
Further, FIG. 2 of the D’842 Patent depicts a sidewall with a vertical edge and a chamfered edge between each arc-shaped portion’s convex curvature and the back of the device, as shown below (left). EX1001, FIG. 2; EX1003 ¶40. However, as shown below (right), the patent depicts each sidewall with broken lines that “form no part of the claimed design.” EX1001, FIGS. 5-8, Description; EX1003 ¶40.



A DOSA thus would have understood the sidewall’s design was ***not*** claimed. EX1003 ¶40. Confusingly, even the arc-shaped portions’ outermost surface, which has the convex curvature discussed above, is drawn in broken lines in FIGS. 5-8. *Id.*; EX1001, FIGS. 5-8.

The article underlying the D’842 Patent is Apple Watch Series 4—the smartwatch that Apple released less than three months after the D’842 Patent’s purported filing date. EX1018; EX1003 ¶41. The D’842 Patent claims the electrodes (green) and photodiodes (blue) of the Series 4 Watch’s sensors.

Claimed Design (EX1001)	Apple Watch Series 4
 FIG. 2	 EX1020, 5
 FIG. 4	 EX1019, 3



EX1003 ¶41; EX1014 ¶43. As shown above, the claimed arc-shaped portions depict the “built-in electrode[s]” on the back of the Series 4 Watch and the claimed rectangles depict the photodiodes of the “optical heart sensor” inside the Watch. EX1019, 2-3; EX1020, 5; EX1003 ¶41.

The arc-shaped electrodes and rectangular photodiodes on the back of Apple Watch Series 4 are functional elements of its ECG and optical sensors, respectively. EX1014 ¶44. The electrodes’ function is to measure electrical impulses across the user’s chest. EX1019, 3. “The optical heart sensor in Apple Watch uses what is known as photoplethysmography” (“PPG”) to measure the user’s heart rate. *Id.*, 2-3; EX1014 ¶44. Specifically, the optical sensor emits light into the user’s wrist. *Id.* Some of that light is reflected back to the Watch, which receives it with eight “light-

sensitive photodiodes.” *Id.* The received light is used “to detect the amount of blood flowing through your wrist” and thereby determine the user’s heart rate. EX1019, 2-3; EX1014 ¶44. Thus, the photodiodes’ function is to receive light. *Id.*

Like the Apple Watch Series 4’s electrodes and photodiodes, the arc-shaped portions and rectangles claimed by the D’842 Patent are functional elements, as explained below.

1. The Functional Elements of the Claimed Sensor Design Should Be Factored Out of the Scope of the Challenged Claim

The claimed Apple Watch sensor design includes numerous design elements that are functional and should thus be “factored out” of the Challenged Claim’s scope. *Richardson*, 597 F.3d at 1293-94, *see, e.g., Campbell Soup Co. v. Gamon Plus, Inc.*, IPR2017-00096, Paper 28, at 7 (PTAB Mar. 30, 2017), 7 (applying *Richardson* to construe design), 14 (considering “placement and positioning” of functional elements in invalidity analysis was “not required under our claim construction”).

a. The Convex Curvature Is Functional

The claimed arc-shaped portions have a convex curvature that is dictated by the functionality of the underlying article—Apple Watch Series 4.

As Apple explained in the parties’ ITC investigation (Inv. No. 337-TA-1276, the “ITC Investigation”), the convex curvature (i.e., “dome” or “curved” shape) on the back of every Apple Watch “has been constant” since the 2015 release of the

original Apple Watch (“Series 0”). EX1021, 47:12-16, 46:22-23. Apple admitted the “very practical reason[s] for that dome shape.” *Id.*, 47:23-24. Specifically, Apple admitted to using the convex curvature because that shape “*fits snugly in the [wireless charging] cradle and is designed to align the watch with the charging hardware components* so that the charging can occur in an efficient way.” *Id.*, 47:20-23. Apple’s admission was confirmed by the “distinguished engineer” leading the development of Apple Watch’s health sensors, Brian Land. *Id.*, 954:15-955:9. Land testified that the Apple Watch’s convex curvature was designed to (1) mate with the charging “*dock that has a complementary shape*” and (2) align the Watch and charger for “efficient wireless charging.” *Id.*, 959:14-960:2. Indeed, every Apple Watch has the same convex curvature so that it mates snugly with the complementary concave curvature of the Apple Watch charger, as shown below.



EX1005, 7; EX1023, 2 (showing every Apple Watch uses charger design above); EX1014 ¶45.

Accordingly, the arc-shaped portions were designed with the convex curvature claimed in the D’842 Patent for the underlying Series 4 Watch to perform its intended functions of (1) mating snugly with the corresponding shape of its charger and (2) aligning with the charger for efficient wireless charging. EX1014 ¶45. An alternative curvature is unavailable because arc-shaped portions with a different curvature would not mate snugly or properly align with the established concave curvature of the Watch’s charger for efficient wireless charging. *Id.* Rather, using a different curvature for the arc-shaped portions would render the Watch incompatible with the concave curvature of its charger. *Id.* Thus, the claimed convex curvature is dictated by function because arc-shaped portions must be curved as claimed to perform the intended functions of mating and aligning with the corresponding charger for efficient charging. *Id.*; *see, e.g., Best Lock Corp. v. Ilco Unican Corp.*, 94 F.3d 1563, 1566 (Fed. Cir. 1996) (finding key blade shape dictated by function because “key blade must be designed as shown in order to perform its intended function” of mating with corresponding lock).

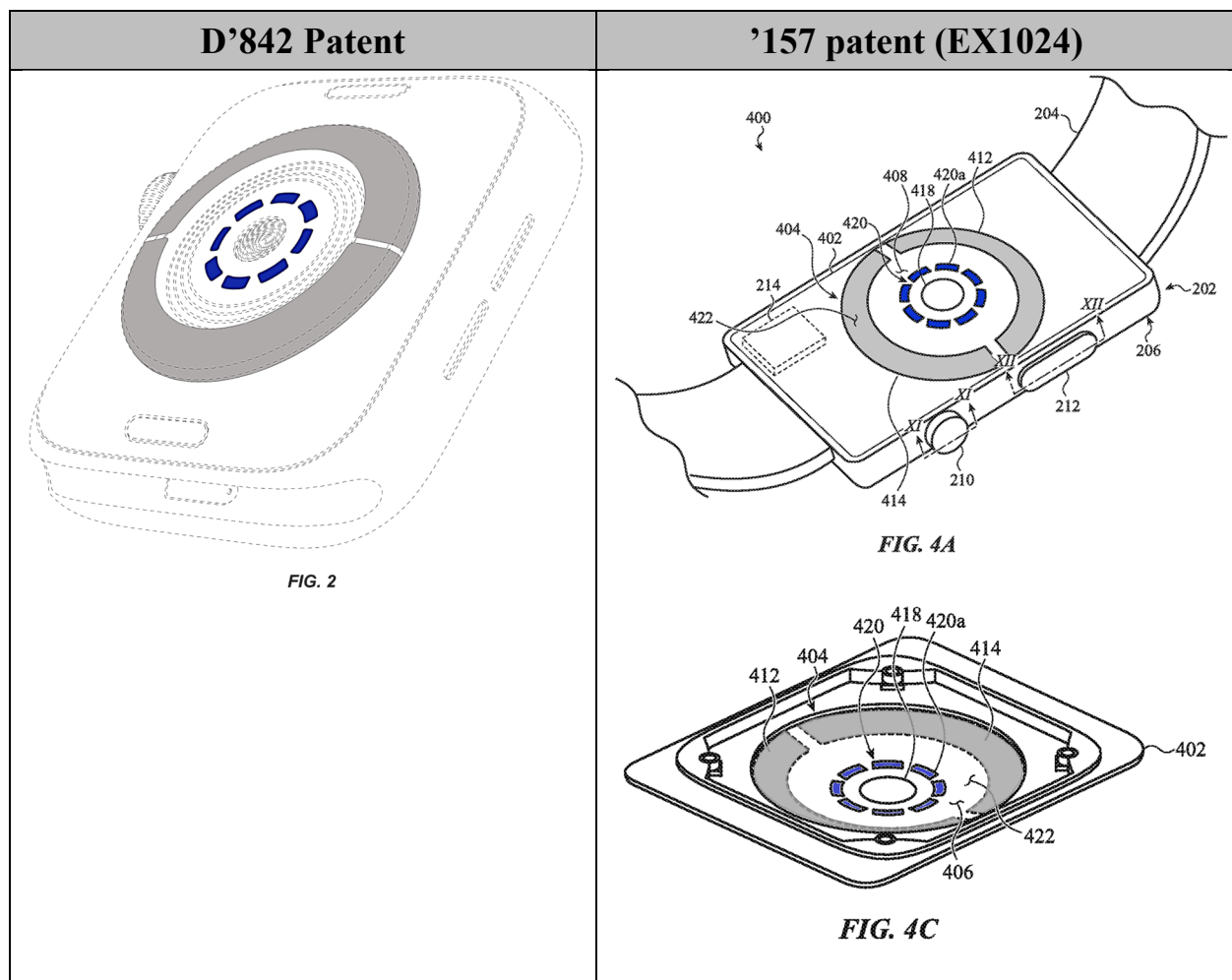
Additional factors confirm that the arc-shaped portions’ convex curvature is a functional design element.

First, the claimed convex curvature represents the best design for the D’842 Patent’s arc-shaped portions because it allows the underlying article to mate snugly and properly align with the complementary concave shape of its charger, as shown and explained above. EX1014 ¶47. A different curvature would be a worse design because it would be incompatible with the established, concave curvature of the claimed article’s charger, as explained above. *Id.*

Second, using a different curvature would adversely affect the utility of the underlying article. Specifically, changing the arc-shaped portions’ curvature would impede the Watch’s ability to properly mate and align with its charger, thereby impeding its ability to recharge. *Id.* ¶48; EX1021, 959:14-960:2; EX1025, 45:18-28, 42:63-43:4. Because the Watch charges by mating snugly and aligning with its charger’s complementary curvature, the claimed convex curvature enabling that Watch-charger connection is “essential to the use of the article” and thus, primarily functional. EX1014 ¶48; *L.A. Gear, Inc. v. Thom McAn Shoe Co.*, 988 F.3d 1117, 1123 (Fed. Cir. 1993).

Third, Apple’s marketing touts the claimed convex curvature as being useful to align the Watch with its charger. For example, Apple’s website indicates the convex curvature on the back of every Apple Watch was designed to mate with “[t]he concave end of the charging cable” and ensure the Watch and charger are properly aligned. EX1022, 1; EX1014 ¶49.

Fourth, concomitant utility patents *from Apple* describe the convex curvature claimed in the D’842 Patent. Apple filed U.S. Pat. No. 10,610,157 (the “’157 patent”) in August 2018, just after the purported June 2018 filing date of the D’842 Patent but before the September 2018 launch of Apple Watch Series 4. EX1024, Cover. And both the D’842 Patent and the ’157 patent disclose the design of the same underlying article—Apple Watch Series 4. EX1001, FIGS. 2, 4-8; EX1024, FIGS. 4-5; EX1014 ¶50. As shown below, the D’842 Patent’s claimed design (left) is depicted in FIGS. 4A and 4C of the ’157 patent (right). *Id.*



The '157 patent explains that the FIGS. 4A-4C device has a convex or “dome-shaped” carrier 404 with a “surface 408 [that] protrudes or extends away from a back member 402 of the watch.” EX1024, 12:67-13:3, FIGS. 4A-4C. The convex, protruding surface 404 includes “first and second electrodes 412, 414,” which are “arc-shaped.” *Id.*, 13:36-38, 13:21-24, FIGS. 4A, 4C, 5D. The '157 patent even claims the convex surface and its arc-shaped electrodes, thus confirming that the convex curvature claimed in the D'842 Patent is a functional design element. *Id.*, claim 15 (reciting first and second “arc-shaped electrode[s]” and “a carrier protruding from” the “electronic watch”); EX1014 ¶50.

Another Apple patent (U.S. Pat. No. 10,627,783 (the “'783 patent”)) demonstrates that the convex curvature claimed in the D'842 Patent is to achieve the above-discussed mating and charger alignment functions. EX1014 ¶51. The '783 patent states that “power transfer efficiency ... may decrease as misalignment increases” between the watch and its charging dock. EX1025, 42:63-43:4. The '783 patent thus describes using “alignment assistance features to effect alignment of the [watch] 100 with the dock 1802 along a mutual axis.” *Id.*, 43:10-13; *id.*, 43:13-15. For example, the '783 patent explains (and shows in FIGS. 18-19, below) that “the bottom surface of the [watch] 100 is convex and the top surface of the [charging] dock 1802 is concave, following the same curvature as the bottom of the [watch] 100.... [to] facilitate alignment of the [watch] and dock for efficient wireless power

transfer.” *Id.*, 45:20-28; *see, e.g., id.*, 43:28-32 (“protrusions and corresponding indentations ... may be used to align [the watch and dock]”), 43:19-22.

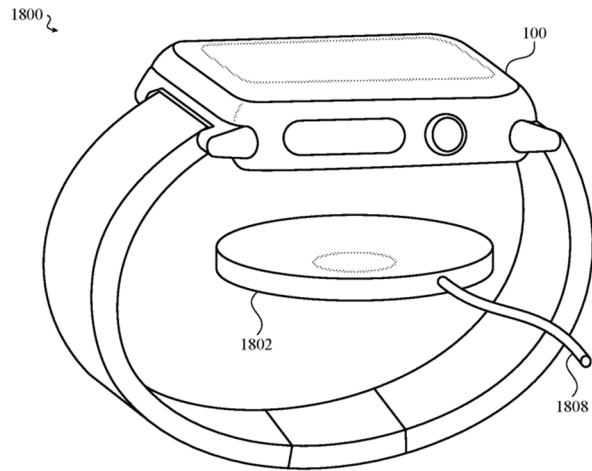


FIG. 18

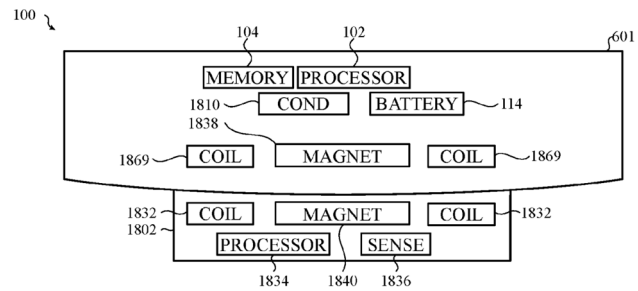


FIG. 19

Accordingly, the '783 patent demonstrates that function—not ornamentation—dictates the convex curvature of the arc-shaped portions claimed in the D'842 Patent. EX1014 ¶51.

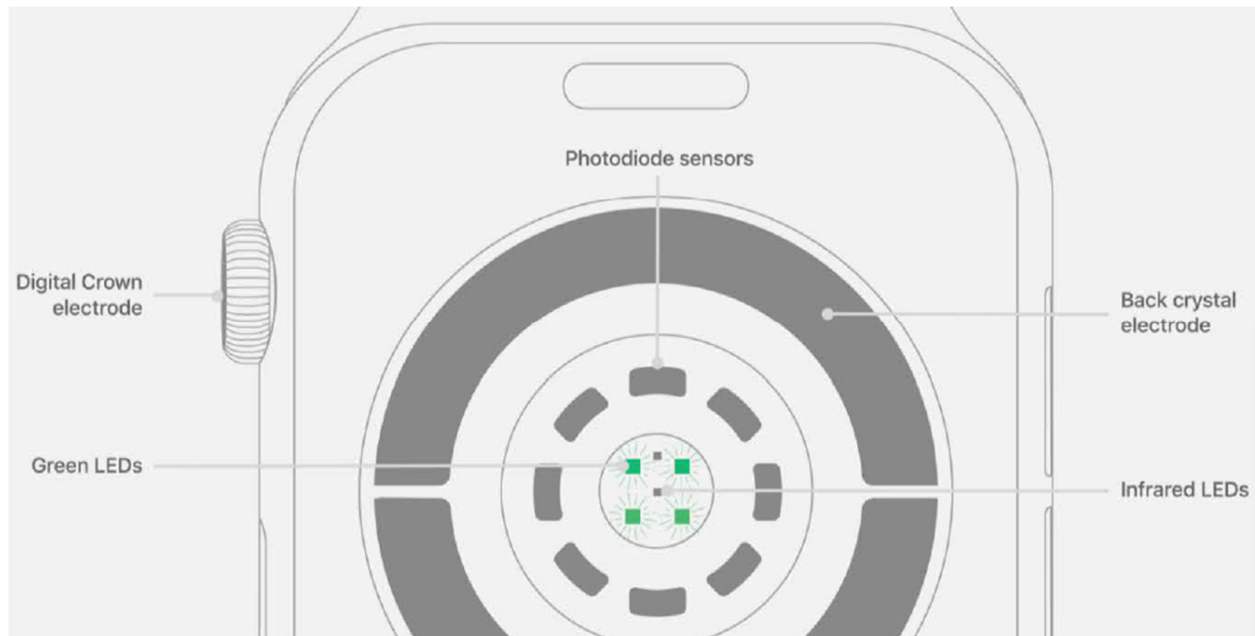
Further, the claimed arrangement of convex arc-shaped portions is shown and described in Paulke and Yuen, both of which are utility patent publications. *Infra* §§VI.B-VI.C. Additionally, the Apple Watch was recently found to infringe claims of two Masimo patents requiring a protrusion with a convex surface (EX1040, 41, 44, 53, 55), which the patents explain increases the sensor's signal-to-noise ratio and provides other benefits. EX1041, 21:9-43; EX1042, 21:1-35; EX1014 ¶52. Thus, ***at least six utility patent filings*** confirm that the claimed arc-shaped portions' convex curvature is functional. EX1014 ¶52.

Fifth, the convex arc-shaped portions protrude from the back of the underlying article—Apple Watch Series 4—which is a light-based physiological measurement device. *Supra* §IV.B. And Apple’s expert recently opined that using convex protruding features in such devices functions to improve contact between the sensor and the skin, reduce errors, make the device more comfortable to wear, improve measurement quality, and more. EX1026 ¶111; *id.* ¶112 (describing functional benefits of features shown in ¶113), ¶113; EX1014 ¶53.

b. The Arc-Shaped Portions’ Arrangement Is Functional

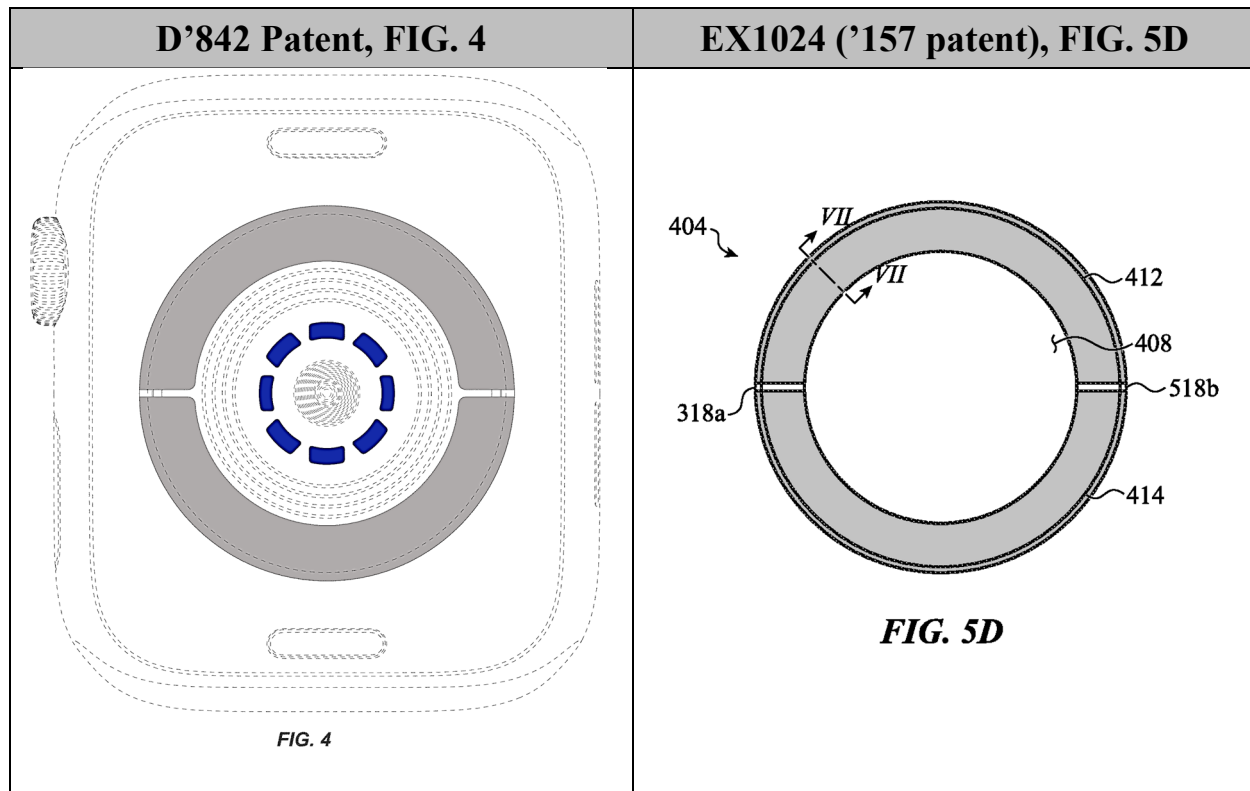
The claimed arc-shaped portions have an arrangement that is dictated by the functionality of the underlying article.

Apple Watch Series 4 includes arc-shaped electrodes that are intended to measure electrical impulses through the skin. *Supra* §IV.B. Those electrodes are arranged around a circular array of rectangular photodiodes, *id.*, thus allowing the photodiodes to receive the light used to measure heart rate.



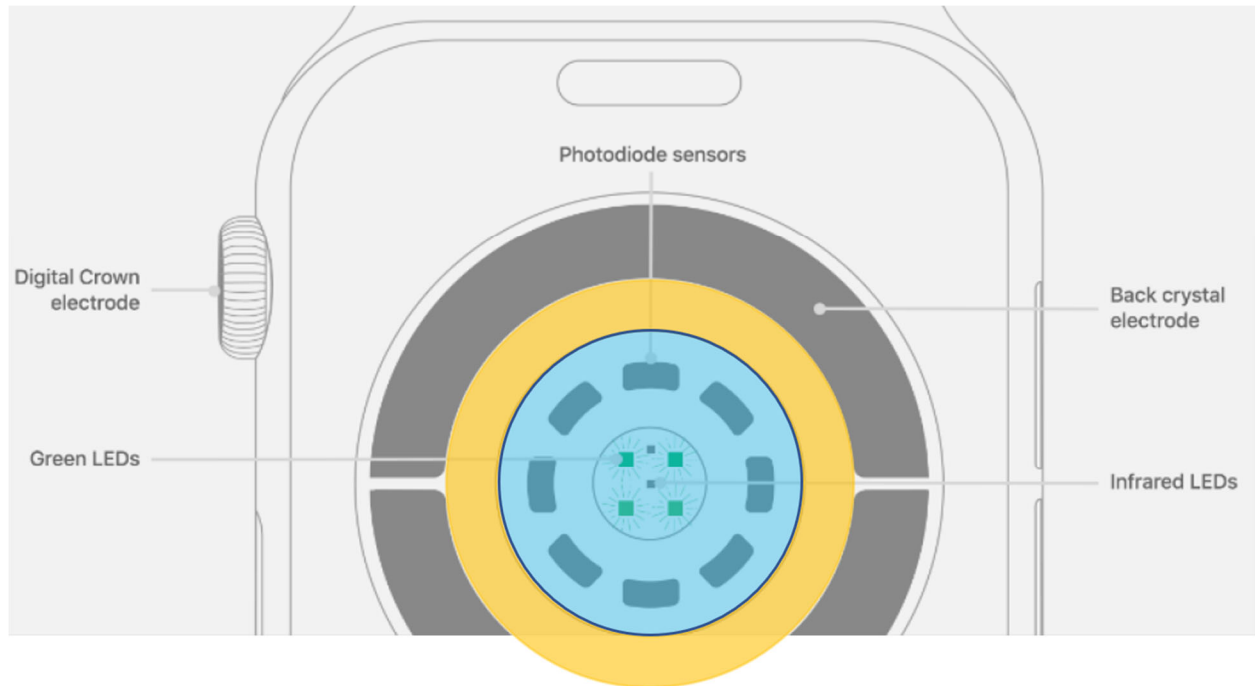
EX1019, 2-3; EX1014 ¶55. The same design is claimed by the D'842 Patent. EX1001, FIG. 4.

To achieve these functions, Apple's concomitant utility patent explains that the device's electrodes should be arranged as claimed in the D'842 Patent. Specifically, the '157 patent explains the electrodes are "arc-shaped and positioned" and "sized" to achieve two functions: (1) "provid[ing] good electrical contact between the electrodes 412, 414 and skin" and (2) "allow[ing] optical communication" between the optical sensor and skin. EX1024, 17:20-34; *id.*, 13:54-59; EX1014 ¶56. And to achieve these functions, the '157 patent discloses an arrangement of electrodes (gray, right) that is essentially identical to the claimed arrangement of arc-shaped portions (gray, left), as shown below.



EX1014 ¶56. The D'842 Patent's arrangement of arc-shaped portions is even claimed in the '157 patent. EX1024, Claims 3, 9 (reciting first and second arc-shaped electrodes separated by a gap); EX1014 ¶56. The '157 patent teaches that the minimal spacing (or "gaps") between the claimed arc-shaped portions maximizes the area of "electrical contact between the electrodes 412, 414 and skin" to "improve electrical sensor efficiency." EX1024, 17:20-35, FIGS. 4A, 5C-5D; EX1014 ¶56. Accordingly, the '157 patent shows that the claimed arrangement of arc-shaped portions is a design element dictated by the intended functions of the electrodes in the underlying Apple Watch. EX1014 ¶56.

Additionally, the claimed arc-shaped portions’ design is also dictated by the need to ensure that the electrodes do not interfere with other Watch components. As shown below, a wireless charging coil (orange) surrounds the optical sensor (blue) on the back of Apple Watch Series 4.



EX1019, 3; EX1027, 11; EX1014 ¶57. The '157 patent explains the arc-shaped electrodes are “positioned” and “sized” to avoid interfering with “electrical structures” (i.e., the charging coil (orange)) and “optical communication” between the optical sensor (blue) and the skin. EX1024, 17:20-34; EX1014 ¶57. Thus, avoiding interference with the charging coil and optical sensor in the underlying Watch dictates that the arc-shaped electrodes must be arranged and sized as claimed in the D’842 Patent. EX1014 ¶57. Apple’s ’783 patent also teaches that, for efficient

wireless charging, the Watch's charging coil (orange) must align with the corresponding coil (green) of its charger, as shown below.

