

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEURENT MEDICAL INC. & NEURENT MEDICAL LTD.
Petitioners,

v.

AERIN MEDICAL INC.,
Patent Owner.

IPR2024-00282
U.S. Patent No. 11,766,286 B2

PATENT OWNER'S NOTICE OF APPEAL

Pursuant to 35 U.S.C. §§ 141, 142, and 319, and in accordance with 37 C.F.R. §§ 90.2-90.3, Patent Owner Aerin Medical Inc. (“Aerin”) hereby appeals to the United States Court of Appeals for the Federal Circuit from the Final Written Decision of the Patent Trial and Appeal Board (“Board”) entered on July 11, 2025 in IPR2024-00282 (Paper No. 38) (“Final Written Decision”), and from all underlying findings, determinations, rulings, opinions, orders, and decisions regarding the above-captioned *inter partes* review (Case IPR2024-00282) of U.S. Patent No. 11,766,286 (the “’286 Patent”).

In accordance with 37 C.F.R. § 90.2(a)(3)(ii), Aerin states that the issues on appeal may include, but are not limited to: the Board’s determination that claims 1–4 and 7–9 of the ’286 Patent have been shown to be unpatentable under 35 U.S.C. § 103; the Board’s construction of those claims; the Board’s consideration of the expert testimony, prior art, and other evidence in the record; and the Board’s factual findings, conclusions of law, or other determinations supporting or related to those issues, as well as all other issues decided adversely to Aerin in any orders, decisions, rulings, and opinions.

This Notice of Appeal is timely under 37 C.F.R. § 90.3(a)(1).

In accordance with Fed. Cir. R. 15 and its Practice Note, Patent Owner attaches to this Notice of Appeal a copy of the Final Written Decision referenced above from which review is sought. (Attachment A.)

This Notice of Appeal is being e-filed with the Clerk of the United States Court of Appeals for the Federal Circuit, along with payment of the required docketing fees. In addition, a copy of this Notice of Appeal is being filed simultaneously with the Patent Trial and Appeal Board and with the Director of the United States Patent and Trademark Office.

GREENBERG TRAURIG, LLP

Date: September 11, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), I certify that on this 11th day of September 2025, a copy of this **PATENT OWNER'S NOTICE OF APPEAL** was served by electronic mail on Petitioners' lead and backup counsel at the following email addresses:

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Attachment A

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NEURENT MEDICAL INC. & NEURENT MEDICAL LTD.,
Petitioner,

v.

AERIN MEDICAL INC.,
Patent Owner.

IPR2024-00282
Patent 11,766,286 B2

Before MICHAEL J. FITZPATRICK, ZHENYU YANG, and
MICHAEL A. VALEK, *Administrative Patent Judges*.

YANG, *Administrative Patent Judge*.

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

I. INTRODUCTION

Neurent Medical Inc. and Neurent Medical Ltd. (collectively, “Petitioner”) filed a Petition (Paper 3, “Pet.”) seeking *inter partes* review of claims 1–4 and 7–9 of U.S. Patent No. 11,766,286 B2 (Ex. 1001, “the ’286 patent”). We instituted trial to review the challenged claims (Paper 9, “DI”).

Thereafter, Patent Owner filed a Response to the Petition (Paper 22, “PO Resp.”), Petitioner filed a Reply to Patent Owner’s Response (Paper 25, “Reply”), and Patent Owner filed a Sur-reply to Petitioner’s Reply (Paper 30, “Sur-reply”). An oral hearing for this proceeding was held on April 23, 2025, and the transcript of that hearing is of record. See Paper 37 (“Tr.”).

The Board has jurisdiction under 35 U.S.C. § 6 and issues this Final Written Decision pursuant to 35 U.S.C. § 318 and 37 C.F.R. § 42.73. For the reasons provided below, we find Petitioner has shown, by a preponderance of the evidence, the unpatentability of claims 1–4 and 7–9.

A. *Real Parties in Interest*

Each party identifies itself as the real party in interest. Pet. 2; Paper 6, 2.

B. *Related Matters*

According to the parties, Patent Owner asserted the ’286 patent and several other patents against Petitioner in *Aerin Medical Inc. and The Foundry LLC v. Neurent Medical Inc. and Neurent Medical Ltd.*, Case No. 1:23-cv-00756 (D. Del). Pet. 3; Paper 6, 2.

Petitioner filed several additional petitions for *inter partes* review, challenging certain claims of those other patents asserted in the district court action. Pet. 3; Paper 8.

C. The '286 Patent and Related Background

The '286 patent relates to devices, systems and methods for treating nasal airways to “improve breathing by decreasing airflow resistance and/or improving nasal airflow or perceived airflow resistance in the nasal airways.” Ex. 1001, 4:20–24. According to the '286 patent, its devices, systems and methods may be used to “reshape, remodel, strengthen, or change the properties of the tissues of the nose.” *Id.* at 4:25–27.

The '286 patent explains that the nose is responsible for almost two thirds of the airflow resistance during respiration. *Id.* at 1:43–46. “[E]xcessive resistance to airflow can result in abnormalities of respiration, which can significantly affect a patient’s quality of life.” *Id.* at 1:51–53.

People can have poor nasal airflow from various causes, including allergic rhinitis and non-allergic rhinitis. *Id.* at 1:54–67, 4:4–11. The '286 patent states that, “[w]hatever the cause, the tissues of the nasal valves are intimately involved in nasal airflow and nasal airflow inadequacy.” *Id.* at 4:11–13; *see also id.* at 1:61–62 (stating the nasal valve area is a site of significant nasal airflow resistance). According to the '286 patent, existing methods of correcting nasal valve inadequacy had significant shortcomings, and, thus, “there remains an unmet need in the art for non-invasive and minimally invasive methods and devices to improve nasal airflow.” *Id.* at 3:47–4:3, 4:14–16.

The '286 patent discloses

a device for treating a patient’s nasal airway comprises an elongate shaft having a proximal end and a distal end. The

device further comprises a handle at the proximal end of the elongate shaft. The device also comprises a treatment element at the distal end of the elongate shaft. The treatment element is sized to be inserted into the nasal airway or to be delivered external to a nose. The treatment element is configured to reshape a region of the nose to a new conformation and comprises an electrode configured to deliver radiofrequency (RF) energy to the nasal tissue.

Id. at 4:37–47.

D. Illustrative Claim

Of the challenged claims, only claim 1 is independent. It is illustrative of the claimed subject matter and is reproduced below.

1. [pre] A device for delivering energy to a nasal airway to treat rhinitis, the device comprising:

[a] a handle;

[b] a shaft extending from one end of the handle;

[c] a treatment element coupled with a distal end of the shaft, sized to be inserted into a nostril, and configured to change from a first configuration to a second configuration to contact nasal mucosa lining the nasal airway;

[d] multiple pairs of bipolar radiofrequency electrodes disposed on the treatment element;

[e] multiple radiofrequency output channels connected with the multiple pairs of bipolar radiofrequency electrodes, wherein each pair of the multiple pairs of bipolar radiofrequency

electrodes is connected with a respective one of the multiple radiofrequency output channels; and

[f] at least one impedance sensor configured to measure impedance in the multiple pairs of bipolar radiofrequency electrodes.

Ex. 1001, 52:29–47 (bracketed numbering added).¹

E. Instituted Challenges to Patentability

We instituted trial to determine whether the challenged claims are unpatentable based on the following grounds:

Claim(s) Challenged	35 U.S.C. §²	References
1–3, 7–9	103	Edwards-’535, ³ Stern ⁴
8	103	Edwards-’535, Stern, Edwards-’886 ⁵

¹ For convenience and consistency, we apply Petitioner’s designations for the limitations of claim 1. *See* Pet. 100–101.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. On its face, the ’286 patent claims priority to several applications filed before the effective date of AIA. Ex. 1001, codes (60), (63). Petitioner does not challenge the priority claim. Pet. 5 n.1. Petitioner, however, notes that “[t]he ’286 patent was examined under the provisions of the AIA” and cites to the AIA version of these statutes in the Petition. *Id.* n.2. Patent Owner does not address which version of the statute applies. Because “each of the relied-upon references qualifies as prior art regardless of whether the AIA or pre-AIA provisions apply” (*id.*), we discern no difference in our analysis, regardless of the version of the statute. Therefore, we apply the AIA version of §§ 102 and 103.

³ U.S. Patent No. 6,517,535 B2, issued Feb. 11, 2003 (Ex. 1010, “Edwards-’535”).

⁴ U.S. Patent No. 5,562,720, issued Oct. 8, 1996 (Ex. 1033, “Stern”).

⁵ U.S. Patent No. 6,273,886 B1, issued Aug. 14, 2001 (Ex. 1016, “Edwards-’886”).

Claim(s) Challenged	35 U.S.C. § ²	References
1–4, 7–9	103	Makower, ⁶ Stern, Edwards-’535
8	103	Makower, Stern, Edwards-’535, Edwards-’886
1–3, 7–9	103	Edwards-’535, Stern, Liang ⁷
8	103(a)	Edwards-’535, Stern, Liang, Edwards-’886
1–4, 7–9	103(a)	Makower, Stern, Edwards-’535, Liang
8	103(a)	Makower, Stern, Edwards-’535, Liang, Edwards-’886

In support of their respective positions, Petitioner relies on the declarations of Gregory T. Martin, Ph.D. (Exs. 1002, 1083) and Patent Owner relies on the declaration of Marom Bikson, Ph.D. (Ex. 2001).

II. ANALYSIS

A. Principles of Law

To prevail in this *inter partes* review, Petitioner “shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.” 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

A claim is unpatentable for obviousness if “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the

⁶ U.S. Patent Appl. Pub. No. 2005/0240147 A1, published Oct. 27, 2005 (Ex. 1021) (“Makower”).

⁷ Liang et al., *Radiofrequency Treatment of Ethmoidal Nerve with Allergic Rhinitis Under Nasal Endoscopy*, 13 J. CLIN. OTORHINOLARYNGOL (China) 341–42 (1999) (Ex. 1056, “Liang”). Exhibit 1056 is a translation of the original Chinese language reference. See Ex. 1072.

claimed invention pertains.” 35 U.S.C. § 103; *see also KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when in evidence, objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

An invention is not obvious just because all of the elements that comprise the invention were known in the prior art. *KSR*, 550 U.S. at 418 (“[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.”). Rather, “it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” *Id.* Thus, a party that petitions the Board for a determination of unpatentability based on obviousness must show that “a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016) (citations omitted).

We analyze the instituted grounds of unpatentability in accordance with these principles.

B. Level of Ordinary Skill in the Art

Petitioner argues that a person of ordinary skill in the art (“POSITA”) at the relevant time

would have had (1) a Doctor of Medicine (M.D.) or at least a bachelor of science degree in engineering or a related discipline

and (2) at least three years of experience in the clinical use, design, development, and/or testing of medical devices, including medical devices that deliver energy to tissue.

Pet. 17 (citing Ex. 1002 ¶¶ 24–28).

