

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NATUS MEDICAL INC., NATUS NEUROLOGY INC.,
EMBLA SYSTEMS LLC, and EMBLA SYSTEMS LTD.,
Petitioner,

v.

NOX MEDICAL EHF,
Patent Owner.

Case IPR2016-01822
Patent 9,059,532 B2

Before ERICA A. FRANKLIN, SUSAN L. C. MITCHELL, and
AMANDA F. WIEKER *Administrative Patent Judges.*

MITCHELL, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. *Background*

Petitioner Natus Medical Inc., Natus Neurology Inc., Embla Systems LLC, and Embla Systems Ltd. (collectively, “Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–9 and 13 (the “challenged claims”) of U.S. Patent No. 9,059,532 B2 (Exhibit 1001, “the ’532 patent”). See 35 U.S.C. §§ 311–319. Patent Owner Nox Medical Ehf (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

We have authority to determine whether to institute an *inter partes* review under 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a). To institute an *inter partes* review, we must determine that the information presented in the Petition shows “a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). For the reasons set forth below, we conclude that Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of the challenged claims of the ’532 patent. Therefore, we institute an *inter partes* review for claims 1–9 and 13 of the ’532 patent on the ground identified in the Order section of this Decision.

B. *Related Proceedings*

The parties indicate that the ’532 patent was asserted against Petitioner in *Nox Medical Ehf. v. Natus Neurology Inc.*, Civ. Action No. 15-709-RGA (D. Del. 2015). Pet. 1; Paper 5, 2.

C. *The ’532 Patent (Ex. 1001)*

The ’532 patent involves a belt connector for use on a human or animal that electrically connects an electrode belt to a biometric device for measuring biosignals, such as cardiographic measurements, or for

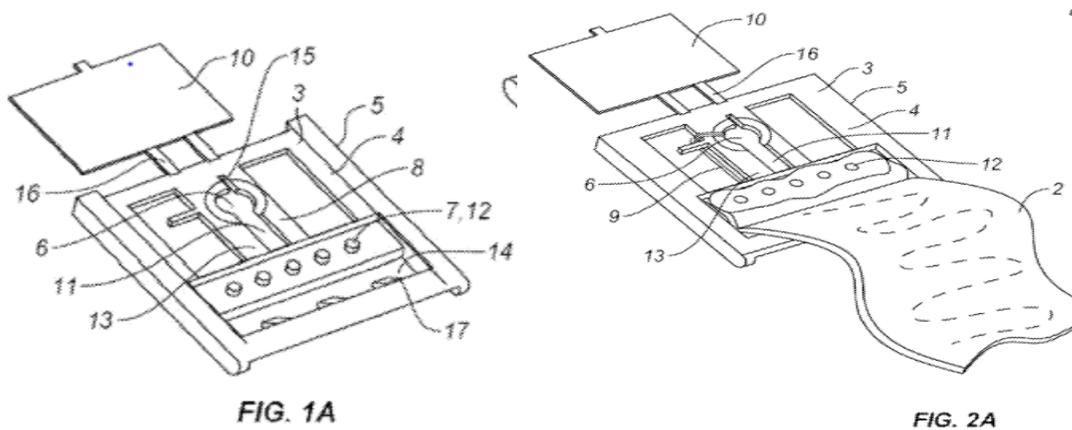
performing respiratory inductive plethysmography. *See* Ex. 1001, Abst., 1:5–8, 22–24, 2:20–23. Such a belt connector is preferably made from one single piece of “a molded plastic frame having a front side and a rear side, the frame having a receiving hole, having radial flexibility to function as a female snap button fastener for receiving and fastening on a front side of the frame a male snap protrusion.” *Id.* at 1:24–32. The radial flexibility is further described as achieved by one or more slots formed by one or more elongated members “having flexibility transverse to its longitudinal axis (e.g. by being sufficiently thin), thus imparting flexibility to the width of the hole.” *Id.* at 3:6–10.

The ’532 patent further describes

fastening means for fastening to the frame a belt end of said electrode belt, and a member adjacent to said snap fastener receiving hole to engage an electrode wire end electrically connected to said belt such that said wire end is in electrical contact with said hole, either by extending into the hole or coming in electrical contact e.g. through a bridging conductor, with a conducting male snap fastener inserted in said receiving hole.

Id. at 1:33–40, *see id.* at 3:16–19.

Figures 1A and 2A, set forth below, and their descriptions as set forth in the ’532 patent provide further elucidation concerning the claimed electrode belt and belt connector.



Figures 1A and 2A depicted above show different embodiments of the belt connector. *See id.* at 4:55–57, 64–65. Specifically, Figures 1A and 2A show the following:

[A] biometric belt connector (1) is electrically connected to an electrode belt (2). The connector (1) may comprise a molded plastic frame (3) having a front side (4) and a rear side (5), a shaped circular or semi-circular hole (6) with radial flexibility to function as a female snap button fastener, fastening means (7) which comprise a ridge member (12). . . . The frame (3) may include two members (8, 13) adjacent to said hole (6), the two members (8, 13) forming a slot (11) extending from the hole and a second slot (15) across from the first slot (11).