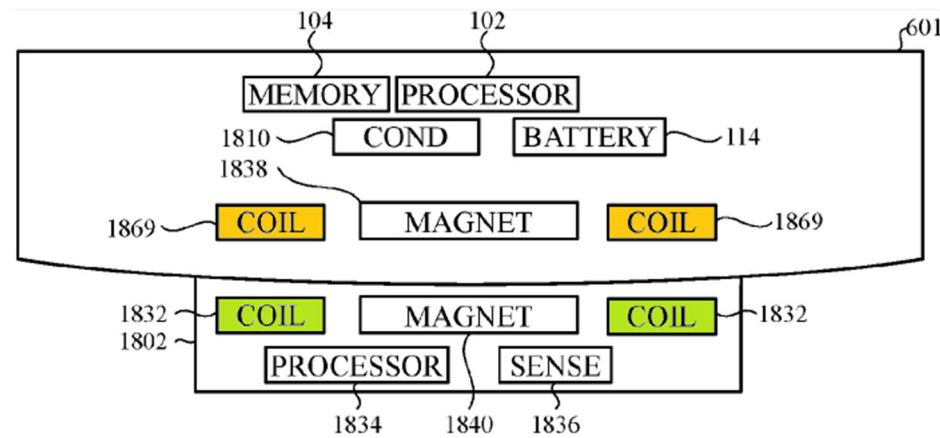


FIG. 19

EX1025, FIG. 19, 42:63-43:48, 45:18-51; EX1014 ¶58; *see, e.g.*, EX1021, 47:17-24 (explaining watch and charger must properly align for efficient charging), 959:14-960:2 (same). Thus, the location of the coil in Apple Watch's charger dictates the coil's location in the Watch. EX1014 ¶58. Because the electrodes cannot interfere with the Watch's charging coil or optical sensor, as explained above, the claimed arcs are the most efficient design for maximizing the electrodes' contact area with the skin. EX1014 ¶58; EX1003 ¶48. If the arc-shaped electrodes had a different shape, they would either provide a smaller area of electrical contact with the skin or risk interfering with the Watch's charging coil and/or optical sensor. EX1014 ¶59. Thus, using a different shape for the electrodes would impose a trade-off that the claimed arrangement avoids. *Id.*

Additionally, every Apple Watch with ECG functionality has used the claimed arrangement of arc-shaped electrodes.



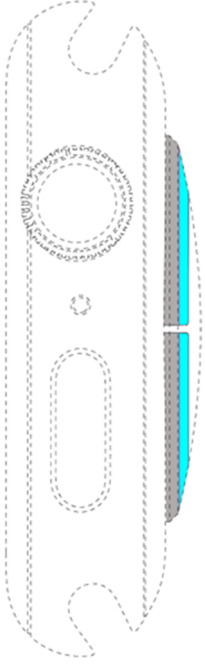
Apple Watch Series 4-5



Apple Watch Series 6-8, Ultra

EX1022. Apple retaining the claimed arrangement of arc-shaped electrodes for *five consecutive Watch generations* indicates that the claimed design represents the most useful arrangement for this functional element. EX1014 ¶60; EX1003 ¶48.

Further, like Apple Watch Series 4, the claimed arrangement of arc-shaped portions has the convex curvature shown below (cyan).

D’842 Patent, FIG. 6	Apple Watch Series 4 (EX1027, 11)
 FIG. 6	

This convex curvature can roll around the user’s wrist when the Watch is worn, such that there may be portions of the convex curvature’s surface that do not contact skin. EX1014 ¶¶61. But such a device cannot measure electrical impulses if its electrodes do not contact skin. EX1007 ¶¶34, 36; EX1014 ¶¶61. Thus, the claimed design ensures that at least a part of each electrode contacts the skin by positioning arc-shaped electrodes around the entire outer periphery of the convex curvature (other than two small gaps). EX1001, FIGS. 2, 4-6; EX1014 ¶¶61. An alternative design would necessarily cover less of the convex curvature’s outer periphery than the claimed design, thereby increasing the possibility that electrical impulses could not be measured because both one or both electrodes did not contact skin in use. *Id.* Accordingly, an alternative to the arc-shaped arrangement claimed in the D’842

Patent would adversely affect the device’s electrical signal-measuring utility.

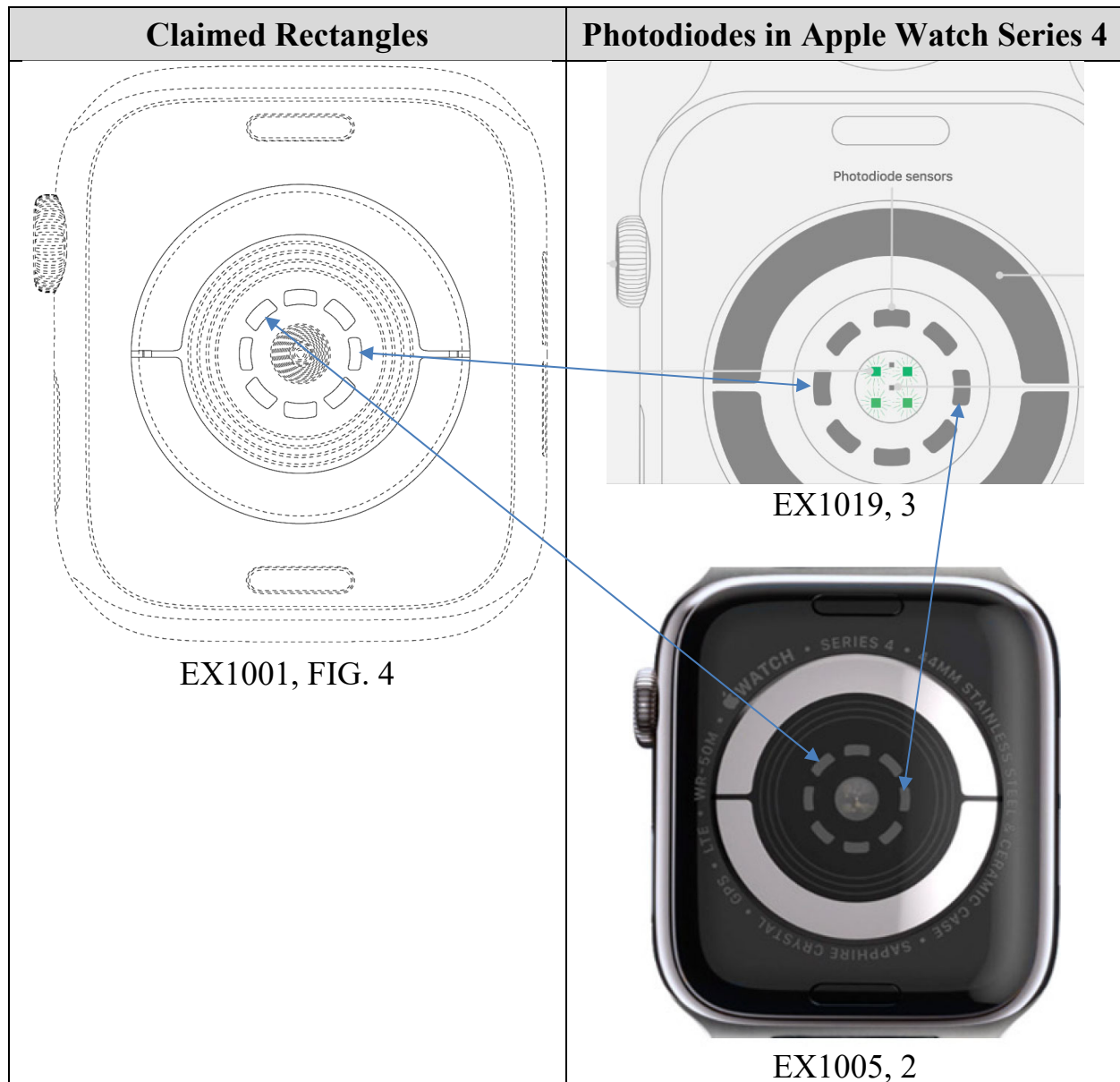
EX1014 ¶61.

Further, the arc-shaped portions’ sidewalls are not claimed. *Supra* §IV.B. Even if they were claimed, the design of each sidewall’s chamfered edge is dictated by the function of improving user comfort. EX1021, 1236:17-1237:3, 1229:8-10; EX1017, 115, 119-120; EX1014 ¶62.

c. The Rectangles’ Arrangement Is Functional

The claimed rectangles have an arrangement that is dictated by the functionality of the underlying article.

Apple Watch Series 4 requires photodiodes to receive the light needed to measure heart rate. EX1019, 2-3; EX1014 ¶64. As shown below, the claimed rectangles (left) depict the rectangular photodiodes included inside of Apple Watch Series 4 for this purpose (right).



EX1014 ¶64. Because these rectangular photodiodes are “essential to the use of the article” to measure heart rate, the claimed rectangles are primarily functional. *L.A. Gear*, 988 F.3d at 1123.

Further, the claimed (i.e., photodiodes) are arranged in a radially-symmetric array surrounding the unclaimed central LEDs. EX1001, FIG. 4; EX1014 ¶65. The prior art confirms this radially-symmetric design has a functional purpose—

“maximiz[ing] the detection of backscattered light from the skin.” EX1011, 4:59-62; *id.*, 4:14-65; EX1014 ¶65. Also, the number and size of photodiodes is driven by the functional purpose of increasing the signal-to-noise ratio of the optical sensor. *See, e.g.*, EX1011, 4:6-13 (increasing the photodiodes’ number and overall area “increases the amount of backscattered light that can be detected” and achieves “improvements in signal-to-noise ratio.”), 4:14-16 (describing sensor with “six photodiodes ... around the LEDs”), FIG. 7 (show two radially-symmetric arrays of photodiodes (16/18)), 4:59-61, 9:22-33 (explaining the FIG. 7 optical sensor “minimize[es] some of the measurement inaccuracies”); EX1014 ¶65. Accordingly, the arrangement and number of rectangles are functionally driven elements of the claimed design. EX1014 ¶65.

Apple’s concomitant utility patent on the Apple Watch Series 4 sensor design discloses the same arrangement of rectangles claimed in the D’842 Patent. The ’157 patent describes the convex-surfaced “carrier 404” shown below, which has “eight radial openings” (420) positioned over the corresponding “light receivers (e.g., photodetectors, such as photodiodes)” of the underlying optical sensor 416. EX1024, FIGS. 4A, 4C, 15:5-7, 15:34-40; EX1014 ¶66.

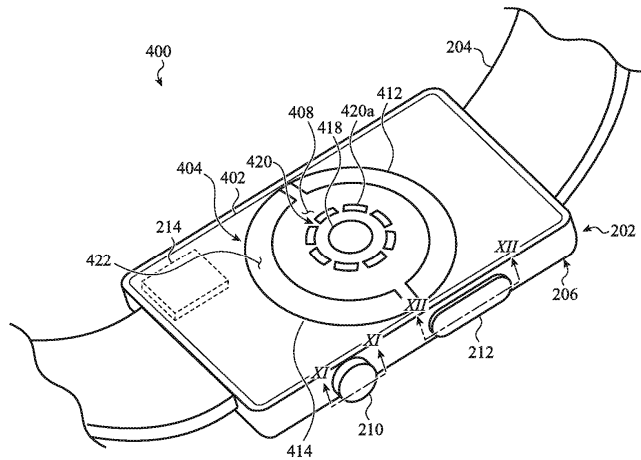


FIG. 4A

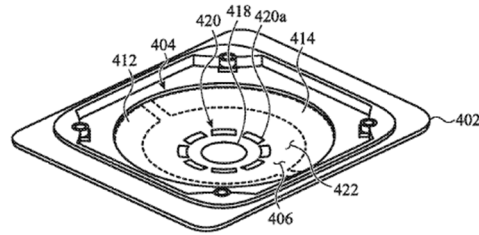


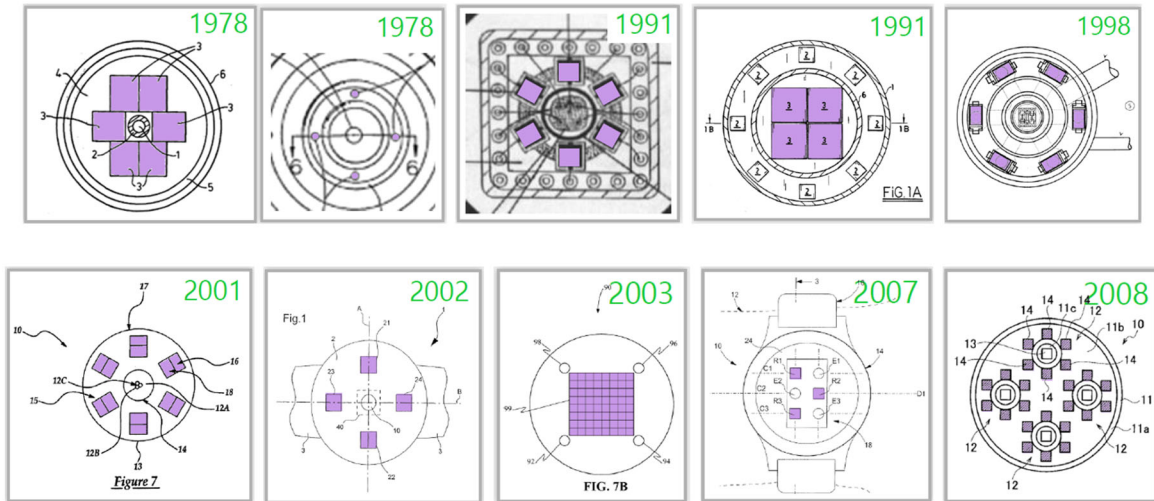
FIG. 4C

Like Apple Watch Series 4, the '157 patent's watch has central “light emitters (e.g., LEDs)” surrounded by a circular array of eight photodiodes “to perform a sensor function (e.g., to determine a heart rate).” EX1024, 15:34-37, 15:7-15 (the “sensing operation for which the optical subsystem 416 is designed” is receiving light), 15:65-16:2; *see* EX1019, 2-3; EX1014 ¶¶66-67. The '157 patent thus confirms the functionality of the D'842 Patent's claimed arrangement of rectangles. *Id.*

Apple's utility patents also confirm that the spacing between the claimed arc-shaped electrodes and rectangular photodiodes is dictated by the function of avoiding interference with the Watch's charging coil. *Supra* §IV.B.1.b.

d. The Overall Circular Sensor Shape Is Functional

The overall circular shape of the claimed sensor design is a functional design aspect, as is confirmed by the ubiquitous use of circular shapes for prior art sensors.



EX1038, 2-3 (excerpted); EX1014 ¶68. The claimed overall circular sensor shape is also functional because that shape is more comfortable for wrist-worn devices. EX1014 ¶68. Moreover, circular arrays of photodiodes were known to achieve improved sensor performance, *supra* §IV.B.1.c, and an overall circular shape most efficiently houses a circular sensor design with minimal wasted space. EX1014 ¶68. An overall circular shape also functions to maximize the usable sensor surface area for a given sensor width. *Id.*

Accordingly, each of the above-discussed design elements is dictated by function and should thus be “factored out” of the Challenged Claim’s scope. *Richardson*, 597 F.3d at 1293-94, *see, e.g., Campbell*, IPR2017-00096, Paper 28 at 14; EX1014 ¶70. Broken lines are expressly disclaimed and should also be disregarded. EX1001, Description.

V. LEGAL STANDARD

A. Designer of Ordinary Skill

For purposes of this Petition, a designer of ordinary skill in the art related to the D’842 Patent (“DOSA”) would have had an undergraduate or graduate degree in industrial/product design, along with at least two years of relevant work experience in the field of industrial/product design of portable electronic devices. EX1003 ¶26. A DOSA would not need to be familiar with electrical, biomedical, or other advanced technical concepts employed by such devices. *Id.* ¶27. Rather, the DOSA would consult or collaborate with a person of ordinary skill in the art (“POSITA”) regarding concepts outside of the DOSA’s expertise. *Id.* Here, a POSITA would have had at least a Bachelor or Master of Science degree in electrical or biomedical engineering, or a comparable engineering discipline, in combination with at least two years of related work experience involving wearable devices for noninvasively measuring health parameters. EX1014 ¶28.

B. Obviousness

A patent is invalid as obvious if “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious” to a person of ordinary skill in the relevant art before the invention’s effective filing date. 35 U.S.C. § 103. The obviousness analysis considers the four *Graham* factors. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966)). “In the design

patent context, the ultimate inquiry under section 103 is whether the claimed design would have been obvious to a [DOSA].” *Durling v. Spectrum Furniture Co.*, 101 F.3d 100, 103 (Fed. Cir. 1996).

Design patent obviousness is a two-step inquiry. First, “one must find a single reference, ‘a something in existence, the design characteristics of which are basically the same as the claimed design.’” *Id.* (internal citation omitted). To identify such a “primary reference,” one must: “(1) discern the correct visual impression created by the patented design as a whole; and (2) determine whether there is a single reference that creates ‘basically the same’ visual impression.” *Id.* A primary reference need not be identical to, or even contain every ornamental feature present in, the claimed design to be “basically the same” as that design. *See, e.g., MRC Innovations, Inc. v. Hunter Mfg., LLP*, 747 F.3d 1326, 1333 (Fed. Cir. 2014) (affirming obviousness finding based on a primary reference lacking at least three ornamental elements of claimed design); *Jore Corp. v. Kouvato, Inc.*, 117 Fed. App’x 761, 763 (Fed. Cir. 2005) (finding prior art drill bit proper primary reference despite having different shaft shape than claimed design).

Second, “‘secondary’ references ‘may be used to modify [the primary reference] to create a design that has the same overall visual appearance as the claimed design.’” *MRC*, 747 F.3d at 1331 (internal citation omitted). Such secondary references may be used if they are “‘so related to the primary reference

that the appearance of certain ornamental features in one would suggest the application of those features to the other.” *Id.* (internal citation omitted).

Notably, the obviousness inquiry “asks whether a designer ‘would have combined ***teachings*** of the prior art to create the same overall visual appearance as the claimed design,’ not merely the figures or illustrations.” *3Form, Inc. v. Lumicor, Inc.*, 678 Fed. App’x. 1002, 1011 (Fed. Cir. 2017) (internal citation omitted) (affirming design patent obviousness based on utility patent specification). A DOSA can thus consider the “teachings of the prior art” and is not restricted to prior art illustrations. *Id.* Moreover, a finding of obviousness does not require that the combination of prior art references suggests a design identical to the claimed design. *See, e.g., In re Lamb*, 286 F.2d 610, 611 (C.C.P.A. 1961) (“[T]hat there are differences over the prior art structures is not alone sufficient to justify a holding that the design is patentable.”). Rather, “on numerous occasions [the Federal Circuit has] invalidated design patents despite the inclusion of ornamental features that were ***entirely absent from prior art designs.***” *MRC*, 747 F.3d at 1335 (citing cases).

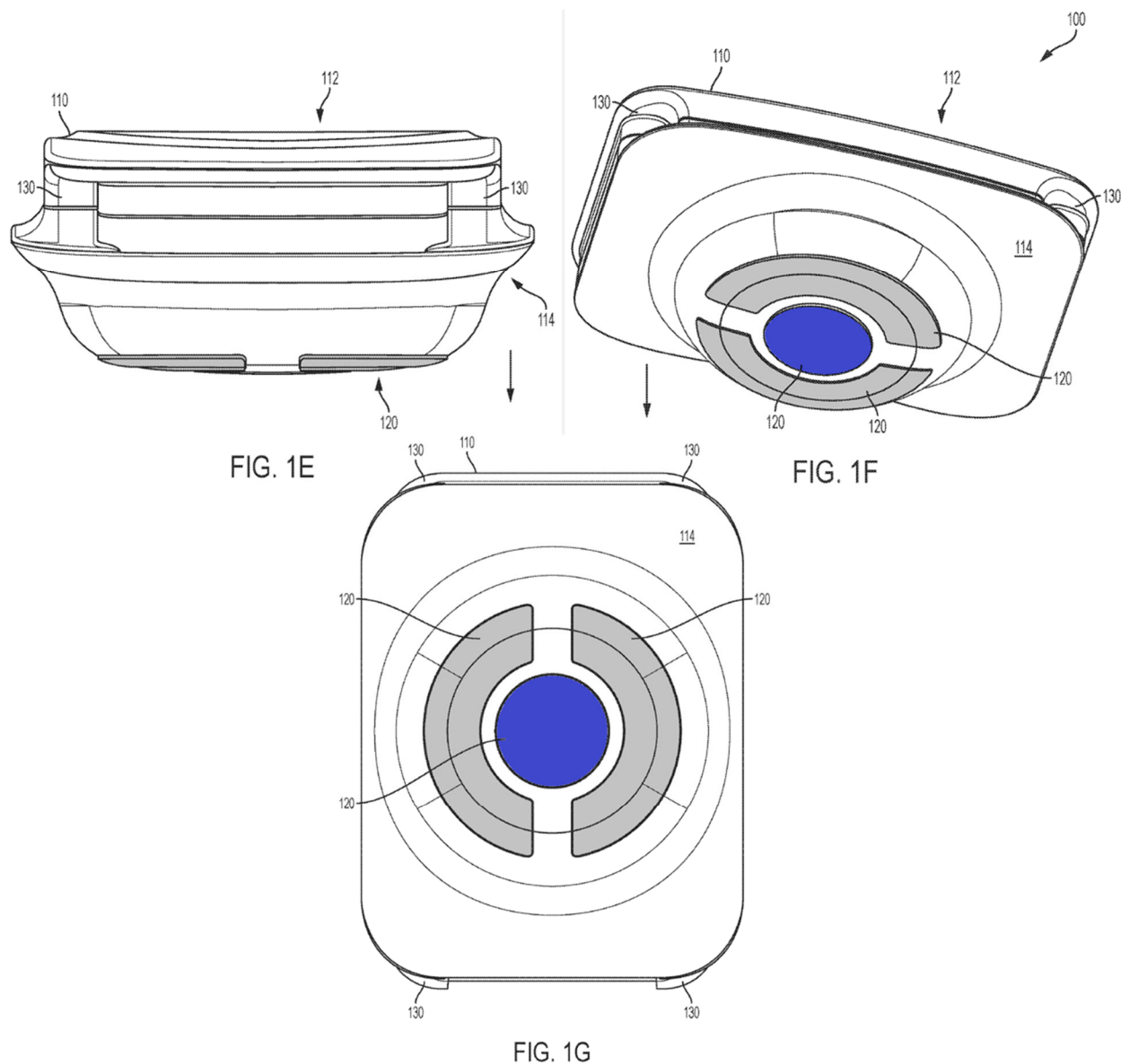
VI. THE CHALLENGED CLAIM IS UNPATENTABLE

As explained for Grounds 1-3, the Challenged Claim would have been obvious over the prior art presented herein.

A. Overview of Key Prior Art

1. Paulke

Paulke discloses “designs and techniques for incorporating biosensor devices into a wearable article for making physiological measurements while being worn by a user (e.g., a person).” EX1006, 5:26-29, Cover. Paulke’s design “hold[s] the biosensors in a way that promotes accuracy of the measurements by the biosensors.” *Id.*, 5:31-32. Paulke’s “biosensors 120” are “protruding from inner surface 114, in the wrist-facing direction” and have a convex curvature (a surface “curved in the wrist-facing direction”), as shown below.



Id., FIGS. 1E-2A, 14:12-28.

Paulke’s arc-shaped biosensors 120 (above, gray) are electrodes or “galvanic skin response (GSR) sensor pads 122, which detect and/or measure electrodermal activity (e.g., skin conductance) of the wearer.” *Id.*, 14:29-32, FIG. 2A; EX1014 ¶72. Paulke’s arc-shaped electrodes surround a central, circular biosensor 120 (above, blue). *Id.*, 14:26-28, FIGS. 1F-1G. One example of Paulke’s central

biosensor 120 is “a heart rate and/or blood oxygen sensor 124” that can be replaced “with any other suitable biosensor(s),” including “optical reflectance” and “oxygen saturation sensors.” *Id.*, FIG. 2A, 15:6-18. A POSITA would have understood that Paulke’s blood oxygen sensor was a PPG sensor. *Id.*; EX1014 ¶72. And circular arrays of rectangular photodiodes were ubiquitous in known PPG sensors. *Infra* §VI.B.2.a.

2. Yuen

Yuen describes a “smartwatch assembly 100” with “an electrocardiogram sensor 116, [and] a photoplethysmography [PPG] sensor 118,” as shown below.

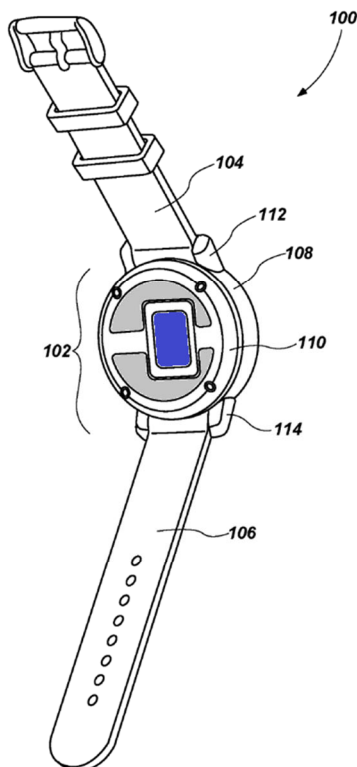


FIG. 1B

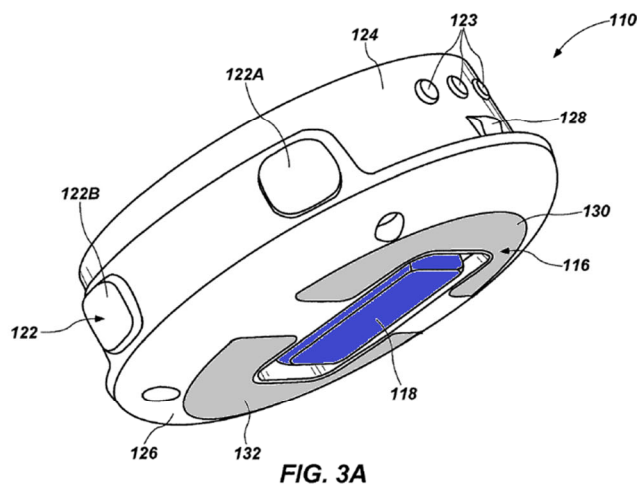
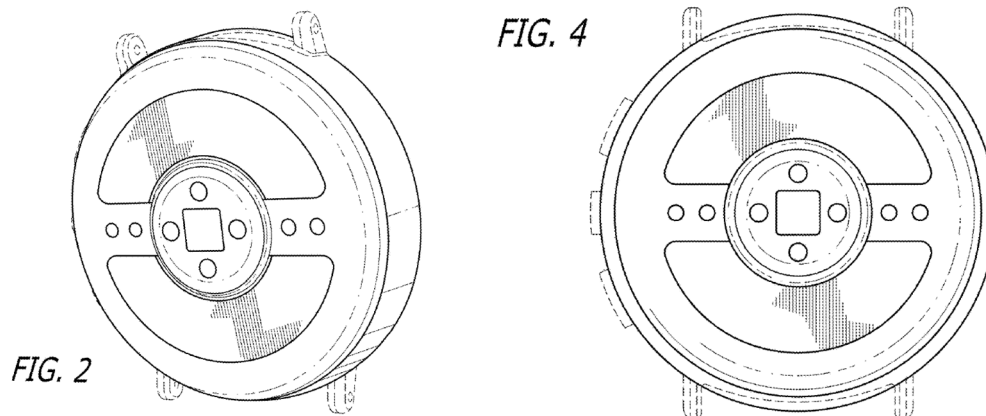


FIG. 3A

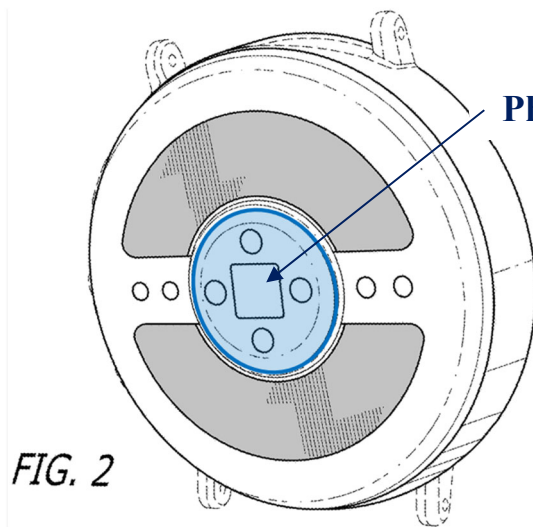
EX1007 ¶32, FIGS. 1B, 3A. As shown above (gray), “the at least two electrodes 130, 132 of the ECG sensor 116 may extend through ... the back cover 126” and “have a general half-moon shape.” *Id.*, FIGS. 1B, 3A, ¶35. And Yuen’s PPG sensor 118 (above, blue) “extend[s] through the back cover 126 in a location in-between [] the at least two electrodes 130, 132 of the ECG sensor 116.” *Id.*, FIGS. 1B, 3A, ¶42. Yuen discloses using “any [] ECG sensor 116 known in the art” and “any PPG sensor 118 known in the art” with its smartwatch assembly. *Id.* ¶¶34, 41. And circular arrays of rectangular photodiodes were ubiquitous in known PPG sensors. *Infra* §VI.B.2.a.