Patent Owner disputes the second part of Petitioner’s definition “because the ‘and/or’ encompasses within the definition of a POSITA persons who **only** have experience with the clinical use or testing of medical devices.” PO Resp. 6. According to Patent Owner, a POSITA “would have had more experience than just clinically using medical devices or simply conducting tests with medical devices” *Id.*

To the extent Petitioner’s definition could be interpreted to encompass someone who only has experience using or testing unrelated medical devices, we tend to agree with Patent Owner. But it does not follow that experience with the clinical use and testing of medical devices, including those that deliver energy to tissue, would not be relevant background for one of ordinary skill. *See* Reply 27–28 (identifying evidence that clinical experience is relevant). The devices and methods in the challenged patent and asserted prior art are designed to be used by clinicians. Accordingly, clinical experience using and testing them would inform their design and therefore be relevant experience for one of ordinary skill in the art. For these reasons, we do not adopt Patent Owner’s proposed modification of Petitioner’s definition, which would remove clinical use and testing from the list of activities in Petitioner’s POSITA definition. *See* PO Resp. 7 (proposing redlines).

Instead, after reviewing the record, we adopt Petitioner’s definition as it is consistent with the prior art’s demonstration of the level of ordinary skill in the art at the time of the invention. Regardless, Petitioner’s declarant,

Dr. Martin, is qualified to offer opinions under either definition. Moreover, the parties do not argue that their respective position would be different under either POSITA definition. *See* PO Resp. 8 (Patent Owner arguing that the challenges fail “[r]egardless of how a POSITA is defined”); Ex. 1083 ¶ 88 (Dr. Martin testifying that his opinions “remain the same regardless of which definition applies”). Accordingly, all of the findings and conclusions herein would be the same under either side’s definition of a POSITA.

C. Claim Construction

In an *inter partes* review, we construe a claim term “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b).” 37 C.F.R. § 42.100(b). Under this standard, we construe the claim term “in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*; *see also Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc) (holding that the words of a claim “are generally given their ordinary and customary meaning,” which is “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application”).

Petitioner argues that the part of claim 1’s preamble “to treat rhinitis” is not limiting. Pet. 18. According to Petitioner, the body of claim 1 recites a structurally complete apparatus, and the preamble only states an intended use for the device without limiting the claimed structure. *Id.* at 18–19. Patent Owner neither addresses this issue, nor proposes any other claim construction. PO Resp. 13 (“Patent Owner believes that no claim constructions are required to resolve the issues raised [in this IPR].”). On

this record, we find Petitioner’s argument persuasive and determine that the part of claim 1’s preamble “to treat rhinitis” is not limiting.

On this record and for purposes of this Decision, we see no need to expressly construe any other claim term. We note, however, that in their arguments over whether the prior art teaches certain claim limitations, each side accuses the other of misinterpreting or reading requirements beyond their ordinary meaning into those terms. *See* Reply 3–10 (urging that Patent Owner’s arguments read requirements into limitations 1[d] and 1[e]); Sur-Reply 9–15 (arguing Petitioner applies an incorrect definition of “radio frequency output channel”). To the extent the parties’ arguments raise any implicit issues of claim construction, we address those issues within the context they are raised in our analysis below.

D. Alleged Obviousness over Edwards-’535 and Stern

Petitioner asserts that claims 1–3 and 7–9 would have been obvious over the combination of Edwards-’535 and Stern. Pet. 25–60. Patent Owner disputes Petitioner’s contentions. PO Resp. 14–35. After reviewing the entire record developed at trial, and as explained below, we determine Petitioner has shown by a preponderance of the evidence that the challenged claims would have been obvious over the asserted prior art.

1. Prior Art Disclosure

Petitioner asserts, and Patent Owner does not dispute, Edwards-’535 and Stern qualify as prior art under 35 U.S.C. § 102(a)(1) and (2). Pet. 6.

a. Edwards-’535

Edwards-’535 explains that there are three nasal passageways from the nose to the pharynx and they can become obstructed. Ex. 1010, 1:60–63. “The turbinates, also referred to as nasal concha, are a series of tissues which

form at least a portion of these nasal passageways.” *Id.* at 1:63–66.

Edwards-’535 teaches an apparatus for ablating at least a portion of a nasal concha to reduce its size, which reduces or eliminates the obstruction of a nasal meatus and improves airflow through a nasal meatus of the body. *Id.*, code (57), 4:19–30.

To ablate a nasal concha, Edwards-’535 teaches introducing ablative energy into a section of the nasal concha tissue. *Id.* at 4:53–55. The ablative energy used “should be of a type which can penetrate into an internal section of tissue and cause ablative heating therein.” *Id.* at 3:31–36, 5:36–39. An example of this type of energy is RF at all relevant frequencies. *Id.* at 5:39–43.

b. Stern

Stern teaches an endometrial ablation device “for in situ destruction of the inner lining of body organs, and more particularly the . . . destruction of the endometrium with selective use of a bipolar/monopolar application of RF energy.” Ex. 1033, code (57), 1:17–21; *see also id.* at 3:12–13 (describing its apparatus selectively applies RF energy to a body organ).

Stern’s apparatus uses an expandable member, the outer surface of which contains one or more electrodes. *Id.* at 2:6–9. “RF current is passed through substantially the entire surface of the endometrium by activating the electrodes. The current is sufficient to resistively heat the endometrium in a single operation to a temperature within a range of between 45° C. to 90° C. for a time sufficient to destroy the cells of the lining.” *Id.* at 2:11–16; *see also* 3:13–19 (describing the apparatus “comprises an electrode means for effecting electrical contact with tissue of said body organ; a radio

frequency power means for selectively providing current to said electrode means”).

Stern’s apparatus selectively delivers “either monopolar RF energy to a single electrode or bipolar RF energy to chosen pairs of an array of separate electrodes which are used to bring the endometrial temperature to a desired level.” *Id.* at 2:36–40. According to Stern, “[t]he delivery of power can be improved by utilizing a bipolar construction.” *Id.* at 12:7–8; *see also id.* at 12:18–19 (“[I]mproved control can be achieved in many cases if a bipolar operation is utilized.”). The choice of either bipolar or monopolar can be made by control of the switches. *Id.* at 12:40–41; *see also id.* at 3:19–25 (describing the apparatus comprises “switching means for receiving an output from said radio frequency power means and for providing controllable delivery of power to said electrodes”).

2. Claim 1

Petitioner asserts that the combination of Edwards-’535 and Stern teaches each limitation of claim 1. Pet. 25–36, 40–46.

For the preamble, Petitioner argues that Edwards-’535 teaches an apparatus 124 with an expandable member 132 and an energy delivery device 134. Pet. 25 (citing Ex. 1010, 5:20–26). The apparatus is introduced through a nostril 102 into a nasal meatus adjacent a surface of a nasal concha. *Id.*

Acknowledging that Edwards-’535 does not explicitly teach a handle as recited in limitation 1[a], Petitioner contends that “it would have been obvious to include a handle in Edwards-’535’s device to control the device and/or deploy the expandable member.” *Id.* at 26. According to Petitioner,

Stern teaches an example of such a handle. *Id.* (citing Ex. 1033, 10:11–29, 10:37–49, 13:56–65, 14:5–8, 18:13–28, FIGs. 10a, 11a, 12).

For limitation 1[b], Petitioner argues that apparatus 124 of Edwards-’535 has a shaft. *Id.* at 28–29. Petitioner argues that although Edwards-’535 does not explicitly teach that its shaft extends from one end of the handle, Stern does so. *Id.* at 29–30 (citing Ex. 1033, FIG. 10a). According to Petitioner, “a shaft extending from one end of the handle is an obvious implementation of Edwards-’535 in view of Stern.” *Id.*

Referring to Figure 3B of Edwards-’535, Petitioner asserts that expandable member 132 and energy delivery device 134 constitute the treatment element recited in limitation 1[c]. *Id.* at 30–33. Figure 3B of Edwards-’535, as annotated by Petitioner, is reproduced below.

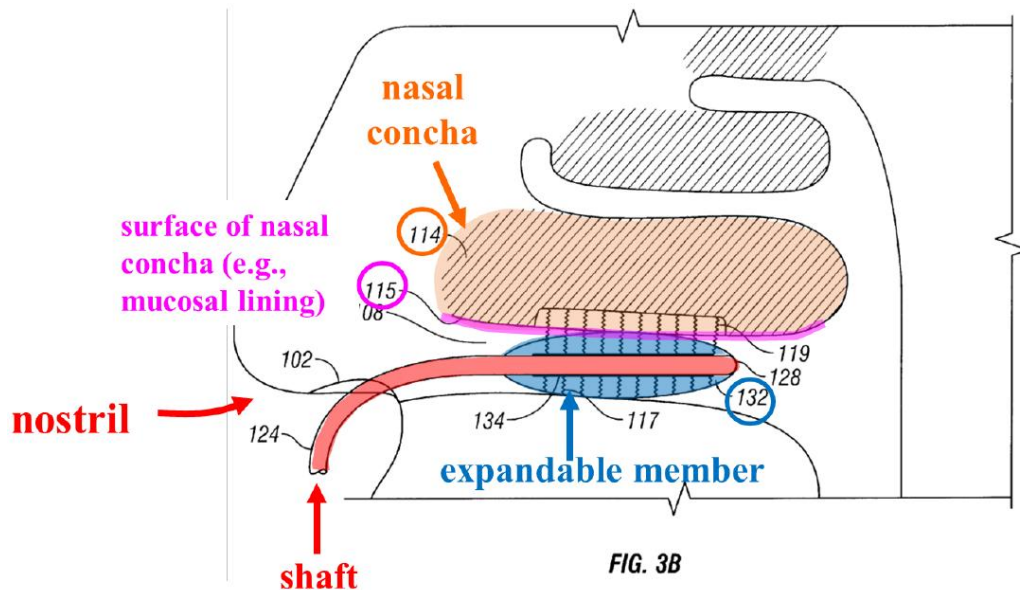


Figure 3B of Edwards-’535 shows “the expansion of the expandable member within the nasal meatus so that the energy delivery device is brought into energy communication with the surface of the nasal concha to be treated.” Ex. 1010, 3:48–51; Pet. 31. According to Petitioner, the uninflated state of expandable member 132 shown in Figure 3A and the

inflated state shown in Figure 3B are the claimed first configuration and second configuration, respectively. Pet. 32 (citing Ex. 1010, 4:53–67, 5:22–30, 5:52–60, 6:33–36, 7:33–46, 7:61–8:46).

For limitation 1[d], Petitioner argues that Edwards-’535 teaches a plurality of energy delivery devices positioned on the surface of the expandable member 132. *Id.* at 33 (citing Ex. 1010, 8:17–32). Petitioner acknowledges that, although “[t]hese energy delivery devices/electrodes deliver RF energy in a bipolar mode,” Edwards-’535 does not describe “the details of how to deliver bipolar RF energy.” *Id.* at 34 (citing Ex. 1010, 8:17–32, 8:50–54, 10:30–32, 10:52–61). For the details omitted in Edwards-’535, Petitioner relies on Stern.

According to Petitioner, Stern teaches a system of selective delivery of bipolar RF energy to chosen pairs of separate bipolar electrodes. *Id.* at 34 (citing Ex. 1033, 2:36–40, 3:29–40, 12:7–13:55, claim 4, FIGs. 13, 15, 17, 18). As an example, Petitioner points to Figure 15, reproduced below.