The elongated members and slots provide the hole with sufficient flexibility (i.e. elasticity in the width of the hole) to function as a female snap fastener. The member (13) also functions to engage an electrode wire end (9) from the belt end electrically connecting the belt with the hole and which comes in electrical contact with a conducting male snap fastener inserted in said hole. The connector further comprises a belt slot (14) with teeth members or pins (17), through which slot a loop of said belt (2) can be inserted such that it is held by the teeth/pins when pulled back, to adjust the length of the belt.

The connector further comprises a shield member (10) which may be molded in one piece with the frame (3) and joined to the frame with foldable hinges (16) such that the

shield member can be folded over to cover the rear side of the hole and wire end.

Id. at 5:4–33 (emphases omitted).

D. Illustrative Claims

Of the challenged claims, claim 1 is the only independent claim of the '532 patent. The remaining challenged claims 2–9 and 13 depend directly or indirectly from claim 1. Claim 1 is illustrative of the challenged claims and recites (with pertinent portions emphasized):

1. An electrode belt and a belt connector for electrically connecting a conductor of the electrode belt to a male portion of a snap connector electrode connected to a biometric device, the belt connector comprising:

a molded plastic frame including a *receiving hole having radial flexibility*, the receiving hole being configured to function as a female snap button fastener for receiving and fastening the frame to a protrusion of the male portion of the snap connector electrode,

a fastener configured to fasten the frame to a first end of said electrode belt, and

an engaging member adjacent to said receiving hole, the engaging member engaging the conductor of the electrode belt *by the conductor passing through the receiving hole while being wrapped around the engaging member, such that when the male portion of the snap connector electrode penetrates the receiving hole, the conductor is forced into physical contact with at least a lateral surface of the male portion of the snap connector electrode,*

wherein radial flexibility of said receiving hole is achieved by one or more slot extending from said hole, and *wherein said receiving hole and one or more slot are formed by at least one elongated member having*

flexibility transverse to its longitudinal axis, thus imparting flexibility to the width of the hole.

Ex. 1001, 5:36–60 (emphases added).

E. The Asserted Grounds of Unpatentability

Petitioner contends that the challenged claims are unpatentable based on the following grounds. Pet. 9, 18, 28, 35, 43.

Reference(s)	Basis	Claims Challenged
Hermannsson ¹	§ 102(e)	1–3, 6–9, and 13
McIntire ² and Kristbjarnarson ³ or Linville ⁴	§ 103(a)	1–5, 9, and 13
McIntire and Kristbjarnarson	§ 103(a)	6–8
McIntire and Hermannsson	§ 103(a)	1–9 and 13
Harhen ⁵ and Hermannsson	§ 103(a)	1, 6–9, and 13
Gobron ⁶ and Williams, ⁷ Lawrence, ⁸ or Sommer ⁹	§ 103(a)	1–3

¹ Kormakur Hermannsson, U.S. Patent No. 8,025,539 B2 (Sept. 27, 2011) (Ex. 1017) (“Hermannsson”).

² James F. McIntire and Brian Erik Haug, U.S. Patent No. 8,251,736 B2 (Aug. 28, 2012) (Ex. 1018) (“McIntire”).

³ Helgi Kristbjarnarson et al., U.S. Patent No. 6,461,307 B1 (Oct. 8, 2002) (Ex. 1012) (“Kristbjarnarson”).

⁴ David James Linville, Pub. No. US 2006/0258948 A1 (Nov. 16, 2006) (Ex. 1013) (“Linville”).

⁵ Robert P. Harhen et al., U.S. Patent No. 5,326,272 (July 5, 1994) (Ex. 1010) (“Harhen”).

⁶ Stephane Gobron et al., Pub. No. US 2007/0167089 A1 (July 19, 2007) (Ex. 1014) (“Gobron”).

⁷ Paul F. Williams, U.S. Patent No. 937,130 (Oct. 19, 1909) (Ex. 1003) (“Williams”).

⁸ Milton H. Lawrence, U.S. Patent No. 1,001,054 (Aug. 22, 1911) (Ex. 1004) (“Lawrence”).

⁹ Friedrich Sommer, U.S. Patent No. 3,092,759 (June 4, 1963) (Ex. 1007) (“Sommer”).

Petitioner also asserts additional art in further combination with each challenge set forth in the table above challenging claim 1. Specifically, Petitioner asserts: (1) claims 4 and 5 are unpatentable as obvious in further view of Archer¹⁰ or Caldecott,¹¹ (2) claims 6 through 8 are unpatentable as obvious in further view of Uehara,¹² Abizaid,¹³ or Orewiler;¹⁴ and (3) claims 9 and 13 are unpatentable as obvious in further view of Kristbjarnarson or Linville. Pet. 51, 56, 61.

Petitioner also relies also on the Declaration of Dr. Justin C. Williams (Ex. 1002). Pet. 2–63.

II. ANALYSIS

A. *Claim Interpretation*

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016). Under the broadest reasonable interpretation approach, claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the

¹⁰ Michael F. Archer, U.S. Patent No. 4,671,591 (June 9, 1987) (Ex. 1008) (“Archer”).

¹¹ Steven Caldecott, Pub. No. WO 2008/102140 A1 (Aug. 28, 2008) (Ex. 1015) (“Caldecott”).

¹² Ryoichiro Uehara and Yoshinobu Takahashi, U.S. Patent No. 6,148,486 (Nov. 21, 2000) (Ex. 1011) (“Uehara”).