3. Fong

Fong, titled “Health Monitoring Wrist Wearable,” discloses the design of the wearable health monitoring device shown below.



EX1008, FIGS. 2, 4, Cover. Verily Life Sciences is listed as Fong’s assignee. *Id.*, Cover. As shown below, Verily Life Sciences’ “Study Watch” is the article underlying Fong’s design. EX1003 ¶55.



Fong (EX1008, FIG. 2)



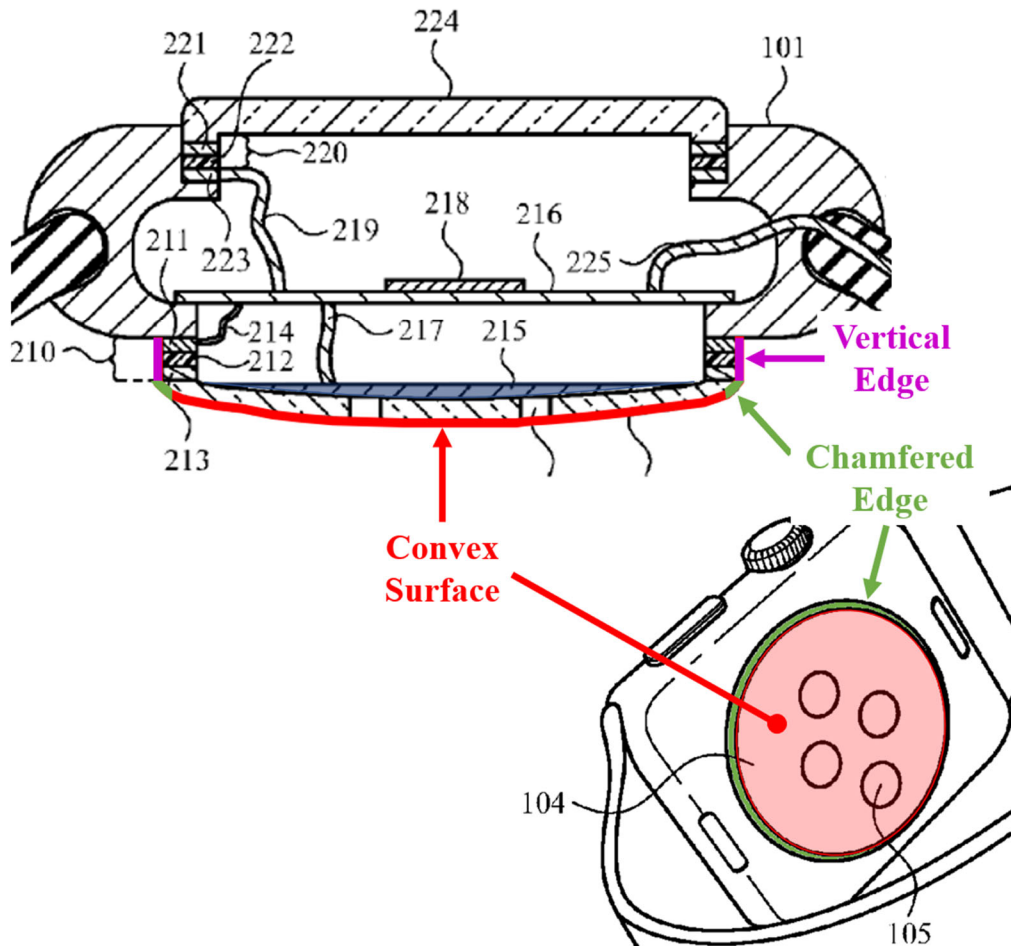
Verily Study Watch (EX1016, 3)

As shown above and explained in a 2017 article, Fong’s arc-shaped electrodes (gray) surround an optical sensor (blue). EX1008, FIGS. 2, 4; EX1016, 2-3 (“On the bottom of the watch are the green LEDs and optical sensor[] [e.g., photodiode(s)] that detect the heart rate, [and] metal electrodes that measure electrodermal activity.”); EX1014 ¶75; EX1003 ¶55. Fong’s central optical sensor is a PPG sensor with at least one photodiode, as shown above. EX1029, 6; EX1014 ¶75. Also, circular arrays of rectangular photodiodes were ubiquitous in known PPG sensors. *Infra* §VI.B.2.a.

4. **Bushnell**

Bushnell, a patent publication from Apple, describes a “wearable electronic device” like an Apple Watch. EX1009, Cover, Abstract, ¶36. As shown below, Bushnell discloses a “housing component 104” with convex surface (red) covering

a “health sensor 215” such as “a photoplethysmogram (PPG) sensor” (blue). *Id.*, ¶¶37, 48, FIGS. 1A-2B.



Bushnell FIGS. 2A, 1A (excerpted)

Between the convex surface (red) and the device’s body 101, Bushnell’s housing component 104 also includes a vertical edge (pink) and a chamfered edge (green), as shown above. *Id.*, FIGS. 1A-2B, ¶¶21-24; EX1003 ¶56.

5. Mendelson

Mendelson discloses oxygen saturation sensors (i.e., a pulse oximeter or blood oxygen sensor), which are PPG sensors. EX1011, Cover, 1:15-2:27; EX1014 ¶77;

EX1003 ¶57. Mendelson discloses PPG sensors with circular or “radially-symmetric” arrays of photodiodes around central LEDs. EX1011, 4:14-62, FIG. 7; EX1014 ¶77; EX1003 ¶57. Mendelson’s FIG. 7 sensor design includes two symmetrical six-photodiode arrays (16/18, blue), for a total of 12 rectangular photodiodes surrounding the central LEDs (12A-12C). EX1011, FIG. 7, 9:22-40; EX1014 ¶77; EX1003 ¶57.

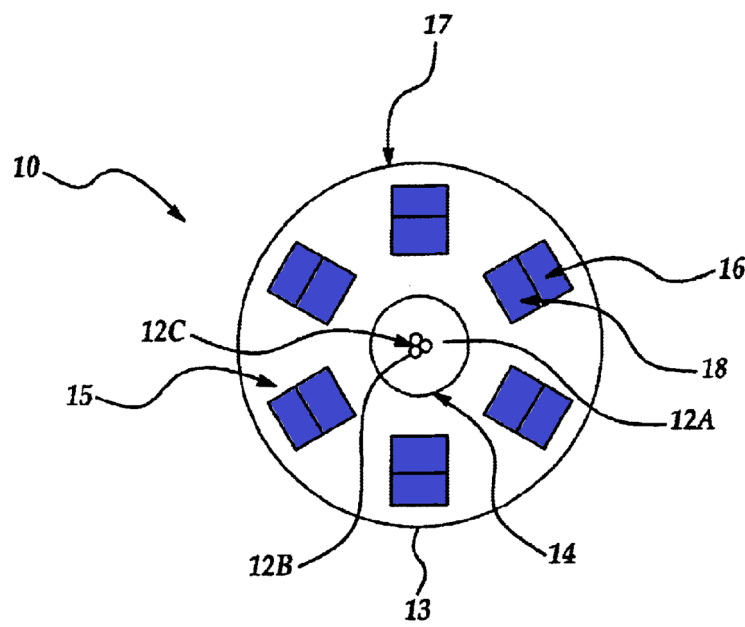


Figure 7

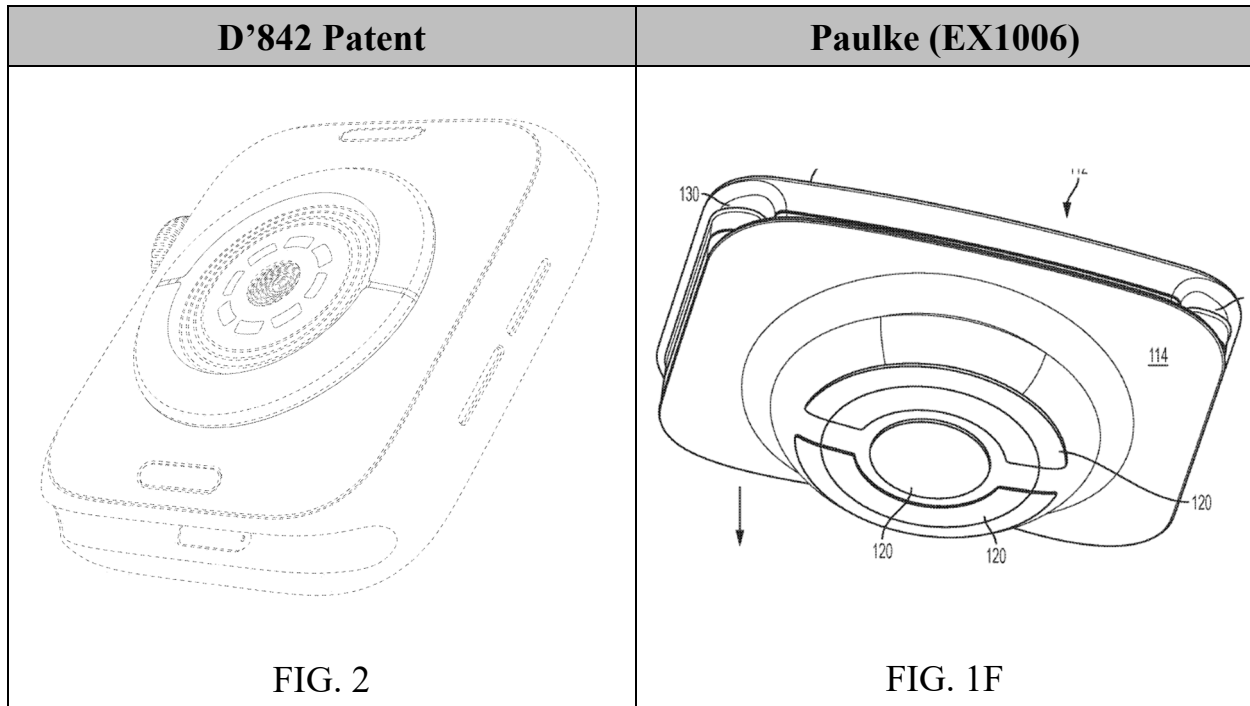
B. GROUND 1: Obviousness Over Paulke and Mendelson

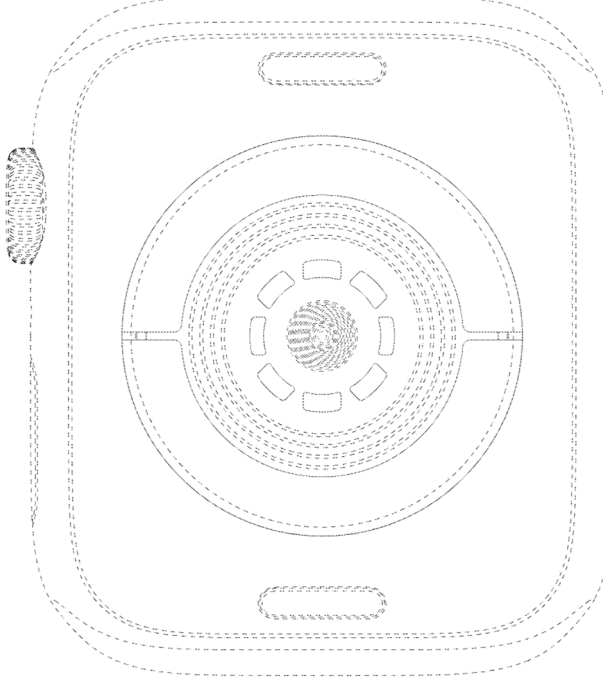
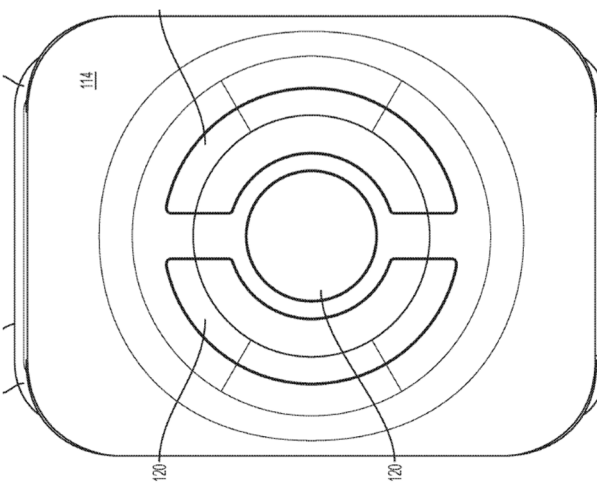
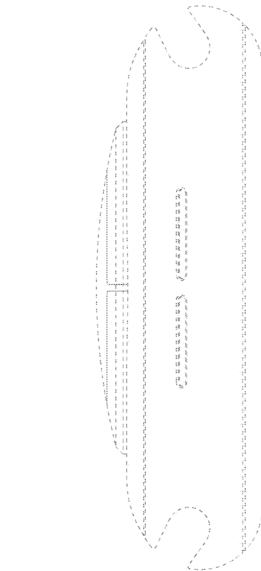
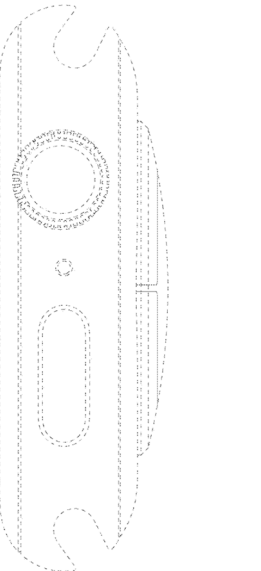
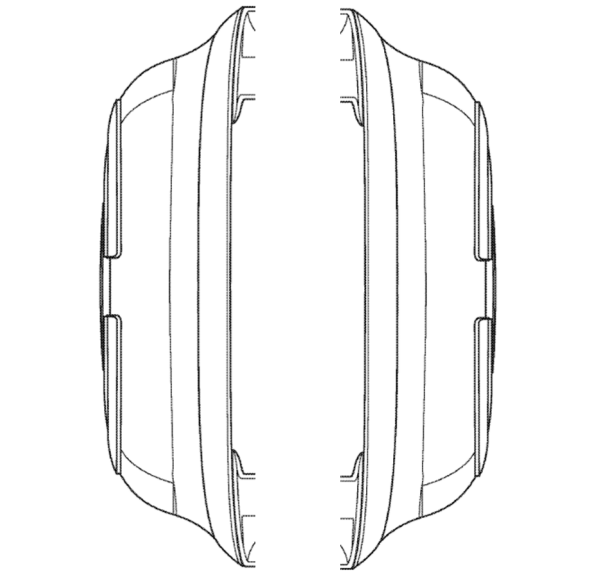
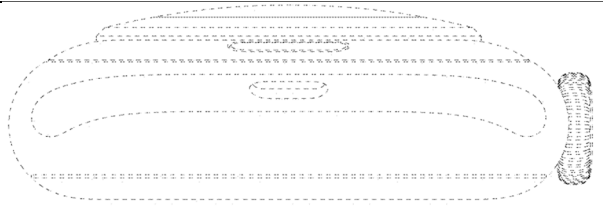
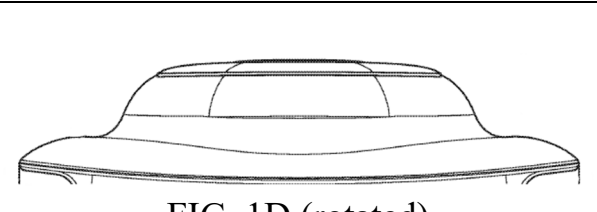
1. Paulke Is A Primary Reference

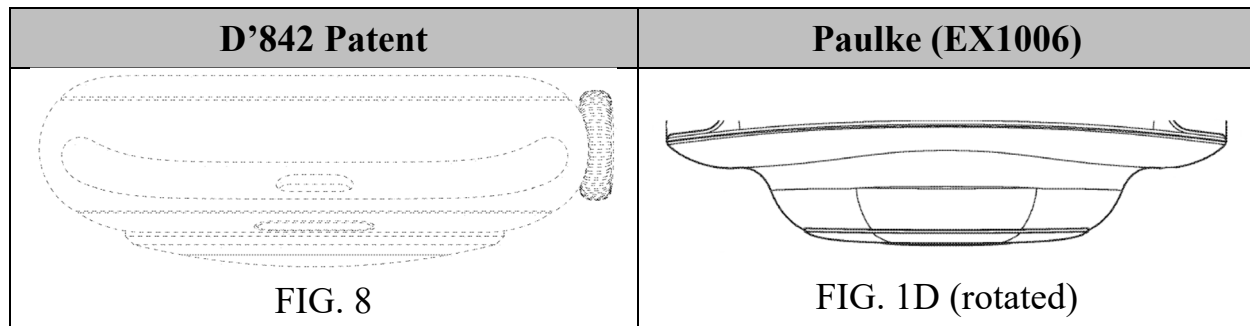
Paulke is a primary reference because it is a single prior art reference with basically the same design characteristics as the claimed design. EX1006, FIGS. 1-2; EX1003 ¶¶58-71. As shown below, any differences between Paulke and the D’842 Patent do not change the overall visual similarity of the designs. *MRC*, 747 F.3d at

1332-33 (primary reference and claimed design can have differences because, if they had to be identical, “no obviousness analysis would be required”).

The following comparison demonstrates that the design characteristics of Paulke are basically the same as the claimed design:



D'842 Patent	Paulke (EX1006)
 FIG. 4	 FIG. 1G (rotated)
 FIG. 5  FIG. 6	 FIG. 1E (rotated)
 FIG. 7	 FIG. 1D (rotated)

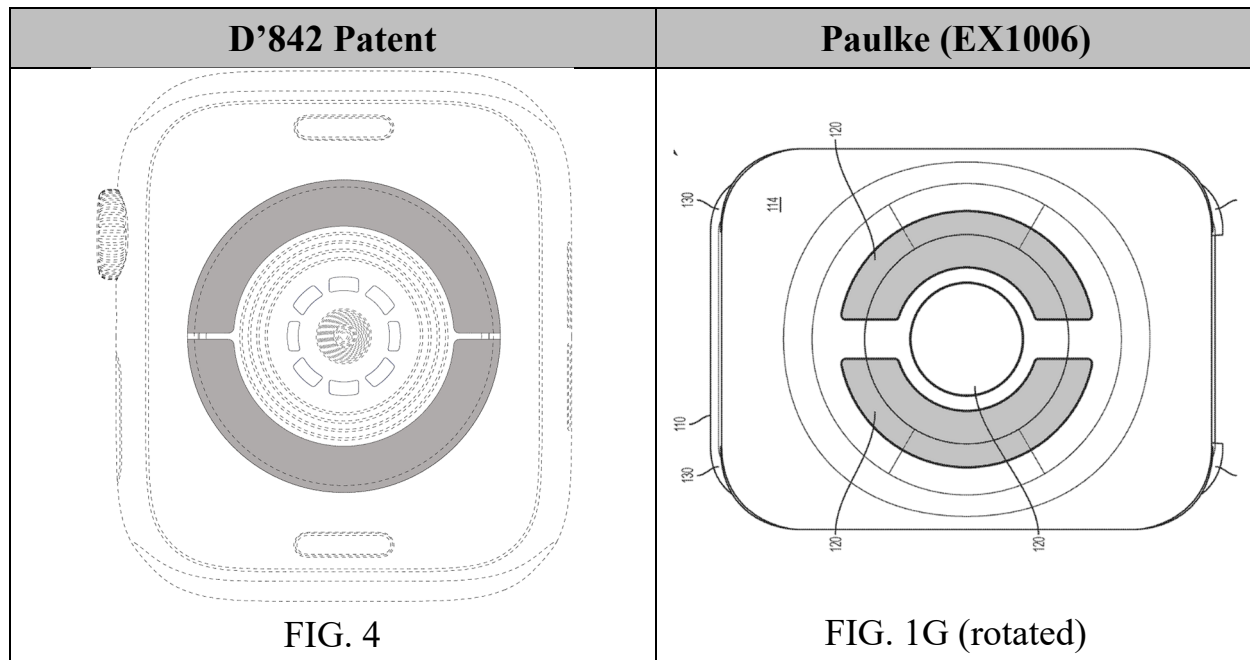


EX1001, FIGS. 2, 4-8; EX1006, FIGS. 1D-2A; EX1003 ¶58. The above comparison demonstrates that Paulke is an appropriate primary reference because its design conveys basically the same overall visual impression as the claimed design. *Id.* The overall visual similarity between the design characteristics of Paulke and the claimed design is further confirmed by the following comparison of their respective design aspects. *Id.*

a. Arc-Shaped Portions

The arrangement of the arc-shaped portions should be disregarded as a functional element. *Supra* §IV.B.1.b. But even if considered, Paulke and the D’842 Patent disclose substantially the same arrangement of arc-shaped portions.

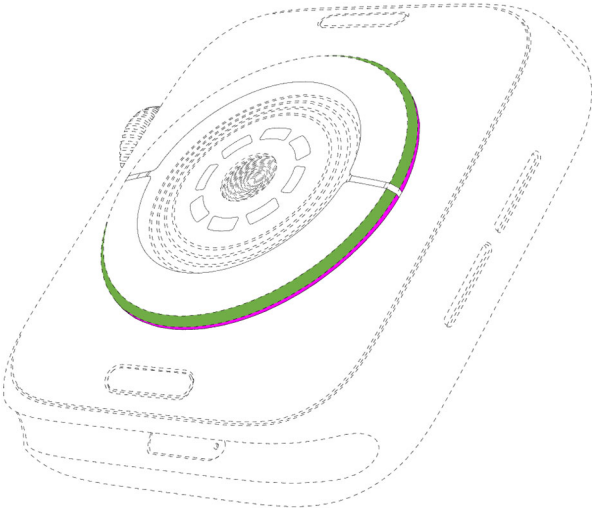
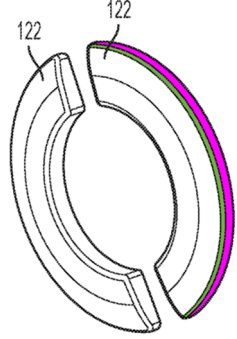
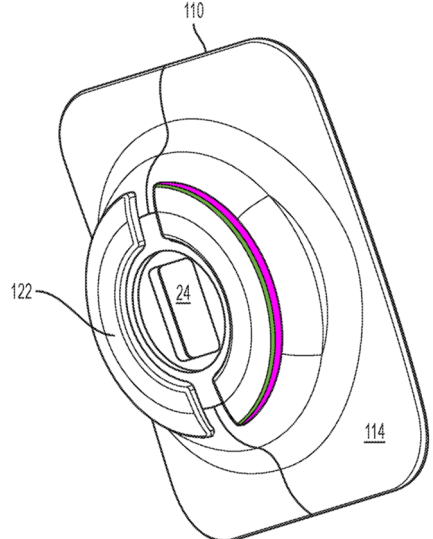
Paulke and the claimed design each have arc-shaped portions that are spaced apart from each other and a central circular area. EX1001, FIG. 4; EX1006, FIG. 1G; EX1003 ¶60. And as shown below, the arc-shaped portions of Paulke and the D’842 Patent provide the same overall visual impression. EX1001, FIG. 4; EX1006, FIG. 1G; EX1003 ¶60.



Paulke’s arc-shaped portions are spaced slightly farther apart than the claimed design, but that difference, or any difference in the size, shape, or spacing of the arc-shaped portions of Paulke and the claimed design, does not alter the overall visual similarity of these designs. EX1001, FIG. 4; EX1006, FIG. 1G; EX1003 ¶60; *see, e.g., MRC*, 747 F.3d at 1333 (“[t]hat there are slight differences in the precise placement” of design aspects “does not defeat a claim of obviousness” or prevent use as a primary reference); *Lamb*, 286 F.3d at 612 (“The fact that some dimensions are changed in a different degree than others is not patentably significant.”). And any differences between the design of Paulke and the claimed design would have been obvious changes to a DOSA. *Infra* §VI.B.2.b.

The D’842 Patent does not claim the arc-shaped portions’ sidewalls. *Supra* §IV.B. Even if the D’842 Patent claimed the sidewalls of FIG. 2—the vertical (pink)

and chamfered (green) edges shown below—the chamfered edges are functional and should be disregarded. *Supra* §IV.B.1.b. Regardless, Paulke’s arc-shaped portions provide the same overall visual impression as the claimed design. EX1001, FIG. 2; EX1006, FIG. 2A; EX1003 ¶61.