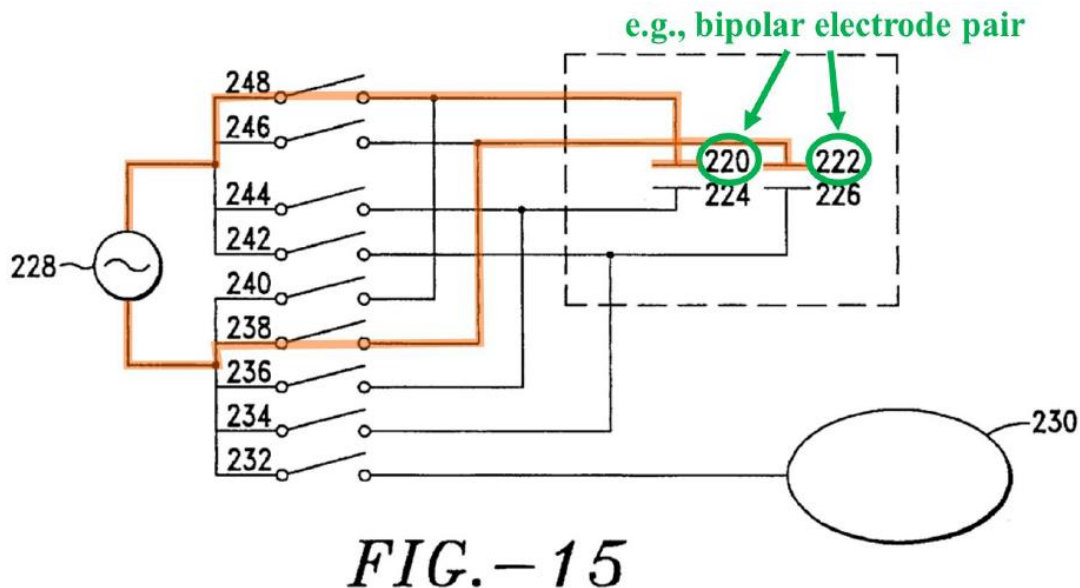
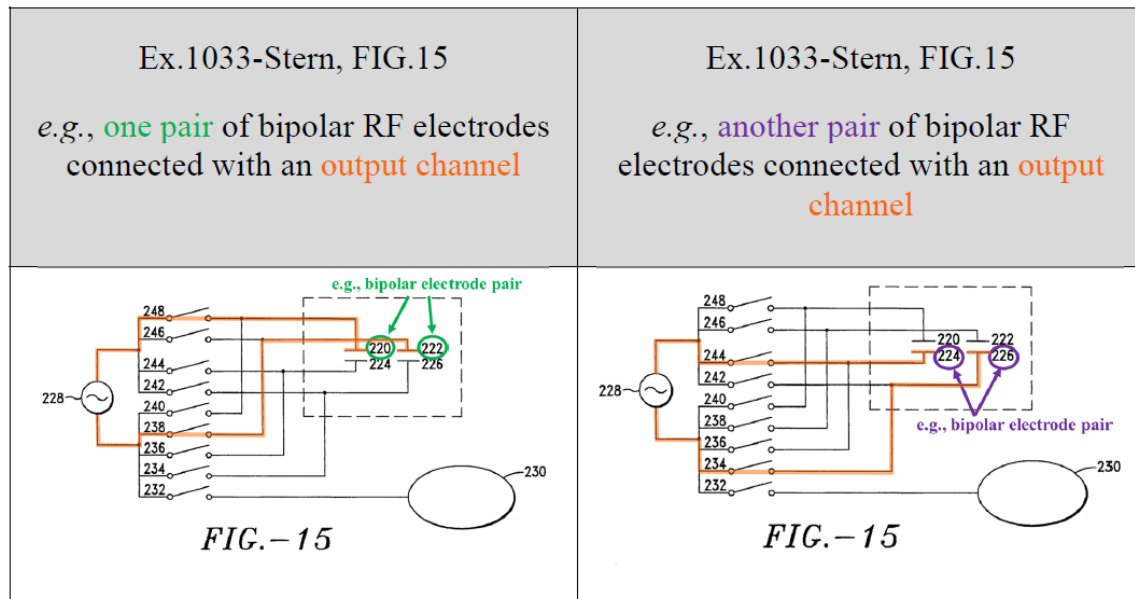


Figure 15 of Stern shown above, as annotated by Petitioner, “is a schematic of a selectable bipolar/monopolar RF energy delivery system for

a plurality of electrodes or electrode segments.” Ex. 1033, 5:48–50; Pet. 36. Petitioner contends that, in this figure, “the circuitry used to operate bipolar pairs includes four electrodes 220, 222, 224 and 226 and various switches that determine the type of bipolar configuration,” and “if switch 248 and switch 238 are closed there will be bipolar operation between the electrodes 220 and 222.” Pet. 35 (citing Ex. 1033, 12:41–45, 12:65–13:2) (brackets omitted).

For limitation 1[e], Petitioner argues that the circuitry in Figure 15 of Stern is “capable of supplying energy to selected bipolar pairs via a ‘switching means’ where each bipolar pair is wired to its own output channel.” *Id.* at 41 (citing Ex. 1033, 2:49–53, 3:12–29, Claim 1, FIG. 15). “When particular switches are closed, only particular bipolar pairs are activated.” *Id.* at 42 (citing Ex. 1033, 12:46–13:2). Petitioner illustrates its position with a figure, reproduced below, showing two annotated versions of Figure 15 of Stern side-by-side.



The figure above shows side-by-side two Petitioner’s annotated Figure 15. Pet. 42. Petitioner identifies two different pairs of bipolar RF

electrodes, i.e., electrodes 220 and 222 (marked in green on the left) and electrodes 224 and 226 (marked in purple on the right). Petitioner highlights the output channel for each pair in orange to show that they are connected to voltage source 228 “via separate output channels” and therefore can be independently activated and separately controlled. *See id.*

For limitation 1[f], Petitioner contends that Edwards-’535 teaches impedance sensors that detect a variety of operating parameters, including the impedance generated. *Id.* at 44 (citing Ex. 1010, 9:14–23). Although Edward-’535 teaches impedance measurements in the monopolar embodiments, Petitioner continues, “Edwards-’535’s disclosure of impedance sensing is equally applicable when arranging such electrodes in one or more bipolar pairs.” *Id.* (citing Ex. 1010, 9:14–23, 10:4–11, 10:62–11:45).

Petitioner contends it would have been obvious to combine the teachings of Stern and Edwards-’535. Petitioner argues that Edwards-’535 and Stern are analogous art to the challenged claims. Pet. 36. Both are “in the same field as the ’286 patent and are reasonably pertinent to solving the problems addressed in the ’286 patent.” *Id.*

According to Petitioner, “Edwards-’535 demonstrates that RF ablation devices with multiple bipolar surface electrodes and used in body cavities were well-known” but does not teach the details on how to deliver energy. *Id.* at 37. Petitioner argues that “a POSITA would have been motivated to turn to other sources for information to implement independent energy delivery through each bipolar electrode.” *Id.*

Petitioner asserts that Stern is a good source for this information, given its detailed disclosure and schematic figures. *Id.* In addition, Petitioner argues that

a POSITA would have been faced with a finite choice between implementing a system with switches/relays and a single voltage source (like Stern) or multiple individual voltage sources for each electrode/electrode pair, and would have been motivated to select the former because it is safer, more practical, more reliable, smaller, simpler, and cheaper.

Id. at 37–38 (citing Ex. 1002 ¶¶ 113–115).

Petitioner further asserts that Stern identifies several benefits “for pairing bipolar RF surface electrodes . . . and wiring them to allow for independent delivery of RF energy to each bipolar pair.” *Id.* at 38 (citing Ex. 1033, 2:6–19, 6:44–62, 10:49–65, 12:25–37, 13:21–39, FIGs. 15, 18). Petitioner concludes that an ordinarily skilled artisan would have improved Edwards-’535’s device by including Stern’s technique because of these benefits. *Id.*

Petitioner argues that Edwards-’535 and Stern “describe similar techniques of delivering bipolar RF ablation energy through expandable devices to the mucosal tissue of different body cavities.” *Id.* at 39. According to Petitioner, “combining Edwards-’535 and Stern involves applying Stern’s known bipolar pairing technique to Edwards-’535’s known device that was ready for improvement (because Edwards-’535 omits electrode wiring details) to yield predictable results.” *Id.* Thus, Petitioner concludes that an ordinarily skilled artisan would have had a reasonable expectation of success when modifying Edwards-’535 in view of Stern. *Id.* at 38–40.

Patent Owner does not dispute Petitioner’s mapping for claim limitations 1[a]-1[c] and 1[f] above, nor does Patent Owner challenge Petitioner’s reasoning for combining Edwards-’535 with Stern. *See* PO Resp. 14. Patent Owner, however, argues that Petitioner has failed to show Stern teaches limitations 1[d] and 1[e] “because Stern teaches a device comprising only a **single pair** of bipolar radiofrequency electrodes and a **single** radiofrequency output channel.” *Id.*

We find that a POSITA would have been motivated to combine the teachings of Edwards-’535 and Stern and would have had a reasonable expectation of success in doing so for the reasons set forth in the Petition. We also find that the articulated combination of Edwards-’535 and Stern teaches all of the limitations of claim 1. We adopt Petitioner’s undisputed analysis of claim limitations 1[a]-1[c] and [f] and reasoning for combining the references, and credit its supporting evidence. *See* Pet. 26–33, 43–46; Ex. 1002 ¶¶ 84–102, 159–165. Below we address the parties’ arguments regarding the disputed limitations 1[d] and 1[e].

a. 1[d]: Multiple Pairs of Bipolar Radiofrequency Electrodes

Patent Owner argues that “Stern teaches a device configured to have at most a **single pair** of bipolar radiofrequency electrodes.” PO Resp. 14–15. According to Patent Owner, a bipolar pair is formed only when two electrodes near each other have opposite polarities, which requires operation (i.e., closing) of various switches shown in Stern’s Figure 15. *Id.* at 16–19. Referring to Petitioner’s annotated, side-by-side version of Figure 15 depicting switches 248 and 238 closed to form a first bipolar pair on the left and switches 244 and 234 closed to form a second bipolar pair on the right, Patent Owner argues that “[e]ither configuration has only a single ‘pair’ of

electrodes.” *Id.* at 18 (citing Pet. 42). Patent Owner contends that “three or more of Figure 15’s switches must be closed at the same time to form ‘**multiple pairs** of bipolar radiofrequency electrodes,’ as claimed.” *Id.* According to Patent Owner, Stern contains no such disclosure because its device’s electrodes are “**independently and sequentially energized**” and thus configured to have no more than a single pair of bipolar electrodes at any given time. *Id.* at 19 (quoting Ex. 1033, 2:31–33, 10:48–52).

We disagree with Patent Owner for several reasons. First, as Petitioner correctly points out, “the claims do not recite that the treatment element’s pairs of bipolar electrodes must be delivering energy ‘*at the same time*,’” nor is there any basis in the intrinsic record for reading such a requirement into the claims. Reply 4.

Moreover, the specification of the ’286 patent describes embodiments in which each electrode pair is separately controlled and therefore may be “activated separately,” i.e., at different times. Ex. 1001, 24:56–62, 49:10–12; *see also* Ex. 1083 ¶¶ 19–20 (Dr. Martin discussing embodiment in the ’286 patent with “only one pair being active at any given time” and concluding that the disclosure Dr. Bikson cites “is consistent with pairs of electrodes being activated either at different times (i.e., ‘separately’) **or** at the same time”). Thus, even if Stern’s disclosure were limited to switching on only a single pair of the bipolar electrodes in Figure 15 at a time as Patent Owner contends (*see* Sur-reply 4–6), such disclosure would still teach or suggest the “multiple pairs of bipolar radiofrequency electrodes” recited in limitation 1[d].