¹³ Alkoury A. Abizaid, U.S. Patent No. 1,115,459 (Oct. 27, 1914) (Ex. 1005) (“Abizaid”).

¹⁴ Benjamin F. Orewiler, U.S. Patent No. 1,193,050 (Aug. 1, 1916) (Ex. 1006) (“Orewiler”).

art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner offers an express construction of two claim terms, “flexibility” and “passing through the receiving hole.” Pet. 7–8. Petitioner states that “flexibility” is “the ability of a part (related to its geometry and material properties) to elastically deform under an applied stress.” Pet. 7 (citing Ex. 1002 ¶ 24). Patent Owner does not dispute this interpretation at this stage of the proceeding. Prelim. Resp. 5. We find, however, that we need not provide an express construction of “flexibility” for purposes of this Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (stating that claim terms only need to be construed to the extent necessary to resolve the case).¹⁵

Petitioner characterizes the claim term “passing through the receiving hole” as “self-evident” and “without any limitation as to direction or extent.” Pet. 8 (citing Ex. 1002 ¶ 59). Petitioner asserts that the only requirement for the conductor “passing through the receiving hole” is for it to “make physical (and thus electrical) contact with a male electrode inserted into the receiving hole.” Pet. 8 (citing Ex. 1002 ¶ 59; Ex. 1001, 5:49–54, 3:14–24). Patent Owner disagrees with Petitioner’s construction. Prelim. Resp. 5.

Patent Owner asserts that Petitioner’s construction is too broad, not taking into account that the wire must pass *through* the receiving hole. *Id.* at 33–35. Patent Owner asserts that the ordinary meaning of “passing through

¹⁵ Although not providing an express construction, Patent Owner also addresses the meaning of “elongated member” in its discussion of Figure 14 of McIntire. *See* Prelim. Resp. 5, 47–48. We discuss this claim term when we address the teachings of McIntire. *See infra* Section II.D.4.

the receiving hole” requires “the wire conductor to enter the receiving hole and then exit the receiving hole.” *Id.* at 33. Patent Owner concludes that a “conductor wire that comes into contact with a male electrode inserted into the receiving hole but that does not pass ‘through’ the receiving hole does not meet the language of claim 1.” *Id.* at 35.

On the record before us, we agree with Patent Owner that Petitioner’s construction is too broad. The claim language itself requires the conductor to pass *through* the receiving hole while being wrapped around the engaging member, “such that when the male portion of the snap connector electrode *penetrates* the receiving hole, the conductor is forced into *physical contact* with at least a *lateral surface* of the male portion of the snap connector electrode.” Ex. 1001, 5:49–54 (emphases added). Therefore, the claim language itself requires that the conductor penetrate the receiving hole so that it at least can come into physical contact with the side of the male portion of the snap connector electrode.

The Specification of the ’532 patent also supports this view. The ’532 patent describes an engaging member, such as member 13 in Figures 1A and 2A, adjacent to the receiving hole where a wire, such as 9 in Figure 1A and 2A, “is in electrical contact with said hole, either by *extending into the hole* or coming in electrical contact e.g. through a bridging conductor, with a conducting male snap fastener inserted in said receiving hole.” Ex. 1001, 1:36–40, 3:14–19 (emphasis added). The ’532 patent also describes an embodiment where the wire end is crimped onto the engaging member. *Id.* at 3:19–24.

Thus, we conclude on this record that “passing through the receiving hole” requires at least the wire conductor to penetrate the receiving hole to a

degree to have physical contact with the lateral surface of the male snap fastener. On the record before us, we do not adopt Patent Owner's construction requiring the wire conductor to "exit the receiving hole."

B. Principles of Law

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008); *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). "A reference anticipates a claim if it discloses the claimed invention such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention." *In re Graves*, 69 F.3d 1147, 1152 (Fed. Cir. 1995) (internal citation and emphasis omitted). Moreover, "it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom." *In re Preda*, 401 F.2d 825, 826 (CCPA 1968).

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

evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

We are mindful that the level of ordinary skill in the art also is reflected by the prior art of record. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

We analyze the asserted grounds of unpatentability in accordance with the above-stated principles.

C. Anticipation by Hermannsson

Petitioner contends that claims 1–3, 6–9, and 13 of the '532 patent are unpatentable under 35 U.S.C. § 102(e) as anticipated by Hermannsson. *See* Pet. 9–18. Patent Owner responds that Petitioner's challenge fails because Hermannsson does not teach an “elongated member” with “flexibility transverse to its longitudinal axis” by which the “receiving hole” and “slot” are formed. Prelim. Resp. 20–21. Patent Owner also asserts that Petitioner has failed to show how Hermannsson teaches a conductor that “passes through the receiving hole.” Prelim. Resp. 21–23.

We agree with Patent Owner that Petitioner has failed to show that it is likely to prevail in its challenge that claims 1–3, 6–9, and 13 are anticipated by Hermannsson.

1. *Hermannsson (Ex. 1017)*

Hermannsson describes a biometric belt connector for electrically connecting an electrode belt to a biometric device. Ex. 1017, Abst. Figure 1a of Hermannsson, shown below, illustrates the front element of the belt connector before assembly. *Id.* at 1:43–44.