D’842 Patent	Paulke (EX1006)
 FIG. 2	 FIG. 2A (excerpted)  FIG. 2A (assembled, excerpted)⁴

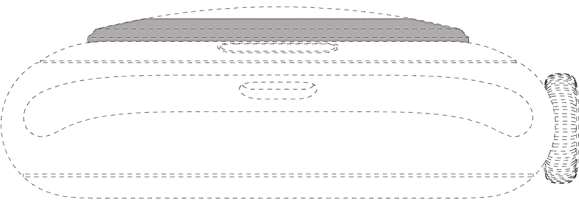
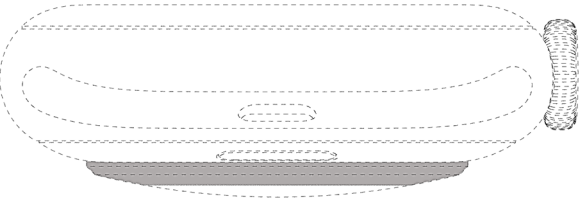
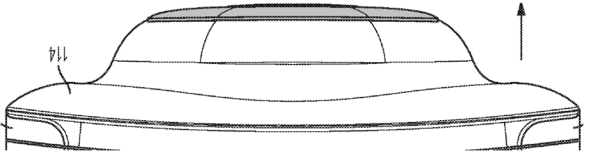
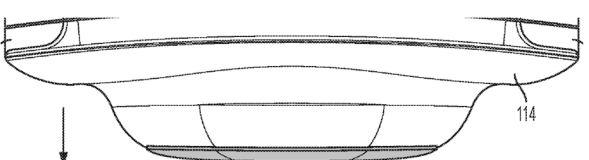
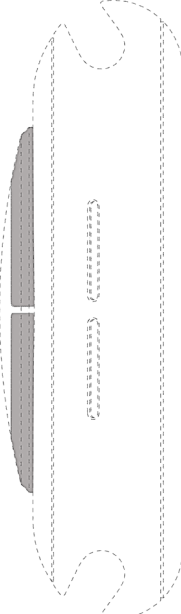
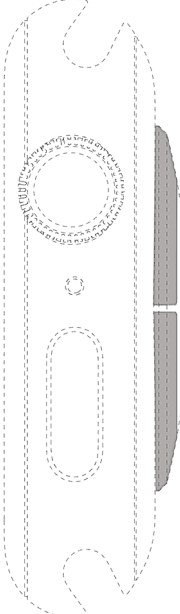
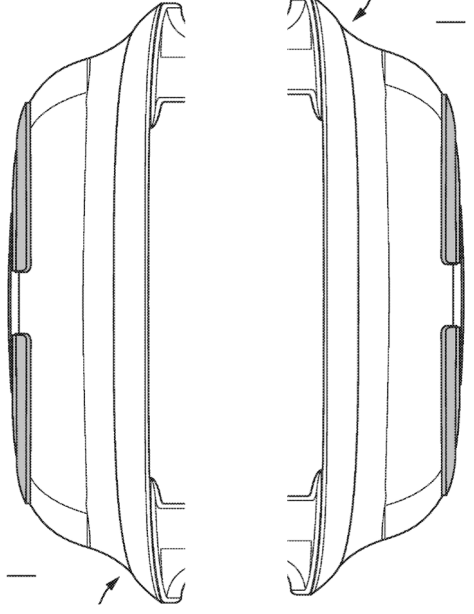
⁴ A DOSA would have understood that the exploded view of Paulke FIG. 2A would appear as shown when assembled. EX1003 ¶63 n.1.

Any differences between the design of Paulke and the claimed design would not prevent Paulke’s use as a primary reference. EX1003 ¶61; *MRC*, 747 F.3d at 1333.

Thus, Paulke discloses an arrangement of arc-shaped portions with basically the same design characteristics as the claimed design. EX1003 ¶61.

b. Convex Curvature

The arc-shaped portions’ convex curvature should be disregarded as a functional element of the claimed design. *Supra* §IV.B.1.a. But even if the convex curvature is considered, the below figures show that the arc-shaped portions of Paulke and the claimed design have a convex curvature that provides the same overall visual impression. EX1001, FIGS. 5-8; EX1006, FIGS. 1D-1E; EX1003 ¶63.

D’842 Patent	Paulke (EX1006)
 FIG. 7  FIG. 8	 FIG. 1D (rotated)  FIG. 1D (rotated)
 FIG. 5  FIG. 6	 FIG. 1E (rotated)

Any differences between the design of Paulke and the claimed design would not prevent Paulke’s use as a primary reference. *Id.*; EX1003 ¶63; *MRC*, 747 F.3d at 1335-36 (permitting primary reference with “three major differences” from claimed design).

Accordingly, Paulke discloses a convex curvature with basically the same design characteristics as the claimed design. EX1003 ¶64.

c. Arrangement of Rectangles

The claimed design depicts the arc-shaped portions surrounding a circular array of eight rectangles (i.e., the photodiodes of Apple Watch Series 4). *Supra* §IV.B. However, the precise arrangement of those rectangles should be disregarded because it is a functional element. *Supra* §IV.B.1.c. Accordingly, the claimed design encompasses any arrangement of rectangles surrounded by and spaced apart from the arc-shaped portions. EX1003 ¶66. And Paulke discloses a design with the same basic design characteristics as the claimed design, as explained below.

Paulke’s arc-shaped portions surround a central biosensor 120. EX1006, FIGS. 1F-2A, 14:12-15. That central biosensor 120 includes a “heart rate and/or blood oxygen sensor 124,” which “protrudes through [an] opening 24 in housing 110 and is protected from the outside by a glass lens 128.” EX1006, FIG. 2A, 15:6-9. Paulke depicts this configuration in the exploded view of FIG. 2A, below.

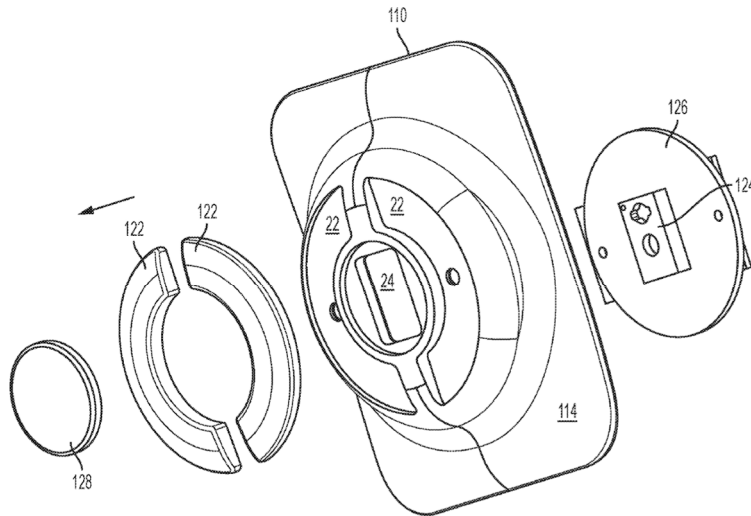
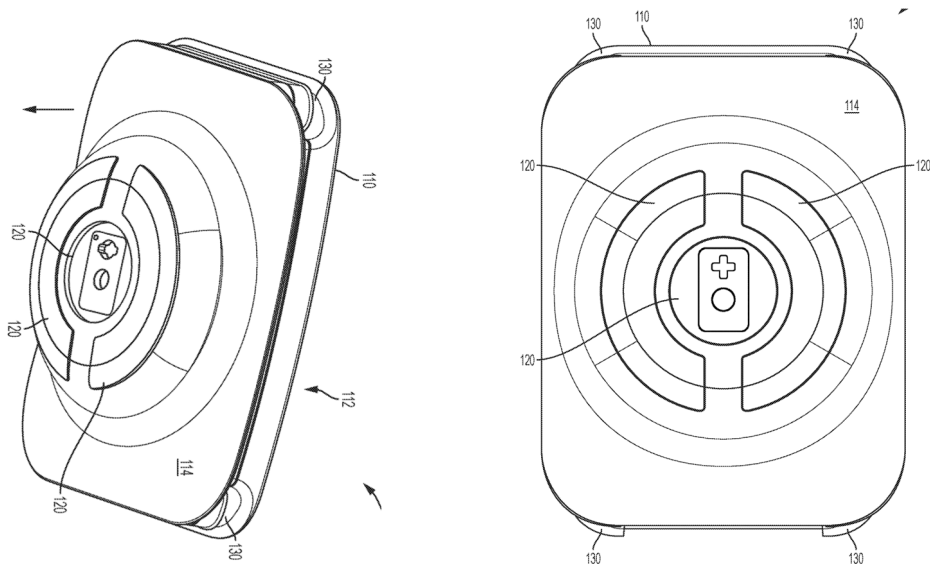


FIG. 2A

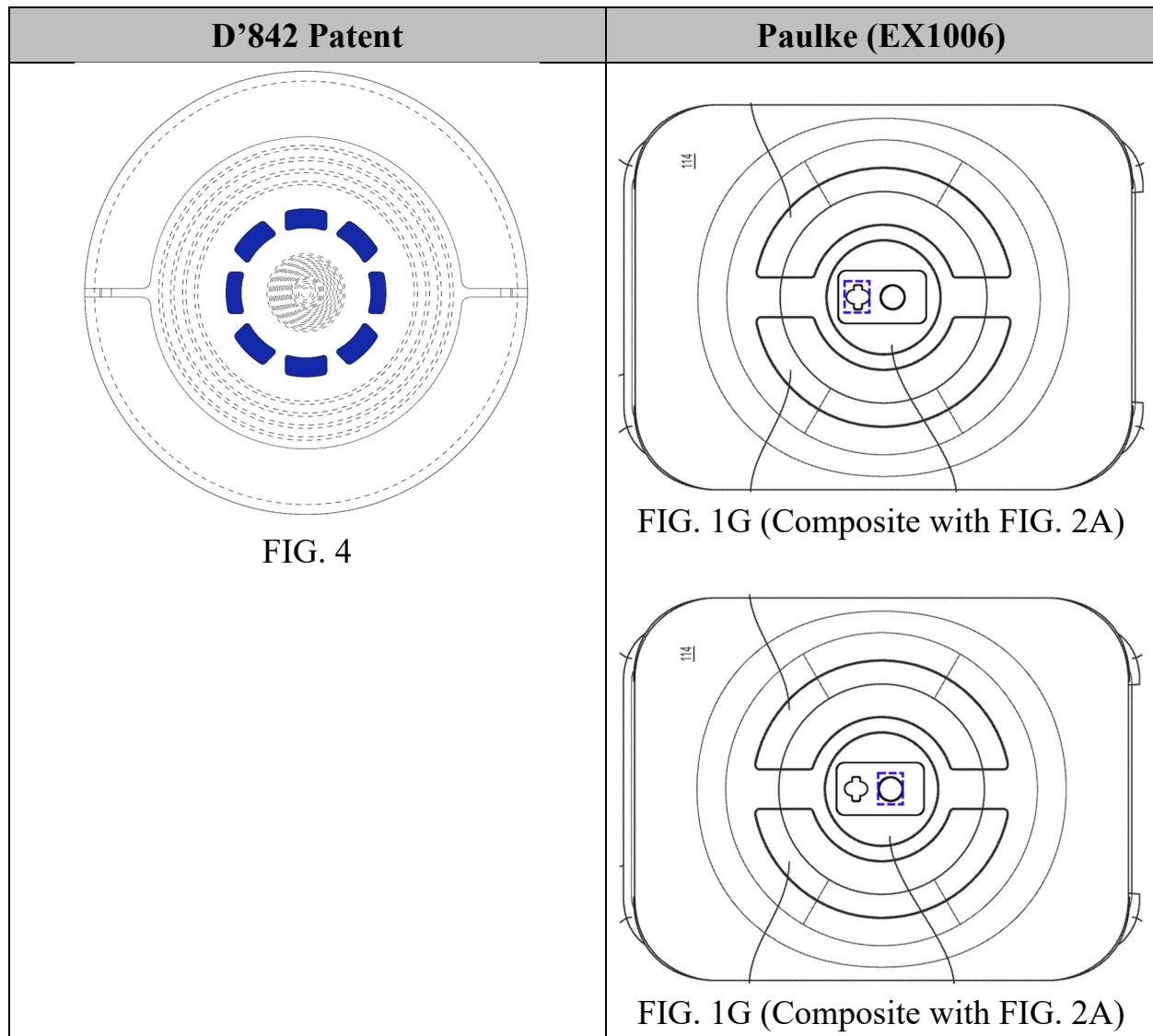
Id. Assembling the FIG. 2A configuration, Paulke discloses the arc-shaped portions surrounding the blood oxygen sensor, as shown below.



EX1006, FIGS. 1F (left), 1G (right)
(modified to show blood oxygen sensor 124 of FIG. 2A)

EX1003 ¶67.

Paulke's blood oxygen sensor 124 is a PPG sensor. EX1003 ¶68; EX1014 ¶72. For any PPG sensor to measure blood oxygen (i.e., oxygen saturation), a DOSA would have understood the sensor necessarily includes (1) a light source (e.g., LEDs), (2) at least one light detector (e.g., photodiodes), and (3) an opening to allow light to reach and be detected by the detector. EX1003 ¶68; EX1014 ¶73; EX1011, FIGS. 3-4, 7, 1:33-61, 4:6-65. A DOSA also would have known that rectangular photodiodes were ubiquitous for such sensors. *Infra* §VI.B.2.a. Thus, a DOSA would have understood Paulke included a rectangular photodiode (blue) associated with the blood oxygen sensor's opening, as shown in the exemplary figures below (right). EX1006, FIG. 1G; EX1003 ¶68; EX1014 ¶73.



The claimed design includes a circular arrangement of rectangles, as shown above (left). EX1003 ¶68. Therefore, a DOSA would have understood that Paulke and the claimed design include one or more central rectangles with the same basic design characteristics. *Id.* And regardless, Paulke would still be an appropriate primary reference even if it did not include a central rectangle. *Id.*; see, e.g., *MRC*, 747 F.3d at 1335-36 (affirming use as primary reference despite “*three major differences* between the [reference and claimed] designs”).

Further, if the D’842 Patent’s circular array of eight rectangles is found to be non-functional and included within the Challenged Claim’s scope, Paulke differs from the claimed design because Paulke includes the one rectangle shown above. EX1003 ¶69. But Paulke remains a primary reference despite this one difference. *MRC*, 747 F.3d at 1335-36 (permitting primary reference with “three major differences”). Paulke also remains a primary reference because any difference in the arrangement of rectangles does not change the overall visual similarity of the Paulke and claimed designs. EX1001, FIGS. 2, 4-8; EX1006, FIG. 1D-1G; EX1003 ¶69. Paulke is also a primary reference despite any difference between its design and the claimed design because, as Apple previously argued, “there’s ***nothing patentable*** about multiple detectors.” EX1021, 58:3-13 (also arguing “Reference after reference speaks to that” in referring to EX1038, 2).

Accordingly, Paulke discloses a design with the same basic design characteristics as the claimed design. EX1003 ¶70.

In sum, Paulke is a primary reference because it discloses basically the same visual impression as the claimed design. EX1003 ¶71.

The D’842 Patent’s circular array of rectangles is functional and thus does not change the two designs’ overall visual similarity. *Supra* §IV.B.1.c. Even if the claimed arrangement of rectangles were considered, Paulke’s sole difference compared to the claimed design would be that Paulke has one rectangle, not a

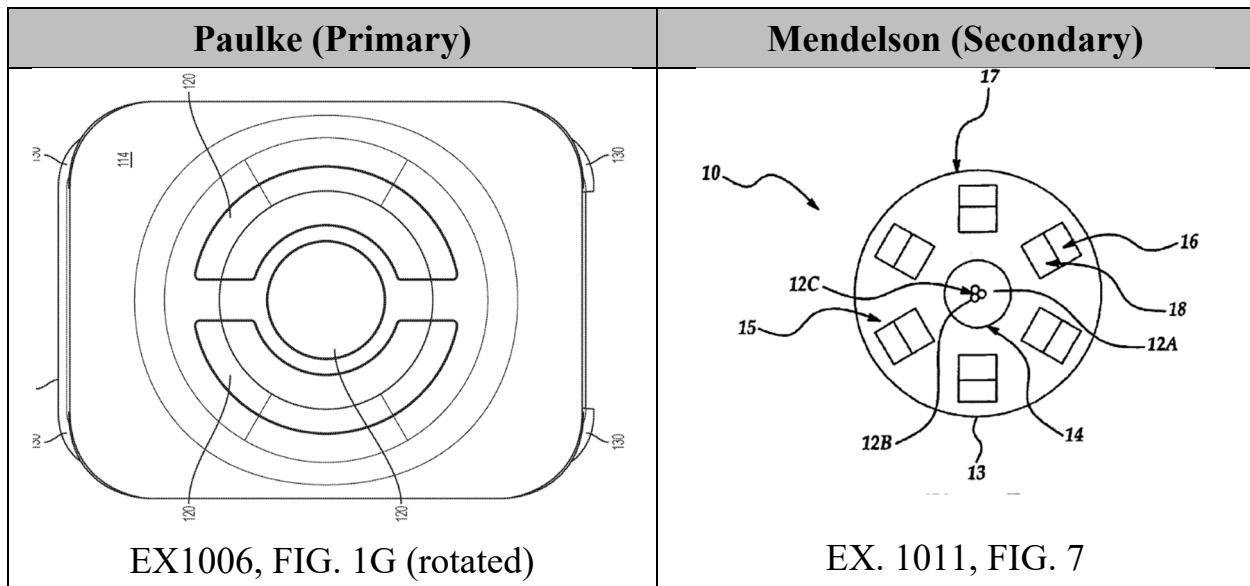
circular array of them. EX1003 ¶¶71. However, as shown below, this difference would have been obvious to a DOSA. *Id.* Indeed, combining Paulke and Mendelson creates a sensor design with the same overall visual appearance as the claimed Apple Watch sensor design. *Id.*

2. The Challenged Claim Would Have Been Obvious Over Paulke and Mendelson

The Challenged Claim would have been obvious to a DOSA over Paulke combined with Mendelson.

a. Mendelson Is A Secondary Reference

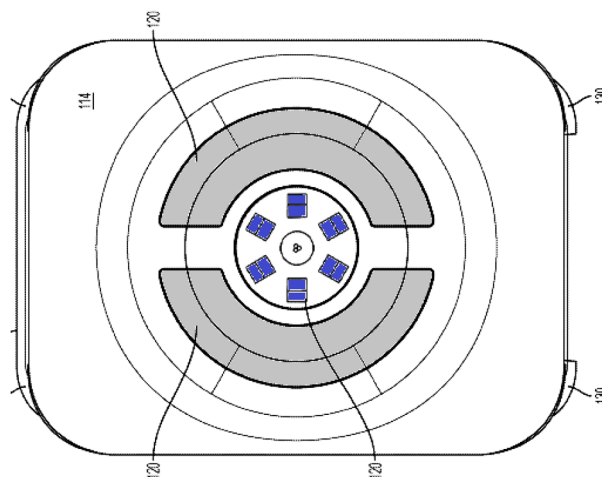
The following visual comparison demonstrates that Mendelson’s sensor design is so related to Paulke that Mendelson is a proper secondary reference.



EX1003 ¶¶72-73. As shown above, Paulke’s arc-shaped biosensors 120 surround a central circular biosensor 120. EX1006, FIG. 1G. Paulke explains that its arc-shaped sensors surround a central circular area that includes “blood oxygen sensor

124” (i.e., a pulse oximeter or oxygen saturation sensor). EX1006, FIG. 2A, 14:26-32, 15:6-9; EX1003 ¶72. Paulke also explains that its central circular blood oxygen sensor 124 may be replaced with “any suitable biosensor(s)” including “heart rate, pulse rate,” and “oxygen saturation sensors.” EX1006, 15:9-18. Thus, Paulke even suggests replacing its central circular biosensor with a suitable oxygen saturation sensor. *Id.*; EX1003 ¶72.

Mendelson is so related to Paulke because it discloses a suitable sensor for Paulke’s design. As shown above, Mendelson’s oxygen saturation sensor has a circular shape like the central biosensor 120 of Paulke. EX1011, FIG. 7. The similarity between the circular shape of Mendelson’s sensor and the central biosensor 120 of Paulke would have suggested using Mendelson’s sensor with Paulke’s design, as shown in the composite figure below.



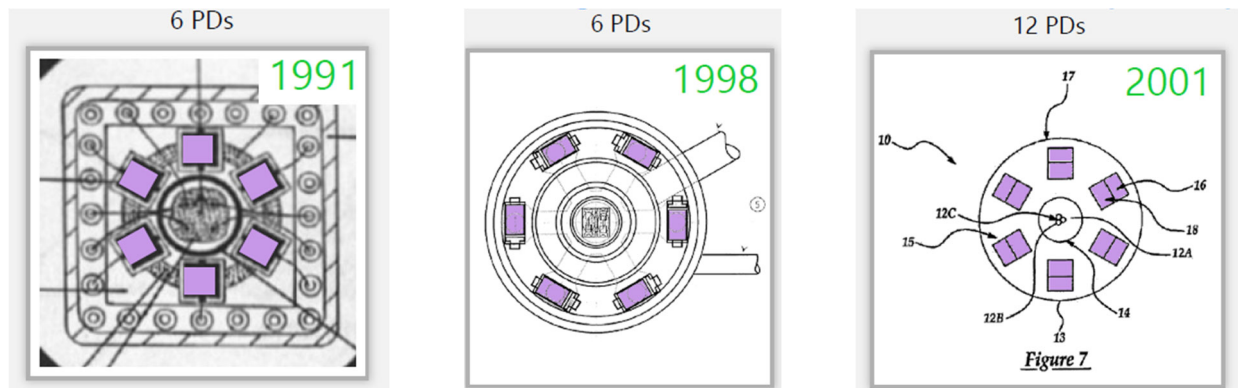
EX1006, FIG. 1G (combined with EX1011, FIG. 7); EX1003 ¶73. Mendelson and Paulke are also so related because Paulke expressly suggests combining its sensor

design with a suitable oxygen saturation sensor (EX1006, 15:9-18), which Mendelson discloses. EX1011, FIG. 7, 9:22-40; EX1014 ¶79; EX1003 ¶73. The designs are also related because the blood oxygen sensors of Paulke and Mendelson require the same basic components—a light source and light detector(s) (e.g., photodiodes). *Supra* §§VI.A.5, VI.B.1.c; EX1003 ¶73; EX1014 ¶¶73, 77.

Accordingly, in view of the relatedness and similarity of the designs, the appearance of Mendelson’s FIG. 7 sensor would have suggested the application of its features, including its circular array of rectangular photodiodes, to the design of Paulke’s central biosensor. EX1003 ¶73. Thus, Mendelson is an appropriate secondary reference. *Id.*

b. The Challenged Claim Would Have Been Obvious Over Paulke and Mendelson

Using Mendelson’s arrangement of rectangular photodiodes with Paulke would have been a change that was suggested by the prior art (including Paulke) and well within the knowledge, experience, skill, and creativity of, a DOSA. EX1003 ¶74. Indeed, Apple has argued that sensors with circular arrangements of six or more rectangular photodiodes (“PDs,” purple), including Mendelson (below, right), were ubiquitous in the prior art.

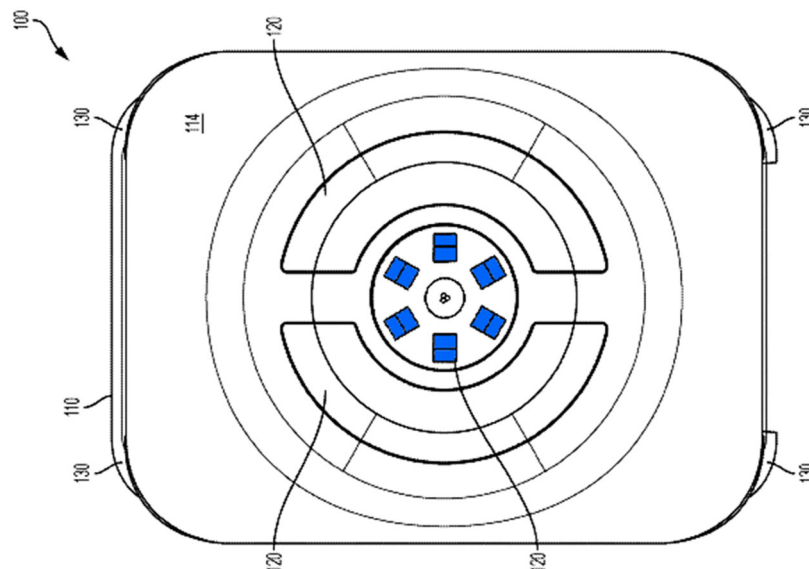


EX1038, 2 (excerpted); EX1021, 58:3-13 (Apple arguing that “every one of these devices [on EX1038, 2] has multiple detectors for detecting light, multiple photodiodes”); EX1017 at 59-60 (“[Since] at least 1978” and “[p]rior to 2008, it also was known that optical sensors could include four or more photodiodes”). The trivial nature of adding a circular arrangement of photodiodes was confirmed by Apple’s expert, who opined that, by 2008, “[a POSITA] would have known you could include a plurality of photodiodes” in a sensor that were “arranged radially, meaning in a circular arrangement.” EX1021, 1191:21-1192:6.

In addition to being a known modification, a DOSA would have been motivated to use Mendelson’s FIG. 7 sensor in place of Paulke’s central blood oxygen sensor for numerous reasons. Paulke expressly suggests such a combination by disclosing that “any suitable biosensor(s)” including an “oxygen saturation sensor” may be used for its central circular biosensor. EX1006, 15:9-18; EX1003 ¶75. And as shown above, Mendelson’s FIG. 7 sensor design is so related to Paulke

that their relatedness would have suggested that a DOSA combine features from Mendelson’s sensor with Paulke. EX1006, 15:9-18; EX1011, FIG. 7; EX1003 ¶75.

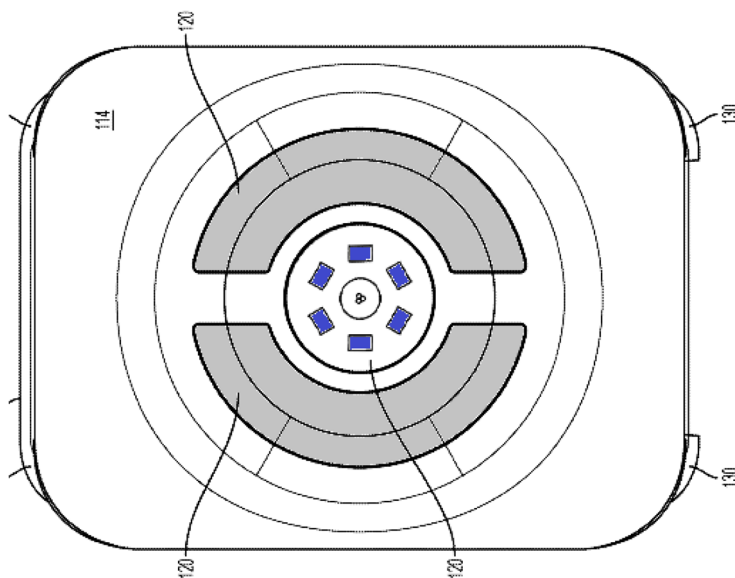
Further, achieving a symmetrical sensor design would have motivated a DOSA to combine Mendelson with Paulke as proposed. **First**, a DOSA would have been motivated to replace Paulke’s asymmetrical blood oxygen sensor with Mendelson’s symmetrical sensor to achieve the more marketable and visually appealing symmetrical design shown below.