Patent Owner concedes that “[c]laim 1 does not require simultaneous activation of multiple pairs.” Sur-reply 2. Nevertheless, Patent Owner argues

that Stern does not teach limitation 1[d] because its device is not “configured to have multiple pairs.” *Id.* Patent Owner does not sufficiently explain the distinction, if any, between what it acknowledges is not required by claim 1 (i.e., “simultaneous activation” of the multiple pairs) and what it contends is required for Stern to teach this limitation (i.e., a device “configured” to form multiple pairs).

According to Patent Owner, a bipolar electrode pair is formed only when two electrodes are energized and therefore that “three or more of [Stern’s] Figure 15’s switches must be closed at the same time,” i.e., simultaneously activated, “to form ‘**multiple pairs** of bipolar radiofrequency electrodes,’ as claimed.” PO Resp. 18. It is unclear what—short of simultaneous activation of more than one pair of the electrodes in Stern’s Figure 15—Patent Owner contends is missing from Stern’s disclosure.

In our view, nothing is missing. Stern teaches that the circuitry in Figure 15 is configured to form multiple pairs of bipolar RF electrodes. Ex. 1033, 12:61–13:2 (explaining “[a]s an example” the closing of certain switches in Figure 15 to activate a bipolar pair between electrodes 220 and 224 and a second bipolar pair between electrodes 222 and 226 and further noting that “[c]learly bipolar operation is not limited to these . . . pair couplings” because other switches could be operated to activate a bipolar pair between electrodes 220 and 222); Ex. 1002 ¶¶ 108–111, 135–138. Indeed, Stern consistently uses the word “pairs,” i.e., the plural not the singular, to describe the bipolar operation of its device. *See, e.g.*, Ex. 1033, 2:36–40, 3:38–40, 12:20–25, 12:29–30, 13:27–44, 20:9–10 (describing the bipolar operation of “pairs” nine times). Accordingly, we disagree with

Patent Owner’s argument that Stern teaches a device configured to have at most only a single pair of bipolar RF electrodes.

Second, Stern teaches that the “embodiment of FIG. 15 . . . provides flexibility within the bipolar operation so that any pair *or any combination of pairs* may be utilized together.” Ex. 1033, 13:39–43 (emphasis added). Thus, even if claim 1 did require simultaneous activation of multiple bipolar pairs, we agree with Petitioner that such functionality is also taught by Stern. See Reply 5–6.

Patent Owner argues “[w]hen read in isolation, the above sentence from Stern is at best ambiguous. A POSITA could have (and would have) read the above sentence as teaching that any combination of pairs of electrodes may be utilized together ***sequentially*** (i.e., one pair at a time).” Sur-Reply 4. According to Patent Owner, its interpretation is informed by Stern’s other disclosures teaching that its electrodes are independently and sequentially energized. *Id.* at 4–5 (citing Ex. 1003, 2:31–33, 2:49–53, 10:48–52, 17:54–55; Ex. 2001 ¶ 64; Ex. 1002 ¶¶ 145, 185). Thus, Patent Owner urges that “when Stern is properly read in its entirety, any potential ambiguity is resolved ***in Patent Owner’s favor.***” *Id.* at 4.

We disagree. First, there is nothing ambiguous about Stern’s teaching that “any pair or any combination of pairs may be utilized together.” Ex. 1033, 13:39–43. Utilized together means at the same time. Ex. 1083 ¶ 22. Second, there is no reason to modify this clear teaching, as Patent Owner attempts to do, because it is entirely consistent with Stern’s other disclosures. Read in context of the full reference, a POSITA would have understood that the circuitry of Figure 15 allows for independent and

sequential energization of any pair or any combination of pairs (i.e., multiple pairs at once) of bipolar RF electrodes. *Id.* ¶¶ 22–28.

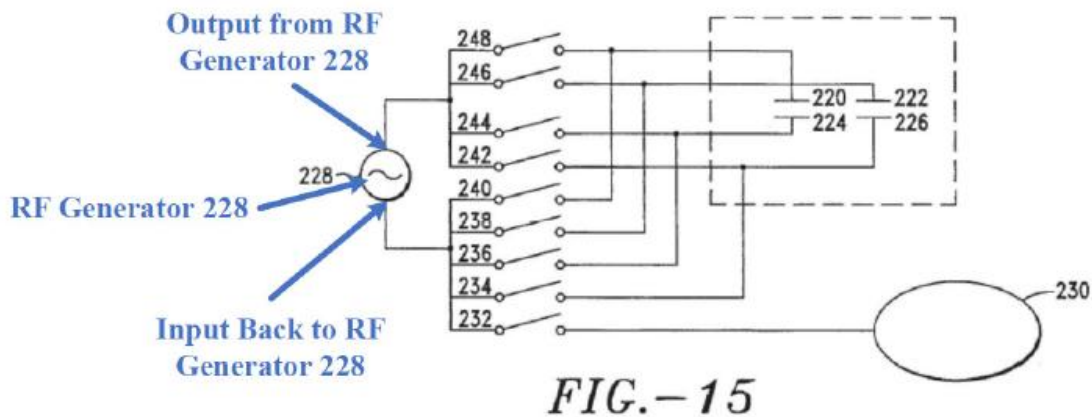
Finally, Patent Owner’s argument that activating multiple pairs at the same time could result in uneven heating does not compel a different interpretation. *See* Sur-Reply 5. Even assuming that the sequential activation of just one pair of bipolar electrodes at a time would provide better control over heating, Stern must be considered for all it teaches. *See In re Inland Steel Co.*, 265 F.3d 1354, 1361 (Fed. Cir. 2001); *Merck & Co. Inc. v. Biocraft Labs. Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“all disclosures of the prior art, including unpreferred embodiments, must be considered”). Accordingly, a POSITA would have understood that Stern discloses embodiments in which each pair is activated sequentially as well as those in which “combinations of pairs are utilized together,” even if there are technical reasons why one might be preferable over the other.

For these reasons, Petitioner has sufficiently demonstrated that the combination of Edwards-535 and Stern teaches or suggests limitation 1[d].

b. *1[e]: Multiple Radiofrequency Output Channels . . . Wherein Each Pair of The Multiple Pairs of Bipolar Radiofrequency Electrodes Is Connected with A Respective One of The Multiple Radiofrequency Output Channels*

Patent Owner argues that “Stern teaches at most a **single** radiofrequency output channel.” *See* PO Resp. 19–25. According to Patent Owner, both sides’ experts “agree that the term ‘radio frequency output channel’ means ‘an output from a radiofrequency generator’” and that “the number of radiofrequency output channels depends on the number of outputs from the radiofrequency generator.” *Id.* at 20–21 (citing testimony). Patent Owner therefore contends that Stern discloses only a single channel, using

the annotated version of Stern's Figure 15 below to illustrate its position. *Id.* at 23.



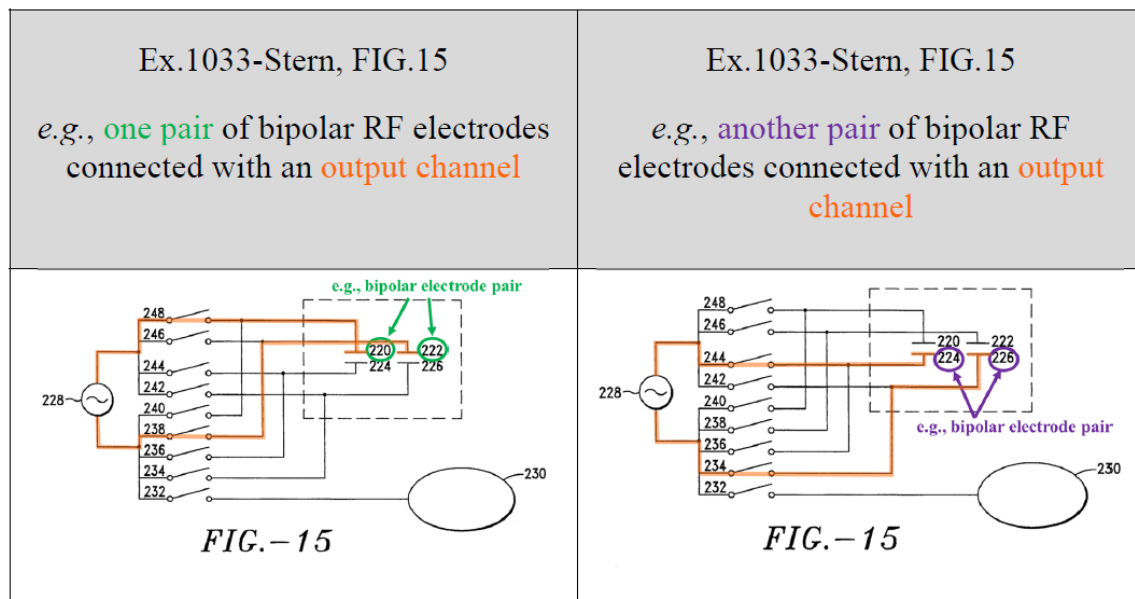
The figure above shows Patent Owner's annotated version of Stern's Figure 15, labeling voltage source 228 as the "RF Generator" and the two lines leading to the switches as the "[o]utput from" and "[i]nput back to" the RF Generator. *Id.*

For the same reasons, Patent Owner argues that Petitioner has also failed to show that Stern teaches the second part of limitation 1[e], "wherein each pair of the multiple pairs of bipolar radiofrequency electrodes is connected with a respective one of the multiple radiofrequency output channels." PO Resp. 25–27. Specifically, Patent Owner asserts that Petitioner's annotated version of Stern's Figure 15 shows the electrodes are connected "to the same output of Stern's radiofrequency generator 228." *Id.* at 26. According to Patent Owner, Petitioner cannot show any electrode pair "connected to a different output . . . as Stern's radiofrequency generator 228 has only a single output." *Id.* at 27.

Petitioner argues that we should reject Patent Owner's attempt to limit element 1[e] to require "output channels" that directly connect to the voltage source in the radiofrequency generator for three reasons. See Reply 7–10. First, Petitioner contends that "the plain language of the claim does not

require the ‘multiple radiofrequency output channels’ to be channels connected directly to the voltage source in the radiofrequency generator.” *Id.* at 7. Second, Petitioner contends that Patent Owner’s arguments are inconsistent with the specification of the ’286 patent, which uses the terms “electrical channel” and “output channel” to “refer[] to connections to **electrodes**—not wires within a generator.” *Id.* at 8 (citing Ex. 1001, 24:56–65, 49:10–12, 49:19–28, 49:38–40, 49:51–54, 50:12–16, 50:20–27, Figs. 39, 40, 42A–42B, 43, 44). Third, Petitioner contends that the only support for Patent Owner’s interpretation is Dr. Bikson’s “say-so” and the mischaracterized testimony of Dr. Martin. *Id.* at 10.

We find Petitioner’s arguments more persuasive. Petitioner depicts Stern’s multiple RF output channels with the annotated versions of Figure 15 shown below.



The figure above shows side-by-side two versions of Stern Figure 15, as annotated by Petitioner. Pet. 42. It depicts the channel (highlighted in orange) connecting the output received from voltage source 228 to the first bipolar pair (circled in green on the left) is distinct from the channel

connecting the output to the second bipolar electrode pair (circled in purple on the right). *Id.* Depending on which switches are closed, energy travels through a separate connection between those switches and the corresponding electrodes. *Id.* at 42–43.