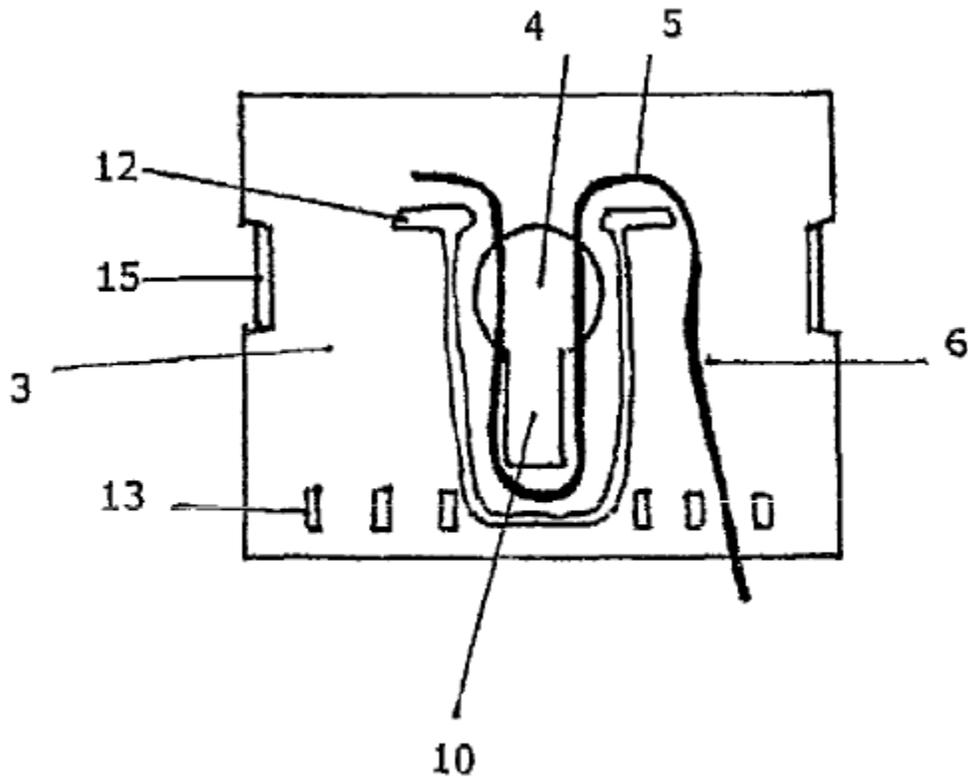


Figure 1a depicted above shows a conductor or wire loop 5, where “[p]roper placement and location of the wire loop 5 is guided by an extending ridge 12 molded in the element piece.” *Id.* at 3:21–25.

Specifically, Figure 1a shows

extending ridge 12 comprises two small wings 19 (shown in FIGS. 3a, 3b and 5) that hold the wire loop [5] in suitable proximity to the hole. The loop is shaped such that two parallel pieces thereof lie over the hole 4, such that these loop sections will be exposed and visible from the outside through the hole, as shown in FIG. 2. An extended hole 10 extends from the main hole 4, forming a keyhole-like shape.

Id. at 3:24–31 (emphasis omitted).

Hermannsson also states that the male part of the fastener is a circular protrusion that “presses against the wire loop, ensuring that the parallel wire legs forming the female snap fastener, are held

substantially in the same plane within the assembled belt connector.”
Id. at 3:49–53.

2. Analysis

Petitioner asserts that the described ridge and wings of Hermannsson are “engaging members adjacent the receiving hole that engage the electrode belt conductor, which wraps around them.” Pet. 12–13 (citing Ex. 1017, 3:22–29, Figs. 1a, 5). Petitioner also refers to Hermannsson’s description that the conducting wire will be “exposed and visible” through the receiving hole, and that part of the wire loop will come into contact with the male part of the fastener when it is inserted into the receiving hole, forming an electrical connection. *Id.* at 13. Petitioner concludes, based on the testimony of Dr. Williams, that “[a]ccordingly, the wire loop of Hermannsson necessarily ‘passes through’ the receiving hole; if it did not, electrical connection with the male snap fastener inserted in the hole would not be possible.” *Id.* (citing Ex. 1002, 61) (quoting App. 5).¹⁶

Dr. Williams testifies that

Hermannsson teaches a conductor in the same “hole” that the male snap fastener is inserted into—i.e., a conductor passing through the same hole that receives the male snap electrode. A PHOSITA knew and understood that the device of Hermannsson would not serve its intended function if the conductor of the belt was not in physical, and therefore electrical contact, with a male snap electrode connected to the belt connector. Thus, as Hermannsson teaches, the conductor

¹⁶ Petitioner has numbered Dr. Williams’ Declaration and attached appendices that include detailed claim charts with consecutive numbers. We will follow Petitioner’s numbering convention.

of Hermannsson passes through the same hole that receives a male snap electrode.

Ex. 1002, 61.

Patent Owner responds that the conductor in Hermannsson does not pass through the receiving hole. Prelim. Resp. 21–23. Patent Owner explains that “Hermannsson clearly teaches that wire loop 5 lies ‘in proximity to’ and ‘over’ the hole 4 such that it is ‘exposed and visible from outside’ the hole.” *Id.* at 23. Therefore, Patent Owner concludes that “Hermannsson actually teaches that the wire loop 5 lies *in a plane parallel to* front element 3 and does not pass through the hole 4” *Id.* at 22.