Paulke (EX1006, FIG. 1G) combined with Mendelson (EX1011, FIG. 7)

EX1003 ¶76. **Second**, a DOSA would have been motivated to combine Mendelson with Paulke to achieve a symmetrical center biosensor because doing so would be consistent with the symmetry exhibited by Paulke’s arc-shaped and circular biosensors. EX1006, FIGS. 1F-3C, 12C, 16A, 17A; EX1003 ¶76. **Third**, a DOSA would have been motivated to make the proposed combination to achieve an overall

symmetric sensor surface (i.e., a symmetric arrangement of arc-shaped and central sensors). EX1003 ¶76. Indeed, Paulke reflects this motivation because the vast majority of its sensor designs have an overall symmetric arrangement of outer and central biosensors. *Id.*; EX1006, FIGS. 1-3, 12-22. **Fourth**, a DOSA would have been motivated to combine the “photodiodes arranged symmetrically around the LEDs” (i.e., “radially-symmetric photodetector array”) of Mendelson’s FIG. 7 sensor with Paulke as proposed to improve sensor accuracy and “maximize the detection of backscattered light.” EX1011, 4:14-16, 4:59-62, 9:22-40; EX1003 ¶76; EX1014 ¶80. **Fifth**, rather than use both of Mendelson’s six-photodiode arrays with Paulke as shown above, a DOSA alternatively would have been motivated to use one array, as shown below, to improve the performance of the PPG sensor while being cheaper and easier to make than Mendelson’s FIG. 7 sensor.



Paulke combined with Mendelson’s Six-Photodiode Array

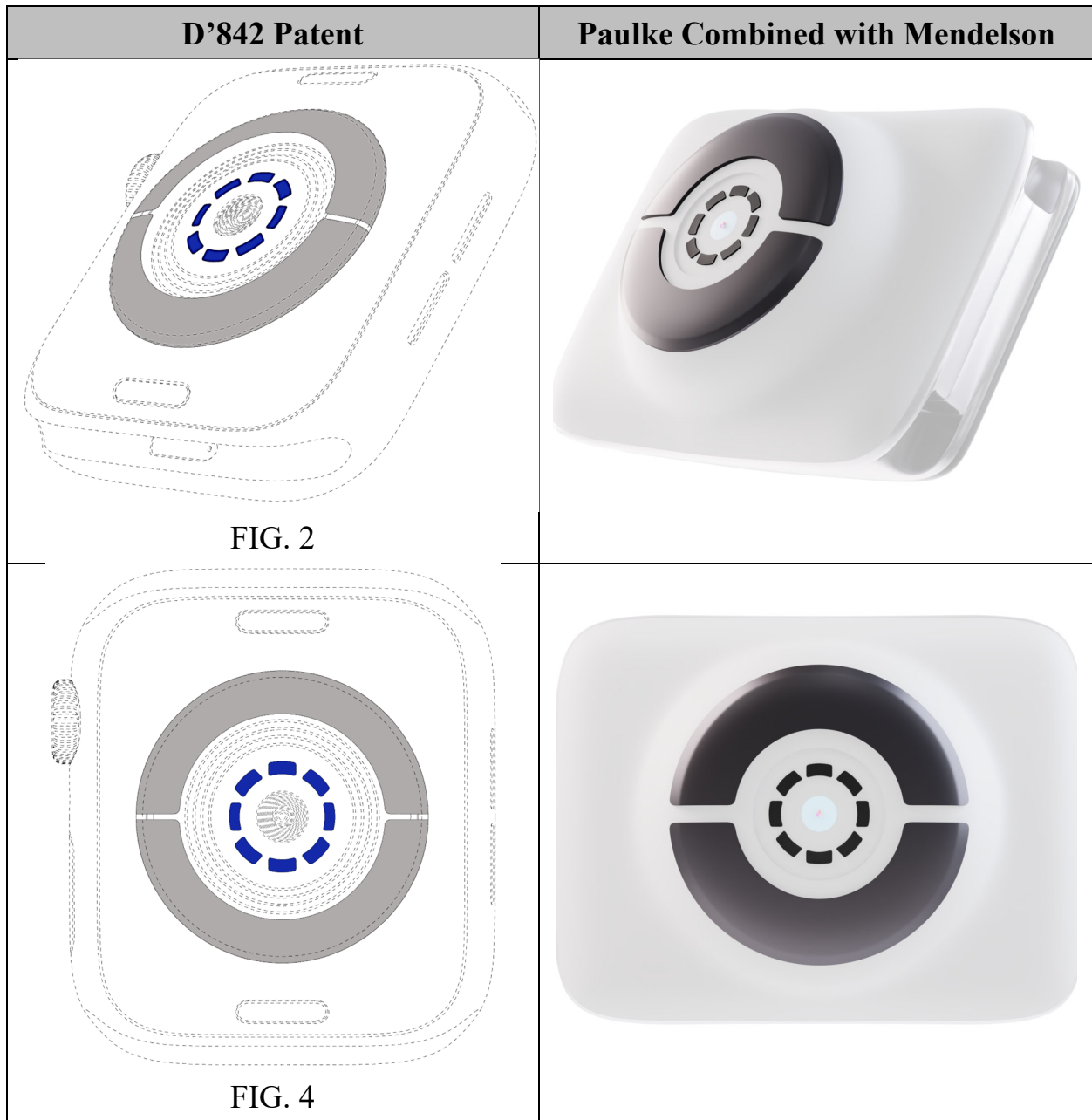
EX1006, FIG. 1G; EX1011, FIG. 7, 9:22-34; EX1014 ¶¶81; EX1003 ¶76. Modifying the photodiode array of the above design to have eight rectangular photodiodes (instead of six) was suggested by the prior art. EX1003 ¶76. A DOSA would have been motivated to make that modification because Mendelson teaches that using more photodiodes improves the sensor's signal-to-noise ratio, and thus, its accuracy. EX1011, 4:6-16, 4:59-62; EX1014 ¶¶81; EX1003 ¶76.

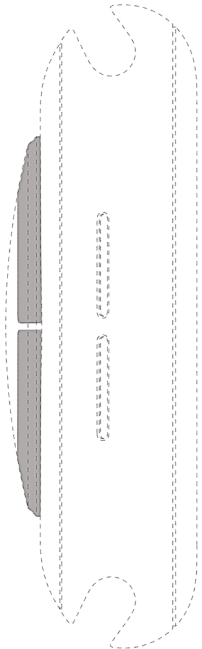
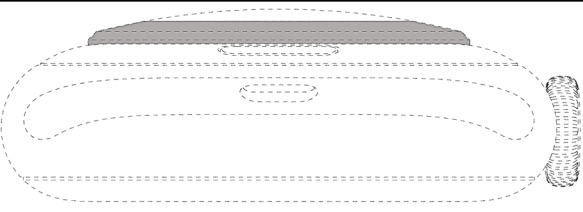
Furthermore, the difference between the claimed photodiode shapes (curved rectangles) and those in Mendelson (straight rectangles 16/18) was a change known in the art, which Apple confirmed by arguing that, years before the D'842 Patent, there was “nothing patentable” about multiple photodiodes. EX1021, 58:3-13, 1191:21-1192:6; EX1038, 2; EX1003 ¶77. And a DOSA would have been motivated to apply a slight curvature to each photodiode (1) to visually parallel the corresponding curvatures of Paulke's (or Yuen or Fong's) arc-shaped portions and the sensor's overall circular shape and (2) because using the same curvature for design aspects positioned across the sensor face or back of the device would provide a visually consistent, simplistic, and appealing look of concentric circles. EX1006, FIGS. 1A-1C, 2B, 5A-5B; EX1003 ¶77; EX1011, FIG. 7.

Moreover, any differences between the proposed combination and the claimed design would have been changes taught by the prior art. EX1003 ¶78. Any difference in the precise spacing, shape, size, or dimensions between the arc-shaped

portions of Paulke (or Yuen or Fong) and the claimed design would have been a routine change that was suggested by the prior art and well within the knowledge, experience, skill, and creativity of a DOSA. EX1006, 15:22-23 (“[a]ny suitable arrangement, alignment, shape, size” for the arc-shaped portions), 14:29-32; EX1003 ¶78. A DOSA also would have been motivated to extend the ends of the arc-shaped electrodes (of Paulke, Yuen, and Fong) closer together to maximize the arc-shaped electrodes’ surface area for contacting the user’s skin in use. EX1006, 15:22-24, 15:3-5 (teaching to shape arc-shaped portions “to help maintain contact between biosensors 120 and the wearer’s skin”), 5:31-32, 6:5-7, 13:13-16, 16:1-4, FIG. 2B; EX1014 ¶82; EX1003 ¶78; *see also* EX1024, 17:22-28. A DOSA also would have been motivated to ensure that electrodes, which are typically made of a conductive metal or coating, were shaped to avoid interference between the charging coils of the device and its charger. EX1044, FIG. 15, 13:22-48; EX1014 ¶84; EX1003 ¶78; EX1024, 17:22-31. And Apple confirmed that any difference between the chamfered edges of Paulke (or Yuen or Fong) and the claimed design would have been a modification suggested by the prior art by arguing that “the use of chamfered edges” was “well-known in the art,” “had been around for many decades, and was disclosed in multiple [prior art] references” as providing improved user comfort. EX1017, 114 (internal quotation marks omitted); EX1003 ¶78.

Accordingly, a DOSA would have been motivated to combine Paulke with Mendelson’s FIG. 7 sensor to create a sensor with the same overall visual appearance as the claimed design, as shown below. EX1003 ¶79.



D’842 Patent	Paulke Combined with Mendelson
 FIG. 5	
 FIG. 7	

Thus, the Apple Watch sensor design claimed by the D’842 Patent would have been obvious to a DOSA over Paulke and Mendelson. *Id.*

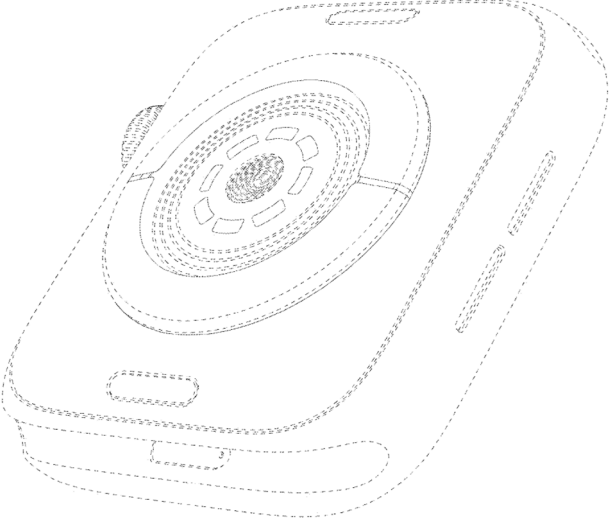
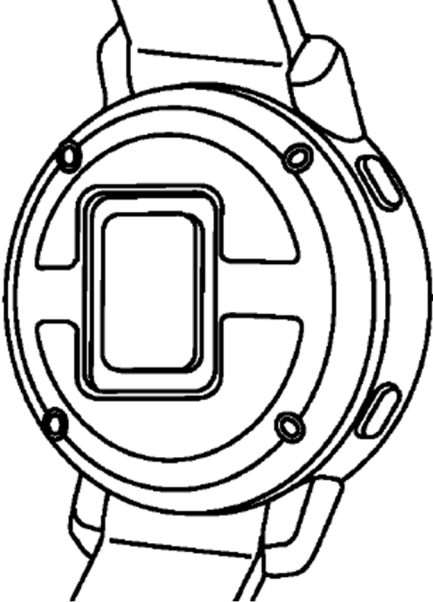
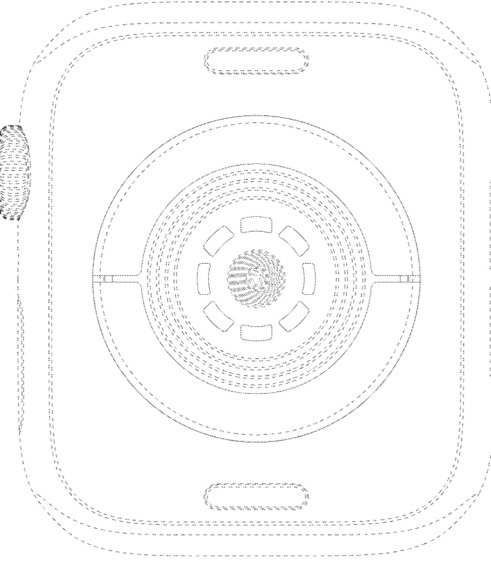
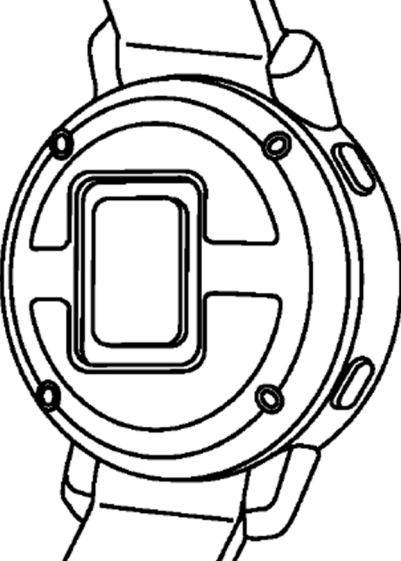
C. GROUND 2: Obviousness Over Yuen, Mendelson, and Bushnell

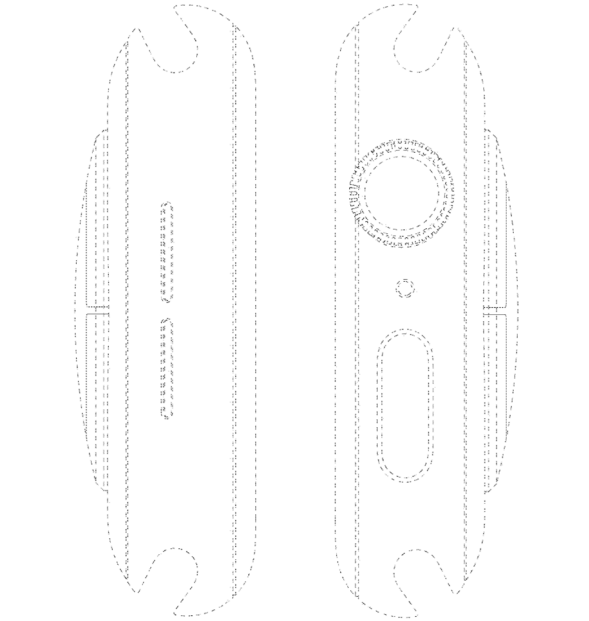
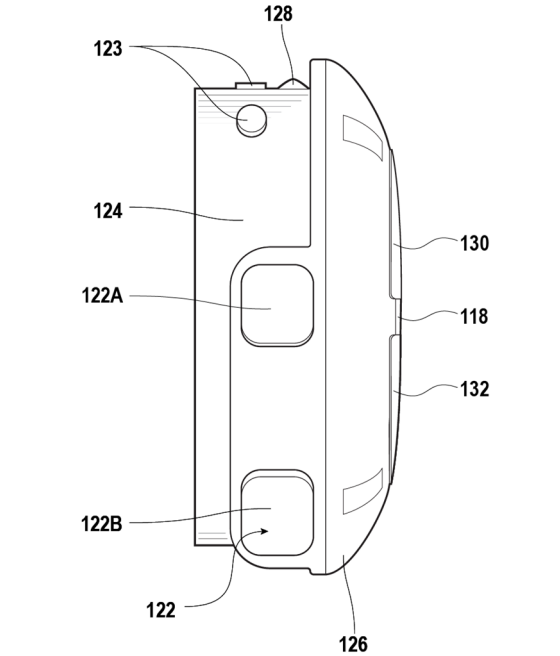
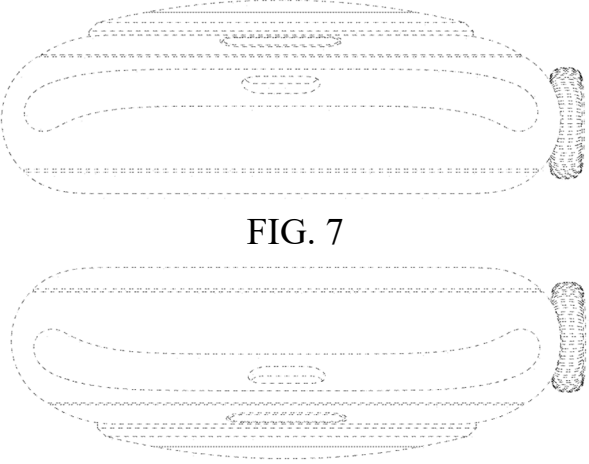
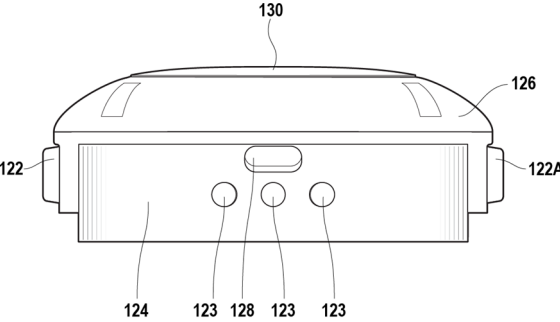
1. Yuen Is A Primary Reference

Yuen is a primary reference because its design characteristics are basically the same as the claimed design. EX1007, FIGS. 1, 3-4; EX1003 ¶¶80-93. As shown

below, any differences between Yuen and the D’842 Patent do not change the designs’ overall visual similarity. *See MRC*, 747 F.3d at 1332-33.

The following comparison demonstrates that the design characteristics of Yuen are basically the same as the claimed design:

D’842 Patent	Yuen (EX1007)
 FIG. 2	 FIG. 4 (flipped)
 FIG. 4	 FIG. 4 (flipped)

D'842 Patent	Yuen (EX1007)
 FIG. 5 FIG. 6	 Composite of FIGS. 1B, 3-4
 FIG. 7 FIG. 8	 Composite of FIGS. 1B, 3-4

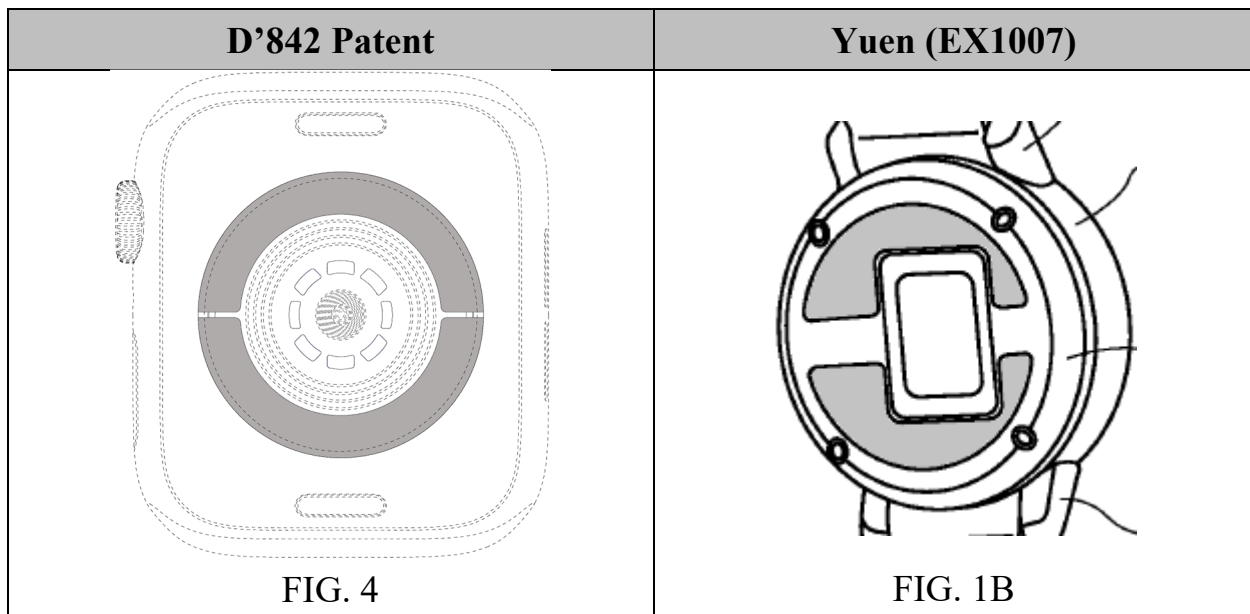
EX1001, FIGS. 2, 4-8; EX1007, FIGS. 1B, 3-4; EX1003 ¶80. The above comparison thus shows that Yuen is an appropriate primary reference because Yuen and the claimed design convey basically the same overall visual impression. *Id.* The overall visual similarity between the design characteristics of Yuen and the claimed

design is further confirmed by the following comparison of their respective design aspects. *Id.*

a. Arc-Shaped Portions

The arc-shaped portions' arrangement should be disregarded as a functional element. *Supra* §IV.B.1.b. But even if considered, Yuen and the D'842 Patent disclose substantially the same arrangement of arc-shaped portions.

Yuen and the claimed design each have arc-shaped portions that are spaced apart from each other and a central circular area. EX1001, FIG. 4; EX1007, FIGS. 1, 3-4; EX1003 ¶82. And the arc-shaped portions of Yuen and the D'842 Patent provide the same overall visual impression, as shown below. *Id.*

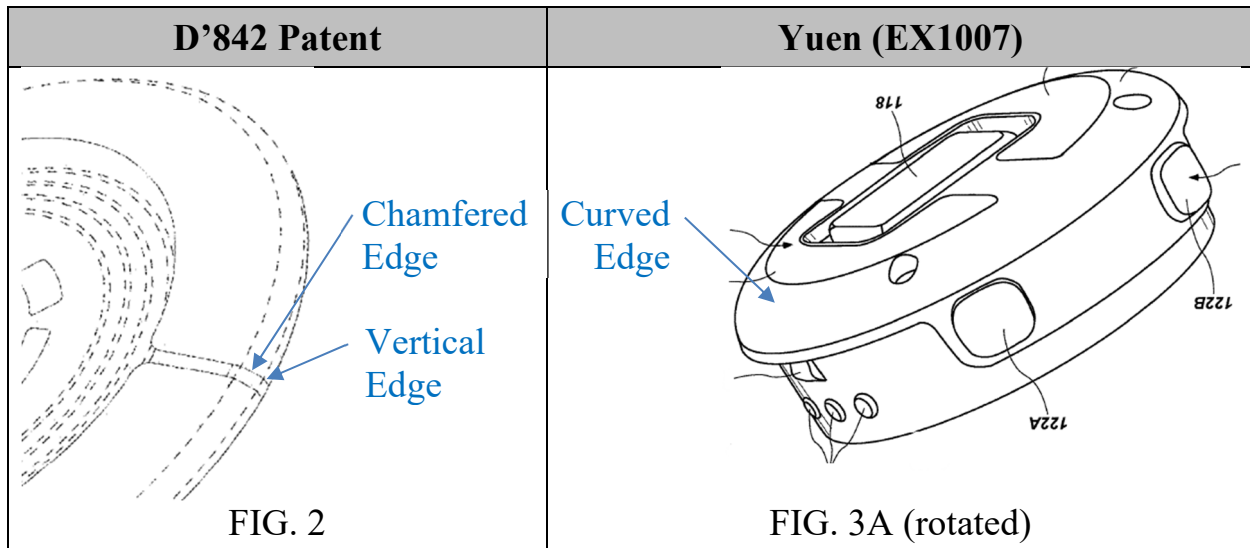


Yuen's arc-shaped portions have a slightly different shape and spacing than in the claimed design, but that difference, or any difference in the size, shape, or spacing of the arc-shaped portions of Yuen and the claimed design, does not alter the overall

visual similarity of these designs. EX1001, FIG. 4; EX1007, FIGS. 1, 3-4; EX1003

¶82. And any differences between the design of Yuen and the claimed design would have been obvious changes to a DOSA. *Infra* §VI.C.2.b.

Even if each arc-shaped portion’s sidewall was claimed, Yuen’s design discloses a sidewall. However, Yuen’s design differs slightly because its sidewall has a curved edge (below, right) instead of vertical and chamfered edges (below, left). EX1001, FIG. 2; EX1007, FIG. 3A; EX1003 ¶83.

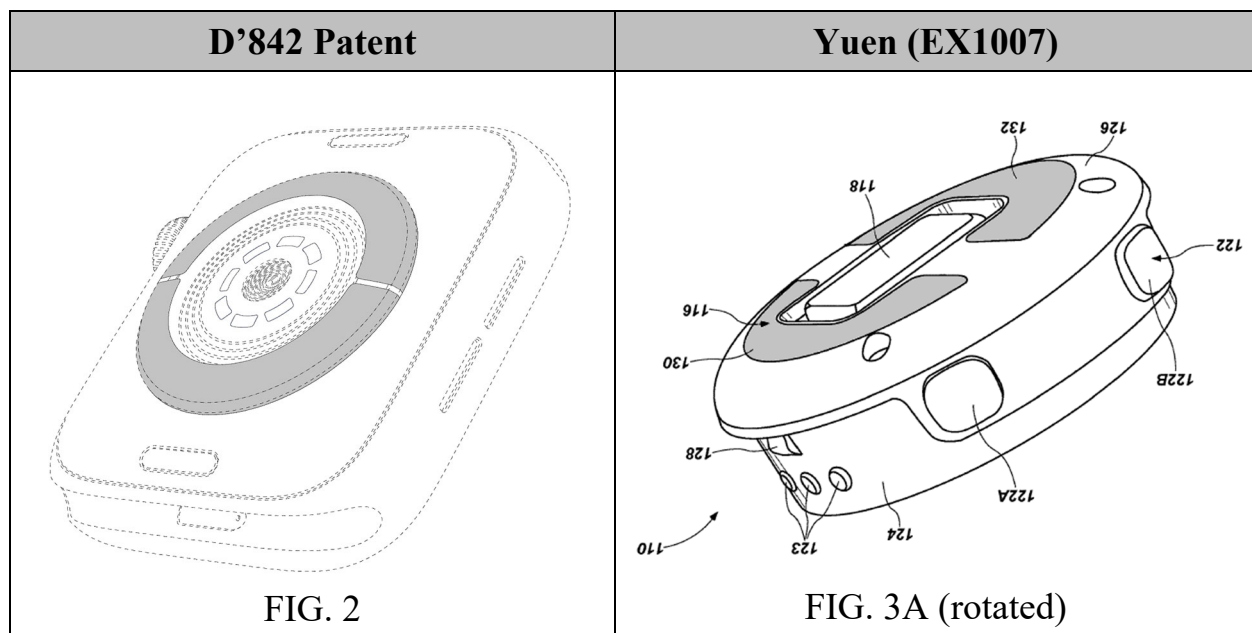


However, any differences between the design of Yuen and the claimed design would not alter the same overall visual impression provided by the two designs. *Id.* Regardless, any differences between the design of Yuen and the claimed design would not prevent Yuen’s use as a primary reference. EX1003 ¶83; *MRC*, 747 F.3d at 1333.