We agree with Petitioner, and credit Dr. Martin’s testimony, that each of the output channels highlighted in orange in Stern’s Figure 15 above “are *output channels* as required by the claim because the channels are separately/individually connected to the electrodes” and “control individual pairs of bipolar RF electrodes.” *Id.* at 42–43; Ex. 1002 ¶¶ 135–138; *see also* Ex. 1083 ¶ 45 (Dr. Martin testifying that “an ‘output channel’ connects electrodes and provides the ability to independently control pairs of electrodes”).

This understanding of the term “output channel” is consistent with the claim language. Claim 1 recites “multiple radiofrequency output channels” wherein “each pair” of bipolar RF electrodes “is connected with a respective one of the multiple radio frequency channels.” Ex. 1001, 52:39–44. The RF generator itself and its connection to the output channels is not recited in claim 1. Instead, the claim language focuses on the connection between the electrode pair and its respective output channel.

The description in the specification also focuses on the connection to the electrodes and further explains that having a “separate, controlled electrical channel” for “each pair of electrodes” allows for “different regions of the treatment element to be activated separately.” Ex. 1001, 24:56–63, 49:10–12; *see also* Ex. 1083 ¶ 33 (“Every time the patent mentions ‘electrical channel’ or ‘output channel,’ it is referring to connections to electrodes.”). This aligns with the depiction of the output channels in

the figures of the '286 patent. See Ex. 1001, Figs. 39–44 (showing RF output channel 961 connected to electrodes). Petitioner demonstrates this in the annotated version of Figure 39 shown below.

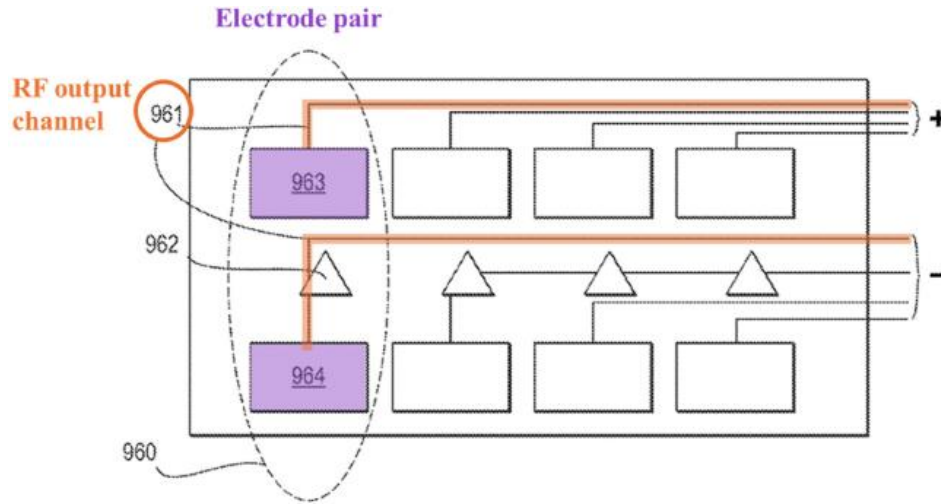


FIG. 39

The figure above is Petitioner’s annotated version of Figure 39 of the '286 patent. Reply 9. It shows the “RF output channel” 961 as a line connecting positive electrode 963 and negative electrode 964 in an electrode pair. *Id.* Figure 39 shows separate lines connecting the electrodes in other pairs, but how those lines connect to the generator is not shown or otherwise specified.

Indeed, we find persuasive Dr. Martin’s testimony that RF output channel 961 is clearly pointing to wires lines carrying both an active signal shown by a “+” sign and a return signal shown by a “-” sign. The '286 patent never explains,

shows, or limits the *beginning* of that output channel, i.e., how the channel connects to the voltage source in the RF generator.

Ex. 1083 ¶ 35.⁸ Instead, the description in the '286 patent again focuses only on how the channel provides for separate control over the pair to which it is connected. Ex. 1001, 49:19–31 (explaining that in Figure 39 “an RF output channel 961” is “assigned to each electrode pair for feedback” and “to allow for independent adjustments”); *see also id.* at 49:38–40 (similar for Fig. 40); Ex. 1083 ¶¶ 36–40 (providing similar annotations and testimony regarding a POSITA’s understanding of Figures 40–44).

The output channels Petitioner identifies in Stern’s Figure 15 provide the same separate control over different bipolar pairs described in the '286 patent. For example, Stern teaches:

The bipolar arrangement allows various pairs of electrodes to be picked in order to heat uneven or rather asymmetrical areas within individual patients . . . That is, any unusual features within an area to be heated may be taken into account in a

⁸ In the Sur-reply, Patent Owner asserts that each of the channels in Figures 39–44 is “depicted as a separate output from the radiofrequency generator (denoted with a ‘+’ sign).” Sur-reply 7–8 (citing Ex. 1001, Figs. 39–44; Ex. 1084, 177:2–14; Ex. 2008, 61:13–62:18). But the testimony it cites does not support that the “+” sign depicts a separate output from the generator. *See* Ex. 1084, 177:2–14 (Dr. Bikson referring to figures in Stern, not the challenged patent); Ex. 2008, 61:13–62:18 (Dr. Martin testifying that the active signal “*could be* one of the outputs from the generator”) (emphasis added); *cf.* Ex. 2008, 136:19–138:1 (reiterating that none of Figures 39–44 show a generator or how the depicted channels connect to it). Indeed, at the hearing, Patent Owner’s counsel acknowledged that Figure 39 does not show the actual connection to the generator. Tr. 74:13–18.

bipolar operation by selection of different pairs of electrodes for energization utilizing the circuitry of FIG. 15.

Ex. 1033, 13:27–35; *see also id.* at 12:25–33 (“[I]f particular pairs of electrodes were chosen in a bipolar arrangement to receive RF energy, the return path could be controlled selectively by a physician.”), 12:43–45 (“[T]he switches [in Figure 15] allow for the selective application of RF energy to various combinations of electrodes.”). This is the same type of control the ’286 patent teaches its output channels provide. *See, e.g.*, Ex. 1001, 24:56–63, 49:10–12; Ex. 1083 ¶ 44.

Patent Owner argues that if multiple pairs in Stern’s Figure 15 were activated “at the same time,” this control would be lost because “current would be diverted to whichever electrodes experience less impedance.” PO Resp. 24–25; Sur-reply 5–6 (same). But that argument only applies to embodiments in which multiple pairs are activated at the same time, which is not required by claim 1. *See supra* Section II.D.2.a. As explained above, Stern teaches embodiments in which the pairs in Figure 15 are individually and sequentially activated, as well as embodiments where combinations of pairs are utilized together. *Id.* Even for the latter, Stern teaches that different combinations of pairs can be separately controlled, which is consistent with the description of control in the ’286 patent.

Under Patent Owner’s interpretation, limitation 1[e] would require multiple outputs not only connected with the electrodes but also directly connected with the generator. *See* PO Resp. 20–24; Sur-reply 6–8 (asserting “the number of ‘radiofrequency output channels’ depends on the number of outputs from the radiofrequency generator”); Tr. 58:14–61:25 (explaining Patent Owner’s position that “at a minimum” the claims require “multiple outputs and a connection between each pair and the multiple outputs from

the generator”); Ex. 2001 ¶¶ 68–71. According to that view, a switching arrangement that provides separate channels for the output from the generator to independently control different bipolar pairs does not disclose limitation 1[e] unless there are also multiple output lines extending from the generator or voltage source. See Ex. 2001 ¶ 79 (testifying that voltage source 228 in Stern’s Figure 15 has only one output channel because that figure shows only a single output and input line from that voltage source).

But as explained above, there is no basis in the intrinsic record for Patent Owner’s additional requirement. Nothing in the claim language, written description, or patent figures describes, much less requires, separate direct connections to the voltage source or generator.⁹ Accordingly, the fact that Stern’s Figure 15 shows a single line connecting voltage source 228 to its switches does not undermine Petitioner’s showing that those switches operate to provide the recited “multiple radiofrequency output channels,” wherein “each pair of the multiple pairs of bipolar radiofrequency electrodes is connected with a respective one of the multiple radiofrequency output channels.” See Pet. 40–43 (citing evidence).

Patent Owner also argues that Petitioner’s expert, Dr. Martin, agrees with its position. See PO Resp. 20–24. We are not persuaded. Patent Owner points to Dr. Martin’s testimony that he interpreted the term “radiofrequency output channel” to mean “output from a radiofrequency generator.” *Id.* at 20 (citing Ex. 2004, 318:12–19). But Dr. Martin also testified that according to that interpretation Stern’s Figure 15 discloses multiple output channels:

⁹ Neither party directs us to anything in the prosecution history that bears on their arguments concerning this limitation.

A. So the '318 patent¹⁰ I think doesn't fully teach what the output channel is. But if you look at Stern, Stern figure 15 has a number of output channels from their device. That's how I interpret "output channel" to mean: output from a radiofrequency generator.

Q. Okay so you understand a radiofrequency output channel to be an output from a radiofrequency generator; is that correct?

A. Yes. Similar to what Stern has in figure 15.

Id. at 318:9–19 (objection omitted, footnote added), 319:17–320:12 (similar).

Patent Owner ignores the context of Dr. Martin's testimony, suggesting that Dr. Martin agreed the ordinary meaning of limitation 1[e] requires multiple outputs directly from the generator. PO Resp. 20–24. But, as Dr. Martin persuasively explained in his reply declaration, Patent Owner and Dr. Bikson have taken his testimony out of context. Ex. 1083 ¶¶ 42–46 (Dr. Martin explaining he meant "the output channel must be carrying energy, and that energy is what is output from the radiofrequency generator" and this does not mean that channel "is required to be directly connected to the generator, or voltage source within a generator, for it to be an 'output channel'").

Patent Owner further asserts that Dr. Martin's testimony regarding the hand-drawn circuit diagrams (Exs. 2005–2007) he was asked about in his deposition supports its position. *See* Resp. 21–24; Sur-reply 7 (citing testimony). We are not persuaded by this argument either. Unlike the prior art, these drawings do not depict any switches, much less a switching arrangement similar to that in Stern's Figure 15. *See* Exs. 2005–2007;

¹⁰ "The '318 patent" is the parent of the '286 patent. Ex. 1001, code (63).

Ex. 1083 ¶ 45 n.5. Thus, we do not find Dr. Martin’s testimony concerning them to be particularly relevant. Even if it were, the testimony Patent Owner cites is consistent with Dr. Martin’s other opinions. *See* Ex. 1083 ¶¶ 45–46 (explaining and persuasively rebutting Patent Owner and Dr. Bikson’s interpretation of this testimony).

Thus, the testimony Patent Owner cites does not impeach Dr. Martin’s opinion that Stern describes “a multi-channel circuit” in Figure 15 “and clearly shows that the energy is broken down into multiple channels after it is output from the radiofrequency generator—no direct connection to the voltage source is required to form multiple output channels.” Ex. 1083 ¶ 44. We credit that and Dr. Martin’s related testimony (Ex. 1002 ¶¶ 134–138, 143; Ex. 1083 ¶¶ 33–46, 50–53) over Dr. Bikson’s competing opinions (*see* Ex. 2001 ¶¶ 68–83) because Dr. Martin’s testimony is consistent with the description in the intrinsic record of the ’286 patent and supported by the teachings in Stern.