We agree with Patent Owner and find that Hermannsson does not teach the limitation of the conductor passing through the receiving hole because the wire conductor does not appear to penetrate the receiving hole, much less to a degree to have physical contact with the lateral surface of the male snap fastener as required by all challenged claims. *See* Ex. 1001, 5:47–54. Hermannsson describes a loop of wire that lies *over* the receiving hole, and remains in substantially the same plane of the belt connector, when engaged with the male part of the fastener. *See* Ex. 1017, 3:25–30, 49–53. Hermannsson does not indicate that the wire loop ever penetrates the receiving hole or comes into physical contact with a lateral surface of the male portion of the snap connector electrode to any degree. Petitioner’s reliance on an established electrical connection is not sufficient to demonstrate the required “passing through.”

Therefore, we find that Petitioner has not shown a reasonable likelihood that it will prevail in showing that claims 1–3, 6–9, or 13 are anticipated by Hermannsson.¹⁷

D. Obviousness over McIntire in Combination with Kristbjarnarson or Linville in Further View of Archer, Caldecott, Uehara, Abizaid, or Orewiler

Petitioner asserts that claims 1–5, 9, and 13 are unpatentable under 35 U.S.C. § 103 as obvious over McIntire in combination with either Kristbjarnarson or Linville. Pet. 35. Petitioner also asserts that claims 6–8 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of McIntire and Kristbjarnarson. *Id.* Petitioner also asserts that Archer or Caldecott, which teach well-known technology related to protective coatings and insulating films, when added to this challenge individually, also render claims 4 and 5 unpatentable as obvious. Pet. 51–55. Petitioner further asserts that Uehara, Abizaid, or Orewiler, which all teach well-known methods of belt fastening and adjusting, when added to this challenge individually, also render claims 6–8 unpatentable as obvious. *Id.* at 56–61.

As support, Petitioner provides detailed explanations as to how each claim limitation is met by the references and rationales for combining the references, as well as a declaration of Dr. Williams (Ex. 1002). Pet. 35–42.

¹⁷ Patent Owner also questions whether Petitioner has shown sufficiently that Hermannsson teaches the claimed “elongated member,” a “longitudinal axis” of the “elongated member,” how the receiving hole and slot are “formed by” that “elongated member,” or how flexibility transverse to the longitudinal axis of that elongated member “impart[s] flexibility to the hole.” Prelim. Resp. 20–21. As we find that Hermannsson does not teach a conductor “passing through the receiving hole,” we need not reach these issues.

Patent Owner asserts that Petitioner fails to show a reasonable likelihood of success that these claims are unpatentable as obvious over these combinations. Prelim. Resp. 36–51.

We have reviewed the parties’ contentions and supporting evidence. Given the evidence on this record, we determine that Petitioner has shown a reasonable likelihood of prevailing on its assertion that claims 1–9 and 13 are unpatentable as obvious over the combination of McIntire and Kristbjarnarson or Linville in further view of Archer, Caldecott, Uehara, Abizaid, or Orewiler. Our analysis focuses on the deficiencies alleged by Patent Owner as to the claims.¹⁸

1. *McIntire (Ex. 1018)*

McIntire describes several embodiments of a connector assembly for connecting an electrical lead to the electrical contact of an electrode for taking, for example, electrocardiograph measurements. Ex. 1018, Abst., 1:5–47. One such embodiment is set forth in Figure 14 of McIntire depicted below.

¹⁸ Patent Owner does not dispute at this time Petitioner’s characterization of the teachings of Kristbjarnarson or Linville in combination with the teachings of McIntire, *see* Prelim. Resp. 1–3, *see generally* Pet. 36–51, or the teachings of the additional references to Archer, Caldecott, Uehara, Abizaid, or Orewiler. *See* Prelim. Resp. 54 (stating none of grounds 6–8 are likely to succeed based on reasoning for ground 1–5).