Thus, Yuen’s arrangement of arc-shaped portions has basically the same design characteristics as the claimed design. EX1003 ¶84.

b. Convex Curvature

The arc-shaped portions’ convex curvature should be disregarded as a functional element of the claimed design. *Supra* §IV.B.1.a. But even if considered, the arc-shaped portions of Yuen and the claimed design have a convex curvature that provides the same overall visual impression. EX1001, FIGS. 2, 4-8; EX1007, FIGS. 3-4; EX1003 ¶86.



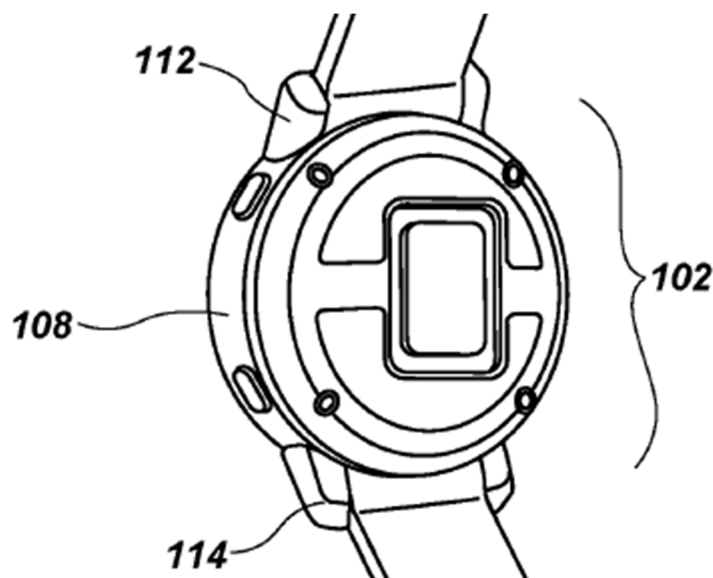
Any difference between the design of Yuen and the claimed design would not prevent Yuen’s use as a primary reference. *Id.*; *MRC*, 747 F.3d at 1335-36 (permitting primary reference with “three major differences”).

Accordingly, Yuen discloses a convex curvature with basically the same design characteristics as the claimed design. EX1003 ¶87.

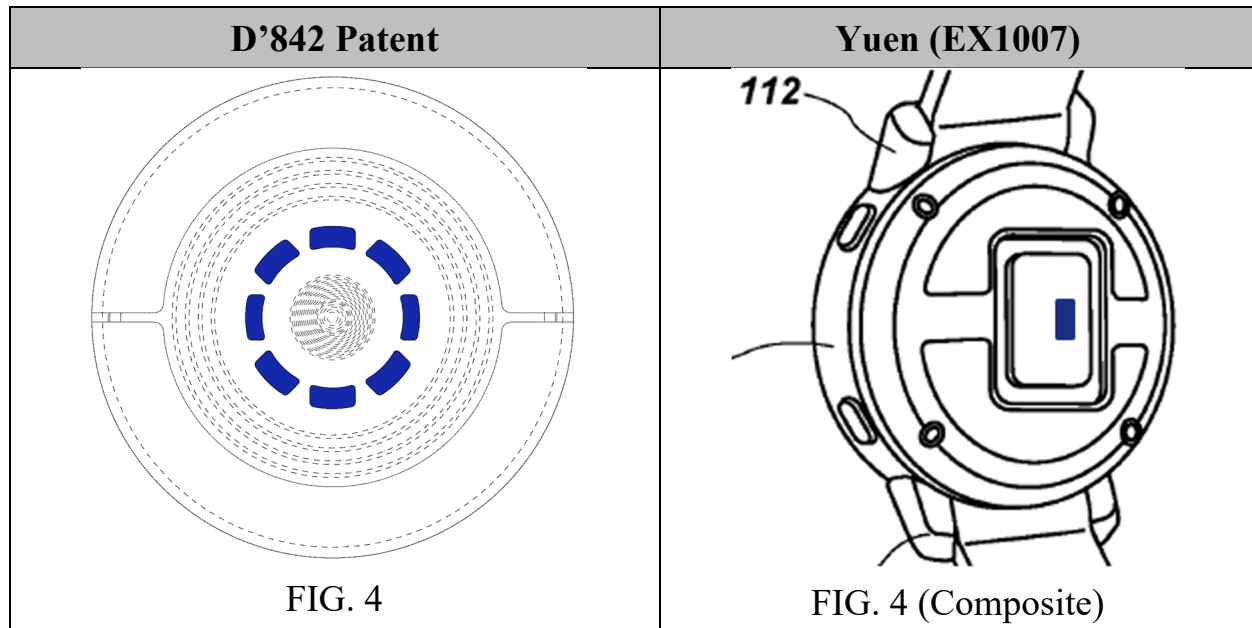
c. Arrangement of Rectangles

The precise arrangement of rectangles claimed by the D’842 Patent should be disregarded because it is a functional element. *Supra* §IV.B.1.c. Yuen discloses a design with the same basic design characteristics as the claimed design because its design includes at least one central rectangle, as explained below.

Yuen’s arc-shaped portions surround a central PPG sensor 118, which can be “any PPG sensor 118 known in the art.” EX1007, FIGS. 1B, 3A, 4, ¶¶41-42. Yuen’s central PPG sensor 118 that “extend[s] through the back cover 126 in a location in-between electrodes of the ... ECG sensor 116,” as shown below.



Id., ¶42, FIG. 4. For the reasons explained above, *supra* §VI.B.1.c, a DOSA would have understood Yuen’s PPG sensor included at least one rectangular photodiode, as shown below (right). EX1007, FIG. 4; EX1014 ¶74; EX1003 ¶90.



The claimed design includes a circular arrangement of rectangles, as shown above (left). EX1003 ¶90. Therefore, a DOSA would have understood that Yuen and the claimed design include one or more central rectangles with the same basic design characteristics. *Id.* Regardless, even if Yuen did not include a central rectangle, it would still be an appropriate primary reference. *Id.*; see *MRC*, 747 F.3d at 1335-36.

If the D’842 Patent’s circular array of eight rectangles is found to be non-functional and included within the Challenged Claim’s scope, Yuen differs from the claimed design because Yuen only includes the one rectangle shown above. EX1003

¶91. Despite this difference, Yuen remains an appropriate primary reference for the same reasons discussed above regarding Paulke. *Id.* ¶¶91-92; *supra* §VI.B.1.c.

In sum, Yuen is a primary reference because it discloses basically the same visual impression as the claimed design. EX1003 ¶93.

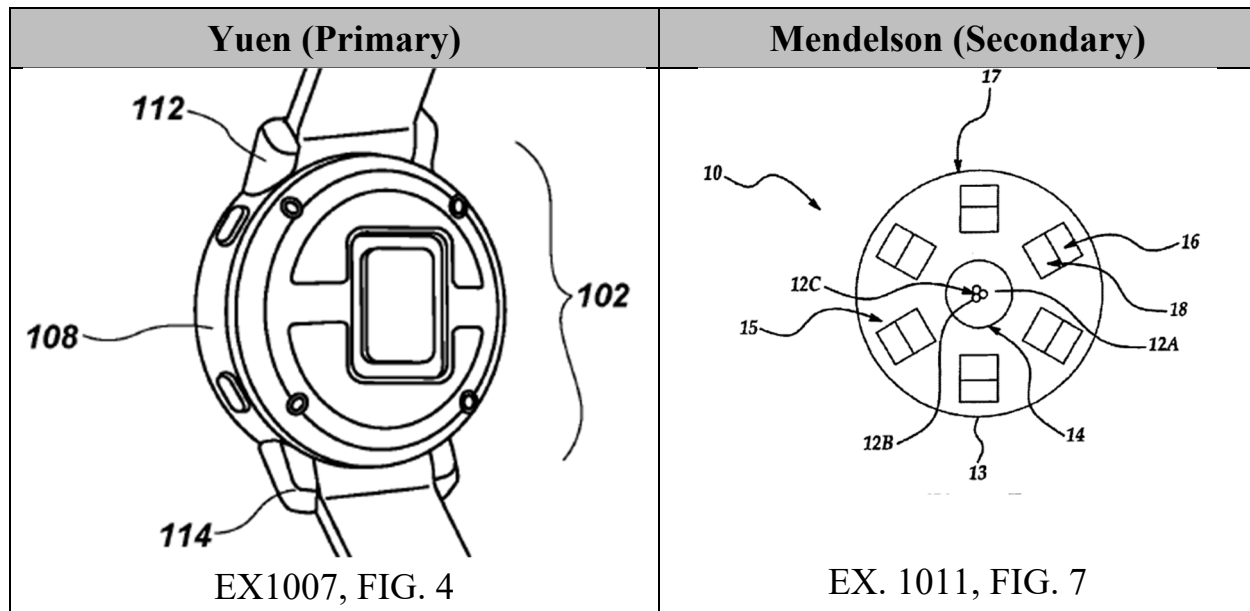
The D’842 Patent’s circular array of rectangles is functional and thus does not change the two designs’ overall visual similarity. *Supra* §IV.B.1.c. Even if the claimed arrangement of rectangles is considered, Yuen’s only difference from the claimed design is that Yuen has one central rectangle. EX1003 ¶93. Yuen would also differ slightly if the D’842 Patent covers the chamfered edges and extensions of FIG. 2. *Id.* However, as shown below, these differences would have been obvious to a DOSA. *Id.* Indeed, combining Yuen, Mendelson, and Bushnell creates a design with the same overall visual appearance as the claimed Apple Watch sensor design. *Id.*

2. The Challenged Claim Would Have Been Obvious Over Yuen in View of Mendelson and Bushnell

The Challenged Claim would have been obvious to a DOSA over Yuen combined with Mendelson and Bushnell.

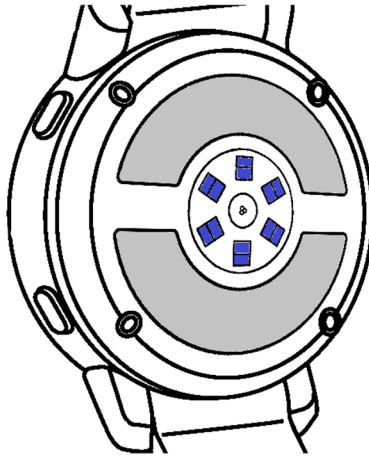
a. Mendelson and Bushnell Are Secondary References

The following visual comparison demonstrates that Mendelson’s sensor design is so related to Yuen that Mendelson is a proper secondary reference.



EX1003 ¶¶94. Yuen describes and shows (above) that its arc-shaped electrodes (130, 132) surround a central PPG sensor (118). EX1007 ¶¶35, 41-42, FIG. 4. Yuen explains that its PPG sensor may be “any PPG sensor 118 known in the art,” including any known sensor “for optically detecting changes in a blood flow volume through a tissue via reflection from ... the tissue.” *Id.* ¶41. Thus, Yuen even suggests replacing its central PPG sensor known PPG sensors. *Id.*; EX1003 ¶94.

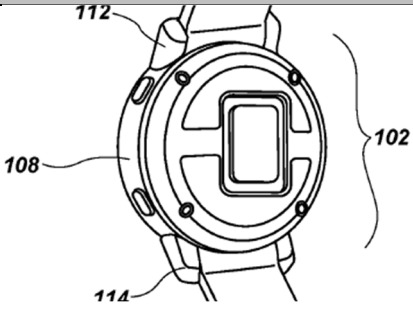
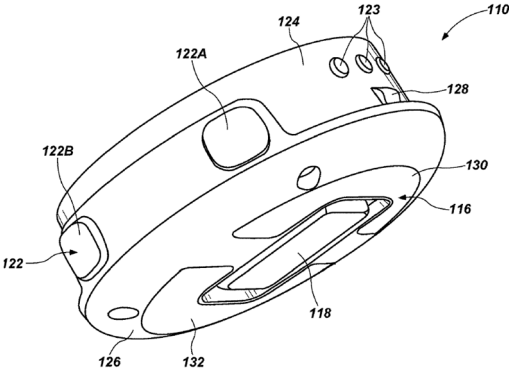
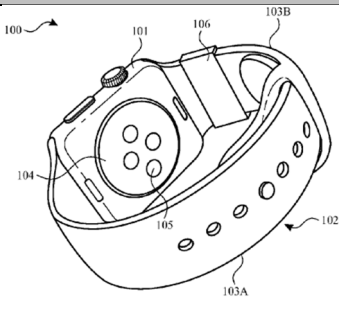
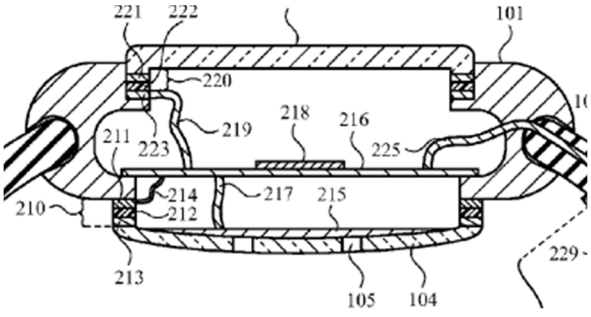
Mendelson is so related to Yuen because it discloses a suitable sensor for Yuen design. Mendelson discloses PPG sensor designs. *Supra* §VI.A.5; EX1003 ¶57. As shown in the composite figure below, Mendelson’s sensor has a circular shape especially suited for the available area between Yuen’s arc-shaped sensors.



EX1007, FIG. 4 (combined with EX1011, FIG. 7); EX1003 ¶95. Mendelson and Yuen are also related because Yuen expressly suggests combining its sensor design with a suitable PPG sensor (EX1007 ¶41), which Mendelson discloses. EX1011, FIG. 7, 9:22-40; EX1014 ¶86; EX1003 ¶95. The designs are also related because Yuen and Mendelson’s PPG sensors require the same basic components—a light source and light detector(s) (e.g., photodiodes). *Supra* §§VI.A.5, VI.C.1.c; EX1003 ¶95; EX1014 ¶¶74, 77.

Accordingly, in view of the relatedness and similarity of the designs, the appearance of Mendelson’s FIG. 7 sensor would have suggested the application of its features, including its circular array of rectangular photodiodes, to the design of Yuen’s PPG sensor. EX1003 ¶95. Thus, Mendelson is an appropriate secondary reference. *Id.*

Moreover, the below visual comparison demonstrates that Bushnell’s sensor design is so related to Yuen’s sensor that Bushnell is a proper secondary reference.

Yuen (Primary)	Bushnell (Secondary)
 EX1007, FIG. 4  EX. 1007, FIG. 3A	 EX. 1009, FIG. 1A  EX. 1009, FIG. 2A

EX1003 ¶96. As shown above, Yuen’s wrist-worn device has arc-shaped electrodes, a central PPG sensor, and a circular convex surface protruding from the back of the wrist-worn electronic device. *Id.*; EX1007, FIGS. 1B, 3A, 4, Abstract, ¶¶35-36, 41-42.

Bushnell is so related to Yuen because it discloses a suitable design for Yuen’s device. As shown above, both references concern a circular, convex surface that protrudes from the back of the wrist-worn device and incorporates the device’s sensors. EX1007, FIGS. 1B, 3A, 4; EX1009, FIGS. 1-7; EX1003 ¶97. The similarities between the convex curvature and overall circular shape of Bushnell’s

housing component 104 and Yuen’s convex protruding back surface 126 would have suggested using Bushnell’s design with Yuen’s device. *Id.*; EX1003 ¶97. The designs of Bushnell and Yuen are also so related because, in each, the convex protruding surface incorporates electrodes and a PPG sensor. EX1007 ¶¶35-36, 42, FIG. 3A; EX1009 ¶¶40, 48, 71, 74 (describing “multiple electrodes ... positioned on the [convex] housing component”), FIGS. 2-7; EX1003 ¶97; EX1014 ¶¶74, 76. Bushnell and Yuen are further related because Yuen expressly suggests using any known PPG sensor (EX1007 ¶41), which Bushnell discloses. EX1009 ¶48; EX1003 ¶97. Yuen and Bushnell’s designs are also related because their PPG sensors necessarily include the same basic components. EX1014 ¶¶74, 76; EX1003 ¶97.

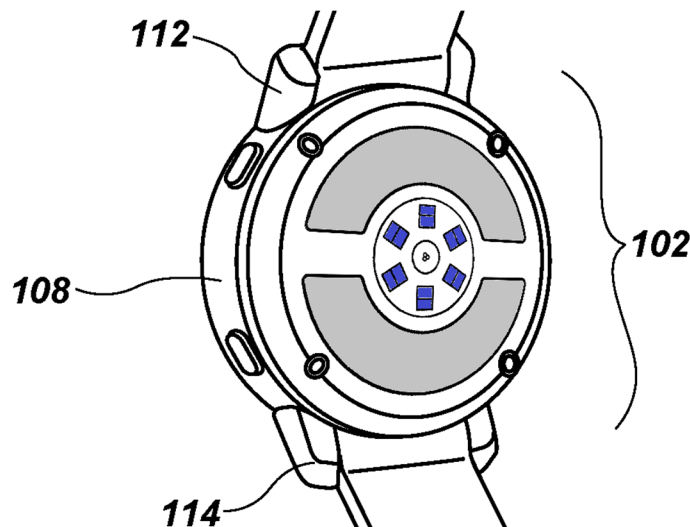
Accordingly, in view of the designs’ relatedness and similarity, the appearance of Bushnell’s design would have suggested the application of its features, including its convex housing component, to the design of Yuen’s device. EX1003 ¶97. Bushnell is thus an appropriate secondary reference. *Id.*

b. The Challenged Claim Would Have Been Obvious Over Yuen, Mendelson, and Bushnell

A DOSA would have been motivated to combine Yuen with Mendelson’s PPG sensor and Bushnell’s convex housing component, as explained below.

Mendelson: Combining Mendelson’s sensor design with Yuen was a known change that was suggested by the prior art (including Yuen, EX1007 ¶41) and well within a DOSA’s capabilities. *Supra* §VI.B.2.b; EX1003 ¶98.

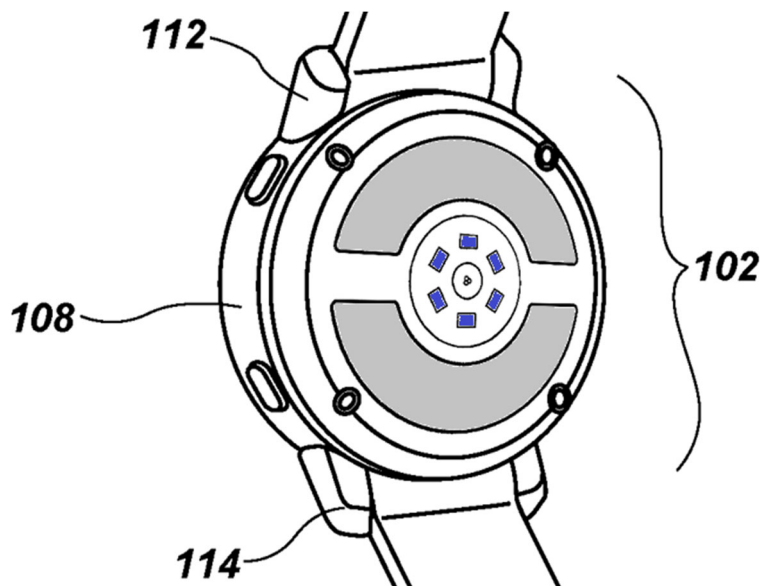
Moreover, a DOSA would have been motivated to use Mendelson's sensor design with Yuen's device. First, Yuen suggests such a combination. EX1007 ¶¶41-42, FIG. 1B; EX1011, FIG. 7; EX1003 ¶99. Second, the relatedness of Mendelson's circular sensor design to the available circular area of Yuen's design also would have suggested their combination. *Supra* §VI.C.2.a; EX1003 ¶99. Third, achieving a symmetrical sensor design would have motivated this combination, for the reasons explained above. *Supra* §VI.B.2.b; EX1003 ¶99. For example, a DOSA would have been motivated to use Mendelson's PPG sensor design because the resulting symmetrical design, shown below, would be more visually appealing and marketable than Yuen's asymmetrically located PPG sensor.



Yuen (EX1007, FIG. 4) combined with Mendelson (EX1011, FIG. 7)

EX1003 ¶99. Fourth, improving Yuen's PPG sensor accuracy would have motivated this combination. *Supra* §VI.B.2.b; EX1014 ¶87; EX1003 ¶99. Fifth, a DOSA would have been motivated to use Mendelson's design because, unlike Yuen's

square PPG sensor, Mendelson’s circular design is visually consistent with the circular shape of Yuen’s device and the circular shape formed by Yuen’s arc-shaped electrodes. EX1007, FIGS. 1B, 3A, 4; EX1003 ¶¶99. Sixth, a DOSA would have been motivated to use one of Mendelson’s six-photodiode arrays in Yuen’s device, *supra* §VI.B.2.b, as shown below.

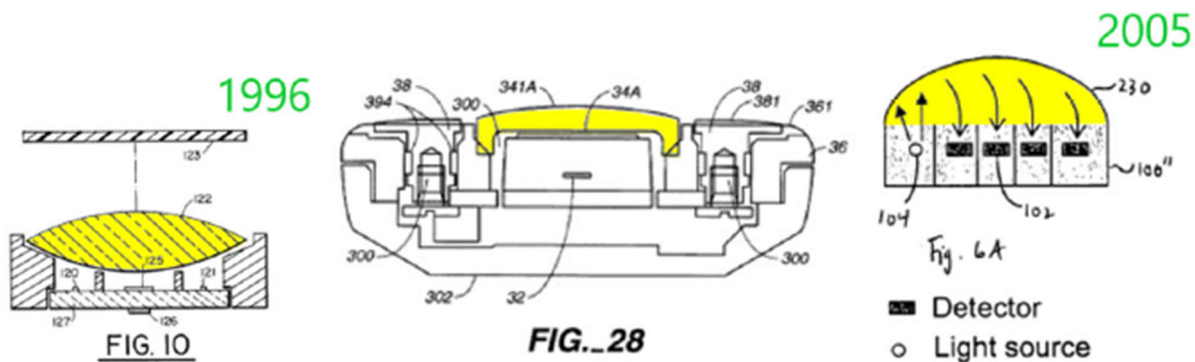


Yuen combined with Mendelson’s Six-Photodiode Array

EX1007, FIG. 4; EX1011, FIG. 7, 4:1-62, 9:22-34; EX1003 ¶¶99. And seventh, the differences between the six straight rectangle-shaped photodiodes shown above and the claimed design (eight curved rectangle-shaped photodiodes) are changes that a DOSA would have been motivated to make. *Supra* §VI.B.2.b; EX1003 ¶¶99.

Bushnell: Combining Bushnell’s convex sensor housing with Yuen would have been a change that was motivated by the prior art (including Yuen) and well within a DOSA’s capabilities. EX1003 ¶¶100. Indeed, Apple argued that sensors

with convex protrusions, such as those shown below, were well-known long before the D’842 Patent.



EX1017, 64 (excerpted), 63 (arguing “prior to 2008, it also was known that optical sensors could include protrusions, including convex protrusions.”), 22 (arguing “convex protrusions” were known “for more than 50 years”), 75 (arguing “a POSITA would have understood the benefits of including a convex protrusion, including to improve signal quality.”). Apple and its expert further argued that combining a convex protrusion with an optical sensor would have been obvious because the combination had “already been done in various forms.” EX1017, 120 (quoting EX1021, 1237:4-1238:6).

In addition to being a known modification, a DOSA would have been motivated to combine Bushnell’s convex housing component 104 with Yuen’s device for numerous reasons. First, a DOSA would have been motivated to combine Bushnell’s convex housing component with Yuen’s device to achieve the smooth, simplistic, and visually appealing back surface known in the art for such devices, as shown for example in Bushnell.

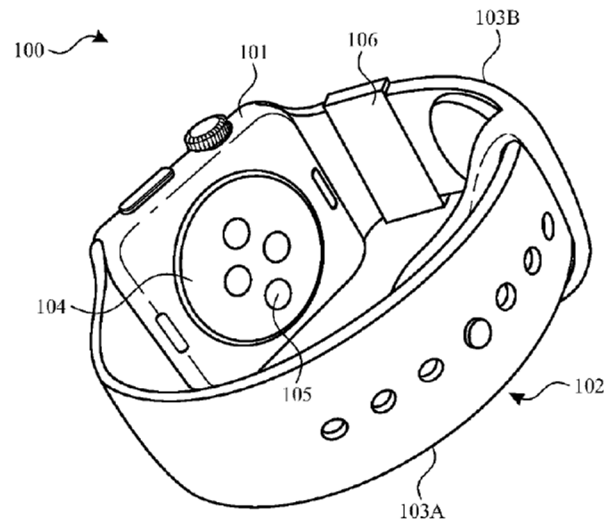
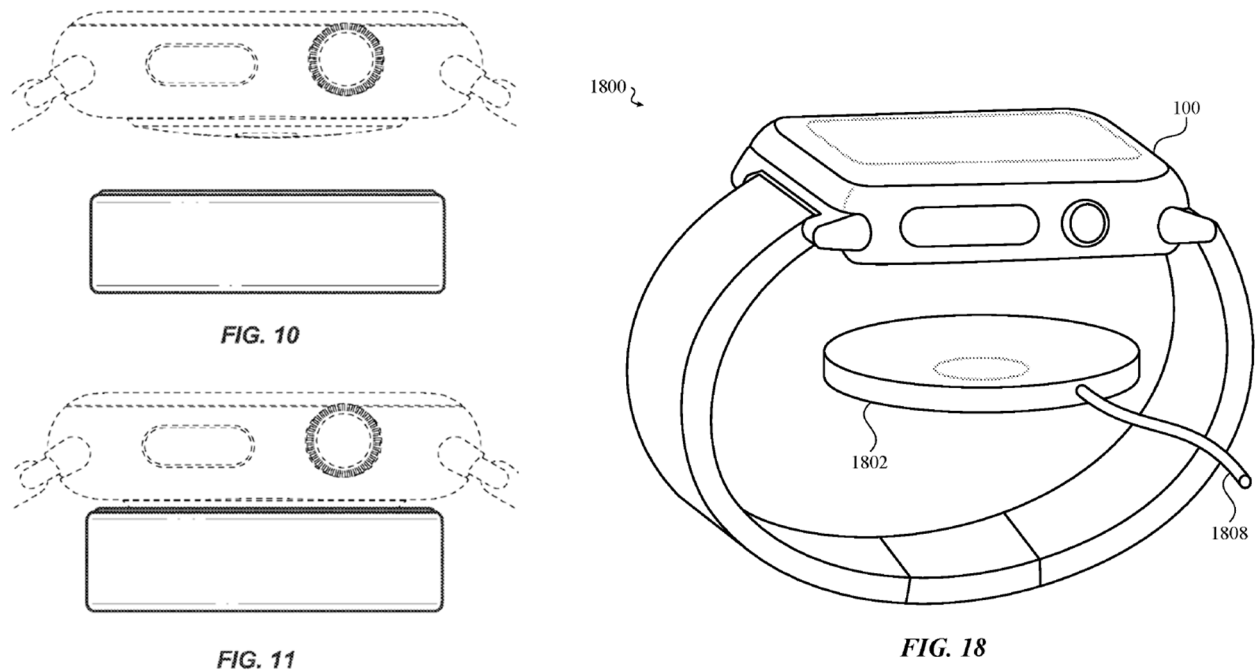


FIG. 1A

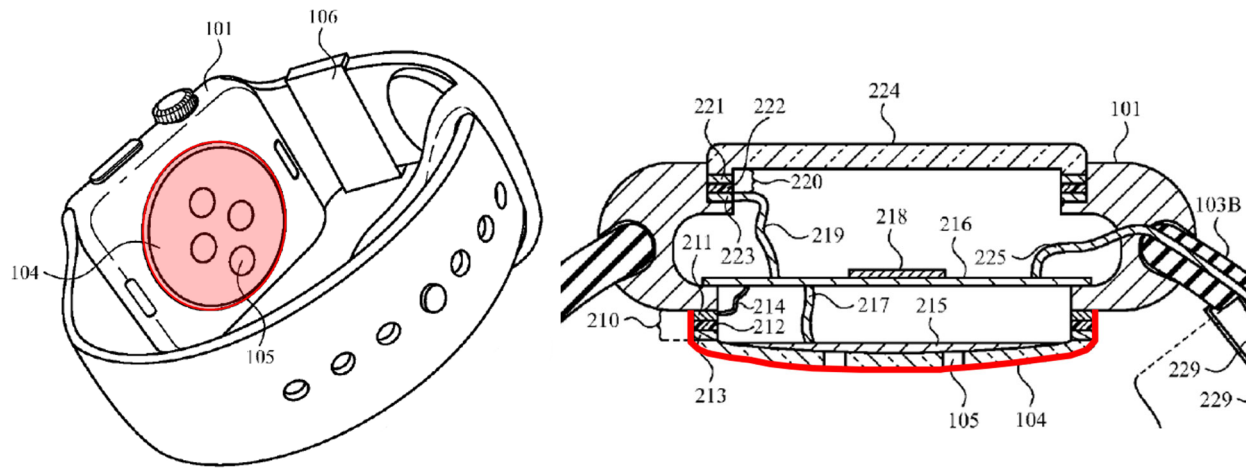
EX1009, FIG. 1A; EX1003 ¶101. Indeed, a DOSA would have understood that Bushnell’s convex housing component was more visually appealing than Yuen’s design because the recess around Yuen’s PPG sensor creates a jagged, uneven appearance that is discordant with the surrounding circular shapes. EX1007, FIGS. 1B, 3A, 4; EX1003 ¶101. A DOSA also would have been motivated to combine Bushnell’s convex housing component with Yuen’s device to cover and protect Yuen’s PPG sensor from damage and debris. EX1006, 15:6-9 (Paulke’s “[PPG] sensor 124 ... is protected from the outside by a glass lens 128,” as shown in FIG. 2A); EX1003 ¶101. Indeed, Apple has argued that a person of skill would have been motivated to cover optical sensors, like Yuen’s PPG sensor, to “protect[] the photodiodes from damage or interference caused by contaminants, such as hair, sweat/liquid, dirt, debris, etc.” EX1017, 119.