We also disagree with Patent Owner’s suggestion that Petitioner and Dr. Martin have changed position in the Reply or have offered inconsistent definitions of “radiofrequency output channel.” Sur-reply 9–14. The alleged “smorgasbord of new definitions” that Patent Owner pulls from Dr. Martin’s reply declaration (*see id.* at 10–11) are not inconsistent with each other. They are just phrases from Dr. Martin’s testimony that Patent Owner parses, but taken together say the same thing,¹¹ i.e., “output channels” are the connections to the electrodes that deliver output from a voltage source and

¹¹ What Patent Owner suggests is “inconsistent” in these phrases is the result of it parsing Dr. Martin’s testimony, rather than considering that testimony as a whole. *See* Sur-reply 11.

as recited in element 1[e] allow for independent/separate control of different bipolar pairs. As explained above, that interpretation is consistent with the intrinsic record of the '286 patent. It is also the same understanding of limitation 1[e] articulated and applied in the Petition. *See* Pet. 40–43.

Finally, Patent Owner contends that Dr. Martin's interpretation of "radiofrequency output channel" is "completely subjective," and therefore, legally untenable. Sur-reply 13 (citing *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1350 (Fed. Cir. 2005)). We disagree. In *Datamize*, a claim recited an "aesthetically pleasing" interface screen and the patentee urged a construction that depended only on subjective intent, i.e., that the person practicing the invention "simply must intend to create an 'aesthetically pleasing' interface screen; whether that person actually succeeds is irrelevant." 417 F.3d at 1349. The Federal Circuit found that construction unreasonable and affirmed the district court's finding that the claim was indefinite. *Id.* at 1350, 1356.

In contrast, in this case, Patent Owner does not challenge limitation 1[e] as indefinite. Instead, the interpretation Petitioner advances, requiring multiple connections to the electrodes that provide separate control over different bipolar pairs, is an objective standard. Indeed, it is no less objective than Patent Owner's competing interpretation that the term requires multiple outputs directly from the generator. The difference is that Petitioner's understanding is reflected in the language of claim 1 and described in the intrinsic record, whereas the additional requirement that Patent Owner seeks to put on limitation 1[e] is not so specified.

For these reasons, Petitioner has sufficiently demonstrated that the asserted combination of Edwards-535 and Stern teaches or suggests limitation 1[e].

c. Summary

In sum, Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over the combination of Edwards-’535 and Stern.

3. Claims 2 and 3

Claim 2 depends from claim 1 and additionally recites that “the treatment element comprises multiple segments that are expandable from the first configuration to the second configuration.” Ex. 1001, 52:48–50. Claim 3 depends from claim 2 and further recites that “at least one electrode of the multiple pairs of bipolar radiofrequency electrodes is coupled with each of the multiple segments.” *Id.* at 52:51–53. Petitioner provides argument supported by evidence explaining how the combination of Edwards-’535 and Stern teaches these additional limitations. *See* Pet. 46–50.

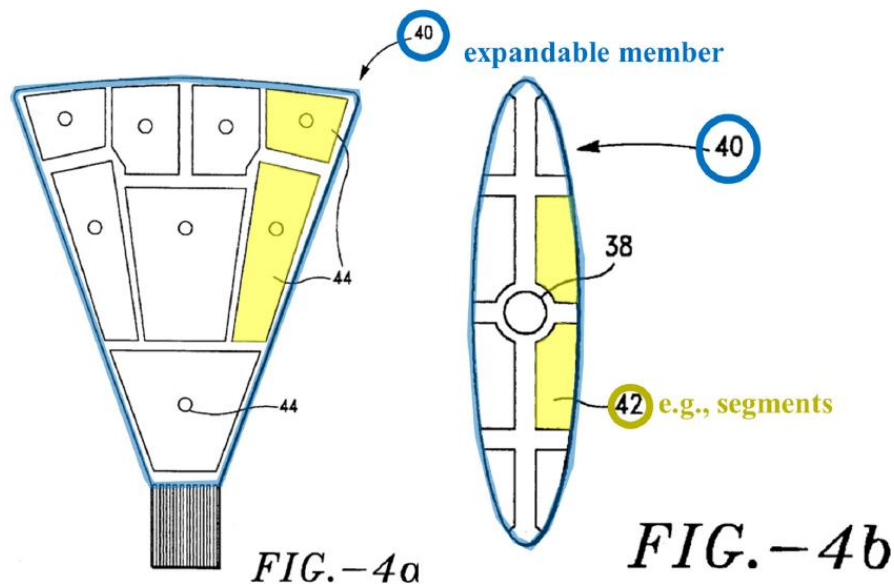
Patent Owner argues that the obviousness challenge of claims 2 and 3 fails for the same reasons that the combination of Edwards-’535 and Stern does not render claim 1 obvious. *See* PO Resp. 27. For the same reasons explained above, we reject Patent Owner’s arguments. *See supra* Section II.D.2.

Patent Owner does not dispute that the combination of Edwards-’535 and Stern teaches the additional limitation recited in claim 2. After reviewing the record, we find Petitioner’s analysis of claim 2 persuasive and adopt it as our own. *See* Pet. 46–49. Thus, Petitioner has shown by a

preponderance of the evidence that claim 2 would have been obvious over the combination of Edwards '535 and Stern.

Patent Owner also does not dispute that the combination of Edwards-'535 and Stern teaches the additional limitations recited in claim 3. Patent Owner, however, raises additional arguments for this claim. *See* PO Resp. 28–29. We, therefore, address Petitioner's showing for claim 3 separately.

Petitioner argues that both Edwards-'535 and Stern disclose segmented expandable members. Pet. 46–50. Petitioner offers annotated figures of the references to illustrate its position, including the annotated version of Stern's Figures 4a and 4b below. *Id.*



The figures above are Stern's Figures 4a and 4b, as annotated by Petitioner. *Id.* at 50. Petitioner maps balloon 40 to the recited “expandable member” and highlights the plurality of surface segments 42 in yellow. *Id.* According to Petitioner, “Stern describes these segments as ‘electrode area segments’” and teaches “that power can be selectively provided to these segments via the circuitry of Figure 15.” *Id.* (citing Ex. 1033, code (57),

5:48–51). Thus, Petitioner concludes that Stern teaches the segments include at least one electrode of the multiple pairs of bipolar RF electrodes. *Id.* (citing Ex. 1002 ¶¶ 177–179).

Patent Owner contends that Petitioner and Dr. Martin “do not assert or demonstrate in their Challenged Claim 1 and 2 analyses that a POSITA would have been motivated to use Stern’s electrode configuration in Edwards-535’s device.” PO Resp. 28 (citing Pet. 25–49; Ex. 1002 ¶¶ 80–173). Instead, according to Patent Owner, Petitioner and Dr. Martin “assert that a POSITA would have been motivated to use Stern’s handle and Figure 15 schematic in Edwards-535’s device and would have been motivated to segment Edwards-535’s expandable member.” *Id.* at 28–29. We disagree with Patent Owner’s characterization of the Petition.

The Petition expressly relies on Stern when analyzing limitation 1[d] “multiple pairs of bipolar radiofrequency electrodes disposed on the treatment element.” Pet. 35–36 (citing Ex. 1033, 2:26–40, 3:29–40, 12:7–13:55, claim 4, Figs. 13, 15, 17, 18); *see also id.* at 49 (“As discussed with respect to limitation 1[d], Stern teaches pairing multiple bipolar RF electrodes, where the pairs can be selectively powered via the circuitry of Figure 15.”).

The Petition also states that “[a] POSITA would have also been motivated to improve Edwards-’535’s device to include Stern’s technique for pairing bipolar RF surface electrodes . . . and wiring them to allow for independent delivery of RF energy to each bipolar pair . . . because of the benefits Stern identifies.” *Id.* at 38; *see also id.* at 50 (“As explained above for claims 1 and 2, a POSITA would have been motivated to use the electrode configuration as taught by Stern in combination with

Edwards-'535's expandable member to independently deliver energy to electrodes.").

For example, the Petition explains that "it would have been desirable to have more than one pair of bipolar electrodes to allow for selective tissue destruction over an entire area of tissue, as opposed to a single discrete portion." *Id.* at 38 (citing, e.g., Ex. 1033, 10:49–65). The passage in Stern the Petition cites as support teaches "the electrodes may have a variety of specific configurations," and "[v]arious electrode configurations provide uniform RF energy distribution to produce uniform heating." Ex. 1033, 10:55–65.

Thus, contrary to Patent Owner's assertion, in its analysis of claim 1, the Petition specifically discusses that "a POSITA would have been motivated to use Stern's electrode configuration in Edwards-535's device." *See* PO Resp. 28.

After reviewing the record, we find Petitioner's analysis of claim 3 persuasive and adopt it as our own. *See* Pet. 49–50. Thus, Petitioner has shown by a preponderance of the evidence that claim 3 would have been obvious over the combination of Edwards '535 and Stern.

4. Claims 7 and 8

Claim 7 recites:

9. The device of claim 1, further comprising:

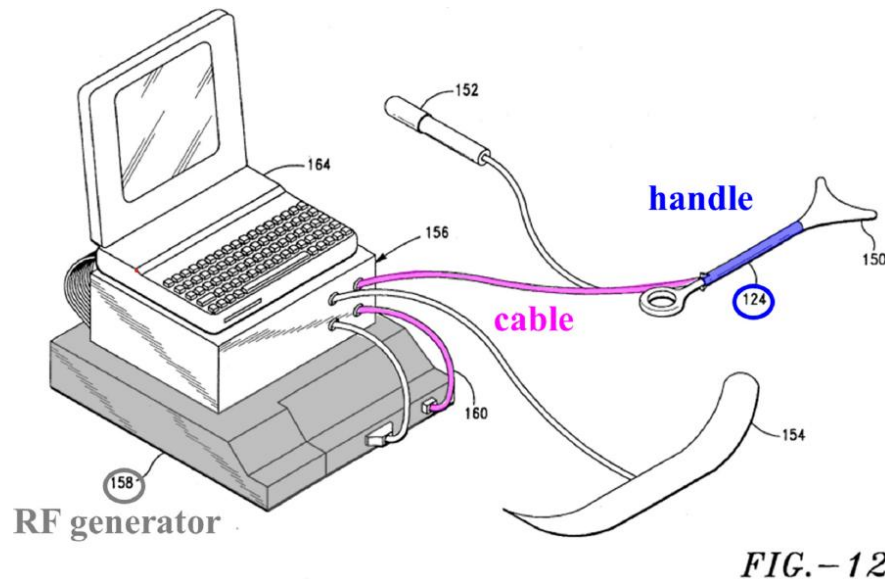
[9a] a radiofrequency generator configured to receive sensed signals from the at least one impedance sensor and deliver radiofrequency energy separately to each of the multiple radiofrequency output channels; and

[9b] a cable coupled to the handle for plugging the handle into the radiofrequency generator.

Ex. 1001, 53:1–7 (bracketed numbering added).