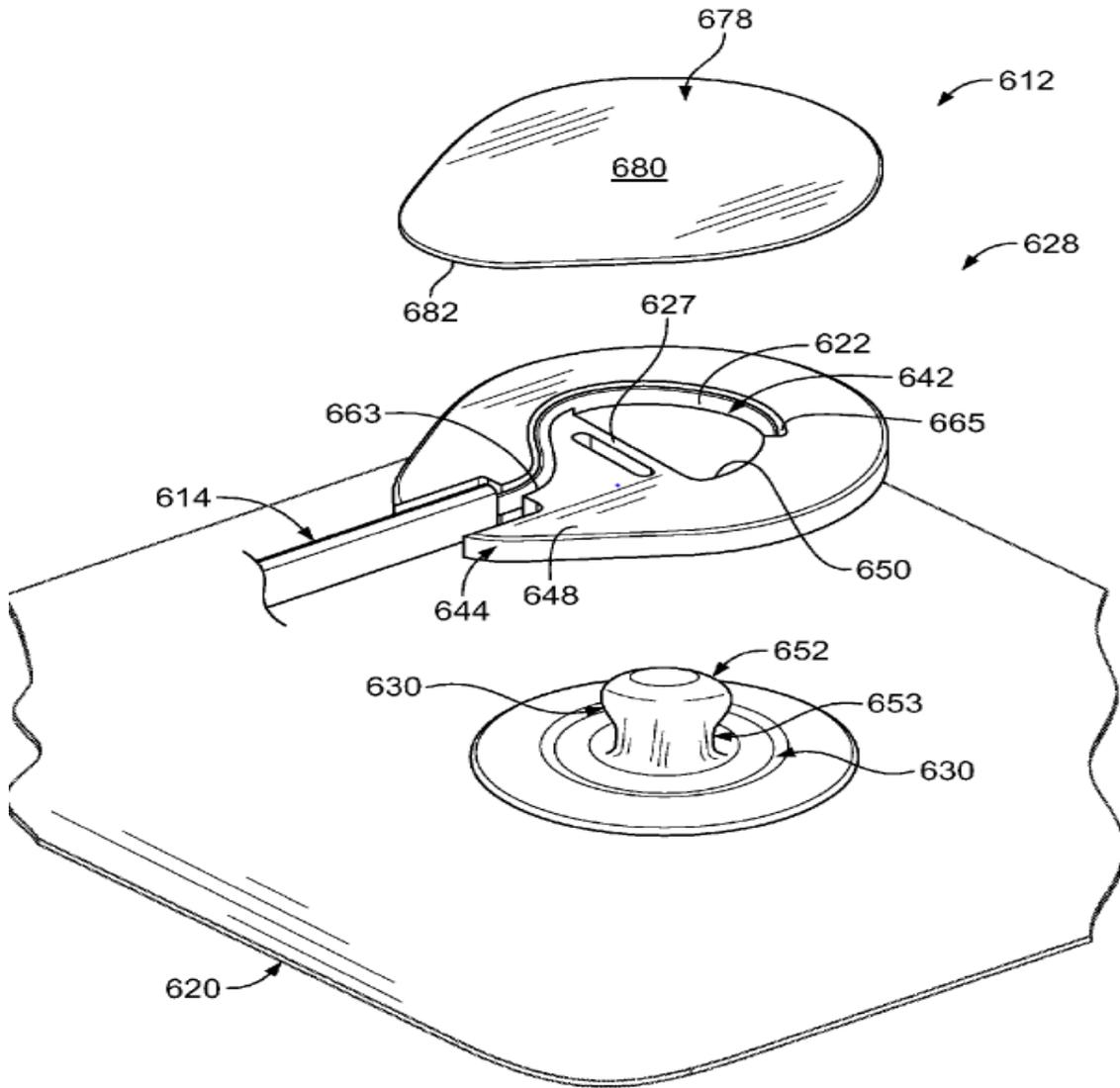


FIG. 14

Electrode assembly 612 shown in Figure 14 above includes retention plate 644 with body 648 having opening 650 extending therethrough and optional cover sheet 678. *Id.* at 12:16–19. McIntire further describes this embodiment as follows.

The opening 650 has a size and shape that enables the opening 650 to receive an end portion 636 of the electrical contact 630 therethrough. In the exemplary embodiment, the opening 650 is sized smaller than an enlarged-diameter portion 652 of the electrical contact 630. The portion of the retention plate body

648 adjacent the opening 650 is sufficiently resilient such that the size of the opening 650 may deform to allow the enlarged-diameter portion 652 of the electrical contact 630 to be forced through the opening 650. For example, in the exemplary embodiment a portion of the retention plate body 648 that defines a portion of the opening 650 is provided as a flexible beam 627. Once the enlarged-diameter portion 652 has passed through the opening 650, the beam 627, and thereby the opening 650, returns toward the undeformed size to engage a reduced-diameter portion 653 of the electrical contact 630, such that in the exemplary embodiment the body 648 of the retention plate 644 connects to the electrical contact 630 in a snap-fit connection.

The body 648 of the retention plate 644 includes a channel 663 that holds an end portion 642 of the electrical conductor 622 therein. A portion of the end portion 642 is held between, and in engagement with, the electrical contact 630 and a wall 665 of the retention plate body 648 that defines the opening 650.

Id. at 12:19–43 (emphases omitted).

2. *Kristbjarnarson (Ex. 1012)*

Kristbjarnarson describes a disposable sensor for monitoring and measuring the respiration of a patient. *Ex. 1012, Abst.*, 3:17–19.

Kristbjarnarson also states that “[t]he disposable sensor includes at least one flexible band adapted to encircle a portion (e.g., the chest or abdomen) of the patient. A conductor strip is secured to the ribbon” in a zig-zag or other predetermined pattern. *Id.* at 3:19–24. *Kristbjarnarson*’s disposable sensor also has a connector assembly to connect and secure the free ends of the ribbon, and is “operatively coupled to the conductor strip, and is further adapted to be connected to a monitoring device.” *Id.* at 3:37–41.

3. *Linville (Ex. 1013)*

Linville describes a reusable transducer made of a woven fabric “providing a substantially flat extensible belt for encircling a portion of a patient for a wide range of patient sizes.” Ex. 1013, Abst. Linville also teaches an electrical conductor is woven directly into the fabric and has “a number and orientation of inductive turns that improves the transducer expandability and the electrical performance” *Id.* at Abst., ¶ 1. Linville also describes releasable connectors to attach the ends of the belt to secure the belt around the body of a patient and electrical connectors conductively attached to conductor ends at each end of the belt “to facilitate electrical interfacing of the transducer with inductance measurement circuitry.” *Id.* ¶ 28.