Further, a DOSA would have been motivated to combine Bushnell’s convex housing component with Yuen to enable Yuen’s device to align and mate with the complementary concave surface of prior art wireless chargers, as shown below.



EX1034, FIGS. 10-11 (left); EX1025, FIG. 18 (right), FIG. 19, 43:5-35, 45:18-51; EX1003 ¶102.

Additionally, a DOSA would have understood that Bushnell discloses a convex housing component 104 that protrudes from the back of the device—i.e., a convex protrusion—as shown in red below.



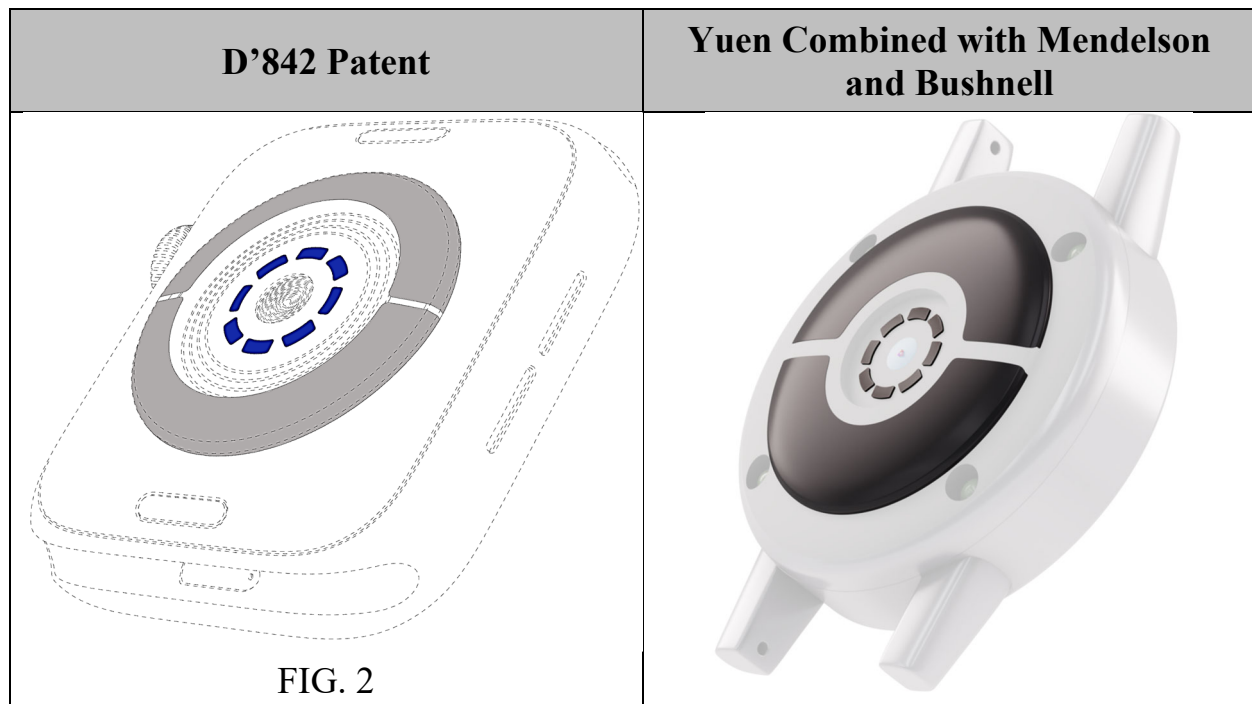
EX1009, FIGS. 1^a, 2^a; EX1003 ¶103. By 2018, a DOSA also would have understood that using such a convex protrusion like Bushnell’s convex housing component 104 was known to significantly improve the signal strength of PPG sensors. EX1030, 20:29-33 (“a convex [protrusion] ... was found to help signal strength by about an order of magnitude”), 21:9-43 (explaining that a convex protrusion can significantly improve the transmittance and signal-to-noise ratio of the sensor, as shown in FIG. 5), FIG. 5; EX1014 ¶91; EX1003 ¶103. Indeed, Apple and its expert argued this motivation existed over a decade before the D’842 Patent’s purported 2018 filing date. EX1017, 75 (“A POSITA would have understood the benefits of including a convex protrusion, including to improve signal quality.”); EX1021, 1210:13-1211:8 (“[By 2008], it was already well-known that a convex curvature itself could be a useful element in increasing signal quality.”). Thus, a DOSA would have been motivated to combine Bushnell’s convex housing component (red, above) with Yuen to improve the signal strength of Yuen’s PPG sensor. EX1014 ¶91; EX1003 ¶103.

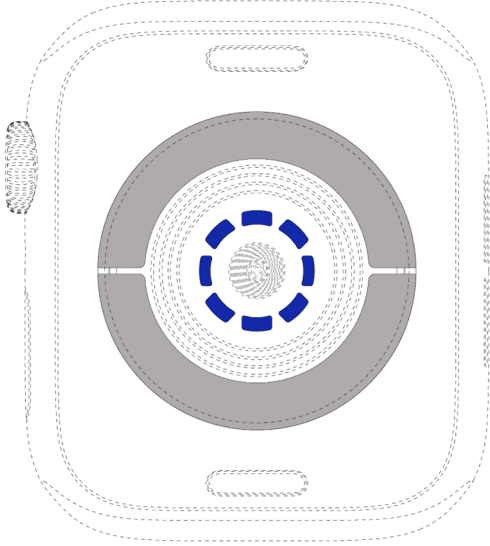
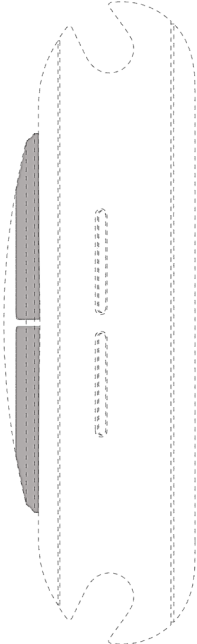
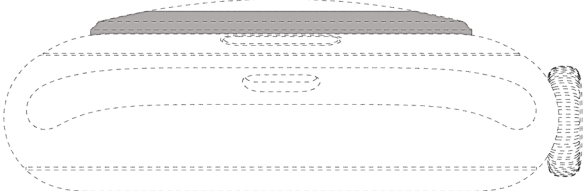
A DOSA also would have been motivated to combine Bushnell’s convex housing component with Yuen to improve the contact (or coupling) between the sensor surface and the user’s skin. EX1030, 20:52-60 (using a protrusion made of “[r]igid materials can improve measurement accuracy ... by conforming the measurement site to the contact area”); EX1014 ¶92; EX1003 ¶103. Again, Apple argued this motivation existed in the art. EX1017, 117 (“A POSITA would have known there are benefits to using a protrusion with a convex surface, including, for example, to provide better coupling and thus better measurements.”).

Further, the D’842 Patent does not claim the arc-shaped portions’ sidewalls. *Supra* §IV.B. But even if the sidewalls were claimed, Bushnell’s convex housing component includes them. *Supra* §VI.A.4. Thus, a DOSA would have understood that the proposed combination of Bushnell with Yuen resulted in a device with the sidewalls depicted in the D’842 Patent. EX1003 ¶104. Additionally, a DOSA would have been motivated to combine Bushnell’s chamfered edge with Yuen’s sensor because chamfered edges were known design aspects to provide a simplistic, visually appealing transition between sensor components. EX1009, FIG. 1A; EX1006, FIG. 2A; EX1003 ¶104. A DOSA would have been further motivated to combine Bushnell’s chamfered edge with Yuen because, as confirmed by Apple, chamfered edges were “well-known” and “disclosed in multiple [prior art] references” as providing improved user comfort. EX1017, 114.

Moreover, any differences between the proposed combination (Yuen with Mendelson and Bushnell) and the claimed design would have been changes taught by the prior art, as explained above. *Supra* §VI.B.2.b; EX1003 ¶105.

Accordingly, a DOSA would have been motivated to combine Yuen with Mendelson’s FIG. 7 sensor and Bushnell’s convex housing component 104 to create a sensor with the same overall visual appearance as the claimed design, as shown below. EX1003 ¶106.



D'842 Patent	Yuen Combined with Mendelson and Bushnell
 FIG. 4	
 FIG. 5	
 FIG. 7	

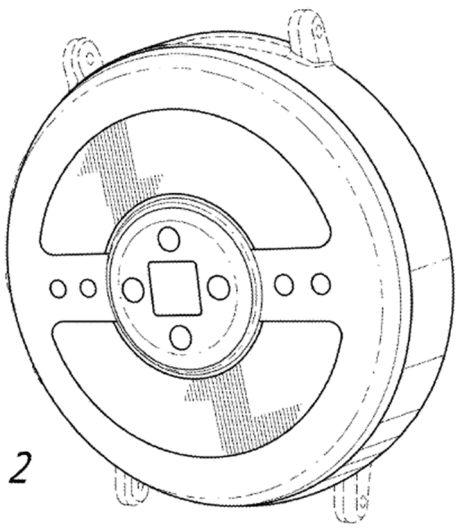
Thus, the Apple Watch sensor design claimed by the D’842 Patent would have been obvious to a DOSA over Yuen, Mendelson, and Bushnell. *Id.*

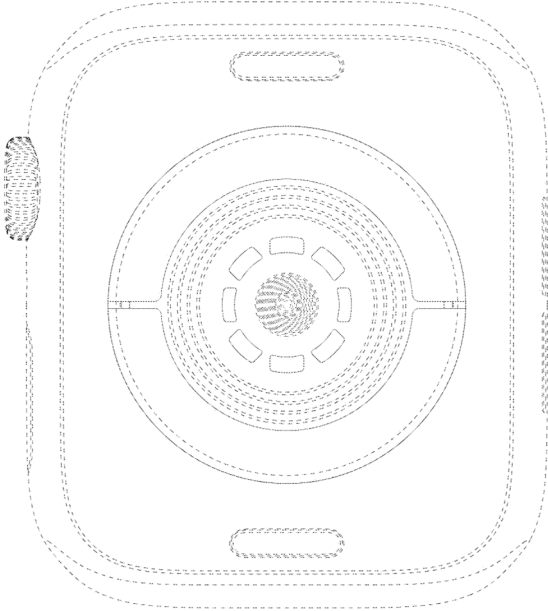
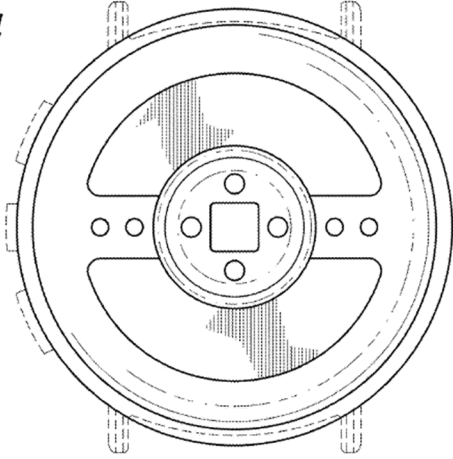
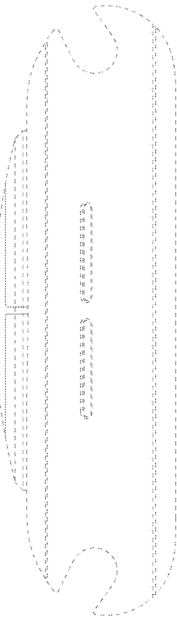
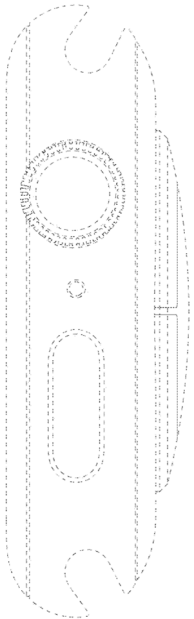
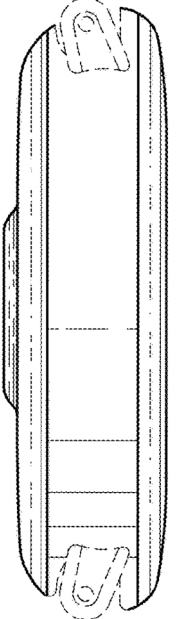
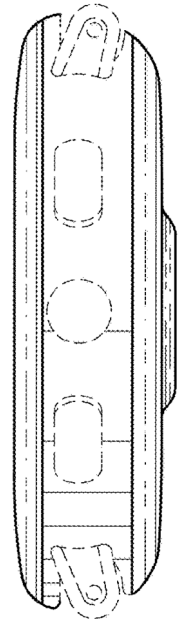
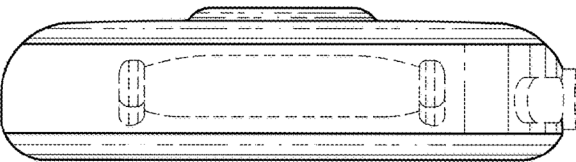
D. GROUND 3: Obviousness Over Fong, Mendelson, and Bushnell

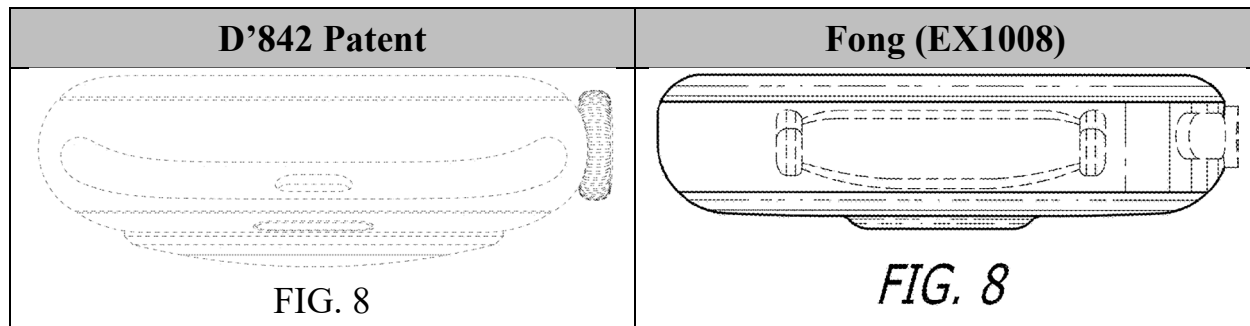
1. Fong Is A Primary Reference

Fong is a primary reference because its design characteristics are basically the same as the claimed design. EX1001, FIGS. 2, 4-8; EX1008, FIGS. 2, 4-8; EX1003 ¶¶107-120. As shown below, any differences between Fong and the D’842 Patent do not change the overall visual similarity of the designs.

The following comparison demonstrates that the design characteristics of Fong are basically the same as the claimed design:

D’842 Patent	Fong (EX1008)
 FIG. 2	 FIG. 2

D'842 Patent	Fong (EX1008)
 FIG. 4	<i>FIG. 4</i> 
 FIG. 5  FIG. 6	 FIG. 5  FIG. 6
 FIG. 7	 <i>FIG. 7</i>

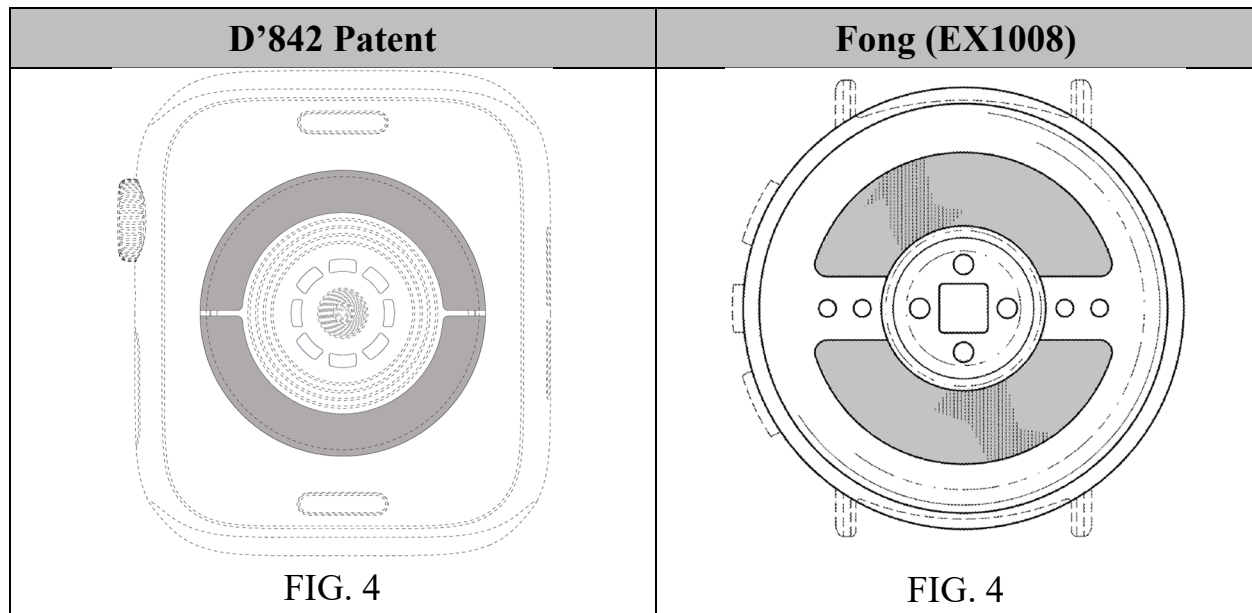


EX1001, FIGS. 2, 4-8; EX1008, FIGS. 2, 4-8; EX1003 ¶107. The above comparison thus shows that Fong is an appropriate primary reference because Fong and the claimed design convey basically the same overall visual impression. *Id.* The overall visual similarity between the design characteristics of Fong and the claimed design is further confirmed by the following comparison of their respective design aspects. *Id.*

a. Arc-Shaped Portions

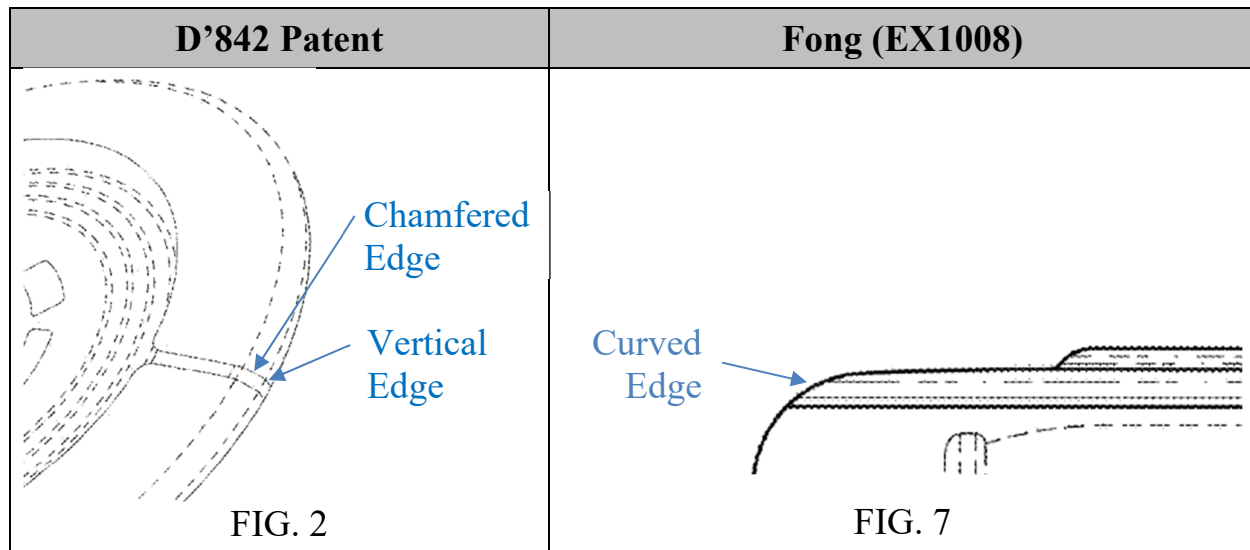
The arc-shaped portions’ arrangement should be disregarded as a functional element. *Supra* §IV.B.1.b. But even if considered, Fong and the D’842 Patent disclose substantially the same arrangement of arc-shaped portions.

Fong and the claimed design each have arc-shaped portions that are spaced apart from each other and a central circular area. EX1001, FIGS. 2, 4; EX1008, FIGS. 2, 4; EX1003 ¶109. And the arc-shaped portions of Fong and the D’842 Patent provide the same overall visual impression, as shown below. EX1001, FIGS. 2, 4; EX1008, FIGS. 2, 4; EX1003 ¶109.



Fong's arc-shaped portions are slightly wider and farther apart than in the claimed design, but that difference, or any difference in the size, shape, or spacing of the arc-shaped portions of Fong and the claimed design, does not alter the overall visual similarity of these designs. EX1001, FIGS. 2, 4; EX1008, FIGS. 2, 4; EX1003 ¶109. And any differences between the design of Yuen and the claimed design would have been obvious changes to a DOSA. *Infra* §VI.D.2.b.

Even if each arc-shaped portion's sidewall was claimed, Fong's design differs slightly because its sidewall has a curved edge (below, right) instead of a chamfered and vertical edge (below, left). EX1001, FIG. 2; EX1008, FIG. 7; EX1003 ¶110.

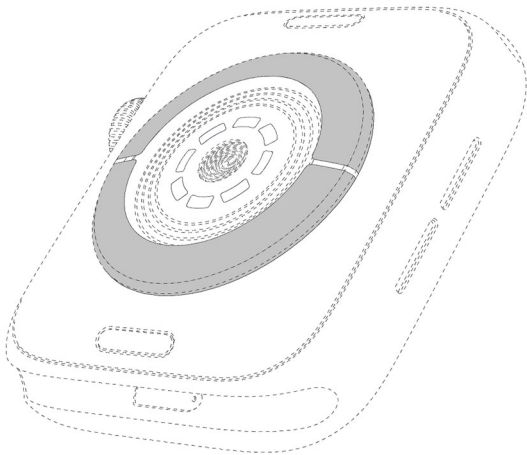
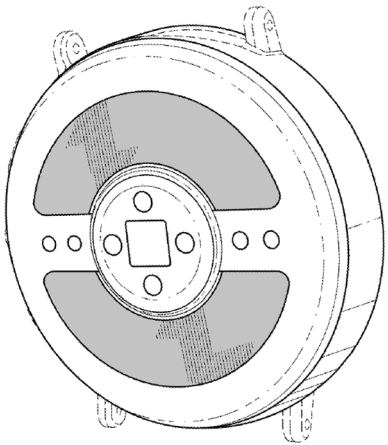
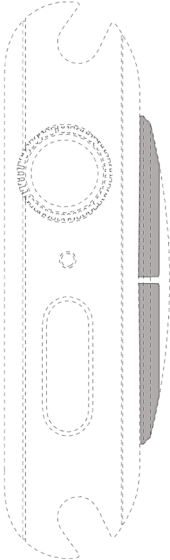
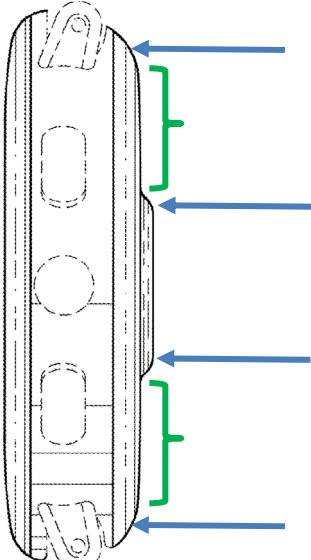


However, any differences between the design of Fong and the claimed design would not alter the same overall visual impression provided by the two designs. *Id.* Regardless, any differences between the design of Fong and the claimed design would not prevent Fong's use as a primary reference. *Id.*; *MRC*, 747 F.3d at 1333.

Thus, Fong's arrangement of arc-shaped portions has basically the same design characteristics as the claimed design. *Id.* ¶111.

b. Convex Curvature

The arc-shaped portions' convex curvature should be disregarded as a functional element of the claimed design. *Supra* §IV.B.1.a. But even if considered, Fong discloses the same basic design characteristics as the claimed design. EX1001, FIGS. 2, 4-8; EX1008, FIGS. 1-8; EX1003 ¶113.