Petitioner asserts that Edwards-'535 teaches an RF generator that receives sensed signals from the at least one impedance sensor and delivers RF energy. Pet. 51–52. Petitioner contends that Edwards-'535 teaches temperature and impedance can be used together in one feedback system. *Id.* at 52–53 (citing Ex. 1002 ¶ 186; Ex. 1010, Fig. 10). Relying on this teaching as well as its contentions for limitations 1[d] and 1[e], Petitioner argues that it would have been obvious to combine the teachings of Stern and Edwards-'535 to deliver the RF energy separately to each of the multiple radiofrequency output channels. *Id.* at 54.

Petitioner argues that Stern teaches the cable in element 7[b], illustrating its position with the annotated version of Stern's Figure 12 reproduced below.



The figure above is Petitioner's annotated version of Stern's Figure 12. Pet. 54. It shows cables (pink) are connected to RF generator 158 (gray) and the handle of application device 124 (blue). *Id.*

Patent Owner separately disputes Petitioner's contentions for both limitations 7[a] and 7[b]. See PO Resp. 29–35. Regarding limitation 7[a],

Patent Owner argues that the asserted combination teaches neither “a **radiofrequency generator** configured to deliver radiofrequency energy” nor an RF generator configured to “deliver radiofrequency energy separately.” *Id.* at 30–31. Referring to Stern’s Figure 12, Patent Owner argues that Stern “teaches an ‘RF generator 158’ in the form of ‘a conventional electrosurgical power supply’” that “has a single ‘output,’ which is provided to a separate power source controller 156” via cables 160. *Id.* at 31 (quoting Ex. 1033, 10:44, 10:54–55). Patent Owner asserts that “[s]witches in the power source controller 156 control which electrodes in the application device 124 receive radiofrequency energy.” *Id.*; *see also id.* at 32–33 (arguing this is also consistent with the disclosure in Stern’s Figures 5 and 15).

Regarding limitation 7[b], Patent Owner argues that Stern’s Figure 12 shows that “the handle of Stern’s application device 124 is plugged into Stern’s **power source controller 156**—not into Stern’s RF generator 158 (*i.e.*, the alleged radiofrequency generator), as claimed.” *Id.* at 34–35.

Petitioner counters that Patent Owner’s argument “miscomprehends the proposed combination” and that “a POSITA would have been motivated to modify Edwards-’535’s generator to include the functionality of Stern’s controller.” Reply 23. Petitioner also argues that Patent Owner is taking an “improperly narrow view of the claim limitation” and that, under the correct view, Stern itself discloses these limitations. *See id.* at 21–23.

We agree with Petitioner. The Petition asserts that Edwards-’535 discloses an RF generator and “teaches that energy may be independently delivered to each electrode pair but omits details regarding how to implement the circuitry for independent energy delivery.” Pet. 52 (citing Ex. 1005, 8:22–25) (internal quotation marks and brackets omitted).

Referring to its showing for limitations 1[d] and 1[e] regarding the circuitry in Stern's Figure 15, Petitioner contends it would have been obvious to combine these teachings with those of Edwards-'535. *Id.* at 52–53.

Accordingly, the asserted combination is Edwards-'535's generator configured to deliver energy separately as taught by Stern, e.g., by modifying that generator to include the switching circuitry shown in Stern's Figure 15. We are persuaded that a POSITA would have had a reason to make such a combination with a reasonable expectation of success. Ex. 1002 ¶¶ 112–158, 180–187.

Patent Owner's arguments are unavailing because they are premised on reading Stern too narrowly. It is true that Stern depicts RF generator 158 and controller 156 in two boxes connected by cables in Figure 12. But the switching circuitry shown in Stern's Figure 15 need not be implemented in a separate controller. See Ex. 1083 ¶ 72 (“A person of ordinary skill would have understood Stern's disclosure to encompass both a configuration where switches directing energy are inside a generator, and a configuration where switches directing energy are inside a power source controller that is connected to the generator.”). Thus, a POSITA seeking to modify Edwards-'535's generator with Stern's circuitry for the independent delivery of energy would not be limited to bodily incorporating it in a separate box, e.g., controller 156, as opposed to housing that circuitry with the generator in the same box. See *AliveCor, Inc. v. Apple Inc.*, 130 F.4th 1006, 1015 (Fed. Cir. 2025) (“To restrict each reference's teaching to the particular way it implements [a technique], would improperly fail to read these references for all they disclose.”).

Moreover, even if Stern’s teachings or Petitioner’s contentions regarding those teachings were as limited as Patent Owner contends, the language of claim 7 is broad enough to read on the two-box implementation shown in Stern’s Figure 12. That is, by connecting it to power source controller 156, Stern’s RF generator 158 is configured to “deliver radiofrequency energy separately to each of the multiple radiofrequency output channels” as recited in claim 7. Ex. 1083 ¶ 74. This interpretation is consistent with the specification of the ’286 patent, which describes embodiments with a generator and separately housed controller. Ex. 1001, Fig. 3, 16:36–66 (depicting control system 42 and power system 44 in separate boxes), 34:43–45 (stating that the generator may be integrated with the “electrode handpiece or part of a separate assembly that delivers energy or controls signals”); Ex. 1083 ¶ 73.

Patent Owner’s arguments regarding limitation 7[b] are similarly unavailing. First, Stern’s Figure 12 shows the handle of the device plugged into RF generator 158 by a first cable between the device and controller 156 and a second cable between that controller and the generator. The fact that limitation 7[b] recites “a” cable for this purpose does not distinguish Stern’s teachings because “‘a’ . . . can mean ‘one or more’” *Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1342 (Fed. Cir. 2008) (describing this “as a rule, rather than merely as a presumption or even a convention” for open-ended comprising claims). This interpretation is consistent with the specification of the ’286 patent, which describes embodiments with separately housed components that would require more than one cable to connect the handle to the generator. See Ex. 1083 ¶¶ 80–81 (discussing the ’286 patent disclosures). Accordingly, limitation 7[b] encompasses the

use of multiple cables, at least one of which is “coupled to the handle for plugging the handle into the radio frequency generator.” Contrary to Patent Owner’s assertions, this does not require that the same cable be directly coupled to *both* the handle and generator. *See* Sur-reply 18–20.

Second, when the controller circuitry is incorporated into Edwards-’535’s generator as in Petitioner’s asserted combination, there is no need for a second cable connecting the controller to the generator as shown in Stern’s Figure 12. Thus, in the asserted combination it would have been obvious to use a single cable to directly connect the handle of the treatment device to the generator. Ex. 1083 ¶ 82; *see also AliveCor*, 130 F.4th at 1015 (rejecting argument that “conflicts with the reality that the skilled artisan is not an automaton, so we must ‘take account of the inferences and creative steps that a person of ordinary skill in the art would employ’”) (quoting *KSR*, 550 U.S. at 418).

For these reasons, Petitioner has shown by a preponderance of the evidence that claim 7 would have been obvious over the asserted combination of Edwards-535 and Stern.

Claim 8 depends from claim 7 and further recites that “wherein the radiofrequency generator is configured to deliver the radiofrequency energy in the form of a 460 kHz sinusoid wave and to run at a power of between 5 and 75 watts.” Ex. 1001, 53:8–11. Petitioner provides argument supported by evidence explaining how the combination of Edwards-’535 and Stern teaches these additional limitations. *See* Pet. 54–58. Patent Owner does not separately dispute those arguments.

After reviewing the record, we find Petitioner’s analysis of claim 8 persuasive and adopt it as our own. *See id.* Thus, Petitioner has shown by a

preponderance of the evidence that claim 8 would have been obvious over the combination of Edwards '535 and Stern.

5. Claim 9

Claim 9 recites:

9. The device of claim 1, wherein the multiple pairs of bipolar radiofrequency electrodes and the multiple radiofrequency output channels are organized into multiple subsystems, and wherein each of the multiple subsystems comprises one of the multiple pairs of bipolar radiofrequency electrodes and one of the multiple radiofrequency output channels.

Ex. 1001, 53:12–18.

Petitioner provides argument supported by evidence explaining how the combination of Edwards-'535 and Stern teaches these additional limitations. See Pet. 58–60. Patent Owner does not separately dispute those arguments.

After reviewing the record, we find Petitioner's analysis of claim 9 persuasive and adopt it as our own. See *id.* Thus, Petitioner has shown by a preponderance of the evidence that claim 9 would have been obvious over the combination of Edwards-'535 and Stern.

E. Alleged Obviousness over Makower, Edwards-'535, and Stern

Petitioner asserts that claims 1–4 and 7–9 would have been obvious over the combination of Makower, Edwards-'535, and Stern. Pet. 62–82. Having determined claims 1–3 and 7–9 are unpatentable over the combination of Edwards-'535 and Stern, we only need to address Petitioner's challenge to claim 4. Because claim 4 depends from claims 1 and 2, we also address those claims.

After reviewing the entire record developed at trial, and as explained below, we determine Petitioner has shown by a preponderance of the

evidence that claims 1, 2, and 4 would have been obvious over the asserted prior art.

1. Makower

Petitioner asserts, and Patent Owner does not dispute, Makower qualifies as prior art under 35 U.S.C. § 102(a)(1) and (2). Pet. 6. Makower discloses devices for diagnosing and treating sinusitis and other disorders of the ears, nose, and throat. Ex. 1021 ¶ 42. One such device, described as a “tissue shrinking electrode device,” is depicted in Figure 5H, which is reproduced below. *Id.* ¶ 92.

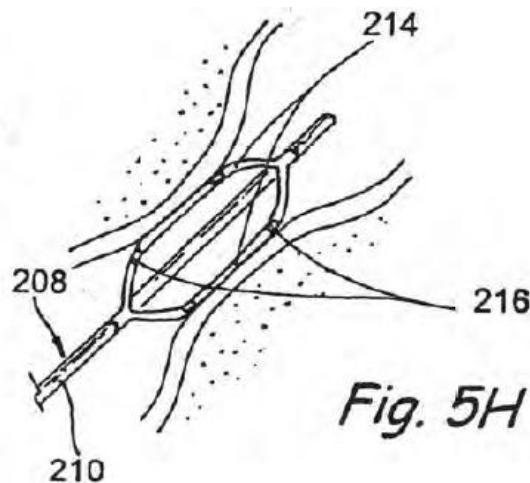
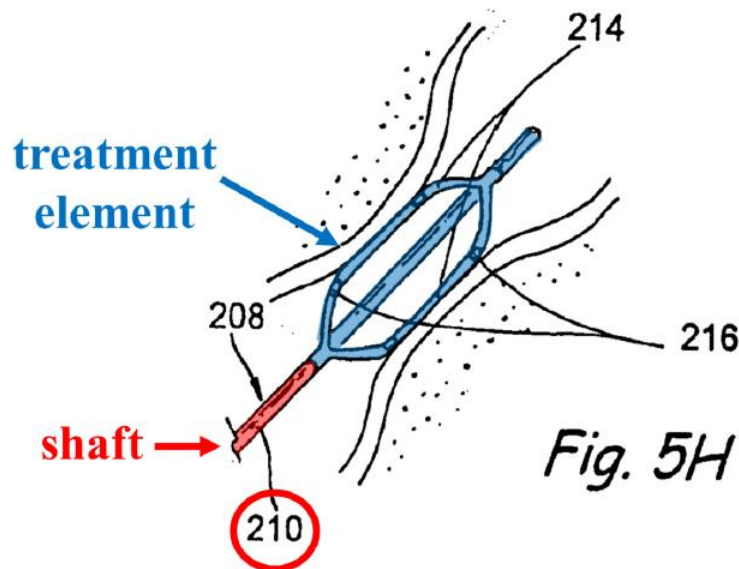


Figure 5H above “shows an electrosurgical device 208 comprising a flexible shaft 210 (e.g., a catheter or solid shaft) having arched strut member 214” and electrodes 216 located on the strut members. *Id.* ¶ 187. Makower teaches that device 208 is “advanced into a passageway such as a nostril” and “current is applied to electrodes 216 causing tissue adjacent to the struts 214 to be cauterized or heated.” *Id.* Makower further teaches that “electrodes 216 may be bipolar” and that “sensing elements” may be included on the catheter or strut members “to monitor various parameters of the catheter and/or surrounding tissue (e.g., temperature, etc.).” *Id.*

2. Claims, 1,2, and 4

Claim 4 recites: “[t]he device of claim 2, wherein the multiple segments are pre-shaped and comprise a shape-memory alloy material configured to expand to a desired size and shape.” Because claim 2, in turn, depends from claim 1, we address Petitioner’s challenge of all three claims.