4. *Analysis*

Patent Owner asserts that Petitioner improperly uses parts of three different embodiments set forth in McIntire to establish how each limitation of the challenged claims is met without identifying how these different embodiments should be combined or providing any rational basis or reason why a person of ordinary skill would have made those combinations. Prelim. Resp. 37–42. Patent Owner concludes “[b]ecause Petitioner has failed to explain which embodiment a PHOSITA would have used as its starting point and which modifications would have been made to that embodiment in light of the other embodiments, Petitioner has failed to adequately explain its theory of obviousness.” *Id.* at 38.

Petitioner points to statements in McIntire, Kristbjarnarson, and Linville that a person of ordinary skill would be motivated to combine and reasonably expect success in combining elements of the biometric electrical

connector taught by McIntire with Kristbjarnarson's or Linville's electrode belt. *Id.* at 37. For instance, Petitioner notes that McIntire states that its teachings can be used in "any system for measuring any physiologic information," *id.* at 37 (quoting Ex. 1018, 12:66–67); that Linville states that it is "readily apparent to those skilled in the art that [Linville's device] can be adapted to other uses including . . . other fields in the life sciences and related research industries," *id.* (quoting Ex. 1013 ¶ 57); and that Kristbjarnarson states that variations and modifications of belts and belt connectors are "apparent to those skilled in the art," *id.* (quoting Ex. 1012, 8:29–30).

Petitioner also notes testimony of Dr. Williams concerning the rationale to combine the teachings of McIntire with Kristbjarnarson or Linville. *Id.* (citing Ex. 1002, 81–82, 89–90). Dr. Williams states "[c]laim 1 merely combines elements of biometric electrical connectors taught by McIntire . . . with the belt taught by Kristbjarnarson into a single entity without producing new or different functions than those separately performed by the elements." Ex. 1002, 82. Dr. Williams concludes

[a]ccordingly, it would be obvious to a PHOSITA to combine the complementary (and in no way incompatible) features of McIntire . . . with Kristbjarnarson according to known methods to result in the device meeting all the limitations of claim 1. Being no more than a combination of familiar elements according to known methods with predictable results, the claim is obvious under *KSR*. 127 S. Ct. at 1739 (2007) ("The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.").

Id.; *see id.* at 89–90 (similar statements in relation to Linville).

On this record, we agree with Petitioner and credit Dr. Williams' testimony that a person of ordinary skill would have reason to combine the known elements of McIntire with Kristbjarnarson or Linville to arrive at the challenged claims because such a combination of familiar elements was according to known methods with predictable results. Petitioner also points to market demands for low-cost, mass-producible electrode belts that can adjust to a variety of patient sizes, which McIntire seeks to meet, and a statement in McIntire that features of different embodiments of McIntire may be combined. *See* Pet. 20; Ex. 1018, 1:44–47. Specifically, McIntire states:

The embodiments are not limited to the specific embodiments described herein, but rather, components and/or steps of each embodiment may be utilized independently and separately from other components and/or steps described herein. Each component, and/or each step of one embodiment, can also be used in combination with other components and/or steps of other embodiments.

Ex. 1018, 13:10–16. Therefore, on this record, we are persuaded that Petitioner has shown sufficiently a reasonable likelihood of establishing that it would have been obvious to combine different elements of embodiments of McIntire.

Patent Owner addresses separately each embodiment of McIntire upon which Petitioner relies to establish the unpatentability of the challenged claims. Prelim. Resp. 42–51. Specifically, Patent Owner asserts that Figure 12 of McIntire is not shown to have the claimed “engaging member” or “conductor passing through the receiving hole,” Figure 13 is not shown to have the claimed “slot extending from said hole” or an “elongated member,” and Figure 14 is not shown to have an “elongated member” forming part of

the slot, a conductor “passing through the hole,” or an “engaging member” that engages the conductor. *See* Prelim. Resp. 42–51.¹⁹ Because we determine that Petitioner has presented a rationale for combining aspects of different embodiments disclosed in McIntire, Patent Owner’s arguments as to the deficiencies in each separate embodiment are not persuasive.

Even if Petitioner needed to show that one embodiment of McIntire, when combined with the teachings of either Kristbjarnarson or Linville, taught the limitations of the challenged claims, Petitioner has shown a reasonable likelihood of establishing, at least on the record before us, that the challenged claims would have been obvious. For instance, Petitioner has shown that the embodiment depicted in Figure 14 and described in McIntire, combined with the teachings of Kristbjarnarson or Linville, teaches the subject matter of the challenged claims.

As set forth above, Patent Owner asserts that Figure 14 of McIntire does not show an “elongated member” forming part of the slot, a conductor

¹⁹ Patent Owner asserts that Petitioner improperly incorporates by reference Dr. Williams’ testimony concerning Figures 13 and 14 of McIntire. Prelim. Resp. 43–46. Patent Owner notes that Petitioner, in addition to providing in the Petition a description of how Figure 12 meets this limitation, references pages of Dr. Williams’ report that explain how Figures 13 and 14 meet this limitation. *See, e.g.*, Pet. 23–25 (relying upon Figures 12–14), 40 (same). We determine that this is not an improper incorporation by reference as the alleged improper incorporation relates to evidence and not argument. *See* 37 C.F.R. § 42.6(3) (“*Arguments* must not be incorporated by reference from one document into another document.”) (emphasis added); *Research in Motion Corp. v. Multimedia Ideas LLC*, Case IPR2013-00036, slip op. at 7 (PTAB March 18, 2013) (Paper 15) (stating “factual portions of the declaration, if identified with sufficient specificity, must be considered, and argumentative portions, together with the unidentified factual portions, need not be considered”).