D’842 Patent	Fong (EX1008)
 FIG. 2	 FIG. 2
 FIG. 6	 FIG. 5

As shown with green brackets above, a DOSA would have understood that Fong’s arc-shaped portions are included on a convex curvature. EX1008, FIG. 5; EX1003 ¶113. The back surface of Fong’s design also includes other convex curvatures, as shown with arrows above. *Id.* Any differences between the design of Fong and the claimed design do not prevent Fong’s use as a primary reference. EX1001, FIG. 4;

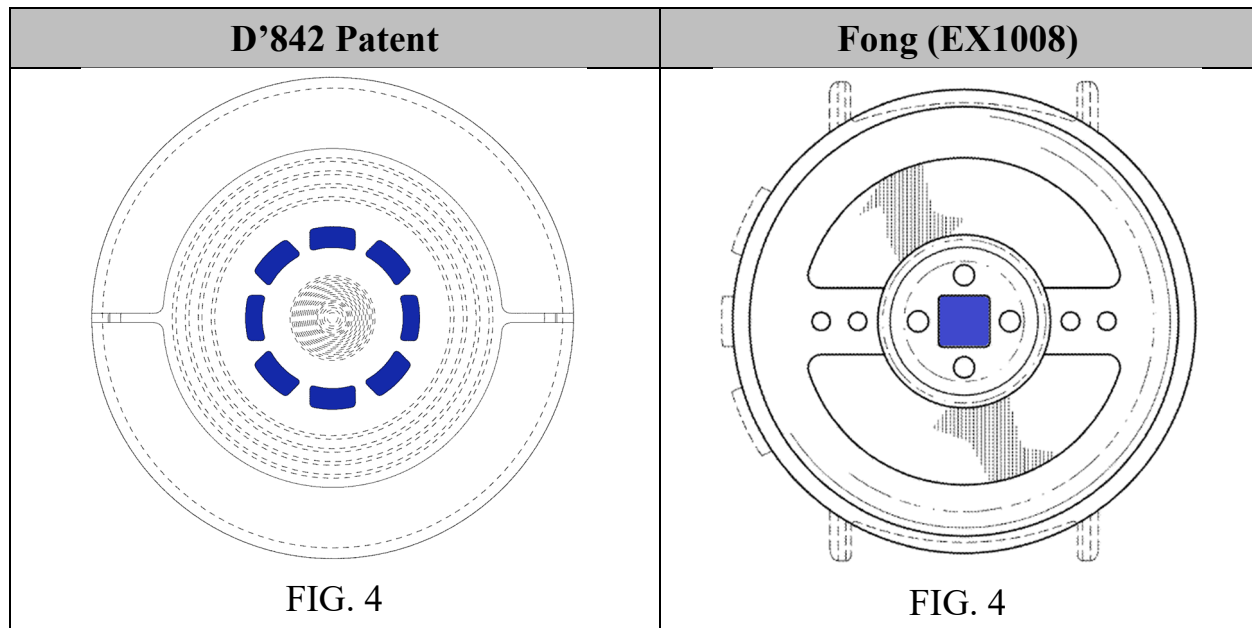
EX1008, FIG. 4; EX1003 ¶113; *MRC*, 747 F.3d at 1335-36 (permitting primary reference with “three major differences”).

Accordingly, Fong discloses a convex curvature with basically the same design characteristics as the claimed design. *Id.* ¶114.

c. Arrangement of Rectangles

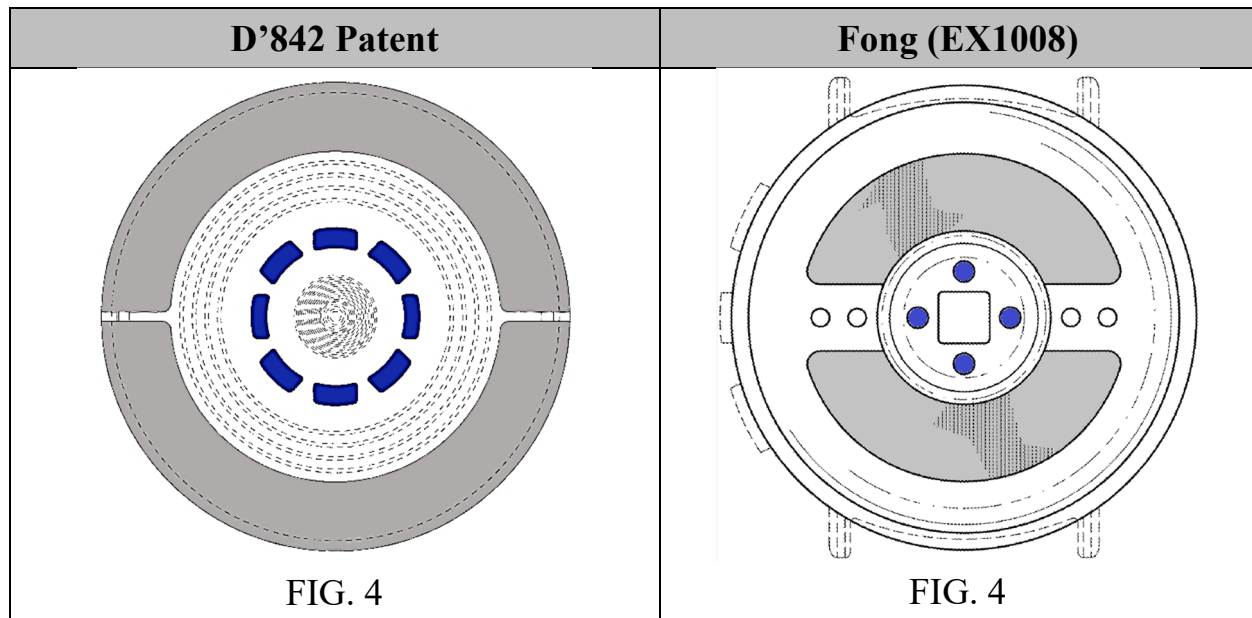
The claimed arrangement of rectangles should be disregarded because it is a functional element. *Supra* §IV.B.1.c. Fong discloses a design with the same basic design characteristics as the claimed design because its design includes at least one central rectangle, as explained below.

A DOSA would have understood that Fong’s PPG sensor included at least one rectangular photodiode, and one or more light sources, for the reasons explained above. *Supra* §VI.B.1.c. Indeed, Fong’s PPG sensor includes at least one rectangular photodiode, as shown below (right). *Supra* §VI.A.3; EX1003 ¶117.



The claimed design includes a circular arrangement of rectangles, as shown above (left). EX1003 ¶117. Therefore, a DOSA would have understood that Fong and the claimed design include one or more central rectangles with the same basic design characteristics. EX1001, FIG. 4; EX1008, FIG. 4; EX1003 ¶117. Regardless, even if Fong did not include a central rectangle, it would still be an appropriate primary reference. *Id.*; *MRC*, 747 F.3d at 1335-36.

If the D'842 Patent's circular array of eight rectangles is found to be non-functional and included within the Challenged Claim's scope, Fong differs slightly from the claimed design because Fong's circular array only includes the four circles shown below. EX1001, FIG. 4; EX1008, FIG. 4; EX1003 ¶118.



Despite this slight difference, Fong remains an appropriate primary reference for the same reasons discussed above regarding Paulke. *Id.*; *supra* §VI.B.1.c.

In sum, Fong is a primary reference because it discloses basically the same visual impression as the claimed design. EX1003 ¶119.

The claimed arrangement of rectangles does not change the two designs' overall visual similarity because that design element is functional. *Supra* §IV.B.1.c. Even if the arrangement of rectangles is considered, the only difference between the claimed design and Fong is that Fong's circular array has four circles, not eight rectangles. EX1003 ¶120. Fong would also differ slightly if the claimed design covers the sidewalls depicted in FIG. 2. *Id.* However, as shown below, these differences would have been obvious to a DOSA. *Id.* Indeed, the combination of

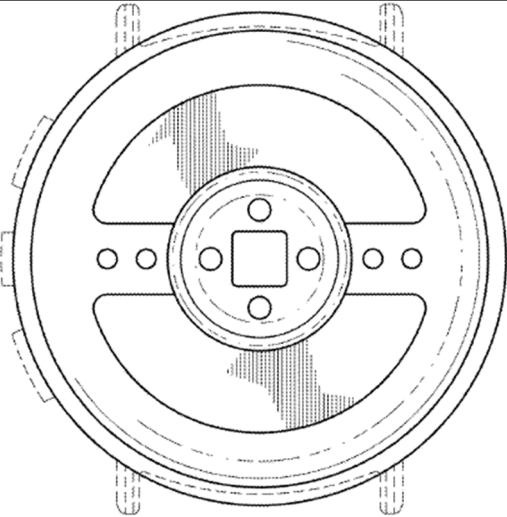
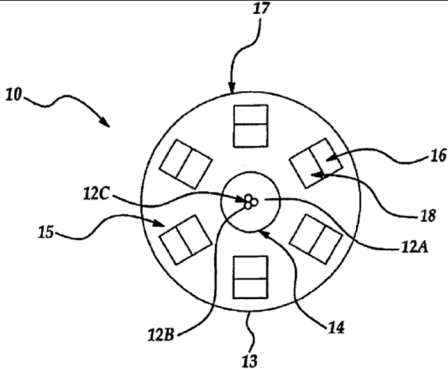
Fong, Mendelson, and Bushnell creates a design with the same overall visual appearance as the claimed Apple Watch sensor design. *Id.*

2. The Challenged Claim Would Have Been Obvious Over Fong in View of Mendelson and Bushnell

The Challenged Claim would have been obvious to a DOSA over Fong combined with Mendelson and Bushnell.

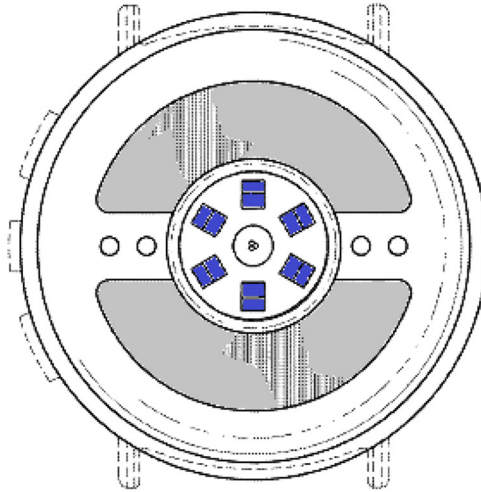
a. Mendelson and Bushnell Are Secondary References

The following visual comparison demonstrates that Mendelson’s sensor design is so related to Fong that Mendelson is a proper secondary reference.

Fong (Primary)	Mendelson (Secondary)
	
EX1008, FIG. 4	EX. 1011, FIG. 7

EX1003 ¶¶121-122. Fong’s design includes arc-shaped electrodes surrounding a central PPG sensor, which has a circular array of circles and a central rectangular photodiode. *Supra* §VI.A.3. Mendelson is related to Fong because it discloses a suitable sensor for Fong’s design. EX1011, 1:42-61; EX1014 ¶94; EX1003 ¶122.

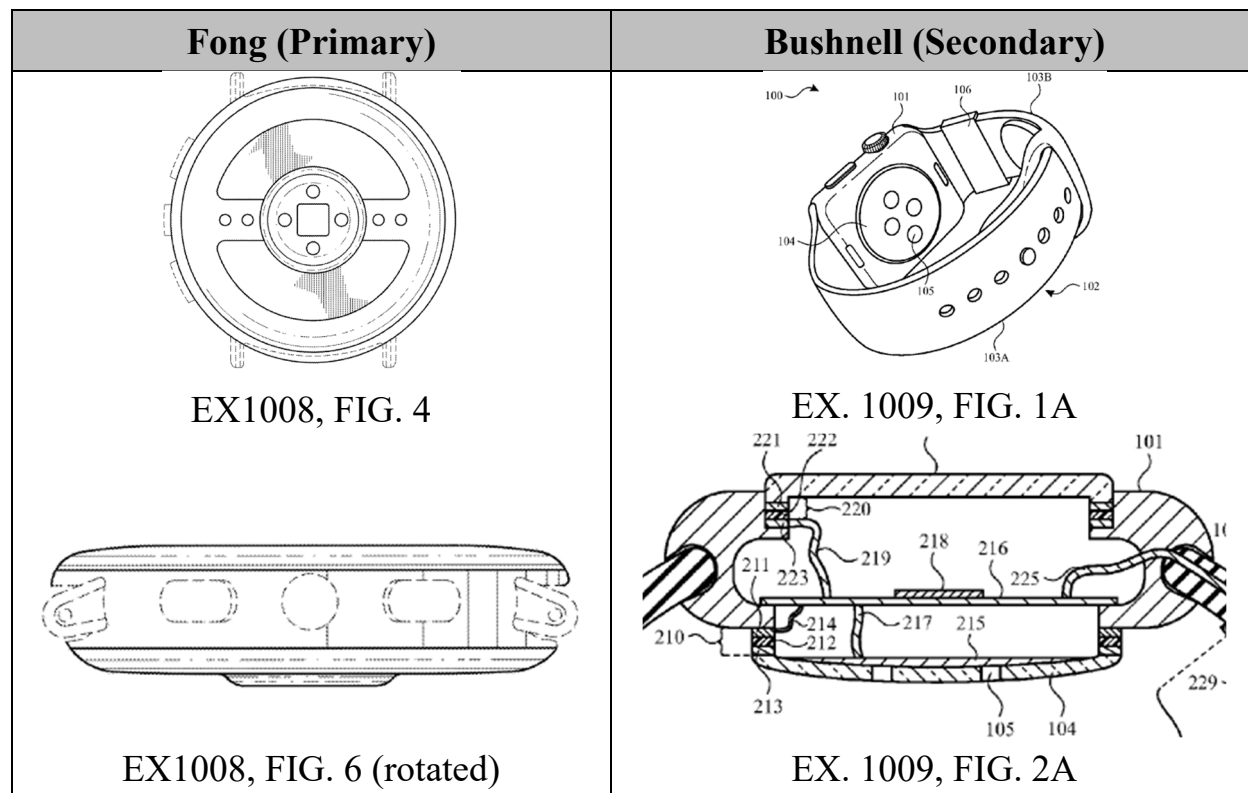
Indeed, Mendelson’s sensor has a circular shape especially suited for the available area between Fong’s arc-shaped electrodes, as shown in the composite figure below.



EX1008, FIG. 4 (combined with EX1011, FIG. 7); EX1003 ¶122. The designs are also related because the prior art suggested combining wearable devices like Fong with known PPG sensors. EX1006, 15:9-18; EX1007 ¶41; EX1003 ¶122. The designs are further related because Fong and Mendelson’s PPG sensors require the same basic components. *Supra* §§VI.A.5, VI.D.1.c; EX1003 ¶122. Additionally, the designs are related because both include a symmetrical circular array of simple geometric shapes on a circular PPG sensor, as shown above. EX1003 ¶122.

Accordingly, in view of the relatedness and similarity of the designs, the appearance of Mendelson’s FIG. 7 sensor would have suggested the application of its features, including its circular array of rectangular photodiodes, to the design of Fong’s PPG sensor. *Id.* Thus, Mendelson is an appropriate secondary reference. *Id.*

Moreover, the below visual comparison demonstrates that Bushnell’s sensor design is so related to Fong that Bushnell is a proper secondary reference.



EX1003 ¶123. As shown above, Fong’s wrist-worn device has arc-shaped electrodes, a central PPG sensor, and a circular surface protruding from the back of the device. EX1008, FIGS. 2, 4; EX1016, 2-3.

Bushnell is so related to Fong because it discloses a suitable design for Fong’s device. As shown above, both references concern a circular surface that protrudes from the back of the wrist-worn device and housing the device’s sensors. EX1008, FIGS. 2, 4-8; EX1009, FIGS. 1-7; EX1003 ¶124. The similarities between the convex curvature and overall circular shape of Bushnell’s housing component 104

and the sensor surface of Fong would have suggested using Bushnell’s design with Fong’s device. *Id.* Bushnell and Fong’s designs are also related because both have electrodes and a central PPG sensor incorporated in a protruding surface. EX1008, FIGS. 2, 4-8; EX1009 FIGS. 1-7, ¶¶40, 48, 71, 74; EX1003 ¶124; EX1014 ¶¶75-76. The designs are further related because the prior art (*see, e.g.*, EX1006, 15:9-18; EX1007 ¶41) suggested combining wearable devices like Fong with known PPG sensor designs, which Bushnell discloses. EX1009 FIGS. 1-2, ¶48; EX1003 ¶124. Fong and Bushnell’s designs are also related because their PPG sensors necessarily include the same basic components (e.g., light source, light detector(s)). *Supra* §VI.B.1.c; EX1003 ¶124.

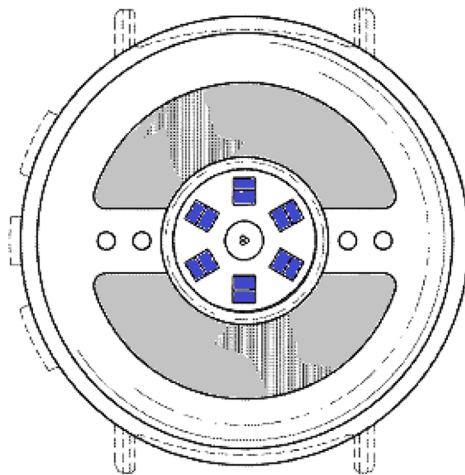
Thus, in view of the relatedness and similarity of the designs, the appearance of Bushnell’s design would have suggested the application of its features, including its convex housing component, to the design of Fong’s device. EX1003 ¶124. Bushnell is thus an appropriate secondary reference. *Id.*

b. The Challenged Claim Would Have Been Obvious Over Fong, Mendelson, and Bushnell

A DOSA would have been motivated to combine Fong with Mendelson’s PPG sensor and Bushnell’s convex housing component, as explained below.

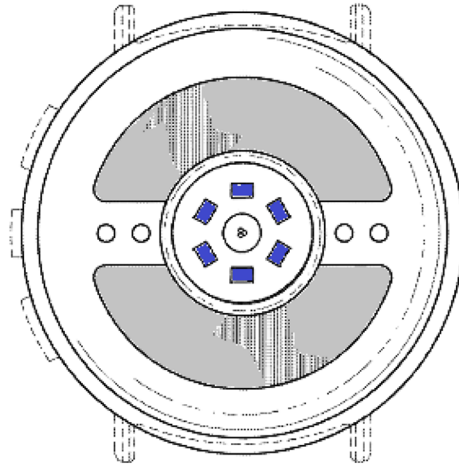
Mendelson: Combining Mendelson’s sensor design with Fong was a known change that was suggested by the prior art. *Supra* §VI.B.2.b; EX1003 ¶125.

A DOSA would have been motivated to use Mendelson’s sensor in place of Fong’s PPG sensor. First, the prior art expressly suggests such a combination. EX1006, 15:9-18; FIGS. 1F-2A; EX1007 ¶¶41-42, FIGS. 3-4; EX1003 ¶126. Second, the relatedness of Mendelson’s circular sensor to the available circular area of Fong’s design, *supra* §VI.D.2.a, would have suggested their combination to a DOSA, as shown below.



Fong (EX1008, FIG. 4) combined with Mendelson (EX1011, FIG. 7)

EX1003 ¶126. Third, improving Fong’s PPG sensor accuracy would have motivated this combination. *Supra* §VI.B.2.b; EX1014 ¶95; EX1003 ¶126. Fourth, a DOSA would have known that, unlike Fong’s central square photodiode, Mendelson’s circular array of photodiodes is more visually consistent with the surrounding circular shapes of Fong’s device. EX1008, FIGS. 3-4; EX1003 ¶126. Fifth, a DOSA would have been motivated to use one of Mendelson’s six-photodiode arrays in Fong’s device, *supra* §VI.B.2.b, as shown below.

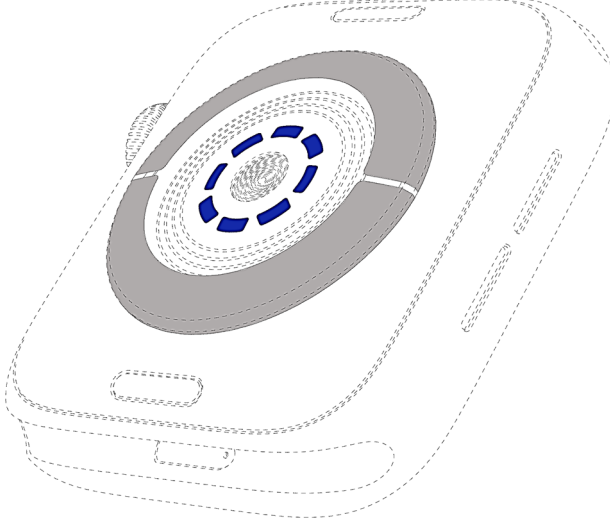
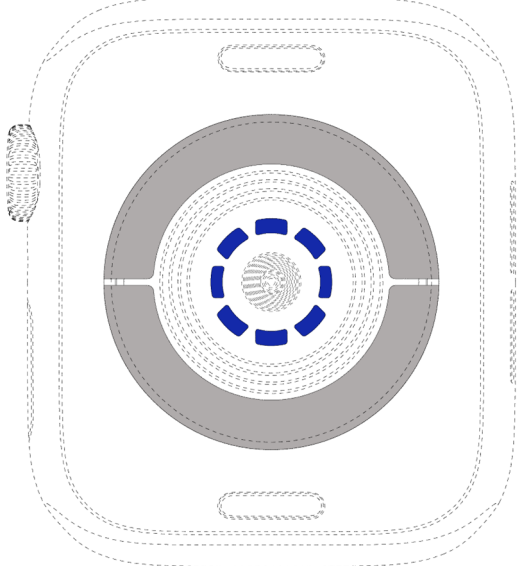


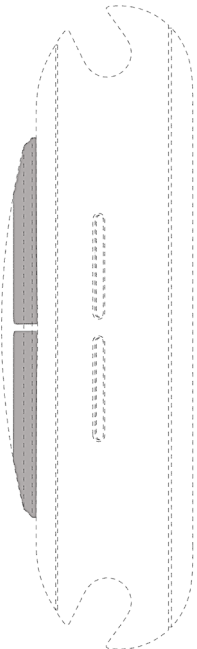
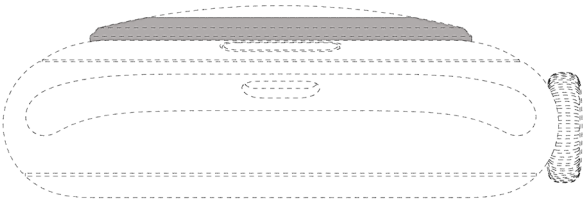
Fong combined with Mendelson’s Six-Photodiode Array

EX1008, FIG. 4; EX1011, FIG. 7, 4:1-62, 9:22-34; EX1003 ¶126. And sixth, the differences between the six straight rectangle-shaped photodiodes shown above and the claimed design were known changes that a DOSA would have been motivated to make. *Supra* §VI.B.2.b; EX1003 ¶126.

Bushnell: Combining Bushnell’s convex housing component 104 with Fong would have been a change that was well within a DOSA’s capabilities. *Supra* §VI.C.2.b; EX1003 ¶127. A DOSA would have been motivated to combine Bushnell’s convex housing component (including its chamfered and vertical edges) with Fong’s sensor, as explained above. *Supra* §VI.C.2.b; EX1014 ¶¶99-100; EX1003 ¶127. And any differences between the proposed combination (Fong with Mendelson and Bushnell) and the claimed design would have been changes taught by the prior art, as explained above. *Supra* §VI.B.2.b; EX1003 ¶127.

Accordingly, a DOSA would have been motivated to combine Fong with Mendelson’s FIG. 7 sensor and Bushnell’s convex housing component 104 to create a sensor with the same overall visual appearance as the claimed design, as shown below. EX1003 ¶128.

D’842 Patent	Fong Combined with Mendelson and Bushnell
 FIG. 2	
 FIG. 4	

D’842 Patent	Fong Combined with Mendelson and Bushnell
 FIG. 5	
 FIG. 7	

Thus, the Apple Watch sensor design claimed by the D’842 Patent would have been obvious to a DOSA over Fong, Mendelson, and Bushnell. *Id.*

VII. SECONDARY CONSIDERATIONS

Secondary considerations should be considered if present, but do not control an obviousness conclusion, particularly where, as here, a strong *prima facie* showing of obviousness exists. *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). Masimo reserves the right to respond to any secondary

considerations set forth by Apple in this proceeding. In parallel litigation, Apple alleged that Masimo’s W1 watch copied the claimed design. EX1045, 14. But the W1 watch was independently developed by Masimo and does not embody the claimed design. *Id.*, 21-23. Apple also alleged that Apple Watches’ commercial success and praise supports the D’842 Patent’s validity. EX1046 ¶¶145-152. But Apple failed to establish nexus between the success or praise of its Watches in general and the D’842 Patent’s specific design—arc-shapes and rectangles on the back of the Watch. *Id.*; *supra* §III.A. Indeed, “no nexus exists” because the claimed design was present in the prior art. *Tokai Corp. v. Easton Enterprises, Inc.*, 632 F.3d 1358, 1369-70 (Fed. Cir. 2011); *supra* §VI. Accordingly, Apple’s secondary considerations “evidence” does not outweigh the strong *prima facie* case of obviousness demonstrated above.

VIII. CONCLUSION

For the reasons set forth in this Petition, Masimo has shown a reasonable likelihood of prevailing in showing that the Challenged Claim would have been obvious. Accordingly, Masimo respectfully requests that the Board institute IPR and cancel the Challenged Claim as invalid.

IPR Petition – D947,842
Masimo Corp. v. Apple Inc.

Respectfully submitted,

KNOBBE, MARTENS ,OLSON & BEAR, LLP

Dated: March 9, 2023

/Douglas B. Wentzel/

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Customer No. 64,735

Attorney for Petitioner Masimo Corporation

CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), Counsel for Petitioner Masimo Corporation hereby certifies that this document complies with the type-volume limitation of 37 C.F.R. § 42.24(a). According to word-processing system used to prepare this document, the document contains approximately 13,590 words, including any statement of material facts to be admitted or denied in support, and excluding the table of contents, table of authorities, mandatory notices under § 42.8, exhibit list, certificate of service or word count, or appendix of exhibits or claim listing.

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: March 9, 2023

/Douglas B. Wentzel/
Douglas B. Wentzel (Reg. No. 74,897)
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Attorney for Petitioner Masimo Corporation

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the date below a copy of this **PETITION FOR INTER PARTES REVIEW OF U.S. PATENT NO. D947,842, PETITIONER’S POWER OF ATTORNEY, AND EXHIBITS 1001-1009, 1011, 1014-1027, 1029-1050** were served by FedEx on the Patent Owner at the correspondence address of record for the subject patent as follows:

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
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WASHINGTON, DC 20005

Dated: March 9, 2023

By: /Douglas B. Wentzel/
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