For claims 1 and 2, Petitioner’s contentions are similar to those advanced in the challenge based on Edwards-’535 and Stern, but substitute the teachings in Makower for Edwards-’535. See Pet. 62–76 (relying on the electrosurgical device in Figure 5H of Makower with further teachings/modifications from Stern for limitations 1[d] and 1[e]). Petitioner offers several annotated versions of Makower’s Figure 5H, including the one reproduced below, to illustrate its position.



The figure above is one of Petitioner’s annotated versions of Makower’s Figure 5H, identifying shaft 210 (highlighted in red) and treatment element (highlighted in blue) in device 208. *Id.* at 67.

According to Petitioner, Makower teaches that electrodes 216 disposed on strut members 214 of the treatment element may be bipolar, but

“leaves details on how to deliver energy up to a POSITA.” *Id.* at 66–67, 68. Petitioner argues that a POSITA would turn to Stern for its teachings regarding the multiple bipolar pairs and output channels in limitations 1[d] and 1[e]. Pet. 67–72. Petitioner articulates reasoning, supported by evidence, explaining why a POSITA would have been motivated to combine these teachings with a reasonable expectation of success. *Id.* Petitioner also provides argument supported by evidence explaining how Makower teaches the additional limitation of claim 2. *See id.* at 76–77.

Patent Owner does not dispute Petitioner’s allegations for limitations 1[a]–1[c], 1[f], and the additional limitation of claim 2. *See* PO Resp. 36–37. Nor does Patent Owner challenge Petitioner’s reasoning for combining the teachings of the asserted prior art. *Id.* Instead, Patent Owner observes that Petitioner’s analysis of limitations 1[d] and 1[e] here relies on the same disclosure in Stern and analysis for those limitations as in the challenge based on Edwards-’535 and Stern. *Id.* at 36. For this reason, Patent Owner asserts Petitioner has failed to show the combination of the Makower, Edwards-’535, and Stern teaches limitations 1[d] and 1[e] “[f]or the same reasons discussed above.” *Id.*

For the same reasons explained above, we reject Patent Owner’s arguments. *See supra* Section II.D.2. After reviewing the record, we find Petitioner has met its burden in showing that combination of the Makower, Edwards-’535, and Stern teaches all the limitations of claims 1 and 2. *See* Pet. 62–77. We also find that a POSITA would have had a reason to combine the teachings of the asserted prior art with a reasonable expectation of success. *See id.*

For the additional limitation of claim 4, Petitioner maps the strut members 214 in Makower's Figure 5H to the recited "multiple segments." Pet. 78. According to Petitioner, Makower teaches these strut members "may be collapsible and expandable" and the use of shape memory alloys such as nitinol "to predictably deflect various sections of the catheter." *Id.* at 78–79 (citing Ex. 1021 ¶¶ 187, 194). According to Petitioner, "[b]ecause the strut members 214 deflect when expanded, a POSITA would have understood that Makower suggests that strut members 214 are mechanically shaped, or *pre-shaped*, and made out of a *shape memory alloy* to facilitate collapse and expansion," as recited in claim 4. *Id.* at 79.

Patent Owner asserts that Makower does not teach or suggest that strut members 214 are made of nitinol. PO Resp. 37. According to Patent Owner, although Makower teaches that nitinol can be used to "predictably deflect various sections of the catheter," Makower's "strut members 214 are different than catheter 210." *Id.* at 38 (citing Ex. 1021 ¶ 187, Fig. 5H; Ex. 2001 ¶ 109). Patent Owner also asserts that "Makower does not teach that its strut members 214 deflect the catheter" and that "Makower's catheter 210 is ***straight*** (not deflected) when the strut members 214 are expanded." *Id.* at 39. For these reasons, Patent Owner argues that Petitioner's assertion that the strut members 214 deflect when expanded "is irrelevant to Makower's teaching that nitinol can be used to deflect various sections of the ***catheter***." *Id.*

Petitioner replies, reiterating its position from the Petition. Reply 19. Petitioner contends that Patent Owner's argument "ignores Makower's disclosure that 'any catheters ***or elongate flexible devices*** of the invention may include design elements that impact performance features.'" *Id.*

(quoting Ex. 1021 ¶ 194). According to Petitioner, “[t]his includes using ‘*shape memory alloys such as nitinol*’ to ‘predictably deflect various sections of the catheter.’” *Id.* (quoting Ex. 1021 ¶ 194).

We find Petitioner’s showing sufficient to meet its burden. Makower teaches that (1) strut members 214 in Figure 5H may be designed to collapse and expand during operation (Ex. 1021 ¶ 187); and (2) “any catheters or elongate flexible devices of this invention may include design elements that impact performance features” such as the “use of elements to predicably deflect various sections of the catheter (e.g., tension straps or wires, shape memory alloys such as nitinol, etc.)” (*Id.* ¶ 194). These teachings support Petitioner’s contention that Makower reasonably suggests making the strut members 214 of a shape memory alloy to facilitate collapse and expansion. Pet. 78–79.

Patent Owner’s argument that the teachings regarding nitinol in Makower’s paragraph 194 are limited to just the catheter is unavailing for several reasons. First, the text of that paragraph makes clear that it applies to “any catheters or *elongate flexible devices*,” and the latter would encompass the strut members in Figure 5H, particularly for those embodiments where the strut members are designed to collapse and expand and thus be understood to be flexible. Ex. 1021 ¶ 194 (emphasis added).

Second, while it is true that the example describing the use of nitinol in paragraph 194 refers to predictably deflecting “the catheter,” that is just one of the non-limiting examples Makower provides of a “design element.” Ex. 1021 ¶ 194. There is nothing in the record that suggests that one of ordinary skill in the art would consider the use of nitinol to be limited to the catheter. To the contrary, Makower elsewhere teaches that “any of the

catheters, scopes, elongate working devices or other devices disclosed [therein] may be rendered steerable or volitionally bendable” through the use of “shape memory materials (e.g., nickel titanium alloys, shape memory polymers, etc.) to induce the device to undergo the desired bending or curvature after it has been inserted into the body.” *Id.* ¶ 195; *see also* Ex. 1083 ¶ 63 (Dr. Martin identifying other structures that Makower teaches may be made of shape-memory materials, including nitinol). In view of the reference as a whole, it would be error to interpret Makower as limiting the use of nitinol only to the catheter. *See AliveCor*, 130 F.4th at 1015.

Third, we agree with Petitioner, and credit Dr. Martin’s supporting testimony, that the example describing the use of nitinol to predictably deflect sections of the catheter would reasonably suggest to one of ordinary skill in the art that the same design element could be applied to other structures that are also intended to predictably deflect, e.g., the collapsible and expandable strut members of Figure 5H. Ex. 1002 ¶¶ 287–288; Ex. 1083 ¶¶ 61–63. We credit Dr. Martin’s testimony over Dr. Bikson’s (Ex. 2001 ¶¶ 106–109) because the latter focuses only on the distinction between the catheter and the strut members without addressing what Makower read as a whole would have suggested regarding the use of shape memory alloys such as nitinol.

For these reasons, we determine Petitioner has shown that Makower teaches the additional limitation recited in claim 4. In sum, after reviewing the record, we determine Petitioner demonstrates by a preponderance of the evidence that claims 1, 2, and 4 would have been obvious over the combination of Makower, Edwards-’535, and Stern.

F. Other Challenges

Petitioner further asserts that (1) claim 8 would have been obvious over the combination of Edwards-’535, Stern, and Edwards-’886; (2) claim 8 would have been obvious over the combination of Makower, Edwards-’535, Stern, and Edwards-’886; (3) claims 1–3 and 7–9 would have been obvious over the combination of Edwards-’535, Stern, and Liang; (4) claim 8 would have been obvious over the combination of Edwards-’535, Stern, Liang, and Edwards-’886; (5) claims 1–4 and 7–9 would have been obvious over the combination of Makower, Edwards-’535, Stern, and Liang; and (6) claim 8 would have been obvious over the combination of Makower, Edwards-’535, Stern, Liang, and Edwards-’886. Pet. 60–62, 82–92.

Having determined that Petitioner has shown, by a preponderance of the evidence, the unpatentability of all challenged claims, that is, (1) claims 1–3 and 7–9 would have been obvious over the combination of Edwards-’535 and Stern, and (2) claims 1, 2, and 4 would have been obvious over the combination of Makower, Edwards-’535, and Stern, we do not address those other challenges. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Bos. Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding,” and thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

III. CONCLUSION¹²

After reviewing the entire record and weighing evidence offered by both parties, we determine that Petitioner has met its burden to show, by a preponderance of the evidence, that claims 1–4 and 7–9 of the '286 patent are unpatentable.

¹² Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding. *See* 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. *See* 37 C.F.R. §§ 42.8(a)(3), (b)(2).

In summary:

Claims	35 U.S.C. §	References	Claims Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–3, 7–9	103	Edwards-’535, Stern	1–3, 7–9	
8 ¹³	103	Edwards-’535, Stern, Edwards-’886		
1–4, 7–9 ¹⁴	103	Makower, Edwards-’535, Stern	1, 2, 4	
8 ¹⁵	103	Makower, Edwards-’535, Stern, Edwards-’886		
1–3, 7–9 ¹⁶	103	Edwards-’535, Stern, Liang		
8 ¹⁷	103	Edwards-’535, Stern, Liang, Edwards-’886		
1–4, 7–9 ¹⁸	103	Makower, Stern, Edwards-’535, Liang		
8 ¹⁹	103	Makower, Stern, Edwards-’535, Liang, Edwards-’886		
Overall Outcome			1–4, 7–9	

¹³ As explained above, we do not reach this ground. *See supra* Section II.F.

¹⁴ As explained above, because we determine that Petitioner has shown claims 3 and 7–9 would have been obvious over the combination of Edwards-’535 and Stern, we do not address whether these claims also would

have been obvious over the combination of Makower, Edwards-'535, and Stern. *See supra* Section II.E.

¹⁵ As explained above, we do not reach this ground. *See supra* Section II.F.

¹⁶ As explained above, we do not reach this ground. *See supra* Section II.F.

¹⁷ As explained above, we do not reach this ground. *See supra* Section II.F.

¹⁸ As explained above, we do not reach this ground. *See supra* Section II.F.

¹⁹ As explained above, we do not reach this ground. *See supra* Section II.F.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner has shown, by a preponderance of the evidence, that claims 1–4 and 7–9 of the '286 patent are unpatentable;

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

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