“passing through the hole,” or an “engaging member” that engages the conductor. *See* Prelim. Resp. 47–51. Specifically Patent Owner asserts in relation to Figure 14 of McIntire (*see supra* Section II.D.1. for Fig. 14) that “beam 627 is perpendicular to and spaced away from channel 663, does not share any boundary with channel 663, and therefore does not form any part of the channel 663.” Prelim. Resp. 48.

Patent Owner appears to require the “elongated member” of claim 1 to form channel 663; Petitioner has shown that Figure 14 of McIntire teaches this. The challenged claims require the receiving hole and slot to be formed by an elongated member with flexibility transverse to its longitudinal axis. Figure 14 of McIntire shows elongated members, formed by flexible beam 627 and *either side of the retention plate*, that impart flexibility to receiving hole 650. *See* Pet. 23–25; Ex. 1002, 73–75.

Dr. Williams testifies that

As taught by McIntire, the flexible beam 627 is adjacent to channel 663 and forms a boundary of opening 650 (*See* McIntire, fig. 14). Further, the flexible beam 627 allows opening 650 to deform or flex, such that the width of opening 650 allows a male snap fitting to force through the opening 650. (*See id.*). In addition, the structure of retention plate 644 that bounds channel 663 (a slot) includes elongate members (either side of the retention plate) that define opening 650 and a slot extending from opening 650. Further, a PHOSITA knew and understood that the flexible beam 627 as well as the rest of the structure of retention plate 644, being made of a resilient (i.e., elastic) material, has “flexibility transverse to its longitudinal axis.”

Ex. 1002, 74–75. As shown on this record, the elongated members, i.e., either side of the retention plate, bound the receiving hole 650 and a slot, channel 663.

Patent Owner also asserts that Petitioner is inconsistent and cannot explain its position for how channel 663 can be both a slot, which is the absence of material, and also be an “engaging *member*,” which must be a structural component.” Prelim. Resp. 49–50 (citing dictionary definition). We are not persuaded that Petitioner’s position is inconsistent.

Petitioner states,

In Figure 14, end portion 642 of electrical conductor 622 wraps around channel 663 formed in retention plate 644 (engaging member) adjacent to an opening 650. End portion 642 passes through opening 650 such that the conductor 642 is forced into contact with a lateral surface of male snap electrode 630 when inserted into opening 650.

Pet. 23–24 (citing Ex. 1018, Fig. 14, 12:38–43; Ex. 1002, 72–73). In the cited passage, Petitioner refers to retention plate 644 as the engaging member.

Finally, Patent Owner questions Petitioner’s showing that conductor 622 “passes through” the opening 650 as depicted in Figure 14 of McIntire because the conductor does not exit opening 650. Prelim. Resp. 51. Because, on this record, we do not interpret the claim term “passing through the receiving hole” as requiring the conductor to exit the receiving hole, i.e. opening 650, we do not find Patent Owner’s argument persuasive. *See supra* Section II.A.

For the foregoing reasons, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing on its assertion that claims 1–9 and 13 are unpatentable over the combination of McIntire and Kristbjarnarson or Linville in further view of Archer, Caldecott, Uehara, Abizaid, or Orewiler.

E. Other Asserted Grounds of Unpatentability

Petitioner also asserts the following grounds of unpatentability:

References	Basis	Claims Challenged
McIntire and Hermannsson	§ 103(a)	1–9 and 13
Harhen and Hermannsson	§ 103(a)	1, 6–9, and 13
Gobron and Williams, Lawrence, or Sommer	§ 103(a)	1–3

The Board’s rules for *inter partes* review proceedings, including those pertaining to institution, are “construed to secure the just, speedy, and inexpensive resolution of every proceeding.” 37 C.F.R. § 42.1(b); *see also* 35 U.S.C. §§ 316(b) (regulations for *inter partes* review proceedings take into account “the efficient administration of the Office” and “the ability of the Office to timely complete [instituted] proceedings”). The above-listed remaining grounds challenge the same claims as the grounds previously discussed and instituted. Therefore, we exercise our discretion and do not institute a review based on those remaining grounds for reasons of administrative necessity to ensure timely completion of the instituted proceeding. *See* 37 C.F.R. § 42.108(a).

III. CONCLUSION

After reviewing the information presented in the Petition and the Preliminary Response, as well as the evidence of record, we determine that Petitioner has established a reasonable likelihood that it will prevail in challenging claims 1–9 and 13 of the ’532 patent as unpatentable under 35 U.S.C. § 103(a).

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted on the ground that claims 1–9 and 13 are unpatentable under 35 U.S.C. § 103(a) as obvious over the combination of McIntire and Kristbjarnarson or Linville in further view of Archer, Caldecott, Uehara, Abizaid, or Orewiler;

FURTHER ORDERED that no other ground of unpatentability asserted in the Petition is authorized for this *inter partes* review; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

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